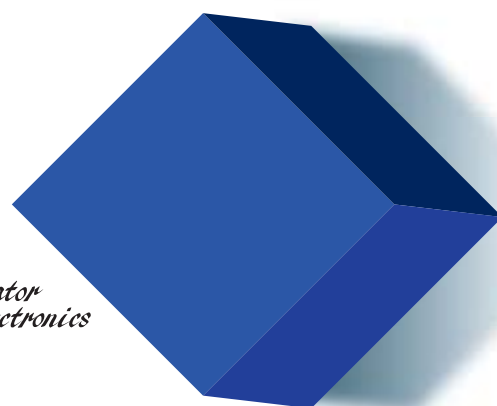
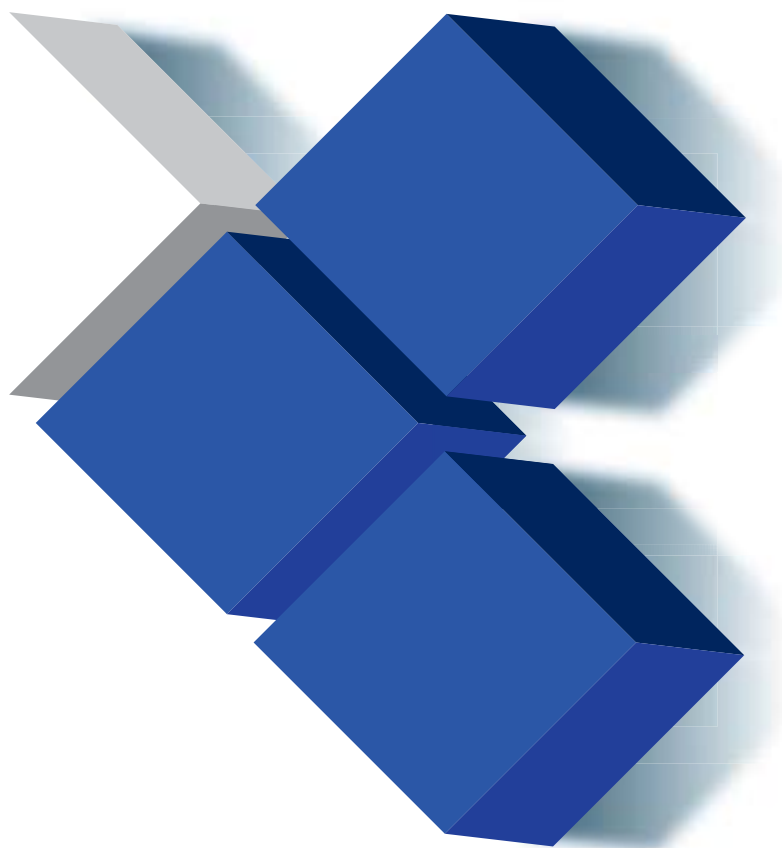


# Chip Monolithic Ceramic Capacitors



Murata  
Manufacturing Co., Ltd.

*Innovator  
in Electronics*

## Explanation of Symbols in This Catalog

### Ultra-compact

Lx W dimension: products of 0.6 x 0.3 mm or less

### HiQ

Low dissipation for high frequency  
By devising ceramic materials and electrode materials, low dissipation is achieved in frequency bands of VHF, UHF and microwave or beyond.

### Low ESL

Low inductance  
This capacitor is designed so that the parasitic inductance component (ESL) that the capacitor has on the high frequency side becomes lower.

### Anti-noise

Product suitable for acoustic noise reduction and low distortion  
This product suppresses acoustic noise, which occurs when a ceramic capacitor is used, by devising the materials and configuration.

### Deflecting crack

Product resistant to deflection cracking  
This capacitor is designed to prevent failures as much as possible by short mode caused by cracking when there is board deflection.

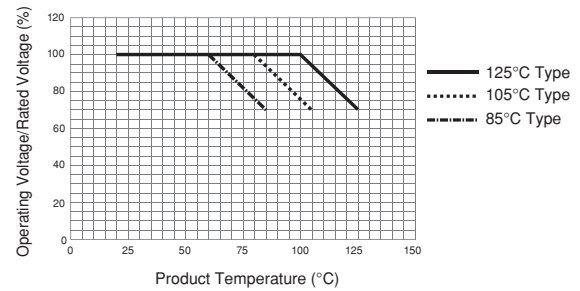
### Soldering crack

Product with solder cracking suppression  
This capacitor is configured with metal terminals and leads connected to the chip.  
The metal terminals and leads relieve the stress from expansion and contraction of the solder, to suppress solder cracking.

### Derating

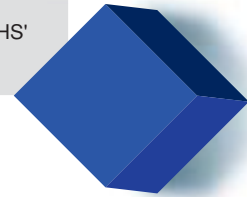
Voltage and temperature derating recommended product  
This product is suitable when a voltage continuously applied to a capacitor in an operating circuit, is used below (derated) the rated voltage of the capacitor.  
This model guarantees the test conditions in the endurance test, at a rated voltage x 100% at the maximum operating temperature. A reliability assurance level equivalent to a common product can be secured, by using this product within the voltage and temperature derated conditions recommended in the figure below.

Recommended Conditions of the Derating Operating Voltage and Temperature

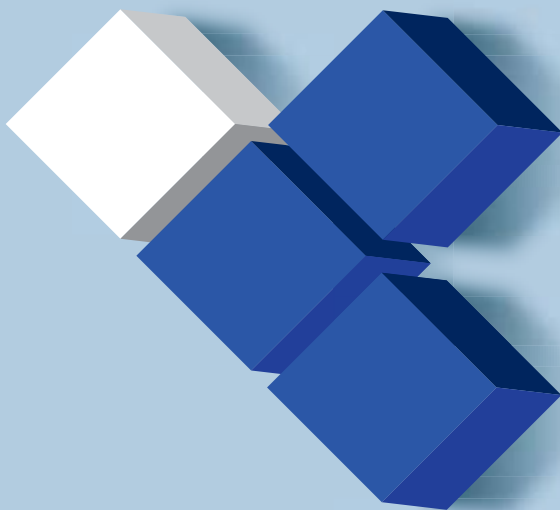


### EU RoHS Compliant

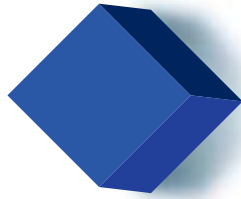
- All the products in this catalog comply with EU RoHS.
- EU RoHS is "the European Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment."
- For more details, please refer to our website 'Murata's Approach for EU RoHS' (<http://www.murata.com/info/rohs.html>).



## For General Purpose GRM Series Capacitance Table



# Contents



Product specifications are as of July 2012.

|                         |     |
|-------------------------|-----|
| Selection Guide .....   | p2  |
| Capacitance Table ..... | p3  |
| Part Numbering .....    | p15 |

## Chip Monolithic Ceramic Capacitors

Cap. Table

|                                                            |     |                 |
|------------------------------------------------------------|-----|-----------------|
| For General Purpose GRM Series<br>(Less than 250Vdc) ..... | p21 | separate volume |
|------------------------------------------------------------|-----|-----------------|

|                                  |     |    |
|----------------------------------|-----|----|
| Capacitor Array GNM Series ..... | p76 | p4 |
|----------------------------------|-----|----|

|                                      |     |    |
|--------------------------------------|-----|----|
| Low ESL LLL/LLR/LLA/LLM Series ..... | p79 | p5 |
|--------------------------------------|-----|----|

|                              |     |    |
|------------------------------|-----|----|
| High-Q Type GJM Series ..... | p82 | p7 |
|------------------------------|-----|----|

|                                 |      |    |
|---------------------------------|------|----|
| High Frequency GQM Series ..... | p104 | p8 |
|---------------------------------|------|----|

|                                       |      |    |
|---------------------------------------|------|----|
| Monolithic Microchip GMA Series ..... | p113 | p9 |
|---------------------------------------|------|----|

|                              |      |     |
|------------------------------|------|-----|
| For Bonding GMD Series ..... | p115 | p10 |
|------------------------------|------|-----|

|                       |      |
|-----------------------|------|
| ⚠Caution/Notice ..... | p118 |
|-----------------------|------|

## Chip Monolithic Ceramic Capacitors (Medium Voltage)

Cap. Table

### For General Purpose GRM (250Vdc min.)/GRJ/GR3 Series

|                                        |                      |
|----------------------------------------|----------------------|
| Temperature Compensating Type          |                      |
| GRM Series (250Vdc min.) .....         | p136 separate volume |
| High Dielectric Constant Type          |                      |
| GRM Series (250Vdc min.) .....         | p143 separate volume |
| Soft Termination Type GRJ Series ..... | p148 p11             |
| Large Capacitance and High Allowable   |                      |
| Ripple Current GR3 Series .....        | p153 p11             |

### Only for Applications

|                                           |          |
|-------------------------------------------|----------|
| For LCD Backlight Inverter Circuit        |          |
| GRM/DC3.15kV Series .....                 | p158 p12 |
| For Information Devices GR4 Series .....  | p161 p12 |
| For Camera Flash Circuit GR7 Series ..... | p165 p12 |

### AC250V Type (Which Meet Japanese Law)

|                  |          |
|------------------|----------|
| GA2 Series ..... | p169 p12 |
|------------------|----------|

### Safety Standard Certified GA3 Series

|                                        |          |
|----------------------------------------|----------|
| UL, IEC60384-14 Class X1/Y2 Type GC .. | p173 p13 |
| IEC60384-14 Class Y2, X1/Y2 Type GF .. | p174 p13 |
| IEC60384-14 Class Y3 Type GD .....     | p176 p13 |
| IEC60384-14 Class X2 Type GB .....     | p177 p13 |

|                                        |      |
|----------------------------------------|------|
| Reference Data (Typical Example) ..... | p182 |
| Package .....                          | p185 |
| ⚠Caution/Notice .....                  | p188 |

## Metal Terminal Monolithic Ceramic Capacitors

Cap. Table

### For General Purpose KRM/KR3 Series

|                                      |          |
|--------------------------------------|----------|
| High Capacitance for General Use     |          |
| KRM Series .....                     | p200 p14 |
| Large Capacitance and High Allowable |          |
| Ripple Current KR3 Series .....      | p204 p14 |

|                       |      |
|-----------------------|------|
| Package .....         | p208 |
| ⚠Caution/Notice ..... | p210 |

|                                          |      |
|------------------------------------------|------|
| ISO 9001 Certifications .....            | p215 |
| Introduction of Website SimSurfing ..... | p216 |
| EMICON-FUN! .....                        | p217 |
| Product Information .....                | p218 |

Please check the MURATA home page (<http://www.murata.com/>) if you cannot find the part number in the catalog.

## Selection Guide For Chip Monolithic Ceramic Capacitors

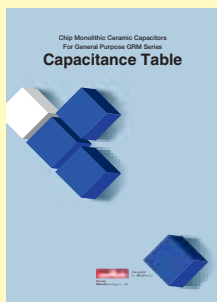
|               | Function                                                  | Type                                                                  | Series                                                                 |
|---------------|-----------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------|
|               |                                                           |                                                                       |                                                                        |
| Applications? | Decoupling, Smoothing                                     | High Capacitance                                                      | GRM (X5R, X7R, Y5V etc.)<br>68pF–150μF                                 |
|               |                                                           | Array (2 or 4 Elements)                                               | GNM<br>470pF–2.2μF                                                     |
|               | Frequency Control/Tuning, Impedance Matching              | Class 1 TC's                                                          | GRM (C0G)<br>0.1pF–0.1μF                                               |
|               |                                                           |                                                                       | GRM (U2J etc.)                                                         |
|               | High Speed Decoupling                                     | Low Inductance (Reverse Geometry)                                     | LLL<br>2200pF–10μF                                                     |
|               |                                                           | Low Inductance (Controlled ESR)                                       | LLR<br>1.0μF                                                           |
|               |                                                           | Low Inductance (Multi-Termination)                                    | LLA/LLM (From 1GHz)<br>0.01μF–4.7μF                                    |
|               | High Frequency                                            | Low ESR, Ultra Small                                                  | GJM (500MHz to 10GHz)<br>0.1pF–47pF                                    |
|               |                                                           | Lowest ESR                                                            | GQM (500MHz to 10GHz)<br>0.1pF–100pF                                   |
|               | Optical Communications                                    | Wire-Die-Bonding                                                      | GMA 100pF–0.47μF<br>GMD 100pF–0.47μF                                   |
|               | 250Vdc min.<br>High-Frequency Snubber                     | 250V/630V/1kV/2kV/3.15kV<br>Low Dissipation                           | GRM (C0G, U2J)<br>10pF–47000pF                                         |
|               | 250Vdc min.<br>LCD Backlight Inverter                     | 3.15kV<br>Low Dissipation                                             | GRM (C0G)<br>5pF–47pF                                                  |
|               | 250Vdc min.<br>Decoupling, Smoothing                      | 250V/630V/1kV<br>High Capacitance                                     | GRM (X7R)<br>220pF–1μF                                                 |
|               |                                                           | 250V/630V/1kV<br>Soft Termination                                     | GRJ (X7R)<br>470pF–1μF                                                 |
|               |                                                           | 250V/450V/630V<br>Large Capacitance and High Allowable Ripple Current | GR3 (X7T)<br>10000pF–1μF                                               |
|               | 250Vdc min.<br>For Camera Flash Circuit only              | 350V<br>High Capacitance                                              | GR7<br>10000pF–47000pF                                                 |
|               | 250Vdc min.<br>For Information Devices only               | 2kV<br>High Capacitance                                               | GR4<br>100pF–10000pF                                                   |
|               |                                                           | Safety Standard Certified                                             | Type GD 10pF–4700pF<br>Type GF 10pF–4700pF                             |
|               | AC Lines Noise Removal                                    | Safety Standard Certified                                             | Type GC 100pF–330pF<br>Type GF 470pF–4700pF<br>Type GB 10000pF–56000pF |
|               |                                                           | AC250V which meets Japanese Law                                       | GA2<br>470pF–0.1μF                                                     |
|               | Automotive (Powertrain, Safety Equipment)                 | High Capacitance                                                      | GCM (X7R etc.)<br>100pF–47μF                                           |
|               |                                                           | Class 1 TC's                                                          | GCM (C0G etc.)<br>1.0pF–56000pF                                        |
|               | 250Vdc min. for Automotive (Powertrain, Safety Equipment) | 250V/630V/1kV<br>Low Dissipation                                      | GCM (U2J)<br>10pF–47000pF                                              |
|               |                                                           | 250V/630V<br>Soft Termination                                         | GCJ (X7R)<br>1000pF–0.47μF                                             |

## Capacitance Table

### ● Temperature Characteristics Table

| Temperature Characteristic Codes     |     | Temperature Characteristics |                   |                                               | Operating Temperature Range | Capacitance Change Each Temperature (%) |       |       |       |       |       |
|--------------------------------------|-----|-----------------------------|-------------------|-----------------------------------------------|-----------------------------|-----------------------------------------|-------|-------|-------|-------|-------|
| Public STD Code                      |     | Reference Temperature       | Temperature Range | Capacitance Change or Temperature Coefficient |                             | -55°C                                   |       | -25°C |       | -10°C |       |
|                                      |     |                             |                   |                                               |                             | Max.                                    | Min.  | Max.  | Min.  | Max.  | Min.  |
| C0G                                  | EIA | 25°C                        | 25 to 125°C       | 0±30ppm/°C                                    | -55 to 125°C                | 0.58                                    | -0.24 | 0.4   | -0.17 | 0.25  | -0.11 |
| C0H                                  | EIA | 25°C                        | 25 to 125°C       | 0±60ppm/°C                                    | -55 to 125°C                | 0.87                                    | -0.48 | 0.59  | -0.33 | 0.38  | -0.21 |
| CK                                   | JIS | 20°C                        | 20 to 125°C       | 0±250ppm/°C                                   | -55 to 125°C                | 2.56                                    | -1.88 | 1.54  | -1.13 | 1.02  | -0.75 |
| CJ                                   | JIS | 20°C                        | 20 to 125°C       | 0±120ppm/°C                                   | -55 to 125°C                | 1.37                                    | -0.9  | 0.82  | -0.54 | 0.55  | -0.36 |
| CH                                   | JIS | 20°C                        | 20 to 125°C       | 0±60ppm/°C                                    | -55 to 125°C                | 0.82                                    | -0.45 | 0.49  | -0.27 | 0.33  | -0.18 |
| SL                                   | JIS | 20°C                        | 20 to 85°C        | +350 to -1000ppm/°C                           | -55 to 125°C                | -                                       | -     | -     | -     | -     | -     |
| P2H                                  | EIA | 25°C                        | 25 to 85°C        | -150±60ppm/°C                                 | -55 to 125°C                | 2.33                                    | 0.72  | 1.61  | 0.5   | 1.02  | 0.32  |
| PK                                   | JIS | 20°C                        | 20 to 85°C        | -150±250ppm/°C                                | -25 to 85°C                 | -                                       | -     | 2.36  | -0.45 | 1.57  | -0.3  |
| PJ                                   | JIS | 20°C                        | 20 to 85°C        | -150±120ppm/°C                                | -25 to 85°C                 | -                                       | -     | 1.65  | 0.14  | 1.1   | 0.09  |
| PH                                   | JIS | 20°C                        | 20 to 85°C        | -150±60ppm/°C                                 | -25 to 85°C                 | -                                       | -     | 1.32  | 0.41  | 0.88  | 0.27  |
| R2H                                  | EIA | 25°C                        | 25 to 85°C        | -220±60ppm/°C                                 | -55 to 125°C                | 3.02                                    | 1.28  | 2.08  | 0.88  | 1.32  | 0.56  |
| RK                                   | JIS | 20°C                        | 20 to 85°C        | -220±250ppm/°C                                | -25 to 85°C                 | -                                       | -     | 2.74  | -0.14 | 1.83  | -0.09 |
| RJ                                   | JIS | 20°C                        | 20 to 85°C        | -220±120ppm/°C                                | -25 to 85°C                 | -                                       | -     | 2.03  | 0.45  | 1.35  | 0.3   |
| RH                                   | JIS | 20°C                        | 20 to 85°C        | -220±60ppm/°C                                 | -25 to 85°C                 | -                                       | -     | 1.7   | 0.72  | 1.13  | 0.48  |
| S2H                                  | EIA | 25°C                        | 25 to 85°C        | -330±60ppm/°C                                 | -55 to 125°C                | 4.09                                    | 2.16  | 2.81  | 1.49  | 1.79  | 0.95  |
| SK                                   | JIS | 20°C                        | 20 to 85°C        | -330±250ppm/°C                                | -25 to 85°C                 | -                                       | -     | 3.35  | 0.36  | 2.23  | 0.24  |
| SJ                                   | JIS | 20°C                        | 20 to 85°C        | -330±120ppm/°C                                | -25 to 85°C                 | -                                       | -     | 2.63  | 0.95  | 1.76  | 0.63  |
| SH                                   | JIS | 20°C                        | 20 to 85°C        | -330±60ppm/°C                                 | -25 to 85°C                 | -                                       | -     | 2.3   | 1.22  | 1.54  | 0.81  |
| T2H                                  | EIA | 25°C                        | 25 to 85°C        | -470±60ppm/°C                                 | -55 to 125°C                | 5.46                                    | 3.28  | 3.75  | 2.26  | 2.39  | 1.44  |
| TK                                   | JIS | 20°C                        | 20 to 85°C        | -470±250ppm/°C                                | -25 to 85°C                 | -                                       | -     | 4.12  | 0.99  | 2.74  | 0.66  |
| TJ                                   | JIS | 20°C                        | 20 to 85°C        | -470±120ppm/°C                                | -25 to 85°C                 | -                                       | -     | 3.4   | 1.58  | 2.27  | 1.05  |
| TH                                   | JIS | 20°C                        | 20 to 85°C        | -470±60ppm/°C                                 | -25 to 85°C                 | -                                       | -     | 3.07  | 1.85  | 2.05  | 1.23  |
| U2J                                  | EIA | 25°C                        | 25 to 125°C       | -750±120ppm/°C                                | -55 to 125°C                | 8.78                                    | 5.04  | 6.04  | 3.47  | 3.84  | 2.21  |
| UK                                   | JIS | 20°C                        | 20 to 85°C        | -750±250ppm/°C                                | -25 to 85°C                 | -                                       | -     | 5.65  | 2.25  | 3.77  | 1.5   |
| UJ                                   | JIS | 20°C                        | 20 to 85°C        | -750±120ppm/°C                                | -25 to 85°C                 | -                                       | -     | 4.94  | 2.84  | 3.29  | 1.89  |
| X7R                                  | EIA | 25°C                        | -55 to 125°C      | ±15%                                          | -55 to 125°C                | -                                       | -     | -     | -     | -     | -     |
| X7S                                  | EIA | 25°C                        | -55 to 125°C      | ±22%                                          | -55 to 125°C                | -                                       | -     | -     | -     | -     | -     |
| X7T                                  | EIA | 25°C                        | -55 to 125°C      | +22%, -33%                                    | -55 to 125°C                | -                                       | -     | -     | -     | -     | -     |
| X7U                                  | EIA | 25°C                        | -55 to 125°C      | +22%, -56%                                    | -55 to 125°C                | -                                       | -     | -     | -     | -     | -     |
| R                                    | JIS | 20°C                        | -55 to 125°C      | ±15%                                          | -55 to 125°C                | -                                       | -     | -     | -     | -     | -     |
| X6S                                  | EIA | 25°C                        | -55 to 105°C      | ±22%                                          | -55 to 105°C                | -                                       | -     | -     | -     | -     | -     |
| X6T                                  | EIA | 25°C                        | -55 to 105°C      | +22%, -33%                                    | -55 to 105°C                | -                                       | -     | -     | -     | -     | -     |
| X5R                                  | EIA | 25°C                        | -55 to 85°C       | ±15%                                          | -55 to 85°C                 | -                                       | -     | -     | -     | -     | -     |
| X5S                                  | EIA | 25°C                        | -55 to 85°C       | ±22%                                          | -55 to 85°C                 | -                                       | -     | -     | -     | -     | -     |
| B                                    | JIS | 20°C                        | -25 to 85°C       | ±10%                                          | -25 to 85°C                 | -                                       | -     | -     | -     | -     | -     |
| -: Murata Temperature Characteristic |     | 25°C                        | -55 to 125°C      | ±10%                                          | -55 to 125°C                | -                                       | -     | -     | -     | -     | -     |

### ■ GRM Series



For the Capacitance Table of General Purpose GRM Series, please review the inserted Capacitance Table of "Chip Monolithic Ceramic Capacitor and General Purpose GRM Series".

# Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

## ■ GRM Series Temperature Compensating Type

p00

← Part Number List

JIS:

CK

CJ

CH

SL

PK

PJ

PH

RK

RJ

RH

SK

SJ

SH

TK

TJ

TH

UK

UJ

EIA:

C0G

P2H

R2H

S2H

T2H

U2J

| LxW (mm)            | 0.4x0.2 |     |     |     | 0.6x0.3 |     |     |     |     |     |     |     |     |     | 1.0x0.5 |     |      |     |     |     |     |     |
|---------------------|---------|-----|-----|-----|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|-----|------|-----|-----|-----|-----|-----|
| T max. (mm)         | 0.22    |     |     |     | 0.33    |     |     |     |     |     |     |     |     |     | 0.33    |     | 0.55 |     |     |     |     |     |
| Rated Voltage (Vdc) | 16      |     | 10  |     | 50      |     |     | 25  |     |     |     |     |     |     | 50      |     | 50   |     |     |     |     |     |
| Cap. / TC Code      | C0G     | CΔ  | C0G | CH  | C0G     | CΔ  | UΔ  | R2H | RΔ  | S2H | SΔ  | T2H | TΔ  | UJ  | C0G     | CΔ  | C0G  | CΔ  | P2H | PΔ  | R2H | RΔ  |
| 0.1pF               |         |     |     |     | p28     | p32 |     |     |     |     |     |     |     |     | p36     | p38 | p39  | p42 |     |     |     |     |
| 0.2pF               | p22     | p25 |     |     | p28     | p32 |     |     |     |     |     |     |     |     | p36     | p38 | p39  | p42 |     |     |     |     |
| 0.5pF               | p22     | p25 |     |     | p28     | p32 |     |     |     |     |     |     |     |     | p36     | p38 | p39  | p42 |     |     |     |     |
| 1.0pF               | p22     | p25 |     |     | p28     | p32 | p35 | p35 | p35 | p35 | p36 | p36 | p36 |     | p37     | p38 | p39  | p42 | p46 | p46 | p46 | p46 |
| 2.0pF               | p22     | p25 |     |     | p29     | p32 | p35 | p35 | p35 | p36 | p36 | p36 | p36 |     | p37     | p38 | p39  | p43 | p46 | p46 | p46 | p46 |
| 3.0pF               | p22     | p25 |     |     | p29     | p32 | p35 | p35 | p35 | p36 | p36 | p36 | p36 |     | p37     | p38 | p39  | p43 | p46 | p46 | p46 | p46 |
| 4.0pF               | p23     | p26 |     |     | p29     | p33 | p35 | p35 | p35 | p36 | p36 | p36 | p36 |     | p37     | p38 | p40  | p43 | p46 | p46 | p46 | p46 |
| 5.0pF               | p23     | p26 |     |     | p30     | p33 | p35 | p35 | p35 | p36 | p36 | p36 | p36 |     | p37     | p38 | p40  | p44 | p46 | p46 | p46 | p46 |
| 6.0pF               | p23     | p26 |     |     | p30     | p33 | p35 | p35 | p35 | p36 | p36 | p36 | p36 |     | p37     | p38 | p40  | p44 | p46 | p46 | p46 | p46 |
| 7.0pF               | p24     | p27 |     |     | p30     | p34 | p35 | p35 | p35 | p36 | p36 | p36 | p36 |     | p37     | p38 | p41  | p44 | p46 | p46 | p46 | p46 |
| 8.0pF               | p24     | p27 |     |     | p31     | p34 | p35 | p35 | p35 | p36 | p36 | p36 | p36 |     | p37     | p38 | p41  | p45 | p46 | p46 | p46 | p46 |
| 9.0pF               | p24     | p28 |     |     | p31     | p34 | p35 | p35 | p35 | p36 | p36 | p36 | p36 |     | p37     | p38 | p41  | p45 | p46 | p46 | p46 | p46 |
| 10pF                | p25     | p28 |     |     | p31     | p35 | p35 | p35 | p35 | p36 | p36 | p36 | p36 |     | p37     | p38 | p42  | p45 | p46 | p46 | p46 | p46 |
| 12pF                | p25     | p28 |     |     | p31     | p35 | p35 | p35 | p35 | p36 | p36 | p36 | p36 |     | p37     | p39 | p42  | p45 | p46 | p46 | p46 | p46 |
| 15pF                | p25     | p28 |     |     | p31     | p35 | p35 | p35 | p35 | p36 | p36 | p36 | p36 |     | p37     | p39 | p42  | p45 | p46 | p46 | p46 | p46 |
| 18pF                | p25     | p28 |     |     | p31     | p35 |     | p35 | p35 | p36 | p36 | p36 | p36 | p36 | p37     | p39 | p42  | p45 | p46 | p46 | p46 | p46 |
| 22pF                | p25     | p28 |     |     | p31     | p35 |     | p35 | p35 | p36 | p36 | p36 | p36 | p36 | p37     | p39 | p42  | p45 | p46 | p46 | p46 | p46 |
| 27pF                | p25     | p28 |     |     | p31     | p35 |     | p35 | p35 | p36 | p36 | p36 | p36 | p36 | p37     | p39 | p42  | p46 | p46 | p46 | p46 | p46 |
| 33pF                | p25     | p28 |     |     | p31     | p35 |     | p35 | p35 | p36 | p36 | p36 | p36 | p36 | p37     | p39 | p42  | p46 |     |     | p46 | p46 |
| 39pF                | p25     | p28 |     |     | p32     | p35 |     | p35 | p35 | p36 | p36 | p36 | p36 | p36 | p37     | p39 | p42  | p46 |     |     |     |     |
| 47pF                | p25     | p28 |     |     | p32     | p35 |     | p35 | p35 | p36 | p36 | p36 | p36 | p36 | p37     | p39 | p42  | p46 |     |     |     |     |
| 56pF                |         |     | p28 | p28 | p32     | p35 |     | p35 | p35 | p36 | p36 | p36 | p36 | p36 | p37     | p39 | p42  | p46 |     |     |     |     |
| 68pF                |         |     | p28 | p28 | p32     | p35 |     | p35 | p35 | p36 | p36 | p36 | p36 | p36 | p37     | p39 | p42  | p46 |     |     |     |     |
| 82pF                |         |     | p28 | p28 | p32     | p35 |     | p35 | p35 | p36 | p36 | p36 | p36 | p36 | p37     | p39 | p42  | p46 |     |     |     |     |
| 100pF               |         |     | p28 | p28 | p32     | p35 |     | p35 | p35 | p36 | p36 | p36 | p36 | p36 | p37     | p39 | p42  | p46 |     |     |     |     |
| 120pF               |         |     |     |     |         |     |     |     |     |     |     |     |     |     | p37     | p39 | p42  | p46 |     |     |     |     |
| 150pF               |         |     |     |     |         |     |     |     |     |     |     |     |     |     | p37     | p39 | p42  | p46 |     |     |     |     |
| 180pF               |         |     |     |     |         |     |     |     |     |     |     |     |     |     | p38     | p39 | p42  | p46 |     |     |     |     |
| 220pF               |         |     |     |     |         |     |     |     |     |     |     |     |     |     | p38     | p39 | p42  | p46 |     |     |     |     |
| 270pF               |         |     |     |     |         |     |     |     |     |     |     |     |     |     | p38     | p39 | p42  | p46 |     |     |     |     |
| 330pF               |         |     |     |     |         |     |     |     |     |     |     |     |     |     | p38     | p39 | p42  | p46 |     |     |     |     |
| 390pF               |         |     |     |     |         |     |     |     |     |     |     |     |     |     | p38     | p39 | p42  | p46 |     |     |     |     |
| 470pF               |         |     |     |     |         |     |     |     |     |     |     |     |     |     | p38     | p39 | p42  | p46 |     |     |     |     |
| 560pF               |         |     |     |     |         |     |     |     |     |     |     |     |     |     | p38     | p39 | p42  | p46 |     |     |     |     |
| 680pF               |         |     |     |     |         |     |     |     |     |     |     |     |     |     | p38     | p39 | p42  | p46 |     |     |     |     |
| 820pF               |         |     |     |     |         |     |     |     |     |     |     |     |     |     |         |     | p42  | p46 |     |     |     |     |
| 1000pF              |         |     |     |     |         |     |     |     |     |     |     |     |     |     |         |     | p42  | p46 |     |     |     |     |

The indication for every 0.1 pF has been omitted for less than 10 pF. Refer to the Part Number List for details.

# Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

## (→ ■ GRM Series Temperature Compensating Type)

p00

← Part Number List

JIS:

CK

CJ

CH

SL

PK

PJ

PH

RK

RJ

RH

SK

SJ

SH

TK

TJ

TH

UK

UJ

EIA:

C0G

P2H

R2H

S2H

T2H

U2J

| LxW (mm)            | 1.0x0.5 |     |     |     |     |                                                                                                                     |     |     |     |     | 1.6x0.8 |     |     |     |     |     |     |     |     |     |     |     |
|---------------------|---------|-----|-----|-----|-----|---------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| T max. (mm)         | 0.55    |     |     |     |     |                                                                                                                     |     |     |     |     | 0.5     |     |     |     |     | 0.9 |     |     |     |     |     |     |
| Rated Voltage (Vdc) | 50      |     |     |     |     | 10                                                                                                                  |     |     | 50  |     |         | 10  |     | 100 |     | 50  |     |     |     | 10  |     |     |
| Cap. / TC Code      | S2H     | SΔ  | T2H | TΔ  | UΔ  | SL                                                                                                                  | U2J | UJ  | SL  | U2J | UJ      | SL  | U2J | UJ  | C0G | CΔ  | C0G | CΔ  | SL  | U2J | UJ  | SL  |
| 0.5pF               |         |     |     |     |     |                                                                                                                     |     |     |     |     |         |     |     |     |     | p48 | p51 | p55 | p58 |     |     |     |
| 1.0pF               | p46     | p47 | p47 | p47 | p47 | The indication for every 0.1 pF has been omitted for less than 10 pF.<br>Refer to the Part Number List for details. |     |     |     |     |         |     |     |     |     | p48 | p51 | p55 | p58 |     |     |     |
| 2.0pF               | p46     | p47 | p47 | p47 | p47 |                                                                                                                     |     |     |     |     |         |     |     |     |     | p48 | p52 | p55 | p58 |     |     |     |
| 3.0pF               | p46     | p47 | p47 | p47 | p47 |                                                                                                                     |     |     |     |     |         |     |     |     |     | p49 | p52 | p55 | p59 |     |     |     |
| 4.0pF               | p46     | p47 | p47 | p47 | p47 |                                                                                                                     |     |     |     |     |         |     |     |     |     | p49 | p52 | p55 | p59 |     |     |     |
| 5.0pF               | p46     | p47 | p47 | p47 | p47 |                                                                                                                     |     |     |     |     |         |     |     |     |     | p49 | p52 | p56 | p59 |     |     |     |
| 6.0pF               | p46     | p47 | p47 | p47 | p47 |                                                                                                                     |     |     |     |     |         |     |     |     |     | p49 | p53 | p56 | p59 |     |     |     |
| 7.0pF               | p47     | p47 | p47 | p47 | p47 |                                                                                                                     |     |     |     |     |         |     |     |     |     | p50 | p53 | p56 | p60 |     |     |     |
| 8.0pF               | p47     | p47 | p47 | p47 | p47 |                                                                                                                     |     |     |     |     |         |     |     |     |     | p50 | p54 | p57 | p60 |     |     |     |
| 9.0pF               | p47     | p47 | p47 | p47 | p47 |                                                                                                                     |     |     |     |     |         |     |     |     |     | p51 | p54 | p57 | p61 |     |     |     |
| 10pF                | p47     | p47 | p47 | p47 | p47 |                                                                                                                     |     |     |     |     |         |     |     |     |     | p51 | p54 | p58 | p61 |     |     |     |
| 12pF                | p47     | p47 | p47 | p47 | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 15pF                | p47     | p47 | p47 | p47 | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 18pF                | p47     | p47 | p47 | p47 | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 22pF                | p47     | p47 | p47 | p47 | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 27pF                | p47     | p47 | p47 | p47 | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 33pF                | p47     | p47 | p47 | p47 | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 39pF                | p47     | p47 | p47 | p47 | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 47pF                |         |     | p47 | p47 | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 56pF                |         |     | p47 | p47 | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 68pF                |         |     | p47 | p47 | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 82pF                |         |     | p47 | p47 | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 100pF               |         |     | p47 | p47 | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 120pF               |         |     |     |     | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 150pF               |         |     |     |     | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 180pF               |         |     |     |     | p47 | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 220pF               |         |     |     |     |     | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 270pF               |         |     |     |     |     | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 330pF               |         |     |     |     |     | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 390pF               |         |     |     |     |     | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 470pF               |         |     |     |     |     | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 560pF               |         |     |     |     |     | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 680pF               |         |     |     |     |     | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 820pF               |         |     |     |     |     | p51                                                                                                                 | p54 | p58 | p61 |     |         |     |     |     |     |     |     |     |     |     |     |     |
| 1000pF              |         |     |     |     |     | p47                                                                                                                 | p47 | p48 |     |     |         |     |     |     | p51 | p54 | p58 | p61 |     |     |     | p61 |
| 1200pF              |         |     |     |     |     | p47                                                                                                                 | p47 | p48 |     |     |         |     |     |     | p51 | p54 | p58 | p61 | p61 | p61 | p61 |     |
| 1500pF              |         |     |     |     |     | p47                                                                                                                 | p47 | p48 |     |     |         |     |     |     | p51 | p55 | p58 | p61 | p61 | p61 | p61 |     |
| 1800pF              |         |     |     |     |     | p47                                                                                                                 | p47 | p48 |     |     |         |     |     |     |     |     | p58 | p61 | p61 | p61 | p61 |     |
| 2200pF              |         |     |     |     |     | p47                                                                                                                 | p48 | p48 | p48 | p48 | p48     |     |     |     |     |     | p58 | p61 | p61 | p61 | p61 |     |
| 2700pF              |         |     |     |     |     | p47                                                                                                                 | p48 | p48 | p48 | p48 | p48     |     |     |     |     |     | p58 | p61 | p61 | p61 | p61 |     |
| 3300pF              |         |     |     |     |     | p47                                                                                                                 | p48 | p48 | p48 | p48 | p48     |     |     |     |     |     | p58 | p61 | p61 | p61 | p61 |     |
| 3900pF              |         |     |     |     |     | p47                                                                                                                 | p48 | p48 | p48 | p48 | p48     |     |     |     |     |     | p58 | p61 | p61 | p61 | p61 |     |
| 4700pF              |         |     |     |     |     | p47                                                                                                                 | p48 | p48 | p48 | p48 | p48     |     |     |     |     |     |     |     | p61 | p61 | p61 |     |
| 5600pF              |         |     |     |     |     |                                                                                                                     |     |     |     |     |         | p48 | p48 | p48 |     |     |     |     | p61 | p61 | p62 |     |
| 6800pF              |         |     |     |     |     |                                                                                                                     |     |     |     |     |         | p48 | p48 | p48 |     |     |     |     | p61 | p61 | p62 |     |
| 8200pF              |         |     |     |     |     |                                                                                                                     |     |     |     |     |         | p48 | p48 | p48 |     |     |     |     | p61 | p61 | p62 |     |
| 10000pF             |         |     |     |     |     |                                                                                                                     |     |     |     |     |         | p48 | p48 | p48 |     |     |     |     | p61 | p61 | p62 |     |
| 12000pF             |         |     |     |     |     |                                                                                                                     |     |     |     |     |         |     |     |     |     |     |     |     |     |     |     | p62 |
| 15000pF             |         |     |     |     |     |                                                                                                                     |     |     |     |     |         |     |     |     |     |     |     |     |     |     |     | p62 |
| 18000pF             |         |     |     |     |     |                                                                                                                     |     |     |     |     |         |     |     |     |     |     |     |     |     |     |     | p62 |
| 22000pF             |         |     |     |     |     |                                                                                                                     |     |     |     |     |         |     |     |     |     |     |     |     |     |     |     | p62 |



# Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series Temperature Compensating Type)

p00

← Part Number List

JIS:

CK

CJ

CH

SL

PK

PJ

PH

RK

RJ

RH

SK

SJ

SH

TK

TJ

TH

UK

UJ

EIA:

C0G

P2H

R2H

S2H

T2H

U2J

| LxW (mm)            | 1.6x0.8 |     | 2.0x1.25 |     |     |     |     |     |     |      |     |     |     |     |     |     |     |      |      |     |     |    |
|---------------------|---------|-----|----------|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|----|
| T max. (mm)         | 0.9     |     | 0.7      |     |     |     |     |     |     | 0.95 |     |     |     |     |     |     | 1   |      |      |     |     |    |
| Rated Voltage (Vdc) | 10      |     | 100      |     | 50  |     |     |     |     | 50   |     |     |     |     | 10  |     |     | 250  |      | 50  |     |    |
| Cap. / TC Code      | U2J     | UJ  | C0G      | CH  | C0G | CH  | SL  | U2J | UJ  | C0G  | CH  | SL  | U2J | UJ  | SL  | U2J | UJ  | C0G  | U2J  | SL  | U2J | UJ |
| 10pF                |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 |      |     |     |    |
| 12pF                |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 |      |     |     |    |
| 15pF                |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 |      |     |     |    |
| 18pF                |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 |      |     |     |    |
| 22pF                |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 |      |     |     |    |
| 27pF                |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 |      |     |     |    |
| 33pF                |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 |      |     |     |    |
| 39pF                |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 |      |     |     |    |
| 47pF                |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 |      |     |     |    |
| 56pF                |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 |      |     |     |    |
| 68pF                |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 |      |     |     |    |
| 82pF                |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 |      |     |     |    |
| 100pF               |         |     | p62      | p62 |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 | p137 |     |     |    |
| 120pF               |         |     | p62      | p62 |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 | p137 |     |     |    |
| 150pF               |         |     | p62      | p62 |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 | p137 |     |     |    |
| 180pF               |         |     | p62      | p62 |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 | p137 |     |     |    |
| 220pF               |         |     | p62      | p62 |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 | p137 |     |     |    |
| 270pF               |         |     | p62      | p62 |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 | p137 |     |     |    |
| 330pF               |         |     | p62      | p62 |     |     |     |     |     |      |     |     |     |     |     |     |     | p136 | p137 |     |     |    |
| 390pF               |         |     | p62      | p62 |     |     |     |     |     |      |     |     |     |     |     |     |     |      | p137 |     |     |    |
| 470pF               |         |     | p62      | p62 |     |     |     |     |     |      |     |     |     |     |     |     |     |      | p137 |     |     |    |
| 560pF               |         |     | p62      | p62 |     |     |     |     |     |      |     |     |     |     |     |     |     |      | p137 |     |     |    |
| 680pF               |         |     | p62      | p62 |     |     |     |     |     |      |     |     |     |     |     |     |     |      | p137 |     |     |    |
| 820pF               |         |     | p62      | p62 |     |     |     |     |     |      |     |     |     |     |     |     |     |      | p137 |     |     |    |
| 1000pF              |         |     | p62      | p62 |     |     |     |     |     |      |     |     |     |     |     |     |     |      | p137 |     |     |    |
| 1200pF              |         |     | p62      | p62 | p62 | p62 |     |     |     |      |     |     |     |     |     |     |     |      | p138 |     |     |    |
| 1500pF              |         |     | p62      | p62 | p62 | p62 |     |     |     |      |     |     |     |     |     |     |     |      | p138 |     |     |    |
| 1800pF              |         |     | p62      | p62 | p62 | p62 |     |     |     |      |     |     |     |     |     |     |     |      | p138 |     |     |    |
| 2200pF              |         |     | p62      | p62 | p62 | p62 |     |     |     |      |     |     |     |     |     |     |     |      | p138 |     |     |    |
| 2700pF              |         |     | p62      | p62 | p62 | p62 |     |     |     |      |     |     |     |     |     |     |     |      |      |     |     |    |
| 3300pF              |         |     | p62      | p62 | p62 | p62 |     |     |     |      |     |     |     |     |     |     |     |      |      |     |     |    |
| 3900pF              |         |     |          |     | p62 | p62 |     |     |     |      |     |     |     |     |     |     |     |      |      |     |     |    |
| 4700pF              |         |     |          |     | p62 | p62 |     |     |     |      |     |     |     |     |     |     |     |      |      |     |     |    |
| 5600pF              |         |     |          |     |     |     |     |     |     | p62  | p62 |     |     |     |     |     |     |      |      |     |     |    |
| 6800pF              |         |     |          |     |     |     |     |     |     | p62  | p62 |     |     |     |     |     |     |      |      |     |     |    |
| 8200pF              |         |     |          |     |     |     |     |     |     | p62  | p62 |     |     |     |     |     |     |      |      |     |     |    |
| 10000pF             |         |     |          |     |     |     |     |     |     | p62  | p62 | p62 |     |     |     |     |     |      |      |     |     |    |
| 12000pF             | p62     | p62 |          |     |     |     | p62 | p62 | p62 | p62  | p62 |     |     |     |     |     |     |      |      |     |     |    |
| 15000pF             | p62     | p62 |          |     |     |     | p62 | p62 | p62 | p62  | p62 |     |     |     |     |     |     |      |      |     |     |    |
| 18000pF             | p62     | p62 |          |     |     |     | p62 | p62 | p62 |      |     |     |     |     |     |     |     |      |      |     |     |    |
| 22000pF             | p62     | p62 |          |     |     |     |     |     |     |      |     | p62 | p62 | p62 |     |     |     |      |      |     |     |    |
| 27000pF             |         |     |          |     |     |     |     |     |     |      |     | p62 | p62 | p62 |     |     |     |      |      |     |     |    |
| 33000pF             |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     |      | p62  | p62 | p63 |    |
| 39000pF             |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     |      |      |     |     |    |
| 47000pF             |         |     |          |     |     |     |     |     |     |      |     |     |     |     |     |     |     |      |      |     |     |    |
| 56000pF             |         |     |          |     |     |     |     |     |     |      |     |     |     |     | p62 | p62 | p62 |      |      |     |     |    |



# Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series Temperature Compensating Type)

p00

← Part Number List

JIS:

CK

CJ

CH

SL

PK

PJ

PH

RK

RJ

RH

SK

SJ

SH

TK

TJ

TH

UK

UJ

EIA:

C0G

P2H

R2H

S2H

T2H

U2J

| LxW (mm)            | 2.0x1.25 |     |     |     |     |     |     |     |     | 3.2x1.6 |      |     |     |     |     |     |     |      |      |      |      |      |      |  |  |     |
|---------------------|----------|-----|-----|-----|-----|-----|-----|-----|-----|---------|------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|--|--|-----|
| T max. (mm)         | 1.35     |     |     |     |     |     |     |     |     | 1.45    | 0.95 |     |     |     |     |     |     |      | 1    |      |      |      |      |  |  |     |
| Rated Voltage (Vdc) | 50       |     |     |     |     | 10  |     |     |     | 250     | 100  |     | 50  |     |     |     |     |      | 2000 | 1000 |      |      | 630  |  |  | 250 |
| Cap. / TC Code      | C0G      | CH  | SL  | U2J | UJ  | SL  | U2J | UJ  | U2J | C0G     | CH   | C0G | CH  | SL  | U2J | UJ  | U2J | C0G  | U2J  | C0G  | U2J  | U2J  |      |  |  |     |
| 10pF                |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     | p139 | p137 | p139 | p136 | p138 |      |  |  |     |
| 12pF                |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     | p139 | p137 | p139 | p136 | p138 |      |  |  |     |
| 15pF                |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     | p139 | p137 | p139 | p136 | p138 |      |  |  |     |
| 18pF                |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     | p139 | p137 | p139 | p136 | p138 |      |  |  |     |
| 22pF                |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     | p139 | p137 | p139 | p137 | p138 |      |  |  |     |
| 27pF                |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     | p139 | p137 | p139 | p137 | p138 |      |  |  |     |
| 33pF                |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     | p139 | p137 | p139 | p137 | p138 |      |  |  |     |
| 39pF                |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     | p139 | p137 | p139 | p137 | p138 |      |  |  |     |
| 47pF                |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     | p139 | p137 | p139 | p137 | p138 |      |  |  |     |
| 56pF                |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     | p139 | p137 | p139 | p137 | p138 |      |  |  |     |
| 68pF                |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     | p139 | p137 | p139 | p137 | p138 |      |  |  |     |
| 82pF                |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      | p137 | p139 | p137 | p138 |      |  |  |     |
| 100pF               |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      | p137 | p139 | p137 | p138 |      |  |  |     |
| 120pF               |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      | p137 | p139 | p137 | p138 |      |  |  |     |
| 150pF               |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      | p137 | p139 | p137 | p138 |      |  |  |     |
| 180pF               |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      | p137 | p139 | p137 | p138 |      |  |  |     |
| 220pF               |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      | p137 | p139 | p137 | p138 |      |  |  |     |
| 270pF               |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      |      | p139 | p137 | p138 |      |  |  |     |
| 330pF               |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      |      | p139 | p137 | p138 |      |  |  |     |
| 390pF               |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      |      |      | p137 | p138 |      |  |  |     |
| 470pF               |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      |      |      | p137 | p138 |      |  |  |     |
| 560pF               |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      |      |      | p137 | p138 |      |  |  |     |
| 680pF               |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      |      |      |      | p138 |      |  |  |     |
| 820pF               |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      |      |      |      | p138 |      |  |  |     |
| 1000pF              |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      |      |      |      | p138 |      |  |  |     |
| 1200pF              |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      |      |      |      | p138 |      |  |  |     |
| 1500pF              |          |     |     |     |     |     |     |     |     |         |      |     |     |     |     |     |     |      |      |      |      | p138 |      |  |  |     |
| 1800pF              |          |     |     |     |     |     |     |     |     | p63     | p63  |     |     |     |     |     |     |      |      |      |      | p138 |      |  |  |     |
| 2200pF              |          |     |     |     |     |     |     |     |     | p63     | p63  |     |     |     |     |     |     |      |      |      |      | p138 |      |  |  |     |
| 2700pF              |          |     |     |     |     |     |     |     |     | p138    | p63  | p63 |     |     |     |     |     |      |      |      |      |      | p138 |  |  |     |
| 3300pF              |          |     |     |     |     |     |     |     |     | p138    | p63  | p63 |     |     |     |     |     |      |      |      |      |      | p138 |  |  |     |
| 3900pF              |          |     |     |     |     |     |     |     |     | p138    | p63  | p63 |     |     |     |     |     |      |      |      |      |      | p138 |  |  |     |
| 4700pF              |          |     |     |     |     |     |     |     |     | p138    | p63  | p63 |     |     |     |     |     |      |      |      |      |      | p138 |  |  |     |
| 5600pF              |          |     |     |     |     |     |     |     |     | p138    | p63  | p63 |     |     |     |     |     |      |      |      |      |      | p138 |  |  |     |
| 6800pF              |          |     |     |     |     |     |     |     |     |         | p63  | p63 |     |     |     |     |     |      |      |      |      |      |      |  |  |     |
| 8200pF              |          |     |     |     |     |     |     |     |     |         | p63  | p63 |     |     |     |     |     |      |      |      |      |      |      |  |  |     |
| 10000pF             |          |     |     |     |     |     |     |     |     |         | p63  | p63 |     |     |     |     |     |      |      |      |      |      |      |  |  |     |
| 12000pF             |          |     |     |     |     |     |     |     |     |         | p63  | p63 | p63 | p63 |     |     |     |      |      |      |      |      |      |  |  |     |
| 15000pF             |          |     |     |     |     |     |     |     |     |         | p63  | p63 | p63 | p63 |     |     |     |      |      |      |      |      |      |  |  |     |
| 18000pF             | p63      | p63 |     |     |     |     |     |     |     |         | p63  | p63 | p63 | p63 |     |     |     |      |      |      |      |      |      |  |  |     |
| 22000pF             | p63      | p63 |     |     |     |     |     |     |     |         | p63  | p63 | p63 | p63 |     |     |     |      |      |      |      |      |      |  |  |     |
| 27000pF             |          |     |     |     |     |     |     |     |     |         |      |     | p63 | p63 |     |     |     |      |      |      |      |      |      |  |  |     |
| 33000pF             |          |     |     |     |     |     |     |     |     |         |      |     | p63 | p63 |     |     |     |      |      |      |      |      |      |  |  |     |
| 39000pF             |          |     | p63 | p63 | p63 |     |     |     |     |         |      |     | p63 | p63 |     |     |     |      |      |      |      |      |      |  |  |     |
| 47000pF             |          |     | p63 | p63 | p63 |     |     |     |     |         |      |     |     |     |     |     |     |      |      |      |      |      |      |  |  |     |
| 56000pF             |          |     |     |     |     |     |     |     |     |         |      |     |     | p63 | p63 | p63 |     |      |      |      |      |      |      |  |  |     |
| 68000pF             |          |     |     |     |     | p63 | p63 | p63 |     |         |      |     |     |     |     |     |     |      |      |      |      |      |      |  |  |     |
| 82000pF             |          |     |     |     |     | p63 | p63 | p63 |     |         |      |     |     |     |     |     |     |      |      |      |      |      |      |  |  |     |
| 0.1μF               |          |     |     |     |     | p63 | p63 | p63 |     |         |      |     |     |     |     |     |     |      |      |      |      |      |      |  |  |     |



# Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series Temperature Compensating Type)

p00

← Part Number List

JIS:

CK

CJ

CH

SL

PK

PJ

PH

RK

RJ

RH

SK

SJ

SH

TK

TJ

TH

UK

UJ

EIA:

C0G

P2H

R2H

S2H

T2H

U2J

| LxW (mm)            | 3.2x1.6 |      |      |     |     |      |     |     |     |      | 3.2x2.5 |     |     |      |     |      |      |      |      |      |      |      |
|---------------------|---------|------|------|-----|-----|------|-----|-----|-----|------|---------|-----|-----|------|-----|------|------|------|------|------|------|------|
| T max. (mm)         | 1.25    |      |      |     |     |      |     |     |     | 1.8  |         |     |     | 1    |     | 1.25 |      |      | 1.5  |      | 2    |      |
| Rated Voltage (Vdc) | 1000    | 630  |      | 250 | 50  |      |     |     |     | 1000 | 630     | 50  |     | 2000 | 630 | 2000 | 1000 | 630  | 1000 | 630  | 1000 | 630  |
| Cap. / TC Code      | U2J     | C0G  | U2J  | U2J | C0G | CH   | SL  | U2J | UJ  | U2J  | U2J     | C0G | CH  | U2J  | U2J | U2J  | U2J  | U2J  | U2J  | U2J  | U2J  | U2J  |
| 82pF                |         |      |      |     |     |      |     |     |     |      |         |     |     | p140 |     |      |      |      |      |      |      |      |
| 100pF               |         |      |      |     |     |      |     |     |     |      |         |     |     | p140 |     |      |      |      |      |      |      |      |
| 120pF               |         |      |      |     |     |      |     |     |     |      |         |     |     | p140 |     |      |      |      |      |      |      |      |
| 150pF               |         |      |      |     |     |      |     |     |     |      |         |     |     | p140 |     |      |      |      |      |      |      |      |
| 180pF               |         |      |      |     |     |      |     |     |     |      |         |     |     |      |     | p140 |      |      |      |      |      |      |
| 220pF               |         |      |      |     |     |      |     |     |     |      |         |     |     |      |     | p140 |      |      |      |      |      |      |
| 270pF               |         |      |      |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 330pF               |         |      |      |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 390pF               | p139    |      |      |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 470pF               | p139    |      |      |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 560pF               | p139    |      |      |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 680pF               | p139    | p137 |      |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 820pF               |         | p137 |      |     |     |      |     |     |     | p139 |         |     |     |      |     |      |      |      |      |      |      |      |
| 1000pF              |         | p137 |      |     |     |      |     |     |     | p139 |         |     |     |      |     |      |      |      |      |      |      |      |
| 1200pF              |         |      |      |     |     |      |     |     |     |      |         |     |     | p138 |     | p139 |      |      |      |      |      |      |
| 1500pF              |         |      |      |     |     |      |     |     |     |      |         |     |     | p138 |     |      |      | p139 |      |      |      |      |
| 1800pF              |         |      |      |     |     |      |     |     |     |      |         |     |     | p138 |     |      |      |      |      | p139 |      |      |
| 2200pF              |         |      |      |     |     |      |     |     |     |      |         |     |     | p138 |     |      |      |      |      | p139 |      |      |
| 2700pF              |         |      | p138 |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 3300pF              |         |      | p138 |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 3900pF              |         |      |      |     |     |      |     |     |     |      | p138    |     |     |      |     |      |      |      |      |      |      |      |
| 4700pF              |         |      |      |     |     |      |     |     |     |      | p138    |     |     |      |     |      |      |      |      |      |      |      |
| 5600pF              |         |      |      |     |     |      |     |     |     |      |         |     |     |      |     |      | p138 |      |      |      |      |      |
| 6800pF              |         |      |      |     |     | p138 |     |     |     |      |         |     |     |      |     |      |      |      | p138 |      |      |      |
| 8200pF              |         |      |      |     |     | p138 |     |     |     |      |         |     |     |      |     |      |      |      |      |      | p138 |      |
| 10000pF             |         |      |      |     |     | p138 |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      | p139 |
| 12000pF             |         |      |      |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 15000pF             |         |      |      |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 18000pF             |         |      |      |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 22000pF             |         |      |      |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 27000pF             |         |      |      |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 33000pF             |         |      |      |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 39000pF             |         |      |      |     |     |      |     |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 47000pF             |         |      |      |     |     | p63  | p63 |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 56000pF             |         |      |      |     |     | p63  | p63 |     |     |      |         |     |     |      |     |      |      |      |      |      |      |      |
| 68000pF             |         |      |      |     |     |      | p63 | p63 | p63 |      |         |     | p63 | p63  |     |      |      |      |      |      |      |      |
| 82000pF             |         |      |      |     |     |      | p63 | p63 | p63 |      |         |     | p63 | p63  |     |      |      |      |      |      |      |      |
| 0.1μF               |         |      |      |     |     |      | p63 | p63 | p63 |      |         |     | p63 | p63  |     |      |      |      |      |      |      |      |



# Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

## (→ ■ GRM Series Temperature Compensating Type)

p00

← Part Number List

JIS:

CK

CJ

CH

SL

PK

PJ

PH

RK

RJ

RH

SK

SJ

SH

TK

TJ

TH

UK

UJ

EIA:

C0G

P2H

R2H

S2H

T2H

U2J

| L×W (mm)            | 4.5×2.0 | 4.5×3.2 |      |      |      | 5.7×5.0 |      |      |     |
|---------------------|---------|---------|------|------|------|---------|------|------|-----|
| T max. (mm)         | 1       | 1.5     |      | 2    |      | 1.5     |      | 2    |     |
| Rated Voltage (Vdc) | 3150    | 1000    | 630  | 1000 | 630  | 1000    | 630  | 1000 | 630 |
| Cap. / TC Code      | U2J     | U2J     | U2J  | U2J  | U2J  | U2J     | U2J  | U2J  | U2J |
| 27pF                | p140    |         |      |      |      |         |      |      |     |
| 33pF                | p140    |         |      |      |      |         |      |      |     |
| 39pF                | p140    |         |      |      |      |         |      |      |     |
| 47pF                | p140    |         |      |      |      |         |      |      |     |
| 56pF                | p140    |         |      |      |      |         |      |      |     |
| 68pF                | p140    |         |      |      |      |         |      |      |     |
| 82pF                | p140    |         |      |      |      |         |      |      |     |
| 100pF               | p140    |         |      |      |      |         |      |      |     |
| 120pF               |         |         |      |      |      |         |      |      |     |
| 150pF               |         |         |      |      |      |         |      |      |     |
| 180pF               |         |         |      |      |      |         |      |      |     |
| 220pF               |         |         |      |      |      |         |      |      |     |
| 270pF               |         |         |      |      |      |         |      |      |     |
| 330pF               |         |         |      |      |      |         |      |      |     |
| 390pF               |         |         |      |      |      |         |      |      |     |
| 470pF               |         |         |      |      |      |         |      |      |     |
| 560pF               |         |         |      |      |      |         |      |      |     |
| 680pF               |         |         |      |      |      |         |      |      |     |
| 820pF               |         |         |      |      |      |         |      |      |     |
| 1000pF              |         |         |      |      |      |         |      |      |     |
| 1200pF              |         |         |      |      |      |         |      |      |     |
| 1500pF              |         |         |      |      |      |         |      |      |     |
| 1800pF              |         |         |      |      |      |         |      |      |     |
| 2200pF              |         |         |      |      |      |         |      |      |     |
| 2700pF              | p139    |         |      |      |      |         |      |      |     |
| 3300pF              | p139    |         |      |      |      |         |      |      |     |
| 3900pF              |         |         | p139 |      |      |         |      |      |     |
| 4700pF              |         |         | p139 |      |      |         |      |      |     |
| 5600pF              |         |         |      | p139 |      |         |      |      |     |
| 6800pF              |         |         |      | p139 |      |         |      |      |     |
| 8200pF              |         |         |      |      | p139 |         |      |      |     |
| 10000pF             |         |         |      |      |      | p139    |      |      |     |
| 12000pF             |         | p139    |      |      |      |         |      |      |     |
| 15000pF             |         |         | p139 |      |      |         |      |      |     |
| 18000pF             |         |         | p139 |      |      |         |      |      |     |
| 22000pF             |         |         | p139 |      |      |         |      |      |     |
| 27000pF             |         |         |      | p139 |      |         |      |      |     |
| 33000pF             |         |         |      |      | p139 |         |      |      |     |
| 39000pF             |         |         |      |      |      | p139    |      |      |     |
| 47000pF             |         |         |      |      |      |         | p139 |      |     |

# Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

## ■ GRM Series High Dielectric Constant Type

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

| L×W (mm)            | 0.4×0.2 |        |        |     | 0.6×0.3 |     |        |        |        |        |        |        |        |     |        |     | 1.0×0.5 |     |        |     |     |     |
|---------------------|---------|--------|--------|-----|---------|-----|--------|--------|--------|--------|--------|--------|--------|-----|--------|-----|---------|-----|--------|-----|-----|-----|
| T max. (mm)         | 0.22    |        |        |     | 0.33    |     |        |        |        |        |        |        |        |     |        |     | 0.22    |     |        |     |     |     |
| Rated Voltage (Vdc) | 10      | 6.3    | 4      |     | 50      | 25  | 16     | 10     | 6.3    | 4      | 10     | 6.3    | 4      | 2.5 |        |     |         |     |        |     |     |     |
| Cap. / TC Code      | X7R     | X5R, B | X5R, B | X5R | X7R     | B   | X7R, R | X5R, B | X7R, R | X5R, B | X7R, R | X5R, B | X7R, R | X6S | X5R, B | X6S | X5R, B  | X6S | X5R, B | X7T | X6Δ | X7T |
| 68pF                | p64     | p64    | p64    |     |         |     |        |        |        |        |        |        |        |     |        |     |         |     |        |     |     |     |
| 100pF               | p64     | p64    | p64    |     | p65     | p65 | p65    | p65    | p65    | p65    |        |        |        |     |        |     |         |     |        |     |     |     |
| 150pF               | p64     | p64    | p64    |     | p65     | p65 | p65    | p65    | p65    | p65    |        |        |        |     |        |     |         |     |        |     |     |     |
| 220pF               | p64     | p64    | p64    |     | p65     | p65 | p65    | p65    | p65    | p65    |        |        |        |     |        |     |         |     |        |     |     |     |
| 330pF               | p64     | p64    | p64    |     | p65     | p65 | p65    | p65    | p65    | p65    |        |        |        |     |        |     |         |     |        |     |     |     |
| 470pF               | p64     | p64    | p64    |     | p65     | p65 | p65    | p65    | p65    | p65    |        |        |        |     |        |     |         |     |        |     |     |     |
| 680pF               |         | p64    | p64    | p64 | p65     | p65 | p65    | p65    | p65    | p65    |        |        |        |     |        |     |         |     |        |     |     |     |
| 1000pF              |         | p64    | p64    | p64 | p65     | p65 | p65    | p65    | p65    | p65    |        |        |        |     |        |     |         |     |        |     |     |     |
| 1500pF              |         | p64    | p64    | p64 | p65     | p65 | p65    | p65    | p65    | p65    |        |        |        |     |        |     |         |     |        |     |     |     |
| 2200pF              |         | p64    | p64    | p64 |         |     | p65    | p65    | p65    | p65    |        |        |        |     |        |     |         |     |        |     |     |     |
| 3300pF              |         | p64    | p64    | p64 |         |     | p65    | p65    | p65    | p65    |        |        |        |     |        |     |         |     |        |     |     |     |
| 4700pF              |         | p64    | p64    | p64 |         |     |        |        |        |        | p65    | p65    | p65    | p66 | p66    | p66 |         | p66 |        |     |     |     |
| 6800pF              |         | p64    | p64    | p64 |         |     |        |        |        |        | p65    | p65    | p66    | p66 | p66    | p66 |         | p66 |        |     |     |     |
| 10000pF             |         | p64    | p64    | p64 |         |     |        | p65    | p65    |        | p65    | p65    | p65    | p66 | p66    | p66 |         | p66 | p66    |     |     |     |
| 12000pF             |         |        |        |     |         |     |        |        |        |        |        |        | p66    | p66 |        |     |         |     |        |     |     |     |
| 15000pF             |         |        | p64    | p64 |         |     |        |        |        |        |        |        | p66    | p66 |        | p66 | p66     | p66 |        |     |     |     |
| 18000pF             |         |        |        |     |         |     |        |        |        |        |        |        | p66    | p66 |        |     |         |     |        |     |     |     |
| 22000pF             |         |        | p64    | p64 |         |     |        |        |        |        |        |        | p66    | p66 |        | p66 | p66     | p66 |        |     |     |     |
| 27000pF             |         |        |        |     |         |     |        |        |        |        |        |        | p66    | p66 |        |     |         |     |        |     |     |     |
| 33000pF             |         |        | p64    | p64 |         |     |        |        |        |        |        |        | p66    | p66 |        | p66 | p66     | p66 |        |     |     |     |
| 39000pF             |         |        |        |     |         |     |        |        |        |        |        |        | p66    | p66 |        |     |         |     |        |     |     |     |
| 47000pF             |         |        | p64    | p64 |         |     |        |        |        |        |        |        | p66    | p66 |        | p66 | p66     | p66 |        |     |     |     |
| 68000pF             |         |        | p64    | p64 |         |     |        |        |        |        |        |        | p66    | p66 |        | p66 |         |     |        |     |     |     |
| 0.1μF               |         |        | p64    | p64 |         |     |        |        | p65    | p65    |        | p66    | p66    |     | p66    |     | p66     | p66 | p67    | p67 | p67 | p67 |
| 0.15μF              |         |        |        |     |         |     |        |        |        |        |        |        |        |     |        |     |         |     |        |     |     |     |
| 0.22μF              |         |        |        |     |         |     |        |        |        |        | p66    |        |        | p66 | p66    | p66 | p66     | p66 | p67    | p67 | p67 | p67 |
| 0.33μF              |         |        |        |     |         |     |        |        |        |        |        |        |        |     |        |     |         |     |        |     |     |     |
| 0.47μF              |         |        |        |     |         |     |        |        |        |        |        |        |        |     |        |     |         |     | p67    | p67 |     | p67 |
| 0.68μF              |         |        |        |     |         |     |        |        |        |        |        |        |        |     |        |     |         |     |        |     |     |     |
| 1.0μF               |         |        |        |     |         |     |        |        |        |        |        |        |        |     |        |     |         |     |        |     |     |     |
| 2.2μF               |         |        |        |     |         |     |        |        |        |        |        |        |        |     |        |     |         |     |        |     |     |     |
| 4.7μF               |         |        |        |     |         |     |        |        |        |        |        |        |        |     |        |     |         |     |        |     |     |     |
| 10μF                |         |        |        |     |         |     |        |        |        |        |        |        |        |     |        |     |         |     |        |     |     |     |
| 22μF                |         |        |        |     |         |     |        |        |        |        |        |        |        |     |        |     |         |     |        |     |     |     |
| 47μF                |         |        |        |     |         |     |        |        |        |        |        |        |        |     |        |     |         |     |        |     |     |     |
| 100μF               |         |        |        |     |         |     |        |        |        |        |        |        |        |     |        |     |         |     |        |     |     |     |
| 150μF               |         |        |        |     |         |     |        |        |        |        |        |        |        |     |        |     |         |     |        |     |     |     |



# Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

| LxW (mm)            | 1.0x0.5 |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
|---------------------|---------|-----|-----|-----|-----|-----|-----|--------|------|--------|-----|-----|------|--------|-----|--------|--------|-----|--------|--------|
| T max. (mm)         | 0.3     |     |     |     |     |     |     |        | 0.33 |        |     |     | 0.55 |        |     |        |        |     |        |        |
| Rated Voltage (Vdc) | 50      |     | 25  |     | 16  |     | 10  |        | 10   |        | 6.3 |     | 4    |        | 100 |        | 50     |     | 25     |        |
| Cap. / TC Code      | X7R, R  | B   | X7R | B   | X7R | B   | X5R | X5R, B | X6T  | X5R, B | X6T | X5R | X7R  | X7Δ, R | X6S | X5R, B | X7R, R | X6S | X5R, B | X7R, R |
| 68pF                |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 100pF               |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 150pF               |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 220pF               | p67     | p67 | p67 |     |     |     |     |        |      |        |     |     | p67  | p67    | p68 |        | p68    |     |        |        |
| 330pF               | p67     | p67 | p67 |     |     |     |     |        |      |        |     |     | p67  | p67    | p68 |        | p68    |     |        |        |
| 470pF               | p67     | p67 | p67 |     |     |     |     |        |      |        |     |     | p67  | p67    | p68 |        | p68    |     |        |        |
| 680pF               | p67     | p67 | p67 |     |     |     |     |        |      |        |     |     | p67  | p67    | p68 |        | p68    |     |        |        |
| 1000pF              | p67     | p67 | p67 |     |     |     |     |        |      |        |     |     | p67  | p67    | p68 | p68    | p68    |     |        |        |
| 1500pF              | p67     | p67 | p67 |     |     |     |     |        |      |        |     |     | p67  | p67    | p68 |        | p68    |     |        |        |
| 2200pF              |         |     | p67 | p67 |     |     |     |        |      |        |     |     | p67  | p67    | p68 | p68    | p68    |     |        |        |
| 3300pF              |         |     |     |     | p67 | p67 |     |        |      |        |     |     | p67  | p67    | p68 |        | p68    |     |        |        |
| 4700pF              |         |     |     |     | p67 | p67 |     |        |      |        |     |     | p67  | p67    | p68 | p68    | p68    |     | p68    |        |
| 6800pF              |         |     |     |     | p67 | p67 |     |        |      |        |     |     |      | p67    | p68 |        | p68    | p68 | p68    |        |
| 10000pF             |         |     |     |     | p67 | p67 |     |        |      |        |     |     |      | p67    | p68 |        | p68    | p68 | p68    |        |
| 12000pF             |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 15000pF             |         |     |     |     |     |     | p67 |        |      |        |     |     |      | p67    |     | p68    | p68    | p68 | p68    |        |
| 18000pF             |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 22000pF             |         |     |     |     |     |     | p67 |        |      |        |     |     |      | p67    |     | p68    | p68    | p68 | p68    |        |
| 27000pF             |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 33000pF             |         |     |     |     |     |     | p67 |        |      |        |     |     |      | p67    |     | p68    | p68    | p68 | p68    | p68    |
| 39000pF             |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 47000pF             |         |     |     |     |     |     |     |        |      |        |     |     |      | p68    |     | p68    | p68    | p68 | p68    | p68    |
| 68000pF             |         |     |     |     |     |     |     |        |      |        |     |     |      | p68    |     | p68    |        | p68 | p68    | p68    |
| 0.1μF               |         |     |     |     |     |     |     |        |      |        |     |     |      | p68    | p68 | p68    | p68    | p68 | p68    | p68    |
| 0.15μF              |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        | p68    |
| 0.22μF              |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        | p68    |
| 0.33μF              |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 0.47μF              |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 0.68μF              |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 1.0μF               |         |     |     |     |     |     |     | p67    | p67  | p67    | p67 | p67 | p67  |        |     |        |        | p68 | p68    | p69    |
| 2.2μF               |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 4.7μF               |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 10μF                |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 22μF                |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 47μF                |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 100μF               |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |
| 150μF               |         |     |     |     |     |     |     |        |      |        |     |     |      |        |     |        |        |     |        |        |



## Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

| LxW (mm)            | 1.0x0.5 |        |     |     |     |     |              |             |             |            | 1.6x0.8 |        |     |      |        |        |        |     |        |     |     |                        |                        |
|---------------------|---------|--------|-----|-----|-----|-----|--------------|-------------|-------------|------------|---------|--------|-----|------|--------|--------|--------|-----|--------|-----|-----|------------------------|------------------------|
| T max. (mm)         | 0.55    |        |     |     |     |     | 0.55,<br>0.6 | 0.6, 0.7    | 0.6         | 0.7        | 0.5     |        | 0.9 |      |        |        |        |     |        |     |     |                        | 0.9,<br>0.95, 1        |
| Rated Voltage (Vdc) | 10      |        | 6.3 |     | 4   |     | 6.3          | 4           | 2.5         | 2.5        | 25      | 16     | 250 | 100  | 50     |        | 25     |     | 16     | 6.3 | 2.5 | 25                     |                        |
| Cap. / TC Code      | X6S     | X5R, B | X7R | X6S | X7R | X6Δ | X5R, B       | X5R, B      | X6T         | X5R        | X5R, B  | X5R, B | X7R | X7R  | X7R, R | X5R, B | X7R, R | X6S | X7Δ, R | X6S | X6S | X5R, B                 |                        |
| 68pF                |         |        |     |     |     |     |              |             |             |            |         |        |     |      |        |        |        |     |        |     |     |                        |                        |
| 100pF               |         |        |     |     |     |     |              |             |             |            |         |        |     |      |        |        |        |     |        |     |     |                        |                        |
| 150pF               |         |        |     |     |     |     |              |             |             |            |         |        |     |      |        |        |        |     |        |     |     |                        |                        |
| 220pF               |         |        |     |     |     |     |              |             |             |            |         |        |     | p143 | p69    | p70    | p70    | p70 |        |     |     |                        |                        |
| 330pF               |         |        |     |     |     |     |              |             |             |            |         |        |     | p143 | p69    | p70    | p70    | p70 |        |     |     |                        |                        |
| 470pF               |         |        |     |     |     |     |              |             |             |            |         |        |     | p143 | p69    | p70    | p70    | p70 |        |     |     |                        |                        |
| 680pF               |         |        |     |     |     |     |              |             |             |            |         |        |     | p143 | p70    | p70    | p70    | p70 |        |     |     |                        |                        |
| 1000pF              |         |        |     |     |     |     |              |             |             |            |         |        |     | p143 | p70    | p70    | p70    | p70 | p70    |     |     |                        |                        |
| 1500pF              |         |        |     |     |     |     |              |             |             |            |         |        |     | p143 | p70    | p70    | p70    | p70 |        |     |     |                        |                        |
| 2200pF              |         |        |     |     |     |     |              |             |             |            |         |        |     | p143 | p70    | p70    | p70    | p70 | p70    |     |     | 0.9<br>p71             |                        |
| 3300pF              |         |        |     |     |     |     |              |             |             |            |         |        |     |      | p70    | p70    | p70    | p70 |        |     |     | 0.9<br>p71             |                        |
| 4700pF              |         |        |     |     |     |     |              |             |             |            |         |        |     |      | p70    | p70    | p70    | p70 | p70    |     |     | 0.9<br>p71             |                        |
| 6800pF              |         |        |     |     |     |     |              |             |             |            |         |        |     |      | p70    | p70    | p70    | p70 |        |     |     | 0.9<br>p71             |                        |
| 10000pF             |         |        |     |     |     |     |              |             |             |            |         |        |     |      | p70    | p70    | p70    | p70 | p70    |     |     | 0.9<br>p71             |                        |
| 12000pF             |         |        |     |     |     |     |              |             |             |            |         |        |     |      |        |        |        |     |        |     |     |                        |                        |
| 15000pF             |         |        |     |     |     |     |              |             |             |            |         |        |     |      | p70    | p70    | p70    | p70 | p70    | p71 |     | 0.9<br>p71             |                        |
| 18000pF             |         |        |     |     |     |     |              |             |             |            |         |        |     |      |        |        |        |     |        |     |     |                        |                        |
| 22000pF             |         |        |     |     |     |     |              |             |             |            |         |        |     |      | p70    | p70    | p70    | p70 | p70    | p70 | p71 | 0.9<br>p71             |                        |
| 27000pF             |         |        |     |     |     |     |              |             |             |            |         |        |     |      |        |        |        |     |        |     |     |                        |                        |
| 33000pF             |         |        |     |     |     |     |              |             |             |            |         |        |     |      |        | p70    | p70    | p70 | p70    | p71 |     | 0.9<br>p71             |                        |
| 39000pF             |         |        |     |     |     |     |              |             |             |            |         |        |     |      |        |        |        |     |        |     |     |                        |                        |
| 47000pF             |         |        |     |     |     |     |              |             |             |            |         |        |     |      |        | p70    | p70    | p70 | p70    | p71 |     | 0.9<br>p71             |                        |
| 68000pF             |         |        |     |     |     |     |              |             |             |            |         |        |     |      |        | p70    | p70    | p70 | p70    | p71 |     | 0.9<br>p71             |                        |
| 0.1μF               |         |        |     |     |     |     |              |             |             |            |         |        |     |      | p70    | p70    | p70    | p70 |        |     |     | 0.9<br>p71, 0.9<br>p71 |                        |
| 0.15μF              |         | p69    | p69 |     | p69 |     | p69          | 0.55<br>p69 | 0.55<br>p69 |            |         |        |     |      |        |        | p70    | p70 | p71    |     | p71 | p71                    | 0.9<br>p71             |
| 0.22μF              |         | p69    | p69 |     | p69 |     | p69          | 0.55<br>p69 | 0.55<br>p69 |            |         |        |     |      |        |        | p70    | p70 | p70    | p71 |     | p71                    | 0.9<br>p71, 0.9<br>p71 |
| 0.33μF              |         | p69    | p69 |     | p69 |     | p69          | 0.55<br>p69 | 0.55<br>p69 |            |         |        |     |      |        |        |        |     |        | p71 | p71 |                        | 0.9<br>p71             |
| 0.47μF              |         | p69    | p69 |     | p69 |     | p69          | 0.55<br>p69 | 0.55<br>p69 |            |         |        |     |      |        |        | p70    | p70 |        | p71 | p71 |                        | 0.9<br>p71, 0.9<br>p71 |
| 0.68μF              |         | p69    | p69 |     |     |     |              | 0.55<br>p69 | 0.55<br>p69 |            |         |        |     |      |        |        |        |     |        | p71 |     |                        | 0.9<br>p71, 0.9<br>p71 |
| 1.0μF               | p69     |        |     | p69 |     | p69 |              |             |             |            | p69     | p69    | p69 | p69  |        |        | p70    | p70 | p70    | p71 | p71 |                        | 0.9<br>p71, 0.9<br>p71 |
| 2.2μF               |         | p69    | p69 |     | p69 |     | p69          | 0.55<br>p69 | 0.55<br>p69 |            |         |        |     |      |        |        |        |     |        |     | p71 |                        | 0.9<br>p71, 0.9<br>p71 |
| 4.7μF               |         |        |     |     |     |     |              | 0.6<br>p69  | 0.6<br>p69  | 0.6<br>p69 | p69     |        |     |      |        |        |        |     |        |     | p72 |                        | 0.95, 1<br>p72         |
| 10μF                |         |        |     |     |     |     |              |             | 0.7<br>p69  |            | p69     |        |     |      |        |        |        |     |        |     | p72 |                        | 1<br>p72               |
| 22μF                |         |        |     |     |     |     |              |             |             |            |         |        |     |      |        |        |        |     |        |     |     |                        |                        |
| 47μF                |         |        |     |     |     |     |              |             |             |            |         |        |     |      |        |        |        |     |        |     |     |                        |                        |
| 100μF               |         |        |     |     |     |     |              |             |             |            |         |        |     |      |        |        |        |     |        |     |     |                        |                        |
| 150μF               |         |        |     |     |     |     |              |             |             |            |         |        |     |      |        |        |        |     |        |     |     |                        |                        |



## Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

| LxW (mm)            | 1.6x0.8         |             |            |            |            |            |            |            |            |              | 2.0x1.25    |     |     |        |     |     |     |     |     |     |     |     |
|---------------------|-----------------|-------------|------------|------------|------------|------------|------------|------------|------------|--------------|-------------|-----|-----|--------|-----|-----|-----|-----|-----|-----|-----|-----|
| T max. (mm)         | 0.9,<br>0.95, 1 | 0.9, 1      |            |            |            |            |            |            |            | 0.9,<br>0.95 | 1           | 0.7 |     | 0.95   |     |     |     |     |     |     |     |     |
| Rated Voltage (Vdc) | 16              | 16          | 10         | 6.3        | 4          | 10         | 35         | 25         | 16         | 100          | 50          | 35  | 25  |        |     |     |     | 16  |     |     |     |     |
| Cap. / TC Code      | X5R, B          | X6S         | X7Δ        | X6S        | X7Δ        | X5R, B     | X6S        | X5R, B     | X5R, B     | X5R          | X5R         | X6S | X7R | X5R, B | X6S | X5R | X7R | R   | X6S | X5R | B   | X7R |
| 68pF                |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 100pF               |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 150pF               |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 220pF               |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 330pF               |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 470pF               |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 680pF               |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 1000pF              |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 1500pF              |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 2200pF              |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 3300pF              |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 4700pF              |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 6800pF              |                 |             |            |            |            |            |            |            |            |              |             |     | p72 |        |     |     |     |     |     |     |     |     |
| 10000pF             |                 |             |            |            |            |            |            |            |            |              |             |     | p72 |        |     |     |     |     |     |     |     |     |
| 12000pF             |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 15000pF             |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 18000pF             |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 22000pF             |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 27000pF             |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 33000pF             |                 |             |            |            |            |            |            |            |            |              |             |     | p72 |        |     |     |     |     |     |     |     |     |
| 39000pF             |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 47000pF             |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 68000pF             |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     | p72 | p72 |     |     |     |     |
| 0.1μF               |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     | p72 |     |     |     |     |     |
| 0.15μF              | 0.9<br>p71      |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 0.22μF              | 0.9<br>p71      | 0.9<br>p71  |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 0.33μF              | 0.9<br>p71      |             | 0.9<br>p71 |            |            |            |            |            | 0.9<br>p71 | 0.9<br>p71   |             |     |     | p72    |     |     |     |     |     |     |     | p72 |
| 0.47μF              |                 |             | 0.9<br>p71 |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     | p72 |     |
| 0.68μF              | 0.9<br>p71      | 0.9<br>p71  | 0.9<br>p71 |            |            |            |            |            | 0.9<br>p71 | 0.9<br>p71   |             |     |     |        |     |     | p72 |     |     | p72 | p72 |     |
| 1.0μF               | 0.9<br>p71      | 0.9<br>p71  | 0.9<br>p71 | 0.9<br>p71 | 0.9<br>p71 | 0.9<br>p71 |            |            |            |              | p72         | p72 |     | p72    | p72 |     | p72 |     |     | p72 |     |     |
| 2.2μF               | 0.9<br>p71      | 0.9<br>p71  | 0.9<br>p71 | 0.9<br>p71 | 0.9<br>p71 | 0.9<br>p71 |            |            |            | 0.9<br>p71   | 0.9<br>p71  |     |     | p72    | p72 | p72 |     |     | p72 | p72 | p72 | p72 |
| 4.7μF               | 0.95<br>p72     | 0.95<br>p72 |            |            |            |            |            | 0.9<br>p72 |            |              | p72         |     |     |        |     | p72 |     |     |     | p72 |     |     |
| 10μF                | 1<br>p72        | 1<br>p72    | 1<br>p72   | 1<br>p72   | 1<br>p72   | 0.9<br>p72 | 0.9<br>p72 | 0.9<br>p72 | 0.9<br>p72 | 0.9<br>p72   | 0.95<br>p72 |     |     |        |     |     |     |     | p72 | p72 |     |     |
| 22μF                |                 |             |            |            |            | 1<br>p72   | 1<br>p72   | 1<br>p72   | 1<br>p72   | 1<br>p72     |             |     |     |        |     |     |     |     |     |     |     |     |
| 47μF                |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 100μF               |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |
| 150μF               |                 |             |            |            |            |            |            |            |            |              |             |     |     |        |     |     |     |     |     |     |     |     |



# Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

| LxW (mm)            | 2.0x1.25 |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     |        |        |        |     |        |     |
|---------------------|----------|-----|-----|-----|-----|-----|-----|-----|-----|---|-----|---------|-------------|-------------|------|-----|--------|--------|--------|-----|--------|-----|
| T max. (mm)         | 0.95     |     |     |     |     |     |     |     |     |   |     | 0.95, 1 | 1           |             | 1.35 |     |        |        |        |     |        |     |
| Rated Voltage (Vdc) | 16       |     |     |     | 10  |     |     | 6.3 |     |   | 4   |         | 50          | 250         | 100  | 100 | 50     | 25     |        |     | 16     |     |
| Cap. / TC Code      | R        | X6S | X5R | B   | X7Δ | X5R | B   | X6S | X5R | B | X6S | X5R     | X7R, R      | X7R         | X7R  | X7R | X7R, R | X5R, B | X7R, R | X6S | X5R, B | X7R |
| 68pF                |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     |        |        |        |     |        |     |
| 100pF               |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     |        |        |        |     |        |     |
| 150pF               |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     |        |        |        |     |        |     |
| 220pF               |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     |        |        |        |     |        |     |
| 330pF               |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     |        |        |        |     |        |     |
| 470pF               |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     |        |        |        |     |        |     |
| 680pF               |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     |        |        |        |     |        |     |
| 1000pF              |          |     |     |     |     |     |     |     |     |   |     |         |             |             | p143 |     |        |        |        |     |        |     |
| 1500pF              |          |     |     |     |     |     |     |     |     |   |     |         |             |             | p143 |     |        |        |        |     |        |     |
| 2200pF              |          |     |     |     |     |     |     |     |     |   |     |         |             |             | p143 |     |        |        |        |     |        |     |
| 3300pF              |          |     |     |     |     |     |     |     |     |   |     |         |             |             | p143 |     |        |        |        |     |        |     |
| 4700pF              |          |     |     |     |     |     |     |     |     |   |     |         |             |             | p143 |     |        |        |        |     |        |     |
| 6800pF              |          |     |     |     |     |     |     |     |     |   |     |         |             |             | p143 |     |        |        |        |     |        |     |
| 10000pF             |          |     |     |     |     |     |     |     |     |   |     |         | 0.95<br>p72 |             |      |     | p73    |        |        |     |        |     |
| 12000pF             |          |     |     |     |     |     |     |     |     |   |     |         | 0.95<br>p72 |             |      |     | p73    |        |        |     |        |     |
| 15000pF             |          |     |     |     |     |     |     |     |     |   |     |         | 0.95<br>p72 |             |      |     | p73    |        |        |     |        |     |
| 18000pF             |          |     |     |     |     |     |     |     |     |   |     |         | 1<br>p73    |             |      |     | p73    |        |        |     |        |     |
| 22000pF             |          |     |     |     |     |     |     |     |     |   |     |         | 0.95<br>p72 | 0.95<br>p72 |      |     | p73    |        |        |     |        |     |
| 27000pF             |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     | p73    | p73    | p73    | p73 |        |     |
| 33000pF             |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     | p73    | p73    | p73    | p73 |        |     |
| 39000pF             |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     | p73    | p73    | p73    | p73 |        |     |
| 47000pF             |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     | p73    | p73    | p73    | p73 |        |     |
| 68000pF             |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     | p73    | p73    | p73    | p73 |        |     |
| 0.1μF               |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     | p73    | p73    | p73    | p73 | p73    | p73 |
| 0.15μF              |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     | p73    | p73    | p73    | p73 | p73    | p73 |
| 0.22μF              |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     | p73    | p73    | p73    | p73 | p73    | p73 |
| 0.33μF              |          |     |     |     |     |     |     |     |     |   |     |         | 0.95<br>p72 |             |      |     | p73    | p73    | p73    | p73 | p73    | p73 |
| 0.47μF              |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     | p73    | p73    | p73    | p73 | p73    | p73 |
| 0.68μF              | p72      |     |     | p72 |     |     |     |     |     |   |     |         |             |             |      |     |        | p73    | p73    | p73 | p73    | p73 |
| 1.0μF               |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     | p73    | p73    | p73    | p73 | p73    | p73 |
| 2.2μF               |          |     |     |     | p72 |     |     |     |     |   |     |         |             |             |      |     |        |        |        |     | p73    | p73 |
| 4.7μF               |          | p72 | p72 | p72 | p72 |     |     |     |     |   |     |         |             |             |      |     |        |        |        | p73 | p73    | p73 |
| 10μF                |          |     | p72 | p72 |     |     |     | p72 |     |   |     | p73     |             |             |      |     |        |        |        |     |        |     |
| 22μF                |          |     |     |     |     | p72 | p72 |     |     |   | p72 | p72     |             |             |      |     |        |        |        |     |        |     |
| 47μF                |          |     |     |     |     |     |     |     |     |   |     |         | p73         |             |      |     |        |        |        |     |        |     |
| 100μF               |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     |        |        |        |     |        |     |
| 150μF               |          |     |     |     |     |     |     |     |     |   |     |         |             |             |      |     |        |        |        |     |        |     |



# Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

| LxW (mm)            | 2.0x1.25 |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
|---------------------|----------|--------|-----|-----|-----|--------|--------|--------|-----|-----|-----|---|-----|-----|--------|-----|------|------|-----|--------|-----|--------|
| T max. (mm)         | 1.35     |        |     |     | 1.4 |        |        |        |     |     |     |   |     |     |        |     | 1.45 |      |     |        |     |        |
| Rated Voltage (Vdc) | 16       |        | 10  | 6.3 | 100 | 50     | 25     |        | 16  |     | 10  |   | 6.3 |     | 4      |     | 250  | 25   | 6.3 | 4      |     |        |
| Cap. / TC Code      | X6S      | X5R, B | X6S | X6S | X7R | X5R, B | X7R, R | X5R, B | X7R | X6S | X7R | B | X7R | X6S | X5R, B | X7U | X6S  | X7R  | X5R | X5R, B | X6S | X5R, B |
| 68pF                |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 100pF               |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 150pF               |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 220pF               |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 330pF               |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 470pF               |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 680pF               |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 1000pF              |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 1500pF              |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 2200pF              |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 3300pF              |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 4700pF              |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 6800pF              |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 10000pF             |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      | p143 |     |        |     |        |
| 12000pF             |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 15000pF             |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 18000pF             |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 22000pF             |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 27000pF             |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 33000pF             |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 39000pF             |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 47000pF             |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 68000pF             |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 0.1μF               |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 0.15μF              |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 0.22μF              |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 0.33μF              |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 0.47μF              |          |        |     |     | p73 |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 0.68μF              |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 1.0μF               |          |        |     |     |     |        | p73    | p73    | p73 |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 2.2μF               |          | p73    | p73 |     |     | p73    | p73    | p73    |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 4.7μF               | p73      | p73    | p73 |     |     | p73    | p73    |        | p73 |     | p73 |   |     |     |        |     |      |      |     |        |     |        |
| 10μF                |          | p73    | p73 | p73 |     |        |        | p73    | p73 |     |     |   | p73 |     |        |     |      |      |     |        |     |        |
| 22μF                |          |        |     |     |     |        |        |        |     |     | p73 |   |     | p73 | p73    | p73 | p74  | p74  |     | p74    |     |        |
| 47μF                |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     | p74    | p74 | p74    |
| 100μF               |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |
| 150μF               |          |        |     |     |     |        |        |        |     |     |     |   |     |     |        |     |      |      |     |        |     |        |



# Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

| LxW (mm)            | 3.2x1.6 |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
|---------------------|---------|-----|------|-----|-----|--------|---|-----|--------|--------|-----|--------|------|-----|-----|--------|---|-----|-----------|-----|--------|-----|
| T max. (mm)         | 0.7     |     | 0.95 |     |     |        |   |     |        |        |     |        | 1.25 |     |     |        |   |     | 1.25, 1.3 |     | 1.8    |     |
| Rated Voltage (Vdc) | 25      | 16  | 100  | 50  | 35  | 25     |   | 16  |        | 10     | 6.3 |        | 1000 | 630 | 250 | 50     |   | 16  |           | 100 | 25     | 630 |
| Cap. / TC Code      | X5R, B  | X6S | X7R  | X7R | X5R | X7R, R | B | X6S | X5R, B | X5R, B | X6S | X5R, B | X7R  | X7R | X7R | X7R, R | B | X6S | B         | X7R | X5R, B | X7R |
| 68pF                |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 100pF               |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 150pF               |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 220pF               |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 330pF               |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 470pF               |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 680pF               |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 1000pF              |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 1500pF              |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 2200pF              |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 3300pF              |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 4700pF              |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 6800pF              |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 10000pF             |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 12000pF             |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 15000pF             |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 18000pF             |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 22000pF             |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 27000pF             |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 33000pF             |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 39000pF             |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 47000pF             |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 68000pF             |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 0.1μF               |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 0.15μF              |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 0.22μF              |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 0.33μF              |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 0.47μF              |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 0.68μF              |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 1.0μF               |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 2.2μF               |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 4.7μF               |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 10μF                |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 22μF                |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 47μF                |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 100μF               |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |
| 150μF               |         |     |      |     |     |        |   |     |        |        |     |        |      |     |     |        |   |     |           |     |        |     |



# Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

| LxW (mm)            | 3.2x1.6 |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            | 3.2x2.5 |     |     |
|---------------------|---------|-----|--------|-----|-----|--------|--------|-----|--------|-----|-----|--------|-----|----------|------------|------------|------------|------------|------------|---------|-----|-----|
| T max. (mm)         | 1.8     |     |        |     |     |        |        |     |        |     |     |        |     | 1.8, 1.9 |            |            |            |            | 1.9        | 1       |     |     |
| Rated Voltage (Vdc) | 250     | 50  |        | 25  |     |        | 16     |     |        | 10  |     |        | 6.3 | 100      | 6.3        |            | 4          |            | 4          | 6.3     | 4   |     |
| Cap. / TC Code      | X7R     | X7R | X5R, B | X7R | X6S | X5R, B | X7R, R | X6S | X5R, B | X7R | X6S | X5R, B | X7Δ | X7R      | X6Δ        | X5R, B     | X7U        | X6Δ        | X5R        | X5S     | X6T | X5S |
| 68pF                |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 100pF               |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 150pF               |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 220pF               |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 330pF               |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 470pF               |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 680pF               |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 1000pF              |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 1500pF              |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 2200pF              |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 3300pF              |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 4700pF              |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 6800pF              |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 10000pF             |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 12000pF             |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 15000pF             |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 18000pF             |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 22000pF             |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 27000pF             |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 33000pF             | p143    |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 39000pF             |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 47000pF             | p143    |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 68000pF             |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 0.1μF               | p143    |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 0.15μF              |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 0.22μF              |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 0.33μF              |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 0.47μF              |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 0.68μF              |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 1.0μF               |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            | 1.8<br>p74 |            |            |            |         |     |     |
| 2.2μF               | p74     | p74 | p74    |     |     |        |        |     |        |     |     |        |     |          |            | 1.9<br>p74 |            |            |            |         |     |     |
| 4.7μF               | p74     | p74 | p74    |     |     |        | p74    | p74 |        |     |     |        |     |          |            |            |            |            |            |         |     |     |
| 10μF                |         |     |        | p74 | p74 | p74    | p74    |     | p74    | p74 |     |        |     |          |            |            |            |            |            |         |     |     |
| 22μF                |         |     |        |     |     | p74    | p74    |     | p74    | p74 | p74 | p74    | p74 |          | 1.8<br>p74 |            |            |            |            |         |     |     |
| 47μF                |         |     |        |     |     |        |        |     |        |     |     |        |     |          | 1.8<br>p74 | 1.8<br>p74 | 1.8<br>p74 | 1.8<br>p74 | 1.8<br>p74 |         |     |     |
| 100μF               |         |     |        |     |     |        |        |     |        |     |     |        |     |          | 1.9<br>p74 | 1.9<br>p74 | 1.9<br>p74 | 1.9<br>p74 | p74        |         |     |     |
| 150μF               |         |     |        |     |     |        |        |     |        |     |     |        |     |          |            |            |            |            |            | p75     | p75 | p75 |



# Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

| LxW (mm)            | 3.2x2.5 |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
|---------------------|---------|------|------|------|-----|-----|-----|-----|------|------|------|-----|-----|-----|-----|--------|-----|--------|-----|-----|--------|-----|
| T max. (mm)         | 1       | 1.5  |      |      |     |     |     | 1.8 | 2    |      |      | 2.2 |     | 2.7 |     |        |     |        |     |     |        |     |
| Rated Voltage (Vdc) | 2.5     | 1000 | 630  | 250  | 50  |     | 10  | 100 | 1000 | 630  | 250  | 25  |     | 100 | 50  |        | 35  |        | 25  |     | 16     |     |
| Cap. / TC Code      | X6T     | X7R  | X7R  | X7R  | X7R | B   | X6S | X7R | X7R  | X7R  | X7R  | X7R | X6S | X7R | X7R | X5R, B | X7R | X5R, B | X7R | X6S | X5R, B | X7R |
| 68pF                |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 100pF               |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 150pF               |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 220pF               |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 330pF               |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 470pF               |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 680pF               |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 1000pF              |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 1500pF              |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 2200pF              |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 3300pF              |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 4700pF              |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 6800pF              |         | p144 |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 10000pF             |         | p144 |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 12000pF             |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 15000pF             |         |      |      |      |     |     |     |     | p144 |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 18000pF             |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 22000pF             |         |      | p144 |      |     |     |     |     | p144 |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 27000pF             |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 33000pF             |         |      |      |      |     |     |     |     |      | p144 |      |     |     |     |     |        |     |        |     |     |        |     |
| 39000pF             |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 47000pF             |         |      |      |      |     |     |     |     |      | p144 |      |     |     |     |     |        |     |        |     |     |        |     |
| 68000pF             |         |      |      | p143 |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 0.1μF               |         |      |      |      |     |     |     |     |      |      | p143 |     |     |     |     |        |     |        |     |     |        |     |
| 0.15μF              |         |      |      | p143 |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 0.22μF              |         |      |      |      |     |     |     |     |      |      | p143 |     |     |     |     |        |     |        |     |     |        |     |
| 0.33μF              |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 0.47μF              |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 0.68μF              |         |      |      |      | p75 | p75 |     | p75 |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 1.0μF               |         |      |      |      |     |     |     | p75 |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 2.2μF               |         |      |      |      |     |     |     |     |      |      |      |     |     | p75 |     |        |     |        |     |     |        |     |
| 4.7μF               |         |      |      |      |     |     |     |     |      |      |      |     |     |     | p75 | p75    |     |        |     |     |        |     |
| 10μF                |         |      |      |      |     |     |     |     |      |      |      | p75 | p75 |     | p75 | p75    | p75 | p75    | p75 |     |        |     |
| 22μF                |         |      |      |      |     |     | p75 |     |      |      |      |     |     |     |     |        |     | p75    | p75 | p75 | p75    | p75 |
| 47μF                |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 100μF               |         |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |
| 150μF               | p75     |      |      |      |     |     |     |     |      |      |      |     |     |     |     |        |     |        |     |     |        |     |



# Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

| L×W (mm)            | 3.2×2.5 |        |     |     |        |     |     |        |     |     | 4.5×3.2 |      |      |      |      | 5.7×5.0 |      |      |
|---------------------|---------|--------|-----|-----|--------|-----|-----|--------|-----|-----|---------|------|------|------|------|---------|------|------|
| T max. (mm)         | 2.7     |        |     |     |        |     |     |        |     |     | 1.5     |      | 2    |      |      | 2       |      |      |
| Rated Voltage (Vdc) | 16      |        | 10  |     |        | 6.3 |     |        | 4   |     | 630     | 250  | 1000 | 630  | 250  | 1000    | 630  | 250  |
| Cap. / TC Code      | X6S     | X5R, B | X7R | X6S | X5R, B | X7Δ | X6S | X5R, B | X7U | X6S | X7R     | X7R  | X7R  | X7R  | X7R  | X7R     | X7R  | X7R  |
| 68pF                |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 100pF               |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 150pF               |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 220pF               |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 330pF               |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 470pF               |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 680pF               |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 1000pF              |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 1500pF              |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 2200pF              |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 3300pF              |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 4700pF              |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 6800pF              |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 10000pF             |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 12000pF             |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 15000pF             |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 18000pF             |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 22000pF             |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 27000pF             |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 33000pF             |         |        |     |     |        |     |     |        |     |     |         |      | p144 |      |      |         |      |      |
| 39000pF             |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 47000pF             |         |        |     |     |        |     |     |        |     |     |         |      | p144 |      |      |         |      |      |
| 68000pF             |         |        |     |     |        |     |     |        |     |     | p144    |      |      |      |      | p144    |      |      |
| 0.1μF               |         |        |     |     |        |     |     |        |     |     |         |      |      | p144 |      | p144    |      |      |
| 0.15μF              |         |        |     |     |        |     |     |        |     |     |         | p143 |      |      |      |         | p144 |      |
| 0.22μF              |         |        |     |     |        |     |     |        |     |     |         |      |      |      | p144 |         | p144 |      |
| 0.33μF              |         |        |     |     |        |     |     |        |     |     |         |      |      |      | p144 |         |      | p144 |
| 0.47μF              |         |        |     |     |        |     |     |        |     |     |         |      |      |      | p144 |         |      | p144 |
| 0.68μF              |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      | p144 |
| 1.0μF               |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      | p144 |
| 2.2μF               |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 4.7μF               |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 10μF                |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 22μF                |         | p75    |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |
| 47μF                | p75     | p75    | p75 | p75 | p75    | p75 | p75 | p75    |     |     |         |      |      |      |      |         |      |      |
| 100μF               |         |        |     |     |        | p75 | p75 | p75    | p75 | p75 |         |      |      |      |      |         |      |      |
| 150μF               |         |        |     |     |        |     |     |        |     |     |         |      |      |      |      |         |      |      |

## Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

### ■ GNM Series High Dielectric Constant Type

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X5R

| Number of Elements  | 2       |     |     |     |     |     |          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|---------------------|---------|-----|-----|-----|-----|-----|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L×W (mm)            | 0.9×0.6 |     |     |     |     |     | 1.37×1.0 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| T max. (mm)         | 0.5     |     |     |     |     |     | 0.55     |     |     |     |     |     | 0.7 |     |     |     |     |     |     |     |     |     |
| Rated Voltage (Vdc) | 16      |     | 10  |     | 4   |     | 16       |     |     |     | 10  |     | 50  |     |     |     | 25  |     |     |     | 16  |     |
| Cap. / TC Code      | X5R     | B   | X5R | B   | X5R | B   | X7R      | R   | X5R | B   | X5R | B   | X7R | R   | X5R | B   | X7R | R   | X5R | B   | X7R | R   |
| 470pF               |         |     |     |     |     |     |          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 1000pF              |         |     |     |     |     |     |          |     |     |     |     |     | p77 | p77 | p77 | p77 |     |     |     |     |     |     |
| 2200pF              |         |     |     |     |     |     |          |     |     |     |     |     |     |     |     |     | p77 | p77 | p77 | p77 |     |     |
| 4700pF              |         |     |     |     |     |     |          |     |     |     |     |     |     |     |     |     | p77 | p77 | p77 | p77 |     |     |
| 10000pF             | p77     | p77 | p77 | p77 |     |     |          |     |     |     |     |     |     |     |     |     | p77 | p77 | p77 | p77 |     |     |
| 22000pF             | p77     | p77 | p77 | p77 |     |     |          |     |     |     |     |     |     |     |     |     |     |     |     |     | p77 | p77 |
| 47000pF             | p77     | p77 | p77 | p77 |     |     |          |     |     |     |     |     |     |     |     |     |     |     |     |     | p77 | p77 |
| 0.1μF               | p77     | p77 | p77 | p77 |     |     | p77      | p77 |     | p77 |     |     |     |     |     |     |     |     |     |     | p77 | p77 |
| 0.22μF              |         |     |     |     |     |     |          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 0.47μF              |         |     |     |     |     |     |          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 1.0μF               |         |     |     |     | p77 | p77 |          |     | p77 |     | p77 | p77 |     |     |     |     |     |     |     |     |     |     |
| 2.2μF               |         |     |     |     |     |     |          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |



| Number of Elements  | 2        |     |     |     |     |     |     |     |     |     |     |     | 4        |     |     |     |     |     |     |     |     |     |  |
|---------------------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| L×W (mm)            | 1.37×1.0 |     |     |     |     |     |     |     |     |     |     |     | 2.0×1.25 |     |     |     |     |     |     |     |     |     |  |
| T max. (mm)         | 0.7      |     |     |     |     |     | 0.8 |     |     |     |     |     | 0.55     |     |     |     |     |     | 0.7 |     |     |     |  |
| Rated Voltage (Vdc) | 16       |     | 10  |     |     |     | 16  |     | 10  |     | 6.3 |     | 16       |     |     | 10  |     | 6.3 |     | 50  |     |     |  |
| Cap. / TC Code      | X5R      | B   | X7R | R   | X5R | B   | X5R | B   | X5R | B   | X5R | B   | X7R      | R   | B   | X5R | B   | X5R | B   | X7R | R   | B   |  |
| 470pF               |          |     |     |     |     |     |     |     |     |     |     |     |          |     |     |     |     |     |     | p77 |     | p77 |  |
| 1000pF              |          |     |     |     |     |     |     |     |     |     |     |     |          |     |     |     |     |     |     | p77 | p77 | p77 |  |
| 2200pF              |          |     |     |     |     |     |     |     |     |     |     |     |          |     |     |     |     |     |     |     |     |     |  |
| 4700pF              |          |     |     |     |     |     |     |     |     |     |     |     |          |     |     |     |     |     |     |     |     |     |  |
| 10000pF             |          |     |     |     |     |     |     |     |     |     |     |     |          |     |     |     |     |     |     |     |     |     |  |
| 22000pF             | p77      | p77 | p77 | p77 | p77 | p77 |     |     |     |     |     |     |          |     |     |     |     |     |     |     |     |     |  |
| 47000pF             | p77      | p77 | p77 | p77 | p77 | p77 |     |     |     |     |     |     |          |     |     |     |     |     |     |     |     |     |  |
| 0.1μF               |          | p77 |     |     |     | p77 | p77 |     |     |     |     |     | p77      | p77 | p77 |     |     |     |     |     |     |     |  |
| 0.22μF              |          |     |     |     |     |     | p77 |     |     |     | p77 |     |          |     |     | p77 | p77 | p77 | p77 |     |     |     |  |
| 0.47μF              |          |     |     |     |     |     |     |     |     |     | p77 |     |          |     |     |     |     |     |     |     |     |     |  |
| 1.0μF               |          |     |     |     |     |     | p77 | p77 | p77 | p77 |     |     |          |     |     | p77 | p77 | p77 | p77 |     |     |     |  |
| 2.2μF               |          |     |     |     |     |     |     |     | p77 | p77 | p77 | p77 |          |     |     |     |     |     |     |     |     |     |  |



| Number of Elements  | 4        |     |     |      |     |     |     |     |     |     |
|---------------------|----------|-----|-----|------|-----|-----|-----|-----|-----|-----|
| L×W (mm)            | 2.0×1.25 |     |     |      |     |     |     |     |     |     |
| T max. (mm)         | 0.7      |     |     | 0.95 |     |     |     |     |     |     |
| Rated Voltage (Vdc) | 25       |     |     | 16   |     |     | 10  |     | 6.3 |     |
| Cap. / TC Code      | X7R      | R   | B   | X7R  | R   | B   | X5R | B   | X5R | B   |
| 470pF               |          |     |     |      |     |     |     |     |     |     |
| 1000pF              |          |     |     |      |     |     |     |     |     |     |
| 2200pF              | p77      | p77 | p77 |      |     |     |     |     |     |     |
| 4700pF              | p77      | p77 | p77 |      |     |     |     |     |     |     |
| 10000pF             | p77      | p77 | p78 |      |     |     |     |     |     |     |
| 22000pF             |          |     |     | p78  | p78 | p78 |     |     |     |     |
| 47000pF             |          |     |     | p78  | p78 | p78 |     |     |     |     |
| 0.1μF               |          |     |     | p78  | p78 | p78 |     |     |     |     |
| 0.22μF              |          |     |     |      |     |     |     |     |     |     |
| 0.47μF              |          |     |     |      |     |     |     |     |     |     |
| 1.0μF               |          |     |     |      |     |     | p78 | p78 | p78 | p78 |
| 2.2μF               |          |     |     |      |     |     |     |     |     |     |

## Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

### ■ LLL Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7R

X7S

X6S

X5R

| L×W (mm)            | 0.5×1.0 |     | 0.8×1.6 |     |     |     |      |     |     |     |     |     | 1.25×2.0 |     |     |     |     |     |     |     |      |    |
|---------------------|---------|-----|---------|-----|-----|-----|------|-----|-----|-----|-----|-----|----------|-----|-----|-----|-----|-----|-----|-----|------|----|
| T max. (mm)         | 0.35    |     | 0.5     |     |     |     | 0.55 | 0.6 |     |     |     | 0.5 |          |     |     |     |     | 0.7 |     |     | 0.95 |    |
| Rated Voltage (Vdc) | 6.3     | 4   | 25      | 16  | 10  | 4   | 4    | 50  | 25  | 16  | 10  | 4   | 50       | 25  | 16  | 10  | 6.3 | 4   | 50  | 25  | 10   | 16 |
| Cap. / TC Code      | X6S     | X7S | X7R     | X7R | X7R | X7S | X7S  | X7R | X7R | X7R | X7R | X7S | X7R      | X7R | X7R | X7R | X7S | X7R | X7R | X7R | X7R  |    |
| 2200pF              |         |     |         |     |     |     |      | p80 |     |     |     |     |          |     |     |     |     |     |     |     |      |    |
| 4700pF              |         |     |         |     |     |     |      | p80 |     |     |     |     |          |     |     |     |     |     |     |     |      |    |
| 10000pF             |         |     | p80     |     |     |     |      |     | p80 |     |     |     | p80      |     |     |     |     |     | p80 |     |      |    |
| 22000pF             |         |     |         | p80 |     |     |      |     | p80 |     |     |     |          | p80 |     |     |     |     | p80 |     |      |    |
| 47000pF             |         |     |         | p80 |     |     |      |     |     | p80 |     |     |          |     | p80 |     |     |     |     | p80 |      |    |
| 0.1μF               | p80     |     |         |     | p80 |     |      |     |     |     | p80 |     |          |     | p80 |     |     |     |     | p80 |      |    |
| 0.22μF              | p80     |     |         |     |     | p80 |      |     |     |     | p80 |     |          |     |     | p80 |     |     |     |     | p80  |    |
| 0.47μF              |         | p80 |         |     |     |     |      |     |     |     |     | p80 |          |     |     |     | p80 |     |     |     |      |    |
| 1.0μF               |         |     |         |     |     |     | p80  |     |     |     |     |     |          |     |     |     |     | p80 |     |     |      |    |
| 2.2μF               |         |     |         |     |     |     | p80  |     |     |     |     |     |          |     |     |     |     |     |     |     |      |    |
| 4.7μF               |         |     |         |     |     |     |      |     |     |     |     |     |          |     |     |     |     |     |     |     |      |    |
| 10μF                |         |     |         |     |     |     |      |     |     |     |     |     |          |     |     |     |     |     |     |     |      |    |



| LxW (mm)            | 1.25x2.0 |     | 1.6x3.2 |     |     |     |     |     |     |     |     |     |      |     |     |     |     |
|---------------------|----------|-----|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|
| T max. (mm)         | 0.95     |     | 0.5     |     |     |     |     | 0.8 |     |     |     |     | 1.25 |     |     |     |     |
| Rated Voltage (Vdc) | 10       | 4   | 50      | 25  | 16  | 10  | 50  | 25  | 16  | 10  | 6.3 | 50  | 25   | 16  | 10  | 6.3 |     |
| Cap. / TC Code      | X7R      | X7S | X7R     | X7R | X7R | X7R | X7R | X7R | X7R | X7R | X7R | X7R | X7R  | X7R | X7R | X7R | X5R |
| 2200pF              |          |     |         |     |     |     |     |     |     |     |     |     |      |     |     |     |     |
| 4700pF              |          |     |         |     |     |     |     |     |     |     |     |     |      |     |     |     |     |
| 10000pF             |          |     | p80     |     |     |     | p80 |     |     |     |     |     |      |     |     |     |     |
| 22000pF             |          |     | p80     |     |     |     | p80 |     |     |     |     |     |      |     |     |     |     |
| 47000pF             |          |     |         | p80 |     |     | p80 |     |     |     |     |     |      |     |     |     |     |
| 0.1μF               |          |     |         | p80 |     |     |     | p80 |     |     |     | p80 |      |     |     |     |     |
| 0.22μF              |          |     |         |     | p80 |     |     |     | p80 |     |     |     | p80  |     |     |     |     |
| 0.47μF              | p80      |     |         |     |     | p80 |     |     | p80 |     |     |     | p80  |     |     |     |     |
| 1.0μF               | p80      |     |         |     |     |     |     |     |     | p80 |     |     |      | p80 |     |     |     |
| 2.2μF               |          | p80 |         |     |     |     |     |     |     |     | p80 |     |      |     | p80 |     |     |
| 4.7μF               |          |     |         |     |     |     |     |     |     |     |     |     |      |     |     | p80 |     |
| 10μF                |          |     |         |     |     |     |     |     |     |     |     |     |      |     |     |     | p80 |

### ■ LLR Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7S

| LxW (mm)            | 0.8x1.6 |     |     |      |
|---------------------|---------|-----|-----|------|
| T max. (mm)         | 0.55    |     |     |      |
| Rated Voltage (Vdc) | 4       |     |     |      |
| TC Code             | X7S     |     |     |      |
| Cap. / ESR (mΩ)     | 100     | 220 | 470 | 1000 |
| 1.0μF               | p80     | p80 | p80 | p80  |

## Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

### ■ LLA Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7R

X7S

| LxW (mm)            | 1.6×<br>0.8 | 2.0×1.25 |     |     |     |     |      |     |     |     |     | 3.2×1.6 |     |     |      |     |      |     |  |
|---------------------|-------------|----------|-----|-----|-----|-----|------|-----|-----|-----|-----|---------|-----|-----|------|-----|------|-----|--|
| T max. (mm)         | 0.55        | 0.55     |     |     |     |     | 0.95 |     |     |     |     | 0.55    |     |     | 0.95 |     | 1.25 |     |  |
| Rated Voltage (Vdc) | 4           | 25       | 16  | 10  | 6.3 | 4   | 25   | 16  | 10  | 6.3 | 4   | 16      | 10  | 6.3 | 16   | 10  | 16   | 10  |  |
| Cap. / TC Code      | X7S         | X7R      | X7R | X7R | X7R | X7S | X7R  | X7R | X7R | X7R | X7S | X7R     | X7R | X7R | X7R  | X7R | X7R  | X7R |  |
| 10000pF             |             | p81      |     |     |     |     | p81  |     |     |     |     |         |     |     |      |     |      |     |  |
| 22000pF             |             | p81      |     |     |     |     | p81  |     |     |     |     |         |     |     |      |     |      |     |  |
| 47000pF             |             |          | p81 |     |     |     | p81  |     |     |     |     |         |     |     |      |     |      |     |  |
| 0.1μF               | p81         |          | p81 |     |     |     |      | p81 |     |     |     |         |     |     |      |     |      |     |  |
| 0.22μF              | p81         |          |     | p81 |     |     |      | p81 |     |     |     | p81     |     |     |      |     |      |     |  |
| 0.47μF              | p81         |          |     |     | p81 |     |      |     | p81 |     |     |         | p81 |     | p81  |     |      |     |  |
| 1.0μF               | p81         |          |     |     |     | p81 |      |     |     | p81 |     |         |     | p81 |      | p81 | p81  |     |  |
| 2.2μF               | p81         |          |     |     |     | p81 |      |     |     |     | p81 |         |     | p81 |      |     |      | p81 |  |
| 4.7μF               |             |          |     |     |     | p81 |      |     |     |     | p81 |         |     |     |      |     |      |     |  |

### ■ LLM Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7R

X7S

| L×W (mm)            | 2.0×1.25 |     |     |     | 3.2×1.6 |     |     |
|---------------------|----------|-----|-----|-----|---------|-----|-----|
| T max. (mm)         | 0.55     |     |     |     | 0.55    |     |     |
| Rated Voltage (Vdc) | 25       | 16  | 6.3 | 4   | 16      | 10  | 6.3 |
| Cap. / TC Code      | X7R      | X7R | X7R | X7S | X7R     | X7R | X7R |
| 10000pF             | p81      |     |     |     |         |     |     |
| 22000pF             | p81      |     |     |     |         |     |     |
| 47000pF             |          | p81 |     |     |         |     |     |
| 0.1μF               |          | p81 |     | p81 |         |     |     |
| 0.22μF              |          |     | p81 |     | p81     |     |     |
| 0.47μF              |          |     | p81 |     |         | p81 |     |
| 1.0μF               |          |     |     | p81 |         |     |     |
| 2.2μF               |          |     |     | p81 |         |     | p81 |

# Capacitance Table

Each number in the Part Number List refers to the page number printed at the bottom of the page.

## GJM Series Temperature Compensating Type

p00 ← Part Number List JIS: CK CJ CH EIA: C0G C0H

| L×W (mm)            | 0.4×0.2 |     | 0.6×0.3 |     |     |     | 1.0×0.5 |      |
|---------------------|---------|-----|---------|-----|-----|-----|---------|------|
| T max. (mm)         | 0.22    |     | 0.33    |     |     |     | 0.55    |      |
| Rated Voltage (Vdc) | 16      |     | 25      |     | 6.3 |     | 50      |      |
| Cap. / TC Code      | C0G     | CΔ  | C0Δ     | CΔ  | C0G | CH  | C0G     | CΔ   |
| 0.1pF               |         |     |         |     |     |     | p96     | p99  |
| 0.2pF               | p83     | p86 | p89     | p92 |     |     | p96     | p99  |
| 1.0pF               | p83     | p86 | p89     | p92 |     |     | p96     | p99  |
| 2.0pF               | p83     | p86 | p89     | p92 |     |     | p96     | p99  |
| 3.0pF               | p83     | p86 | p90     | p93 |     |     | p96     | p100 |
| 4.0pF               | p84     | p87 | p90     | p93 |     |     | p97     | p100 |
| 5.0pF               | p84     | p87 | p90     | p93 |     |     | p97     | p100 |
| 6.0pF               | p84     | p87 | p90     | p94 |     |     | p97     | p101 |
| 7.0pF               | p85     | p88 | p91     | p94 |     |     | p98     | p101 |
| 8.0pF               | p85     | p88 | p91     | p94 |     |     | p98     | p101 |
| 9.0pF               | p85     | p88 | p92     | p95 |     |     | p98     | p102 |
| 10pF                | p86     | p89 | p92     | p95 |     |     | p99     | p102 |
| 11pF                |         |     | p92     | p95 |     |     | p99     | p102 |
| 12pF                |         |     | p92     | p95 |     |     | p99     | p102 |
| 13pF                |         |     | p92     | p95 |     |     | p99     | p102 |
| 15pF                |         |     | p92     | p95 |     |     | p99     | p102 |
| 16pF                |         |     | p92     | p95 |     |     | p99     | p102 |
| 18pF                |         |     | p92     | p95 |     |     | p99     | p102 |
| 20pF                |         |     | p92     | p95 |     |     | p99     | p102 |
| 22pF                |         |     |         |     | p95 | p95 | p99     | p102 |
| 24pF                |         |     |         |     | p95 | p95 | p99     | p102 |
| 27pF                |         |     |         |     | p95 | p95 | p99     | p102 |
| 30pF                |         |     |         |     | p95 | p95 | p99     | p102 |
| 33pF                |         |     |         |     | p95 | p95 | p99     | p102 |
| 36pF                |         |     |         |     |     |     | p99     | p102 |
| 39pF                |         |     |         |     |     |     | p99     | p102 |
| 43pF                |         |     |         |     |     |     | p99     | p103 |
| 47pF                |         |     |         |     |     |     | p99     | p103 |

The indication for every 0.1 pF has been omitted for less than 10 pF. Refer to the Part Number List for details.

## Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

### ■ GQM Series Temperature Compensating Type

p00

← Part Number List

JIS:

CK

CJ

CH

EIA:

C0G

| LxW (mm)            | 1.6x0.8 |      |      |      |      | 2.0x1.25 |      |      |      | 2.8x2.8   |
|---------------------|---------|------|------|------|------|----------|------|------|------|-----------|
| T max. (mm)         | 0.8     | 0.9  |      |      |      | 0.95     |      | 1    | 1.35 |           |
| Rated Voltage (Vdc) | 250     | 100  | 50   |      |      | 100      | 50   | 250  | 500  |           |
| Cap. / TC Code      | C0G     | C0G  | CΔ   | C0G  | CH   | C0G      | CΔ   | C0G  | CH   | C0G       |
| 0.1pF               | p105    |      |      |      |      |          |      |      |      |           |
| 0.5pF               | p105    | p105 | p106 |      |      | p108     | p108 |      |      | p110 p111 |
| 1.0pF               | p105    | p106 | p106 |      |      | p108     | p108 |      |      | p110 p111 |
| 2.0pF               | p105    | p106 | p106 |      |      | p108     | p109 |      |      | p110 p111 |
| 3.0pF               | p105    | p106 | p106 |      |      | p108     | p109 |      |      | p110 p111 |
| 4.0pF               | p105    | p106 | p106 |      |      | p108     | p109 |      |      | p110 p111 |
| 5.0pF               | p105    | p106 | p106 |      |      | p108     | p109 |      |      | p110 p111 |
| 6.0pF               | p105    | p106 | p106 |      |      | p108     | p109 |      |      | p110 p111 |
| 7.0pF               | p105    |      |      | p106 | p107 | p108     | p109 |      |      | p110 p111 |
| 8.0pF               | p105    |      |      | p106 | p107 | p108     | p109 |      |      | p110 p111 |
| 9.0pF               | p105    |      |      | p107 | p107 | p108     | p109 |      |      | p110 p111 |
| 10pF                | p105    |      |      | p107 | p107 | p108     | p109 |      |      | p110 p111 |
| 11pF                | p105    |      |      | p107 | p107 | p108     | p109 |      |      | p110 p111 |
| 12pF                | p105    |      |      | p107 | p107 | p108     | p109 |      |      | p110 p111 |
| 13pF                | p105    |      |      | p107 | p107 | p108     | p109 |      |      | p110 p112 |
| 15pF                | p105    |      |      | p107 | p107 | p108     | p109 |      |      | p110 p112 |
| 16pF                | p105    |      |      | p107 | p107 | p108     | p109 |      |      | p110 p112 |
| 18pF                | p105    |      |      | p107 | p107 | p108     | p109 |      |      | p110 p112 |
| 20pF                | p105    |      |      | p107 | p107 |          |      | p109 | p109 | p110 p112 |
| 22pF                | p105    |      |      | p107 | p107 |          |      | p109 | p109 | p110 p112 |
| 24pF                | p105    |      |      | p107 | p107 |          |      | p109 | p109 | p111 p112 |
| 27pF                | p105    |      |      | p107 | p107 |          |      | p109 | p109 | p111 p112 |
| 30pF                | p105    |      |      | p107 | p107 |          |      | p109 | p109 | p111 p112 |
| 33pF                | p105    |      |      | p107 | p107 |          |      | p109 | p110 | p111 p112 |
| 36pF                | p105    |      |      | p107 | p107 |          |      | p109 | p110 | p111 p112 |
| 39pF                | p105    |      |      | p107 | p107 |          |      | p109 | p110 | p111 p112 |
| 43pF                | p105    |      |      | p107 | p107 |          |      | p109 | p110 | p111 p112 |
| 47pF                | p105    |      |      | p107 | p107 |          |      | p109 | p110 | p111 p112 |
| 51pF                |         |      |      | p107 | p107 |          |      | p109 | p110 | p111 p112 |
| 56pF                |         |      |      | p107 | p107 |          |      | p109 | p110 | p111 p112 |
| 62pF                |         |      |      | p107 | p107 |          |      | p109 | p110 | p111 p112 |
| 68pF                |         |      |      | p107 | p108 |          |      | p109 | p110 | p111 p112 |
| 75pF                |         |      |      | p107 | p108 |          |      | p109 | p110 | p111 p112 |
| 82pF                |         |      |      | p107 | p108 |          |      | p109 | p110 | p111 p112 |
| 91pF                |         |      |      | p107 | p108 |          |      | p109 | p110 | p111 p112 |
| 100pF               |         |      |      | p107 | p108 |          |      | p109 | p110 | p111 p112 |

The indication for every 0.1 pF has been omitted for less than 10 pF. Refer to the Part Number List for details.

## Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

### ■ GMA Series High Dielectric Constant Type

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X5R

| L×W (mm)            | 0.38×0.38 |      | 0.5×0.5 |      |      |      |      |      |      |      | 0.8×0.8 |      |      |      |      |      |      |      |
|---------------------|-----------|------|---------|------|------|------|------|------|------|------|---------|------|------|------|------|------|------|------|
| T max. (mm)         | 0.35      |      | 0.4     |      |      |      |      |      |      |      | 0.6     |      |      |      |      |      |      |      |
| Rated Voltage (Vdc) | 10        |      | 100     | 25   |      | 10   |      |      | 6.3  |      | 100     | 25   |      | 10   |      |      | 6.3  |      |
| Cap. / TC Code      | X7R       | R    | X7R     | X7R  | B    | X7R  | R    | B    | X5R  | B    | X7R     | X7R  | B    | X7R  | R    | B    | X5R  | B    |
| 100pF               |           |      | p114    |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |
| 150pF               |           |      | p114    |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |
| 220pF               |           |      | p114    |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |
| 330pF               |           |      | p114    |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |
| 470pF               |           |      | p114    |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |
| 680pF               |           |      | p114    |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |
| 1000pF              |           |      | p114    |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |
| 1500pF              |           |      |         | p114 | p114 |      |      |      |      |      | p114    |      |      |      |      |      |      |      |
| 2200pF              |           |      |         | p114 | p114 |      |      |      |      |      | p114    |      |      |      |      |      |      |      |
| 3300pF              |           |      |         | p114 | p114 |      |      |      |      |      | p114    |      |      |      |      |      |      |      |
| 4700pF              |           |      |         | p114 | p114 |      |      |      |      |      | p114    |      |      |      |      |      |      |      |
| 6800pF              |           |      |         |      |      | p114 | p114 | p114 |      |      | p114    |      |      |      |      |      |      |      |
| 10000pF             | p114      | p114 |         |      |      | p114 | p114 | p114 |      |      |         | p114 | p114 |      |      |      |      |      |
| 15000pF             |           |      |         |      |      | p114 | p114 | p114 |      |      |         | p114 | p114 |      |      |      |      |      |
| 22000pF             |           |      |         |      |      | p114 | p114 | p114 |      |      |         | p114 | p114 |      |      |      |      |      |
| 33000pF             |           |      |         |      |      |      |      |      |      |      |         |      |      | p114 | p114 | p114 |      |      |
| 47000pF             |           |      |         |      |      |      |      |      |      |      |         |      |      | p114 | p114 | p114 |      |      |
| 68000pF             |           |      |         |      |      |      |      |      |      |      |         |      |      | p114 | p114 | p114 |      |      |
| 0.1μF               |           |      |         |      |      |      |      |      | p114 | p114 |         |      |      | p114 | p114 | p114 |      |      |
| 0.47μF              |           |      |         |      |      |      |      |      |      |      |         |      |      |      |      |      | p114 | p114 |

## Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

### ■ GMD Series High Dielectric Constant Type

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X5R

| LxW (mm)            | 0.6x0.3 |      |      |      |      |      |      |      |      |      | 1.0x0.5 |      |      |      |      |      |      |      |      |      |      |      |
|---------------------|---------|------|------|------|------|------|------|------|------|------|---------|------|------|------|------|------|------|------|------|------|------|------|
| T max. (mm)         | 0.33    |      |      |      |      |      |      |      |      |      | 0.55    |      |      |      |      |      |      |      |      |      |      |      |
| Rated Voltage (Vdc) | 25      |      |      | 16   |      |      | 10   |      |      | 6.3  |         | 50   |      |      | 25   |      |      | 16   |      |      | 10   |      |
| Cap. / TC Code      | X7R     | R    | B    | X7R  | R    | B    | X7R  | R    | B    | X5R  | B       | X7R  | R    | B    | X7R  | R    | B    | X7R  | R    | B    | X5R  | B    |
| 100pF               | p116    | p116 | p116 |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |      |      |      |      |
| 120pF               | p116    | p116 | p116 |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |      |      |      |      |
| 150pF               | p116    | p116 | p116 |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |      |      |      |      |
| 180pF               | p116    | p116 | p116 |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |      |      |      |      |
| 220pF               | p116    | p116 | p116 |      |      |      |      |      |      |      |         | p116 | p116 | p117 |      |      |      |      |      |      |      |      |
| 270pF               | p116    | p116 | p116 |      |      |      |      |      |      |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 330pF               | p116    | p116 | p116 |      |      |      |      |      |      |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 390pF               | p116    | p116 | p116 |      |      |      |      |      |      |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 470pF               | p116    | p116 | p116 |      |      |      |      |      |      |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 560pF               | p116    | p116 | p116 |      |      |      |      |      |      |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 680pF               | p116    | p116 | p116 |      |      |      |      |      |      |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 820pF               | p116    | p116 | p116 |      |      |      |      |      |      |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 1000pF              | p116    | p116 | p116 |      |      |      |      |      |      |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 1200pF              | p116    | p116 | p116 |      |      |      |      |      |      |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 1500pF              | p116    | p116 | p116 |      |      |      |      |      |      |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 1800pF              |         |      |      | p116 | p116 | p116 |      |      |      |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 2200pF              |         |      |      | p116 | p116 | p116 |      |      |      |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 2700pF              |         |      |      | p116 | p116 | p116 |      |      |      |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 3300pF              |         |      |      | p116 | p116 | p116 |      |      |      |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 3900pF              |         |      |      |      |      |      | p116 | p116 | p116 |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 4700pF              |         |      |      |      |      |      | p116 | p116 | p116 |      |         | p116 | p117 | p117 |      |      |      |      |      |      |      |      |
| 5600pF              |         |      |      |      |      |      | p116 | p116 | p116 |      |         |      |      |      | p117 | p117 | p117 |      |      |      |      |      |
| 6800pF              |         |      |      |      |      |      | p116 | p116 | p116 |      |         |      |      |      | p117 | p117 | p117 |      |      |      |      |      |
| 8200pF              |         |      |      |      |      |      | p116 | p116 | p116 |      |         |      |      |      | p117 | p117 | p117 |      |      |      |      |      |
| 10000pF             |         |      |      |      |      |      | p116 | p116 | p116 |      |         |      |      |      | p117 | p117 | p117 |      |      |      |      |      |
| 12000pF             |         |      |      |      |      |      |      |      |      |      |         |      |      |      | p117 | p117 | p117 |      |      |      |      |      |
| 15000pF             |         |      |      |      |      |      |      |      |      |      |         |      |      |      | p117 | p117 | p117 |      |      |      |      |      |
| 18000pF             |         |      |      |      |      |      |      |      |      |      |         |      |      |      | p117 | p117 | p117 |      |      |      |      |      |
| 22000pF             |         |      |      |      |      |      |      |      |      |      |         |      |      |      | p117 | p117 | p117 |      |      |      |      |      |
| 27000pF             |         |      |      |      |      |      |      |      |      |      |         |      |      |      | p117 | p117 | p117 |      |      |      |      |      |
| 33000pF             |         |      |      |      |      |      |      |      |      |      |         |      |      |      | p117 | p117 | p117 |      |      |      |      |      |
| 39000pF             |         |      |      |      |      |      |      |      |      |      |         |      |      |      | p117 | p117 | p117 |      |      |      |      |      |
| 47000pF             |         |      |      |      |      |      |      |      |      |      |         |      |      |      | p117 | p117 | p117 |      |      |      |      |      |
| 56000pF             |         |      |      |      |      |      |      |      |      | p116 | p116    |      |      |      |      |      |      | p117 | p117 | p117 |      |      |
| 68000pF             |         |      |      |      |      |      |      |      |      | p116 | p116    |      |      |      |      |      |      | p117 | p117 | p117 |      |      |
| 82000pF             |         |      |      |      |      |      |      |      |      | p116 | p116    |      |      |      |      |      |      | p117 | p117 | p117 |      |      |
| 0.1μF               |         |      |      |      |      |      |      |      |      | p116 | p116    |      |      |      |      |      |      | p117 | p117 | p117 |      |      |
| 0.12μF              |         |      |      |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |      |      | p117 | p117 |
| 0.15μF              |         |      |      |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |      |      | p117 | p117 |
| 0.18μF              |         |      |      |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |      |      | p117 | p117 |
| 0.22μF              |         |      |      |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |      |      | p117 | p117 |
| 0.27μF              |         |      |      |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |      |      | p117 | p117 |
| 0.33μF              |         |      |      |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |      |      | p117 | p117 |
| 0.39μF              |         |      |      |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |      |      | p117 | p117 |
| 0.47μF              |         |      |      |      |      |      |      |      |      |      |         |      |      |      |      |      |      |      |      |      | p117 | p117 |

## Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

### GRJ Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7R

| LxW (mm)            | 2.0x1.25 |      | 3.2x1.6 |      |      |      |      |      | 3.2x2.5 |      |     |      |      |     | 4.5x3.2 |      |      |     |      |      | 5.7x5.0 |      |  |  |  |  |
|---------------------|----------|------|---------|------|------|------|------|------|---------|------|-----|------|------|-----|---------|------|------|-----|------|------|---------|------|--|--|--|--|
| T max. (mm)         | 1        | 1.45 | 1.25    |      |      | 1.8  |      |      | 1.5     |      |     | 2    |      |     | 1.5     |      | 2    |     |      | 2    |         |      |  |  |  |  |
| Rated Voltage (Vdc) | 250      | 250  | 1000    | 630  | 250  | 1000 | 630  | 250  | 1000    | 630  | 250 | 1000 | 630  | 250 | 630     | 250  | 1000 | 630 | 250  | 1000 | 630     | 250  |  |  |  |  |
| Cap. / TC Code      | X7R      | X7R  | X7R     | X7R  | X7R  | X7R  | X7R  | X7R  | X7R     | X7R  | X7R | X7R  | X7R  | X7R | X7R     | X7R  | X7R  | X7R | X7R  | X7R  | X7R     | X7R  |  |  |  |  |
| 470pF               |          |      | p149    |      |      |      |      |      |         |      |     |      |      |     |         |      |      |     |      |      |         |      |  |  |  |  |
| 680pF               |          |      | p149    |      |      |      |      |      |         |      |     |      |      |     |         |      |      |     |      |      |         |      |  |  |  |  |
| 1000pF              | p148     |      | p149    | p149 |      |      |      |      |         |      |     |      |      |     |         |      |      |     |      |      |         |      |  |  |  |  |
| 1500pF              | p148     |      | p149    | p149 |      |      |      |      |         |      |     |      |      |     |         |      |      |     |      |      |         |      |  |  |  |  |
| 2200pF              | p148     |      | p149    | p149 |      |      |      |      |         |      |     |      |      |     |         |      |      |     |      |      |         |      |  |  |  |  |
| 3300pF              | p148     |      | p149    | p149 |      |      |      |      |         |      |     |      |      |     |         |      |      |     |      |      |         |      |  |  |  |  |
| 4700pF              | p148     |      | p149    | p149 |      |      |      |      |         |      |     |      |      |     |         |      |      |     |      |      |         |      |  |  |  |  |
| 6800pF              | p148     |      |         | p149 |      | p149 |      |      | p149    |      |     |      |      |     |         |      |      |     |      |      |         |      |  |  |  |  |
| 10000pF             |          | p148 |         | p149 |      | p149 |      |      | p149    |      |     |      |      |     |         |      |      |     |      |      |         |      |  |  |  |  |
| 15000pF             |          | p148 |         |      | p148 |      | p149 |      |         |      |     | p149 |      |     |         |      |      |     |      |      |         |      |  |  |  |  |
| 22000pF             |          | p148 |         |      | p148 |      | p149 |      |         | p149 |     | p149 |      |     |         |      |      |     |      |      |         |      |  |  |  |  |
| 33000pF             |          |      |         |      |      |      |      | p148 |         |      |     |      | p149 |     |         |      | p149 |     |      |      |         |      |  |  |  |  |
| 47000pF             |          |      |         |      |      |      |      | p148 |         |      |     |      | p149 |     |         |      | p149 |     |      |      |         |      |  |  |  |  |
| 68000pF             |          |      |         |      | p148 |      |      |      |         | p148 |     |      |      |     | p149    |      |      |     |      | p149 |         |      |  |  |  |  |
| 0.1μF               |          |      |         |      |      |      |      | p148 |         |      |     |      |      |     | p148    |      |      |     | p149 |      | p149    |      |  |  |  |  |
| 0.15μF              |          |      |         |      |      |      |      |      |         | p148 |     |      |      |     |         | p148 |      |     |      |      |         | p149 |  |  |  |  |
| 0.22μF              |          |      |         |      |      |      |      |      |         |      |     |      |      |     | p148    |      |      |     |      |      | p149    |      |  |  |  |  |
| 0.33μF              |          |      |         |      |      |      |      |      |         |      |     |      |      |     |         |      |      |     | p148 |      |         | p148 |  |  |  |  |
| 0.47μF              |          |      |         |      |      |      |      |      |         |      |     |      |      |     |         |      |      |     | p148 |      |         | p148 |  |  |  |  |
| 0.68μF              |          |      |         |      |      |      |      |      |         |      |     |      |      |     |         |      |      |     |      |      |         | p148 |  |  |  |  |
| 1.0μF               |          |      |         |      |      |      |      |      |         |      |     |      |      |     |         |      |      |     |      |      |         | p148 |  |  |  |  |

### GR3 Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7T

| LxW (mm)            | 2.0x1.25 |      | 3.2x1.6 |      |      |      |      |      |      |      | 3.2x2.5 |      |      |      |      |      | 4.5x3.2 |      |      |      |      |     | 5.7x5.0 |      |      |  |  |  |
|---------------------|----------|------|---------|------|------|------|------|------|------|------|---------|------|------|------|------|------|---------|------|------|------|------|-----|---------|------|------|--|--|--|
| T max. (mm)         | 1        | 1.45 | 1       |      | 1.25 |      |      | 1.8  |      |      | 1.5     |      | 2    |      |      |      | 1.5     | 2    |      |      | 2    |     |         | 2.7  |      |  |  |  |
| Rated Voltage (Vdc) | 250      | 250  | 450     | 250  | 630  | 450  | 250  | 630  | 450  | 250  | 630     | 250  | 630  | 450  | 250  | 250  | 630     | 450  | 250  | 630  | 450  | 250 | 630     | 450  | 250  |  |  |  |
| Cap. / TC Code      | X7T      | X7T  | X7T     | X7T  | X7T  | X7T  | X7T  | X7T  | X7T  | X7T  | X7T     | X7T  | X7T  | X7T  | X7T  | X7T  | X7T     | X7T  | X7T  | X7T  | X7T  | X7T | X7T     | X7T  | X7T  |  |  |  |
| 10000pF             | p153     |      | p153    |      | p154 |      |      |      |      |      |         |      |      |      |      |      |         |      |      |      |      |     |         |      |      |  |  |  |
| 15000pF             | p153     |      | p153    |      |      |      |      | p154 |      |      |         |      |      |      |      |      |         |      |      |      |      |     |         |      |      |  |  |  |
| 22000pF             |          | p153 |         |      |      | p153 |      |      |      |      | p154    |      |      |      |      |      |         |      |      |      |      |     |         |      |      |  |  |  |
| 33000pF             |          |      |         | p153 |      | p153 |      |      |      |      |         |      | p154 |      |      |      |         |      |      |      |      |     |         |      |      |  |  |  |
| 47000pF             |          |      |         |      |      |      | p153 |      | p153 |      |         |      |      | p154 |      |      |         |      |      |      |      |     |         |      |      |  |  |  |
| 68000pF             |          |      |         |      |      |      |      |      |      | p153 |         |      |      |      | p153 |      |         | p154 |      |      |      |     |         |      |      |  |  |  |
| 0.1μF               |          |      |         |      |      |      |      |      |      |      |         | p153 |      |      | p153 |      |         |      |      | p154 |      |     |         |      |      |  |  |  |
| 0.15μF              |          |      |         |      |      |      |      |      |      |      |         |      |      |      |      | p153 |         | p153 |      | p154 |      |     |         |      |      |  |  |  |
| 0.22μF              |          |      |         |      |      |      |      |      |      |      |         |      |      |      |      |      | p153    |      |      |      | p153 |     |         | p154 |      |  |  |  |
| 0.27μF              |          |      |         |      |      |      |      |      |      |      |         |      |      |      |      |      |         |      |      |      |      |     | p154    |      |      |  |  |  |
| 0.33μF              |          |      |         |      |      |      |      |      |      |      |         |      |      |      |      |      |         |      | p153 |      | p153 |     |         |      |      |  |  |  |
| 0.47μF              |          |      |         |      |      |      |      |      |      |      |         |      |      |      |      |      |         |      |      | p153 | p153 |     |         |      |      |  |  |  |
| 0.56μF              |          |      |         |      |      |      |      |      |      |      |         |      |      |      |      |      |         |      |      |      |      |     |         | p153 |      |  |  |  |
| 0.68μF              |          |      |         |      |      |      |      |      |      |      |         |      |      |      |      |      |         |      |      |      | p153 |     |         |      |      |  |  |  |
| 1.0μF               |          |      |         |      |      |      |      |      |      |      |         |      |      |      |      |      |         |      |      |      |      |     |         |      | p153 |  |  |  |

## Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

### ■ GRM/DC3.15kV Series High Dielectric Constant Type

p00

← Part Number List

EIA:

C0G

| L×W (mm)            | 4.5×<br>2.0 |
|---------------------|-------------|
| T max. (mm)         | 1           |
| Rated Voltage (Vdc) | 3150        |
| Cap. / TC Code      | C0G         |
| 5.0pF               | p158        |
| 10pF                | p158        |
| 12pF                | p158        |
| 15pF                | p158        |
| 18pF                | p158        |
| 22pF                | p158        |
| 27pF                | p158        |
| 33pF                | p158        |
| 39pF                | p158        |
| 47pF                | p158        |

### ■ GR7 Series

p00

← Part Number List

Murata Temperature Characteristic:

-

| L×W (mm)            | 2.0×1.25 |      | 3.2×1.6 |      |      |
|---------------------|----------|------|---------|------|------|
| T max. (mm)         | 1        | 1.45 | 1       | 1.25 | 1.8  |
| Rated Voltage (Vdc) | 350      | 350  | 350     | 350  | 350  |
| Cap. / TC Code      | -        | -    | -       | -    | -    |
| 10000pF             | p165     |      | p165    |      |      |
| 15000pF             | p165     |      | p165    |      |      |
| 22000pF             |          | p165 | p165    | p165 |      |
| 27000pF             |          | p165 | p165    |      |      |
| 33000pF             |          |      | p165    | p165 |      |
| 47000pF             |          |      |         |      | p165 |

### ■ GR4 Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7R

| L×W (mm)            | 4.5×<br>2.0 | 4.5×3.2 |      | 5.7×<br>5.0 |
|---------------------|-------------|---------|------|-------------|
| T max. (mm)         | 1.5         | 1.5     | 2    | 2           |
| Rated Voltage (Vdc) | 2000        | 2000    | 2000 | 2000        |
| Cap. / TC Code      | X7R         | X7R     | X7R  | X7R         |
| 100pF               | p161        |         |      |             |
| 120pF               | p161        |         |      |             |
| 150pF               | p161        |         |      |             |
| 180pF               | p161        |         |      |             |
| 220pF               | p161        |         |      |             |
| 270pF               | p161        |         |      |             |
| 330pF               | p161        |         |      |             |
| 390pF               | p161        |         |      |             |
| 470pF               | p161        |         |      |             |
| 560pF               | p161        |         |      |             |
| 680pF               | p161        |         |      |             |
| 820pF               | p161        |         |      |             |
| 1000pF              | p161        |         |      |             |
| 1200pF              | p161        |         |      |             |
| 1500pF              | p161        |         |      |             |
| 1800pF              |             | p161    |      |             |
| 2200pF              |             | p161    |      |             |
| 2700pF              |             | p161    |      |             |
| 3300pF              |             | p161    |      |             |
| 3900pF              |             | p161    |      |             |
| 4700pF              |             |         | p161 |             |
| 10000pF             |             |         |      | p161        |

### ■ GA2 Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7R

| L×W (mm)                    | 4.5×<br>2.0 | 4.5×3.2 |      | 5.7×<br>5.0 |
|-----------------------------|-------------|---------|------|-------------|
| T max. (mm)                 | 1.5         | 1.5     | 2    | 2           |
| Rated Voltage (Vac(r.m.s.)) | 250         | 250     | 250  | 250         |
| Cap. / TC Code              | X7R         | X7R     | X7R  | X7R         |
| 470pF                       | p169        |         |      |             |
| 1000pF                      | p169        |         |      |             |
| 2200pF                      |             | p169    |      |             |
| 3300pF                      |             | p169    |      |             |
| 4700pF                      |             |         | p169 |             |
| 10000pF                     |             | p169    |      |             |
| 22000pF                     |             | p169    |      |             |
| 47000pF                     |             |         | p169 |             |
| 0.1μF                       |             |         |      | p169        |

## Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

### GA3 Series

UL, IEC60384-14 Class X1/Y2 Type GC  
High Dielectric Constant Type

p00 ← Part Number List EIA: X7R

|                             |         |
|-----------------------------|---------|
| L×W (mm)                    | 5.7×5.0 |
| T max. (mm)                 | 2.3     |
| Rated Voltage (Vac(r.m.s.)) | 250     |
| Cap. / TC Code              | X7R     |
| 100pF                       | p173    |
| 150pF                       | p173    |
| 220pF                       | p173    |
| 330pF                       | p173    |

### GA3 Series

IEC60384-14 Class Y2, X1/Y2 Type GF

p00 ← Part Number List JIS: SL EIA: X7R

| L×W (mm)                    | 4.5×2.0 |      |      | 5.7×2.8 | 5.7×5.0 |      |
|-----------------------------|---------|------|------|---------|---------|------|
| T max. (mm)                 | 1       | 1.5  | 2.2  | 1.5     | 1.5     | 2    |
| Rated Voltage (Vac(r.m.s.)) | 250     | 250  | 250  | 250     | 250     | 250  |
| Cap. / TC Code              | SL      | X7R  | SL   | X7R     | X7R     | X7R  |
| 10pF                        |         |      | p174 |         |         |      |
| 12pF                        |         |      | p174 |         |         |      |
| 15pF                        |         |      | p174 |         |         |      |
| 18pF                        |         |      | p174 |         |         |      |
| 22pF                        |         |      | p174 |         |         |      |
| 27pF                        | p174    |      |      |         |         |      |
| 33pF                        | p174    |      |      |         |         |      |
| 39pF                        | p174    |      |      |         |         |      |
| 47pF                        | p174    |      |      |         |         |      |
| 56pF                        | p174    |      |      |         |         |      |
| 68pF                        | p174    |      |      |         |         |      |
| 82pF                        | p174    |      |      |         |         |      |
| 100pF                       |         | p174 |      |         |         |      |
| 150pF                       |         | p174 |      |         |         |      |
| 220pF                       |         |      | p174 |         |         |      |
| 330pF                       |         |      | p174 |         |         |      |
| 470pF                       |         | p174 |      | p174    |         |      |
| 680pF                       |         | p174 |      | p174    |         |      |
| 1000pF                      |         |      | p174 | p174    |         |      |
| 1500pF                      |         |      |      | p175    |         |      |
| 1800pF                      |         |      |      |         | p175    |      |
| 2200pF                      |         |      |      |         | p175    |      |
| 3300pF                      |         |      |      |         |         | p175 |
| 4700pF                      |         |      |      |         |         | p175 |

### GA3 Series

IEC60384-14 Class Y3 Type GD

p00 ← Part Number List JIS: SL EIA: X7R

| L×W (mm)                    | 4.5×2.0 |      |      | 4.5×3.2 |      |
|-----------------------------|---------|------|------|---------|------|
| T max. (mm)                 | 1       | 1.5  | 2.2  | 1.5     | 2    |
| Rated Voltage (Vac(r.m.s.)) | 250     | 250  | 250  | 250     | 250  |
| Cap. / TC Code              | SL      | X7R  | SL   | X7R     | X7R  |
| 10pF                        |         |      | p176 |         |      |
| 12pF                        |         |      | p176 |         |      |
| 15pF                        |         |      | p176 |         |      |
| 18pF                        |         |      | p176 |         |      |
| 22pF                        |         |      | p176 |         |      |
| 27pF                        | p176    |      |      |         |      |
| 33pF                        | p176    |      |      |         |      |
| 39pF                        | p176    |      |      |         |      |
| 47pF                        | p176    |      |      |         |      |
| 56pF                        | p176    |      |      |         |      |
| 68pF                        | p176    |      |      |         |      |
| 82pF                        | p176    |      |      |         |      |
| 100pF                       |         | p176 |      |         |      |
| 150pF                       |         | p176 |      |         |      |
| 220pF                       |         | p176 |      |         |      |
| 330pF                       |         | p176 |      |         |      |
| 470pF                       |         | p176 |      |         |      |
| 680pF                       |         | p176 |      |         |      |
| 1000pF                      |         | p176 |      |         |      |
| 1500pF                      |         | p176 |      |         |      |
| 1800pF                      |         |      |      | p176    |      |
| 2200pF                      |         |      |      | p176    |      |
| 4700pF                      |         |      |      |         | p176 |

### GA3 Series

IEC60384-14 Class X2 Type GB  
High Dielectric Constant Type

p00 ← Part Number List EIA: X7R

| L×W (mm)                    | 5.7×5.0 |      |      |      |
|-----------------------------|---------|------|------|------|
| T max. (mm)                 | 1.5     | 2    | 2.5  | 2.9  |
| Rated Voltage (Vac(r.m.s.)) | 250     | 250  | 250  | 250  |
| Cap. / TC Code              | X7R     | X7R  | X7R  | X7R  |
| 10000pF                     | p177    |      |      |      |
| 15000pF                     | p177    |      |      |      |
| 22000pF                     |         | p177 |      |      |
| 33000pF                     |         |      | p177 |      |
| 47000pF                     |         |      | p177 |      |
| 56000pF                     |         |      |      | p177 |

## Capacitance Table p00 Each number in the Part Number List refers to the page number printed at the bottom of the page.

### ■ KRM Series High Dielectric Constant Type

p00 ← Part Number List EIA: X7R X6S X5R

| LxW (mm)            | 3.5x1.7 |      |      |      | 3.6x<br>1.7 | 3.7x<br>1.7 | 6.1x5.3 |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------|---------|------|------|------|-------------|-------------|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| T max. (mm)         | 2       | 2.9  |      |      | 2.9         | 2.9         | 3       |      |      |      | 3.9  |      |      |      | 5    |      | 6.7  |      |      |      |
| Rated Voltage (Vdc) | 25      | 100  | 50   | 25   | 50          | 100         | 100     | 63   | 50   | 25   | 100  | 63   | 50   | 25   | 100  | 25   | 100  | 63   | 50   | 25   |
| Cap. / TC Code      | X5R     | X7R  | X7R  | X6S  | X7R         | X7R         | X7R     | X7R  | X7R  | X7R  | X7R  | X7R  | X7R  | X7R  | X7R  | X7R  | X7R  | X7R  | X7R  | X7R  |
| 1.0μF               |         | p200 |      |      |             |             |         |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 2.2μF               |         |      |      |      | p200        | p200        |         |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 4.7μF               |         |      | p200 |      |             |             | p200    | p200 | p200 |      |      |      |      |      |      |      |      |      |      |      |
| 6.8μF               |         |      |      |      |             |             |         |      |      |      | p200 |      |      |      |      |      |      |      |      |      |
| 10μF                | p200    |      |      | p200 |             |             |         |      |      |      |      | p200 | p200 |      | p200 |      |      |      |      |      |
| 15μF                |         |      |      |      |             |             |         |      |      | p200 |      |      |      |      |      |      | p200 |      |      |      |
| 22μF                |         |      |      |      |             |             |         |      |      |      |      |      |      | p200 |      |      |      | p200 | p200 |      |
| 33μF                |         |      |      |      |             |             |         |      |      |      |      |      |      |      |      | p200 |      |      |      |      |
| 47μF                |         |      |      |      |             |             |         |      |      |      |      |      |      |      |      |      |      |      |      | p200 |

### ■ KR3 Series High Dielectric Constant Type

p00 ← Part Number List EIA: X7T

| LxW (mm)            | 6.1x5.3 |      |      |      |      |      |      |      |      |
|---------------------|---------|------|------|------|------|------|------|------|------|
| T max. (mm)         | 3       |      |      | 3.9  |      |      | 5    | 6.7  |      |
| Rated Voltage (Vdc) | 630     | 450  | 250  | 630  | 450  | 250  | 450  | 630  | 250  |
| Cap. / TC Code      | X7T     | X7T  | X7T  | X7T  | X7T  | X7T  | X7T  | X7T  | X7T  |
| 0.1μF               | p204    |      |      |      |      |      |      |      |      |
| 0.15μF              | p204    |      |      |      |      |      |      |      |      |
| 0.22μF              |         | p204 |      | p204 |      |      |      |      |      |
| 0.27μF              |         |      |      | p204 |      |      |      |      |      |
| 0.47μF              |         | p204 | p204 |      |      |      |      | p204 |      |
| 0.56μF              |         |      |      |      | p204 |      |      | p204 |      |
| 1.0μF               |         |      |      |      |      | p204 | p204 |      |      |
| 1.2μF               |         |      |      |      |      |      |      | p204 |      |
| 2.2μF               |         |      |      |      |      |      |      |      | p204 |

## ● Part Numbering

### Chip Monolithic Ceramic Capacitors

(Part Number) 

|    |   |    |   |    |    |     |   |     |   |
|----|---|----|---|----|----|-----|---|-----|---|
| GR | M | 18 | 8 | B1 | 1H | 102 | K | A01 | D |
| ①  | ② | ③  | ④ | ⑤  | ⑥  | ⑦   | ⑧ | ⑨   | ⑩ |

① Product ID

② Series

| Product ID | Code | Series                                              |
|------------|------|-----------------------------------------------------|
| GR         | J    | Soft Termination Type                               |
|            | M    | Tin Plated Layer                                    |
|            | 3    | Large Capacitance and High Allowable Ripple Current |
|            | 4    | Only for Information Devices                        |
|            | 7    | Only for Camera Flash Circuit                       |
| GQ         | M    | High Frequency for Flow/Reflow Soldering            |
| GM         | A    | Monolithic Microchip                                |
|            | D    | For Bonding                                         |
| GN         | M    | Capacitor Array                                     |
| LL         | L    | Low ESL Type                                        |
|            | R    | Controlled ESR Low ESL Type                         |
|            | A    | 8-termination Low ESL Type                          |
|            | M    | 10-termination Low ESL Type                         |
| GJ         | M    | High Frequency Low Loss Type                        |
|            | 4    | Low Distortion Type                                 |
|            | 8    | Low Acoustic Type                                   |
| GA         | 2    | For AC250V (r.m.s.)                                 |
|            | 3    | Safety Standard Certified Type                      |
| GW         | M    | For Decoupling                                      |

③ Dimensions (L×W)

| Code | Dimensions (L×W) | EIA    |
|------|------------------|--------|
| 02   | 0.4×0.2mm        | 01005  |
| 03   | 0.6×0.3mm        | 0201   |
| 05   | 0.5×0.5mm        | 0202   |
| 08   | 0.8×0.8mm        | 0303   |
| 0D   | 0.38×0.38mm      | 015015 |
| 0M   | 0.9×0.6mm        | 0302   |
| 15   | 1.0×0.5mm        | 0402   |
| 18   | 1.6×0.8mm        | 0603   |
| 1M   | 1.37×1.0mm       | 0504   |
| 1U   | 0.6×1.0mm        | 02404  |
| 21   | 2.0×1.25mm       | 0805   |
| 22   | 2.8×2.8mm        | 1111   |
| 31   | 3.2×1.6mm        | 1206   |
| 32   | 3.2×2.5mm        | 1210   |
| 42   | 4.5×2.0mm        | 1808   |
| 43   | 4.5×3.2mm        | 1812   |
| 52   | 5.7×2.8mm        | 2211   |
| 55   | 5.7×5.0mm        | 2220   |

④ Dimension (T) (Except GNM)

| Code | Dimension (T)                    |
|------|----------------------------------|
| 2    | 0.2mm                            |
| 3    | 0.3mm                            |
| 4    | 0.4mm                            |
| 5    | 0.5mm                            |
| 6    | 0.6mm                            |
| 7    | 0.7mm                            |
| 8    | 0.8mm                            |
| 9    | 0.85mm                           |
| A    | 1.0mm                            |
| B    | 1.25mm                           |
| C    | 1.6mm                            |
| D    | 2.0mm                            |
| E    | 2.5mm                            |
| F    | 3.2mm                            |
| M    | 1.15mm                           |
| N    | 1.35mm                           |
| Q    | 1.5mm                            |
| R    | 1.8mm                            |
| S    | 2.8mm                            |
| X    | Depends on individual standards. |

④ Elements (GNM Only)

| Code | Elements   |
|------|------------|
| 2    | 2-elements |
| 4    | 4-elements |

Continued on the following page. 

Continued from the preceding page.

⑤ Temperature Characteristics

| Temperature Characteristic Codes |                 |     | Temperature Characteristics |                   |                                               | Operating Temperature Range | Capacitance Change Each Temperature (%) |       |       |       |       |       |
|----------------------------------|-----------------|-----|-----------------------------|-------------------|-----------------------------------------------|-----------------------------|-----------------------------------------|-------|-------|-------|-------|-------|
| Code                             | Public STD Code |     | Reference Temperature       | Temperature Range | Capacitance Change or Temperature Coefficient |                             | -55°C                                   |       | -25°C |       | -10°C |       |
|                                  |                 |     |                             |                   |                                               |                             | Max.                                    | Min.  | Max.  | Min.  | Max.  | Min.  |
| 0C                               | CHA             | *2  | 20°C                        | 20 to 150°C       | 0±60ppm/°C                                    | -55 to 150°C                | 0.82                                    | -0.45 | 0.49  | -0.27 | 0.33  | -0.18 |
| 1C                               | CG              | JIS | 20°C                        | 20 to 125°C       | 0±30ppm/°C                                    | -55 to 125°C                | 0.54                                    | -0.23 | 0.33  | -0.14 | 0.22  | -0.09 |
| 1X                               | SL              | JIS | 20°C                        | 20 to 85°C        | +350 to -1000ppm/°C                           | -55 to 125°C                | -                                       | -     | -     | -     | -     | -     |
| 2C                               | CH              | JIS | 20°C                        | 20 to 125°C       | 0±60ppm/°C                                    | -55 to 125°C                | 0.82                                    | -0.45 | 0.49  | -0.27 | 0.33  | -0.18 |
| 2P                               | PH              | JIS | 20°C                        | 20 to 85°C        | -150±60ppm/°C                                 | -25 to 85°C                 | -                                       | -     | 1.32  | 0.41  | 0.88  | 0.27  |
| 2R                               | RH              | JIS | 20°C                        | 20 to 85°C        | -220±60ppm/°C                                 | -25 to 85°C                 | -                                       | -     | 1.7   | 0.72  | 1.13  | 0.48  |
| 2S                               | SH              | JIS | 20°C                        | 20 to 85°C        | -330±60ppm/°C                                 | -25 to 85°C                 | -                                       | -     | 2.3   | 1.22  | 1.54  | 0.81  |
| 2T                               | TH              | JIS | 20°C                        | 20 to 85°C        | -470±60ppm/°C                                 | -25 to 85°C                 | -                                       | -     | 3.07  | 1.85  | 2.05  | 1.23  |
| 3C                               | CJ              | JIS | 20°C                        | 20 to 125°C       | 0±120ppm/°C                                   | -55 to 125°C                | 1.37                                    | -0.9  | 0.82  | -0.54 | 0.55  | -0.36 |
| 3P                               | PJ              | JIS | 20°C                        | 20 to 85°C        | -150±120ppm/°C                                | -25 to 85°C                 | -                                       | -     | 1.65  | 0.14  | 1.1   | 0.09  |
| 3R                               | RJ              | JIS | 20°C                        | 20 to 85°C        | -220±120ppm/°C                                | -25 to 85°C                 | -                                       | -     | 2.03  | 0.45  | 1.35  | 0.3   |
| 3S                               | SJ              | JIS | 20°C                        | 20 to 85°C        | -330±120ppm/°C                                | -25 to 85°C                 | -                                       | -     | 2.63  | 0.95  | 1.76  | 0.63  |
| 3T                               | TJ              | JIS | 20°C                        | 20 to 85°C        | -470±120ppm/°C                                | -25 to 85°C                 | -                                       | -     | 3.4   | 1.58  | 2.27  | 1.05  |
| 3U                               | UJ              | JIS | 20°C                        | 20 to 85°C        | -750±120ppm/°C                                | -25 to 85°C                 | -                                       | -     | 4.94  | 2.84  | 3.29  | 1.89  |
| 4C                               | CK              | JIS | 20°C                        | 20 to 125°C       | 0±250ppm/°C                                   | -55 to 125°C                | 2.56                                    | -1.88 | 1.54  | -1.13 | 1.02  | -0.75 |
| 4P                               | PK              | JIS | 20°C                        | 20 to 85°C        | -150±250ppm/°C                                | -25 to 85°C                 | -                                       | -     | 2.36  | -0.45 | 1.57  | -0.3  |
| 4R                               | RK              | JIS | 20°C                        | 20 to 85°C        | -220±250ppm/°C                                | -25 to 85°C                 | -                                       | -     | 2.74  | -0.14 | 1.83  | -0.09 |
| 4S                               | SK              | JIS | 20°C                        | 20 to 85°C        | -330±250ppm/°C                                | -25 to 85°C                 | -                                       | -     | 3.35  | 0.36  | 2.23  | 0.24  |
| 4T                               | TK              | JIS | 20°C                        | 20 to 85°C        | -470±250ppm/°C                                | -25 to 85°C                 | -                                       | -     | 4.12  | 0.99  | 2.74  | 0.66  |
| 4U                               | UK              | JIS | 20°C                        | 20 to 85°C        | -750±250ppm/°C                                | -25 to 85°C                 | -                                       | -     | 5.65  | 2.25  | 3.77  | 1.5   |
| 5C                               | C0G             | EIA | 25°C                        | 25 to 125°C       | 0±30ppm/°C                                    | -55 to 125°C                | 0.58                                    | -0.24 | 0.4   | -0.17 | 0.25  | -0.11 |
| 5G                               | X8G             | *2  | 25°C                        | 25 to 150°C       | 0±30ppm/°C                                    | -55 to 150°C                | 0.58                                    | -0.24 | 0.4   | -0.17 | 0.25  | -0.11 |
| 6C                               | C0H             | EIA | 25°C                        | 25 to 125°C       | 0±60ppm/°C                                    | -55 to 125°C                | 0.87                                    | -0.48 | 0.59  | -0.33 | 0.38  | -0.21 |
| 6P                               | P2H             | EIA | 25°C                        | 25 to 85°C        | -150±60ppm/°C                                 | -55 to 125°C                | 2.33                                    | 0.72  | 1.61  | 0.5   | 1.02  | 0.32  |
| 6R                               | R2H             | EIA | 25°C                        | 25 to 85°C        | -220±60ppm/°C                                 | -55 to 125°C                | 3.02                                    | 1.28  | 2.08  | 0.88  | 1.32  | 0.56  |
| 6S                               | S2H             | EIA | 25°C                        | 25 to 85°C        | -330±60ppm/°C                                 | -55 to 125°C                | 4.09                                    | 2.16  | 2.81  | 1.49  | 1.79  | 0.95  |
| 6T                               | T2H             | EIA | 25°C                        | 25 to 85°C        | -470±60ppm/°C                                 | -55 to 125°C                | 5.46                                    | 3.28  | 3.75  | 2.26  | 2.39  | 1.44  |
| 7U                               | U2J             | EIA | 25°C                        | 25 to 125°C *5    | -750±120ppm/°C                                | -55 to 125°C                | 8.78                                    | 5.04  | 6.04  | 3.47  | 3.84  | 2.21  |
| B1                               | B *1            | JIS | 20°C                        | -25 to 85°C       | ±10%                                          | -25 to 85°C                 | -                                       | -     | -     | -     | -     | -     |
| B3                               | B               | JIS | 20°C                        | -25 to 85°C       | ±10%                                          | -25 to 85°C                 | -                                       | -     | -     | -     | -     | -     |
| C3                               | C               | JIS | 20°C                        | -25 to 85°C       | ±20%                                          | -25 to 125°C                | -                                       | -     | -     | -     | -     | -     |
|                                  |                 |     |                             | 85 to 125°C       | +15%, -30%                                    |                             | -                                       | -     | -     | -     | -     | -     |
| C6                               | X5S             | EIA | 25°C                        | -55 to 85°C       | ±22%                                          | -55 to 85°C                 | -                                       | -     | -     | -     | -     | -     |
| C7                               | X7S             | EIA | 25°C                        | -55 to 125°C      | ±22%                                          | -55 to 125°C                | -                                       | -     | -     | -     | -     | -     |
| C8                               | X6S             | EIA | 25°C                        | -55 to 105°C      | ±22%                                          | -55 to 105°C                | -                                       | -     | -     | -     | -     | -     |
| D3                               | D               | JIS | 20°C                        | -25 to 125°C      | +20%, -30%                                    | -25 to 85°C                 | -                                       | -     | -     | -     | -     | -     |
| D6                               | X5T             | EIA | 25°C                        | -55 to 125°C      | +22%, -33%                                    | -55 to 125°C                | -                                       | -     | -     | -     | -     | -     |
| D7                               | X7T             | EIA | 25°C                        | -55 to 125°C      | +22%, -33%                                    | -55 to 125°C                | -                                       | -     | -     | -     | -     | -     |
| D8                               | X6T             | EIA | 25°C                        | -55 to 105°C      | +22%, -33%                                    | -55 to 105°C                | -                                       | -     | -     | -     | -     | -     |
| E1                               | E (1/2Ur)       | JIS | 20°C                        | -25 to 85°C       | +20%, -55%                                    | -25 to 85°C                 | -                                       | -     | -     | -     | -     | -     |
| E4                               | Z5U             | EIA | 25°C                        | 10 to 85°C        | +22%, -56%                                    | 10 to 85°C                  | -                                       | -     | -     | -     | -     | -     |
| E7                               | X7U             | EIA | 25°C                        | -55 to 125°C      | +22%, -56%                                    | -55 to 125°C                | -                                       | -     | -     | -     | -     | -     |
| F1                               | F *1            | JIS | 20°C                        | -25 to 85°C       | +30%, -80%                                    | -25 to 85°C                 | -                                       | -     | -     | -     | -     | -     |
| F4                               | Z5V             | EIA | 25°C                        | 10 to 85°C        | +22%, -82%                                    | -20 to 85°C                 | -                                       | -     | -     | -     | -     | -     |
| F5                               | Y5V             | EIA | 25°C                        | -30 to 85°C       | +22%, -82%                                    | -30 to 85°C                 | -                                       | -     | -     | -     | -     | -     |
| J1                               | JA              | *2  | 20°C                        | -25 to 105°C      | -20% max.                                     | -25 to 105°C                | -                                       | -     | -     | -     | -     | -     |
| L8                               | X8L             | *2  | 25°C                        | -55 to 150°C      | +15%, -40%                                    | -55 to 150°C                | -                                       | -     | -     | -     | -     | -     |

\*1 Capacitance change is specified with 50% rated voltage applied.

\*2 Murata Temperature Characteristic Code.

\*5 Rated Voltage 100Vdc max: 25 to 85°C

Continued on the following page. ➤

Please check the MURATA home page (<http://www.murata.com/>) if you cannot find the part number in the catalog.

Continued from the preceding page.

| Temperature Characteristic Codes |                 |                       | Temperature Characteristics |                                               |               | Operating Temperature Range | Capacitance Change Each Temperature (%) |      |       |      |      |   |
|----------------------------------|-----------------|-----------------------|-----------------------------|-----------------------------------------------|---------------|-----------------------------|-----------------------------------------|------|-------|------|------|---|
| Code                             | Public STD Code | Reference Temperature | Temperature Range           | Capacitance Change or Temperature Coefficient | -55°C         |                             | -25°C                                   |      | -10°C |      |      |   |
|                                  |                 |                       |                             |                                               | Max.          |                             | Min.                                    | Max. | Min.  | Max. | Min. |   |
| R1                               | R *1            | JIS                   | 20°C                        | -55 to 125°C                                  | ±15%          | -55 to 125°C                | -                                       | -    | -     | -    | -    | - |
| R3                               | R               | JIS                   | 20°C                        | -55 to 125°C                                  | ±15%          | -55 to 125°C                | -                                       | -    | -     | -    | -    | - |
| R6                               | X5R             | EIA                   | 25°C                        | -55 to 85°C                                   | ±15%          | -55 to 85°C                 | -                                       | -    | -     | -    | -    | - |
| R7                               | X7R             | EIA                   | 25°C                        | -55 to 125°C                                  | ±15%          | -55 to 125°C                | -                                       | -    | -     | -    | -    | - |
| R8                               | R *1            | JIS                   | 20°C                        | -25 to 85°C                                   | ±15%          | -25 to 85°C                 | -                                       | -    | -     | -    | -    | - |
| R9                               | X8R             | EIA                   | 25°C                        | -55 to 150°C                                  | ±15%          | -55 to 150°C                | -                                       | -    | -     | -    | -    | - |
| W0                               | -               | *2                    | 25°C                        | -55 to 125°C                                  | ±10% *3       | -55 to 125°C                | -                                       | -    | -     | -    | -    | - |
|                                  |                 |                       |                             |                                               | +22%, -33% *4 |                             | -                                       | -    | -     | -    | -    | - |

\*1 Capacitance change is specified with 50% rated voltage applied.

\*2 Murata Temperature Characteristic Code.

\*3 Apply DC350V bias.

\*4 No DC bias.

#### ⑥ Rated Voltage

| Code | Rated Voltage                                         |
|------|-------------------------------------------------------|
| 0E   | DC2.5V                                                |
| 0G   | DC4V                                                  |
| 0J   | DC6.3V                                                |
| 1A   | DC10V                                                 |
| 1C   | DC16V                                                 |
| 1E   | DC25V                                                 |
| YA   | DC35V                                                 |
| 1H   | DC50V                                                 |
| 2A   | DC100V                                                |
| 2D   | DC200V                                                |
| 2E   | DC250V                                                |
| YD   | DC300V                                                |
| 2W   | DC450V                                                |
| 2H   | DC500V                                                |
| 2J   | DC630V                                                |
| 3A   | DC1kV                                                 |
| 3D   | DC2kV                                                 |
| 3F   | DC3.15kV                                              |
| BB   | DC350V (for Camera Flash Circuit)                     |
| E2   | AC250V                                                |
| GC   | X1/Y2; AC250V (Safety Standard Certified Type GC)     |
| GF   | Y2, X1/Y2; AC250V (Safety Standard Certified Type GF) |
| GD   | Y3; AC250V (Safety Standard Certified Type GD)        |
| GB   | X2; AC250V (Safety Standard Certified Type GB)        |

#### ⑦ Capacitance

Expressed by three-digit alphanumerics. The unit is picofarad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R." In this case, all figures are significant digits. If any alphabet, other than "R", is included, this indicates the specific part number is a non-standard part.

|      |      |             |
|------|------|-------------|
| Ex.) | Code | Capacitance |
|      | R50  | 0.5pF       |
|      | 1R0  | 1.0pF       |
|      | 100  | 10pF        |
|      | 103  | 10000pF     |

#### ⑧ Capacitance Tolerance

| Code | Capacitance Tolerance            |
|------|----------------------------------|
| B    | ±0.1pF                           |
| C    | ±0.25pF                          |
| D    | ±0.5pF (10pF and below)          |
|      | ±0.5% (10pF and over)            |
| F    | ±1%                              |
| G    | ±2%                              |
| J    | ±5%                              |
| K    | ±10%                             |
| M    | ±20%                             |
| N    | ±30%                             |
| R    | Depends on individual standards. |
| W    | ±0.05pF                          |
| X    | Depends on individual standards. |
| Y    | Depends on individual standards. |
| Z    | +80/-20%                         |

#### ⑨ Individual Specification Code (Except LLR)

Expressed by three figures.

#### ⑨ ESR (LLR Only)

| Code | ESR    |
|------|--------|
| E01  | 100mΩ  |
| E03  | 220mΩ  |
| E05  | 470mΩ  |
| E07  | 1000mΩ |

#### ⑩ Packaging

| Code | Packaging                   |
|------|-----------------------------|
| L    | ø180mm Embossed Taping      |
| D    | ø180mm Paper Taping         |
| E    | ø180mm Paper Taping (LLL15) |
| K    | ø330mm Embossed Taping      |
| J    | ø330mm Paper Taping         |
| F    | ø330mm Paper Taping (LLL15) |
| B    | Bulk                        |
| C    | Bulk Case                   |
| T    | Bulk Tray                   |

Please check the MURATA home page (<http://www.murata.com/>) if you cannot find the part number in the catalog.

## Metal Terminal Monolithic Ceramic Capacitors

(Part Number)

|    |   |    |   |    |    |     |   |     |   |
|----|---|----|---|----|----|-----|---|-----|---|
| KR | M | 55 | T | R7 | 2A | 106 | M | H01 | K |
| ①  | ② | ③  | ④ | ⑤  | ⑥  | ⑦   | ⑧ | ⑨   | ⑩ |

### ① Product ID

### ② Series

| Product ID | Code | Series                                                                                                                         |
|------------|------|--------------------------------------------------------------------------------------------------------------------------------|
| KR         | M    | Metal Terminal Monolithic Ceramic Capacitors<br>(DC25V to DC100V)                                                              |
| KR         | 3    | Metal Terminal Monolithic Ceramic Capacitors<br>Large Capacitance and High Allowable Ripple<br>Current Type (DC250V to DC630V) |

### ④ Height Dimension (T)

| Code | Dimension (T) |
|------|---------------|
| F    | 1.9mm         |
| K    | 2.7mm         |
| L    | 2.8mm         |
| Q    | 3.7mm         |
| T    | 4.8mm         |
| W    | 6.4mm         |

### ③ Chip Dimension (L×W)

| Code | Chip Dimension | EIA  |
|------|----------------|------|
| 31   | 3.2×1.6mm      | 1206 |
| 55   | 5.7×5.0mm      | 2220 |

### ⑤ Temperature Characteristics

| Temperature Characteristic Codes |                 |     | Temperature Characteristics |                      |                            | Operating<br>Temperature<br>Range |
|----------------------------------|-----------------|-----|-----------------------------|----------------------|----------------------------|-----------------------------------|
| Code                             | Public STD Code |     | Reference<br>Temperature    | Temperature<br>Range | Temperature<br>Coefficient |                                   |
| C8                               | X6S             | EIA | 25°C                        | −55 to 105°C         | ±22%                       | −55 to 105°C                      |
| D7                               | X7T             | EIA | 25°C                        | −55 to 125°C         | +22/−33%                   | −55 to 125°C                      |
| R6                               | X5R             | EIA | 25°C                        | −55 to 85°C          | ±15%                       | −55 to 85°C                       |
| R7                               | X7R             | EIA | 25°C                        | −55 to 125°C         | ±15%                       | −55 to 125°C                      |

### ⑥ Rated Voltage

| Code | Rated Voltage |
|------|---------------|
| 1E   | DC25V         |
| 1H   | DC50V         |
| 1J   | DC63V         |
| 2A   | DC100V        |
| 2E   | DC250V        |
| 2W   | DC450V        |
| 2J   | DC630V        |

### ⑧ Capacitance Tolerance

| Code | Capacitance Tolerance |
|------|-----------------------|
| K    | ±10%                  |
| M    | ±20%                  |

### ⑨ Individual Specification Code

Expressed by three figures.

### ⑩ Package

| Code | Package                |
|------|------------------------|
| K    | ø330mm Embossed Taping |

### ⑦ Capacitance

Expressed by three-digit alphanumerics. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two numbers.

| Ex.) | Code | Capacitance |
|------|------|-------------|
|      | 105  | 1.0μF       |
|      | 225  | 2.2μF       |
|      | 106  | 10μF        |
|      | 226  | 22μF        |

# Contents

## Chip Monolithic Ceramic Capacitors

For General Purpose GRM Series  
 (Less than 250Vdc) ..... p21

Capacitor Array GNM Series ..... p76

Low ESL LLL/LLR/LLA/LLM Series ..... p79

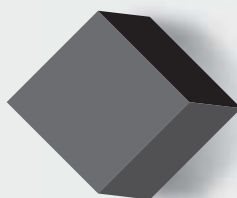
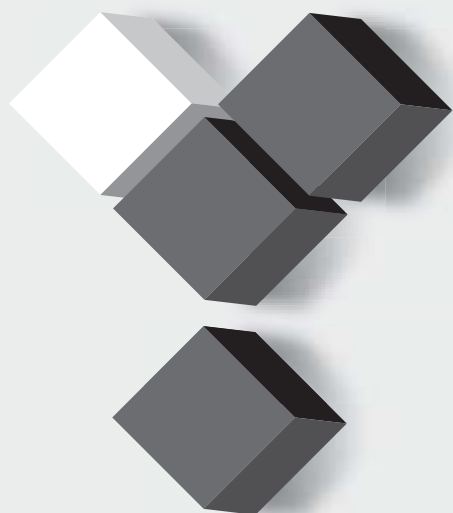
High-Q Type GJM Series ..... p82

High Frequency GQM Series ..... p104

Monolithic Microchip GMA Series ..... p113

For Bonding GMD Series ..... p115

⚠Caution/Notice ..... p118



For General Purpose  
 GRM Series

Capacitor Array  
 GNM Series

Low ESL  
 LLL Series

High-Q Type  
 GJM Series

High Frequency  
 GQM Series

Monolithic Microchip  
 GMA Series

For Bonding  
 GMD Series

Product Information

## Search Capacitors

SPECIFICATIONS AND TEST METHODS, Package, Chart of characteristic data, please refer to the search for capacitor page website.

<http://www.murata.com/products/capacitor/>

The screenshot shows the Murata capacitor search interface. At the top, the part number **GRM155R60J224ME01#** is displayed. Below it, there are tabs for 'General', 'Specifications', 'Package', 'Caution', and 'Notice'. The 'Specifications' tab is currently selected, showing a table of specifications and a 'Specifications & Applications' section. A red dashed box highlights the 'Specifications & Applications' section, which includes a link to the 'Detailed specifications sheet'. Below the specifications table, there is a 'Reference' section with a table of part numbers and quantities. At the bottom, there is a 'Chart of characteristic data' section, which is also highlighted with a red dashed box. This section contains several graphs showing frequency characteristics, DC bias characteristics, AC voltage characteristics, capacitance-temperature characteristics, and capacitance-ripple current characteristics.

### Detailed specifications sheet

- Rated value
- SPECIFICATIONS AND TEST METHODS
- Package
- Caution, Notice  
(Storage, Soldering and Mounting, ....etc.)

### Chart of characteristic data

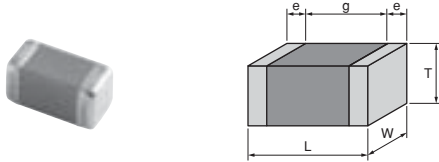
The main products published characteristic data.

- Frequency characteristics(ESR, Impedance)
- S parameter(Smith chart S11)
- DC bias characteristics
- AC voltage characteristics
- Capacitance - temperature characteristics
- Calorific property by ripple current

## Chip Monolithic Ceramic Capacitors

# For General Purpose GRM Series (Less than 250Vdc)

The most widely used capacitor in the world!  
 Ideal capacitors can be selected from an abundant lineup.



- 1 Lineup of small size and large capacity capacitors is available.
- 2 Since the external electrodes consist of a plated structure, the product is excellent in soldering heat resistance, and flow (GRM18/21/31 types only) and reflow soldering can be used.
- 3 High reliability with no polarity.
- 4 Low impedance in high frequencies, and excellent in pulse response and noise elimination.
- 5 The profile dimensions have been standardized with high precision, therefore high reliability can be acquired in the case of automatic mounting.
- 6 Paper tape or embossed tape is used for the packaging, according to the chip size.  
 GRM15/18/21 (T = 0.6, 1.25) can also be supplied in bulk cases.

For General Purpose  
 GRM Series

Capacitor Array  
 GNM Series

Low ESL  
 LL□ Series

High-Q Type  
 GJM Series

High Frequency  
 GQM Series

Monolithic Microchip  
 GMA Series

For Bonding  
 GMD Series

Product Information

# GRM Series Temperature Compensating Type Part Number List

■ 0.4×0.2mm **Ultra-compact**

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | C0G     | 0.2pF | ±0.05pF | GRM0225C1CR20WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1CR20BD05# |  |
|        |               |         | 0.3pF | ±0.05pF | GRM0225C1CR30WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1CR30BD05# |  |
|        |               |         | 0.4pF | ±0.05pF | GRM0225C1CR40WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1CR40BD05# |  |
|        |               |         | 0.5pF | ±0.05pF | GRM0225C1CR50WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1CR50BD05# |  |
|        |               |         | 0.6pF | ±0.05pF | GRM0225C1CR60WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1CR60BD05# |  |
|        |               |         | 0.7pF | ±0.05pF | GRM0225C1CR70WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1CR70BD05# |  |
|        |               |         | 0.8pF | ±0.05pF | GRM0225C1CR80WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1CR80BD05# |  |
|        |               |         | 0.9pF | ±0.05pF | GRM0225C1CR90WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1CR90BD05# |  |
|        |               |         | 1.0pF | ±0.05pF | GRM0225C1C1R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C1R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C1R0CD05# |  |
|        |               |         | 1.1pF | ±0.05pF | GRM0225C1C1R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C1R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C1R1CD05# |  |
|        |               |         | 1.2pF | ±0.05pF | GRM0225C1C1R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C1R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C1R2CD05# |  |
|        |               |         | 1.3pF | ±0.05pF | GRM0225C1C1R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C1R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C1R3CD05# |  |
|        |               |         | 1.4pF | ±0.05pF | GRM0225C1C1R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C1R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C1R4CD05# |  |
|        |               |         | 1.5pF | ±0.05pF | GRM0225C1C1R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C1R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C1R5CD05# |  |
|        |               |         | 1.6pF | ±0.05pF | GRM0225C1C1R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C1R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C1R6CD05# |  |
|        |               |         | 1.7pF | ±0.05pF | GRM0225C1C1R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C1R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C1R7CD05# |  |
|        |               |         | 1.8pF | ±0.05pF | GRM0225C1C1R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C1R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C1R8CD05# |  |
|        |               |         | 1.9pF | ±0.05pF | GRM0225C1C1R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C1R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C1R9CD05# |  |
|        |               |         | 2.0pF | ±0.05pF | GRM0225C1C2R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C2R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C2R0CD05# |  |
|        |               |         | 2.1pF | ±0.05pF | GRM0225C1C2R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C2R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C2R1CD05# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | C0G     | 2.2pF | ±0.05pF | GRM0225C1C2R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C2R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C2R2CD05# |  |
|        |               |         | 2.3pF | ±0.05pF | GRM0225C1C2R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C2R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C2R3CD05# |  |
|        |               |         | 2.4pF | ±0.05pF | GRM0225C1C2R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C2R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C2R4CD05# |  |
|        |               |         | 2.5pF | ±0.05pF | GRM0225C1C2R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C2R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C2R5CD05# |  |
|        |               |         | 2.6pF | ±0.05pF | GRM0225C1C2R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C2R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C2R6CD05# |  |
|        |               |         | 2.7pF | ±0.05pF | GRM0225C1C2R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C2R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C2R7CD05# |  |
|        |               |         | 2.8pF | ±0.05pF | GRM0225C1C2R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C2R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C2R8CD05# |  |
|        |               |         | 2.9pF | ±0.05pF | GRM0225C1C2R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C2R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C2R9CD05# |  |
|        |               |         | 3.0pF | ±0.05pF | GRM0225C1C3R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C3R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C3R0CD05# |  |
|        |               |         | 3.1pF | ±0.05pF | GRM0225C1C3R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C3R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C3R1CD05# |  |
|        |               |         | 3.2pF | ±0.05pF | GRM0225C1C3R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C3R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C3R2CD05# |  |
|        |               |         | 3.3pF | ±0.05pF | GRM0225C1C3R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C3R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C3R3CD05# |  |
|        |               |         | 3.4pF | ±0.05pF | GRM0225C1C3R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C3R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C3R4CD05# |  |
|        |               |         | 3.5pF | ±0.05pF | GRM0225C1C3R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C3R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C3R5CD05# |  |
|        |               |         | 3.6pF | ±0.05pF | GRM0225C1C3R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C3R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C3R6CD05# |  |
|        |               |         | 3.7pF | ±0.05pF | GRM0225C1C3R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C3R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C3R7CD05# |  |
|        |               |         | 3.8pF | ±0.05pF | GRM0225C1C3R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C3R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C3R8CD05# |  |
|        |               |         | 3.9pF | ±0.05pF | GRM0225C1C3R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C3R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C3R9CD05# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LL□ Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.4×0.2mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | C0G     | 4.0pF | ±0.05pF | GRM0225C1C4R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C4R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C4R0CD05# |  |
|        |               |         | 4.1pF | ±0.05pF | GRM0225C1C4R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C4R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C4R1CD05# |  |
|        |               |         | 4.2pF | ±0.05pF | GRM0225C1C4R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C4R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C4R2CD05# |  |
|        |               |         | 4.3pF | ±0.05pF | GRM0225C1C4R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C4R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C4R3CD05# |  |
|        |               |         | 4.4pF | ±0.05pF | GRM0225C1C4R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C4R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C4R4CD05# |  |
|        |               |         | 4.5pF | ±0.05pF | GRM0225C1C4R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C4R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C4R5CD05# |  |
|        |               |         | 4.6pF | ±0.05pF | GRM0225C1C4R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C4R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C4R6CD05# |  |
|        |               |         | 4.7pF | ±0.05pF | GRM0225C1C4R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C4R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C4R7CD05# |  |
|        |               |         | 4.8pF | ±0.05pF | GRM0225C1C4R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C4R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C4R8CD05# |  |
|        |               |         | 4.9pF | ±0.05pF | GRM0225C1C4R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C4R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C4R9CD05# |  |
|        |               |         | 5.0pF | ±0.05pF | GRM0225C1C5R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C5R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C5R0CD05# |  |
|        |               |         | 5.1pF | ±0.05pF | GRM0225C1C5R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C5R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C5R1CD05# |  |
|        |               |         | 5.2pF | ±0.05pF | GRM0225C1C5R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C5R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C5R2CD05# |  |
|        |               |         | 5.3pF | ±0.05pF | GRM0225C1C5R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C5R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C5R3CD05# |  |
|        |               |         | 5.4pF | ±0.05pF | GRM0225C1C5R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C5R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C5R4CD05# |  |
|        |               |         | 5.5pF | ±0.05pF | GRM0225C1C5R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C5R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C5R5CD05# |  |
|        |               |         | 5.6pF | ±0.05pF | GRM0225C1C5R5DD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C5R5DD05# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | C0G     | 5.6pF | ±0.1pF  | GRM0225C1C5R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C5R6CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C5R6DD05# |  |
|        |               |         | 5.7pF | ±0.05pF | GRM0225C1C5R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C5R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C5R7CD05# |  |
|        |               |         | 5.8pF | ±0.05pF | GRM0225C1C5R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C5R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C5R8CD05# |  |
|        |               |         | 5.9pF | ±0.05pF | GRM0225C1C5R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C5R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C5R9CD05# |  |
|        |               |         | 6.0pF | ±0.05pF | GRM0225C1C6R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C6R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C6R0CD05# |  |
|        |               |         | 6.1pF | ±0.05pF | GRM0225C1C6R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C6R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C6R1CD05# |  |
|        |               |         | 6.2pF | ±0.05pF | GRM0225C1C6R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C6R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C6R2CD05# |  |
|        |               |         | 6.3pF | ±0.05pF | GRM0225C1C6R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C6R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C6R3CD05# |  |
|        |               |         | 6.4pF | ±0.05pF | GRM0225C1C6R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C6R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C6R4CD05# |  |
|        |               |         | 6.5pF | ±0.05pF | GRM0225C1C6R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C6R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C6R5CD05# |  |
|        |               |         | 6.6pF | ±0.05pF | GRM0225C1C6R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C6R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C6R6CD05# |  |
|        |               |         | 6.7pF | ±0.05pF | GRM0225C1C6R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C6R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C6R7CD05# |  |
|        |               |         | 6.8pF | ±0.05pF | GRM0225C1C6R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C6R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C6R8CD05# |  |
|        |               |         | 6.9pF | ±0.05pF | GRM0225C1C6R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C6R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C6R9CD05# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.4×0.2mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | C0G     | 6.9pF | ±0.5pF  | GRM0225C1C6R9DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C7R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C7R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C7R0CD05# |  |
|        |               |         | 7.0pF | ±0.5pF  | GRM0225C1C7R0DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C7R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C7R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C7R1CD05# |  |
|        |               |         | 7.1pF | ±0.5pF  | GRM0225C1C7R1DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C7R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C7R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C7R2CD05# |  |
|        |               |         | 7.2pF | ±0.5pF  | GRM0225C1C7R2DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C7R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C7R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C7R3CD05# |  |
|        |               |         | 7.3pF | ±0.5pF  | GRM0225C1C7R3DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C7R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C7R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C7R4CD05# |  |
|        |               |         | 7.4pF | ±0.5pF  | GRM0225C1C7R4DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C7R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C7R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C7R5CD05# |  |
|        |               |         | 7.5pF | ±0.5pF  | GRM0225C1C7R5DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C7R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C7R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C7R6CD05# |  |
|        |               |         | 7.6pF | ±0.5pF  | GRM0225C1C7R6DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C7R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C7R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C7R7CD05# |  |
|        |               |         | 7.7pF | ±0.5pF  | GRM0225C1C7R7DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C7R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C7R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C7R8CD05# |  |
|        |               |         | 7.8pF | ±0.5pF  | GRM0225C1C7R8DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C7R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C7R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C7R9CD05# |  |
|        |               |         | 7.9pF | ±0.5pF  | GRM0225C1C7R9DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C8R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C8R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C8R0CD05# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM0225C1C8R0DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C8R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C8R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C8R1CD05# |  |
|        |               |         | 8.1pF | ±0.5pF  | GRM0225C1C8R1DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C8R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C8R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C8R2CD05# |  |
|        |               |         | 8.2pF | ±0.5pF  | GRM0225C1C8R2DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C8R3WD05# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | C0G     | 8.3pF | ±0.1pF  | GRM0225C1C8R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C8R3CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C8R3DD05# |  |
|        |               |         | 8.4pF | ±0.05pF | GRM0225C1C8R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C8R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C8R4CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C8R4DD05# |  |
|        |               |         | 8.5pF | ±0.05pF | GRM0225C1C8R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C8R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C8R5CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C8R5DD05# |  |
|        |               |         | 8.6pF | ±0.05pF | GRM0225C1C8R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C8R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C8R6CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C8R6DD05# |  |
|        |               |         | 8.7pF | ±0.05pF | GRM0225C1C8R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C8R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C8R7CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C8R7DD05# |  |
|        |               |         | 8.8pF | ±0.05pF | GRM0225C1C8R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C8R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C8R8CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C8R8DD05# |  |
|        |               |         | 8.9pF | ±0.05pF | GRM0225C1C8R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C8R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C8R9CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C8R9DD05# |  |
|        |               |         | 9.0pF | ±0.05pF | GRM0225C1C9R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C9R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C9R0CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C9R0DD05# |  |
|        |               |         | 9.1pF | ±0.05pF | GRM0225C1C9R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C9R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C9R1CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C9R1DD05# |  |
|        |               |         | 9.2pF | ±0.05pF | GRM0225C1C9R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C9R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C9R2CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C9R2DD05# |  |
|        |               |         | 9.3pF | ±0.05pF | GRM0225C1C9R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C9R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C9R3CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C9R3DD05# |  |
|        |               |         | 9.4pF | ±0.05pF | GRM0225C1C9R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C9R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C9R4CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C9R4DD05# |  |
|        |               |         | 9.5pF | ±0.05pF | GRM0225C1C9R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C9R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C9R5CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C9R5DD05# |  |
|        |               |         | 9.6pF | ±0.05pF | GRM0225C1C9R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C9R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C9R6CD05# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LL□ Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.4×0.2mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | C0G     | 9.6pF | ±0.5pF  | GRM0225C1C9R6DD05# |  |
|        |               |         |       | ±0.05pF | GRM0225C1C9R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C9R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C9R7CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C9R7DD05# |  |
|        |               |         | 9.8pF | ±0.05pF | GRM0225C1C9R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C9R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C9R8CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C9R8DD05# |  |
|        |               |         | 9.9pF | ±0.05pF | GRM0225C1C9R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0225C1C9R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0225C1C9R9CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0225C1C9R9DD05# |  |
|        |               |         | 10pF  | ±2%     | GRM0225C1C100GD05# |  |
|        |               |         |       | ±5%     | GRM0225C1C100JD05# |  |
|        |               |         | 12pF  | ±2%     | GRM0225C1C120GD05# |  |
|        |               |         |       | ±5%     | GRM0225C1C120JD05# |  |
|        |               |         | 15pF  | ±2%     | GRM0225C1C150GD05# |  |
|        |               |         |       | ±5%     | GRM0225C1C150JD05# |  |
|        |               |         | 18pF  | ±2%     | GRM0225C1C180GD05# |  |
|        |               |         |       | ±5%     | GRM0225C1C180JD05# |  |
|        |               |         | 22pF  | ±2%     | GRM0225C1C220GD05# |  |
|        |               |         |       | ±5%     | GRM0225C1C220JD05# |  |
|        |               |         | 27pF  | ±2%     | GRM0225C1C270GD05# |  |
|        |               |         |       | ±5%     | GRM0225C1C270JD05# |  |
|        |               |         | 33pF  | ±2%     | GRM0225C1C330GD05# |  |
|        |               |         |       | ±5%     | GRM0225C1C330JD05# |  |
|        |               |         | 39pF  | ±2%     | GRM0225C1C390GD05# |  |
|        |               |         |       | ±5%     | GRM0225C1C390JD05# |  |
|        |               |         | 47pF  | ±2%     | GRM0225C1C470GD05# |  |
|        |               |         |       | ±5%     | GRM0225C1C470JD05# |  |
|        |               | CK      | 0.2pF | ±0.05pF | GRM0224C1CR20WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1CR20BD05# |  |
|        |               |         | 0.3pF | ±0.05pF | GRM0224C1CR30WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1CR30BD05# |  |
|        |               |         | 0.4pF | ±0.05pF | GRM0224C1CR40WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1CR40BD05# |  |
|        |               |         | 0.5pF | ±0.05pF | GRM0224C1CR50WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1CR50BD05# |  |
|        |               |         | 0.6pF | ±0.05pF | GRM0224C1CR60WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1CR60BD05# |  |
|        |               |         | 0.7pF | ±0.05pF | GRM0224C1CR70WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1CR70BD05# |  |
|        |               |         | 0.8pF | ±0.05pF | GRM0224C1CR80WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1CR80BD05# |  |
|        |               |         | 0.9pF | ±0.05pF | GRM0224C1CR90WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1CR90BD05# |  |
|        |               |         | 1.0pF | ±0.05pF | GRM0224C1C1R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1C1R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0224C1C1R0CD05# |  |
|        |               |         | 1.1pF | ±0.05pF | GRM0224C1C1R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1C1R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0224C1C1R1CD05# |  |
|        |               |         | 1.2pF | ±0.05pF | GRM0224C1C1R2WD05# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | CK      | 1.2pF | ±0.1pF  | GRM0224C1C1R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0224C1C1R2CD05# |  |
|        |               |         | 1.3pF | ±0.05pF | GRM0224C1C1R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1C1R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0224C1C1R3CD05# |  |
|        |               |         | 1.4pF | ±0.05pF | GRM0224C1C1R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1C1R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0224C1C1R4CD05# |  |
|        |               |         | 1.5pF | ±0.05pF | GRM0224C1C1R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1C1R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0224C1C1R5CD05# |  |
|        |               |         | 1.6pF | ±0.05pF | GRM0224C1C1R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1C1R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0224C1C1R6CD05# |  |
|        |               |         | 1.7pF | ±0.05pF | GRM0224C1C1R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1C1R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0224C1C1R7CD05# |  |
|        |               |         | 1.8pF | ±0.05pF | GRM0224C1C1R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1C1R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0224C1C1R8CD05# |  |
|        |               |         | 1.9pF | ±0.05pF | GRM0224C1C1R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1C1R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0224C1C1R9CD05# |  |
|        |               |         | 2.0pF | ±0.05pF | GRM0224C1C2R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0224C1C2R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0224C1C2R0CD05# |  |
|        |               | CJ      | 2.1pF | ±0.05pF | GRM0223C1C2R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C2R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C2R1CD05# |  |
|        |               |         | 2.2pF | ±0.05pF | GRM0223C1C2R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C2R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C2R2CD05# |  |
|        |               |         | 2.3pF | ±0.05pF | GRM0223C1C2R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C2R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C2R3CD05# |  |
|        |               |         | 2.4pF | ±0.05pF | GRM0223C1C2R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C2R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C2R4CD05# |  |
|        |               |         | 2.5pF | ±0.05pF | GRM0223C1C2R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C2R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C2R5CD05# |  |
|        |               |         | 2.6pF | ±0.05pF | GRM0223C1C2R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C2R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C2R6CD05# |  |
|        |               |         | 2.7pF | ±0.05pF | GRM0223C1C2R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C2R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C2R7CD05# |  |
|        |               |         | 2.8pF | ±0.05pF | GRM0223C1C2R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C2R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C2R8CD05# |  |
|        |               |         | 2.9pF | ±0.05pF | GRM0223C1C2R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C2R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C2R9CD05# |  |
|        |               |         | 3.0pF | ±0.05pF | GRM0223C1C3R0WD05# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.4×0.2mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | CJ      | 3.0pF | ±0.1pF  | GRM0223C1C3R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C3R0CD05# |  |
|        |               |         | 3.1pF | ±0.05pF | GRM0223C1C3R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C3R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C3R1CD05# |  |
|        |               |         | 3.2pF | ±0.05pF | GRM0223C1C3R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C3R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C3R2CD05# |  |
|        |               |         | 3.3pF | ±0.05pF | GRM0223C1C3R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C3R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C3R3CD05# |  |
|        |               |         | 3.4pF | ±0.05pF | GRM0223C1C3R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C3R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C3R4CD05# |  |
|        |               |         | 3.5pF | ±0.05pF | GRM0223C1C3R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C3R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C3R5CD05# |  |
|        |               |         | 3.6pF | ±0.05pF | GRM0223C1C3R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C3R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C3R6CD05# |  |
|        |               |         | 3.7pF | ±0.05pF | GRM0223C1C3R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C3R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C3R7CD05# |  |
|        |               |         | 3.8pF | ±0.05pF | GRM0223C1C3R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C3R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C3R8CD05# |  |
|        |               |         | 3.9pF | ±0.05pF | GRM0223C1C3R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0223C1C3R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0223C1C3R9CD05# |  |
|        |               | CH      | 4.0pF | ±0.05pF | GRM0222C1C4R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C4R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C4R0CD05# |  |
|        |               |         | 4.1pF | ±0.05pF | GRM0222C1C4R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C4R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C4R1CD05# |  |
|        |               |         | 4.2pF | ±0.05pF | GRM0222C1C4R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C4R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C4R2CD05# |  |
|        |               |         | 4.3pF | ±0.05pF | GRM0222C1C4R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C4R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C4R3CD05# |  |
|        |               |         | 4.4pF | ±0.05pF | GRM0222C1C4R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C4R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C4R4CD05# |  |
|        |               |         | 4.5pF | ±0.05pF | GRM0222C1C4R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C4R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C4R5CD05# |  |
|        |               |         | 4.6pF | ±0.05pF | GRM0222C1C4R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C4R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C4R6CD05# |  |
|        |               |         | 4.7pF | ±0.05pF | GRM0222C1C4R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C4R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C4R7CD05# |  |
|        |               |         | 4.8pF | ±0.05pF | GRM0222C1C4R8WD05# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | CH      | 4.8pF | ±0.1pF  | GRM0222C1C4R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C4R8CD05# |  |
|        |               |         | 4.9pF | ±0.05pF | GRM0222C1C4R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C4R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C4R9CD05# |  |
|        |               |         | 5.0pF | ±0.05pF | GRM0222C1C5R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C5R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C5R0CD05# |  |
|        |               |         | 5.1pF | ±0.05pF | GRM0222C1C5R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C5R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C5R1CD05# |  |
|        |               |         | 5.2pF | ±0.05pF | GRM0222C1C5R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C5R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C5R2CD05# |  |
|        |               |         | 5.3pF | ±0.05pF | GRM0222C1C5R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C5R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C5R3CD05# |  |
|        |               |         | 5.4pF | ±0.05pF | GRM0222C1C5R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C5R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C5R4CD05# |  |
|        |               |         | 5.5pF | ±0.05pF | GRM0222C1C5R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C5R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C5R5CD05# |  |
|        |               |         | 5.6pF | ±0.05pF | GRM0222C1C5R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C5R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C5R6CD05# |  |
|        |               |         | 5.7pF | ±0.05pF | GRM0222C1C5R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C5R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C5R7CD05# |  |
|        |               |         | 5.8pF | ±0.05pF | GRM0222C1C5R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C5R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C5R8CD05# |  |
|        |               |         | 5.9pF | ±0.05pF | GRM0222C1C5R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C5R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C5R9CD05# |  |
|        |               |         | 6.0pF | ±0.05pF | GRM0222C1C6R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C6R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C6R0CD05# |  |
|        |               |         | 6.1pF | ±0.05pF | GRM0222C1C6R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C6R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C6R1CD05# |  |
|        |               |         | 6.2pF | ±0.05pF | GRM0222C1C6R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C6R2BD05# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.4×0.2mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | CH      | 6.2pF | ±0.25pF | GRM0222C1C6R2CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C6R2DD05# |  |
|        |               |         | 6.3pF | ±0.05pF | GRM0222C1C6R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C6R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C6R3CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C6R3DD05# |  |
|        |               |         | 6.4pF | ±0.05pF | GRM0222C1C6R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C6R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C6R4CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C6R4DD05# |  |
|        |               |         | 6.5pF | ±0.05pF | GRM0222C1C6R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C6R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C6R5CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C6R5DD05# |  |
|        |               |         | 6.6pF | ±0.05pF | GRM0222C1C6R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C6R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C6R6CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C6R6DD05# |  |
|        |               |         | 6.7pF | ±0.05pF | GRM0222C1C6R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C6R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C6R7CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C6R7DD05# |  |
|        |               |         | 6.8pF | ±0.05pF | GRM0222C1C6R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C6R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C6R8CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C6R8DD05# |  |
|        |               |         | 6.9pF | ±0.05pF | GRM0222C1C6R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C6R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C6R9CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C6R9DD05# |  |
|        |               |         | 7.0pF | ±0.05pF | GRM0222C1C7R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C7R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C7R0CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C7R0DD05# |  |
|        |               |         | 7.1pF | ±0.05pF | GRM0222C1C7R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C7R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C7R1CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C7R1DD05# |  |
|        |               |         | 7.2pF | ±0.05pF | GRM0222C1C7R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C7R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C7R2CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C7R2DD05# |  |
|        |               |         | 7.3pF | ±0.05pF | GRM0222C1C7R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C7R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C7R3CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C7R3DD05# |  |
|        |               |         | 7.4pF | ±0.05pF | GRM0222C1C7R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C7R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C7R4CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C7R4DD05# |  |
|        |               |         | 7.5pF | ±0.05pF | GRM0222C1C7R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C7R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C7R5CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C7R5DD05# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | CH      | 7.6pF | ±0.05pF | GRM0222C1C7R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C7R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C7R6CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C7R6DD05# |  |
|        |               |         | 7.7pF | ±0.05pF | GRM0222C1C7R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C7R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C7R7CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C7R7DD05# |  |
|        |               |         | 7.8pF | ±0.05pF | GRM0222C1C7R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C7R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C7R8CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C7R8DD05# |  |
|        |               |         | 7.9pF | ±0.05pF | GRM0222C1C7R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C7R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C7R9CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C7R9DD05# |  |
|        |               |         | 8.0pF | ±0.05pF | GRM0222C1C8R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C8R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C8R0CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C8R0DD05# |  |
|        |               |         | 8.1pF | ±0.05pF | GRM0222C1C8R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C8R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C8R1CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C8R1DD05# |  |
|        |               |         | 8.2pF | ±0.05pF | GRM0222C1C8R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C8R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C8R2CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C8R2DD05# |  |
|        |               |         | 8.3pF | ±0.05pF | GRM0222C1C8R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C8R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C8R3CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C8R3DD05# |  |
|        |               |         | 8.4pF | ±0.05pF | GRM0222C1C8R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C8R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C8R4CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C8R4DD05# |  |
|        |               |         | 8.5pF | ±0.05pF | GRM0222C1C8R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C8R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C8R5CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C8R5DD05# |  |
|        |               |         | 8.6pF | ±0.05pF | GRM0222C1C8R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C8R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C8R6CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C8R6DD05# |  |
|        |               |         | 8.7pF | ±0.05pF | GRM0222C1C8R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C8R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C8R7CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C8R7DD05# |  |
|        |               |         | 8.8pF | ±0.05pF | GRM0222C1C8R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C8R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C8R8CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C8R8DD05# |  |
|        |               |         | 8.9pF | ±0.05pF | GRM0222C1C8R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C8R9BD05# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.4×0.2mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | CH      | 8.9pF | ±0.25pF | GRM0222C1C8R9CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C8R9DD05# |  |
|        |               |         | 9.0pF | ±0.05pF | GRM0222C1C9R0WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C9R0BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C9R0CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C9R0DD05# |  |
|        |               |         | 9.1pF | ±0.05pF | GRM0222C1C9R1WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C9R1BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C9R1CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C9R1DD05# |  |
|        |               |         | 9.2pF | ±0.05pF | GRM0222C1C9R2WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C9R2BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C9R2CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C9R2DD05# |  |
|        |               |         | 9.3pF | ±0.05pF | GRM0222C1C9R3WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C9R3BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C9R3CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C9R3DD05# |  |
|        |               |         | 9.4pF | ±0.05pF | GRM0222C1C9R4WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C9R4BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C9R4CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C9R4DD05# |  |
|        |               |         | 9.5pF | ±0.05pF | GRM0222C1C9R5WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C9R5BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C9R5CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C9R5DD05# |  |
|        |               |         | 9.6pF | ±0.05pF | GRM0222C1C9R6WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C9R6BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C9R6CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C9R6DD05# |  |
|        |               |         | 9.7pF | ±0.05pF | GRM0222C1C9R7WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C9R7BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C9R7CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C9R7DD05# |  |
|        |               |         | 9.8pF | ±0.05pF | GRM0222C1C9R8WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C9R8BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C9R8CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C9R8DD05# |  |
|        |               |         | 9.9pF | ±0.05pF | GRM0222C1C9R9WD05# |  |
|        |               |         |       | ±0.1pF  | GRM0222C1C9R9BD05# |  |
|        |               |         |       | ±0.25pF | GRM0222C1C9R9CD05# |  |
|        |               |         |       | ±0.5pF  | GRM0222C1C9R9DD05# |  |
|        |               |         | 10pF  | ±2%     | GRM0222C1C100GD05# |  |
|        |               |         |       | ±5%     | GRM0222C1C100JD05# |  |
|        |               |         | 12pF  | ±2%     | GRM0222C1C120GD05# |  |
|        |               |         |       | ±5%     | GRM0222C1C120JD05# |  |
|        |               |         | 15pF  | ±2%     | GRM0222C1C150GD05# |  |
|        |               |         |       | ±5%     | GRM0222C1C150JD05# |  |
|        |               |         | 18pF  | ±2%     | GRM0222C1C180GD05# |  |
|        |               |         |       | ±5%     | GRM0222C1C180JD05# |  |
|        |               |         | 22pF  | ±2%     | GRM0222C1C220GD05# |  |
|        |               |         |       | ±5%     | GRM0222C1C220JD05# |  |
|        |               |         | 27pF  | ±2%     | GRM0222C1C270GD05# |  |
|        |               |         |       | ±5%     | GRM0222C1C270JD05# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol. | Part Number        |  |
|--------|---------------|---------|-------|------|--------------------|--|
| 0.22mm | 16Vdc         | CH      | 33pF  | ±2%  | GRM0222C1C330GD05# |  |
|        |               |         |       | ±5%  | GRM0222C1C330JD05# |  |
|        |               |         | 39pF  | ±2%  | GRM0222C1C390GD05# |  |
|        |               |         |       | ±5%  | GRM0222C1C390JD05# |  |
|        |               |         | 47pF  | ±2%  | GRM0222C1C470GD05# |  |
|        |               |         |       | ±5%  | GRM0222C1C470JD05# |  |
|        | 10Vdc         | C0G     | 56pF  | ±2%  | GRM0225C1A560GD05# |  |
|        |               |         |       | ±5%  | GRM0225C1A560JD05# |  |
|        |               |         | 68pF  | ±2%  | GRM0225C1A680GD05# |  |
|        |               |         |       | ±5%  | GRM0225C1A680JD05# |  |
|        |               |         | 82pF  | ±2%  | GRM0225C1A820GD05# |  |
|        |               |         |       | ±5%  | GRM0225C1A820JD05# |  |
|        |               |         | 100pF | ±2%  | GRM0225C1A101GD05# |  |
|        |               |         |       | ±5%  | GRM0225C1A101JD05# |  |
|        |               | CH      | 56pF  | ±2%  | GRM0222C1A560GD05# |  |
|        |               |         |       | ±5%  | GRM0222C1A560JD05# |  |
|        |               |         | 68pF  | ±2%  | GRM0222C1A680GD05# |  |
|        |               |         |       | ±5%  | GRM0222C1A680JD05# |  |
|        |               |         | 82pF  | ±2%  | GRM0222C1A820GD05# |  |
|        |               |         |       | ±5%  | GRM0222C1A820JD05# |  |
|        |               |         | 100pF | ±2%  | GRM0222C1A101GD05# |  |
|        |               |         |       | ±5%  | GRM0222C1A101JD05# |  |

■ 0.6×0.3mm **Ultra-compact**

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | C0G     | 0.1pF | ±0.05pF | GRM0335C1HR10WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1HR10BA01# |  |
|        |               |         | 0.2pF | ±0.05pF | GRM0335C1HR20WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1HR20BA01# |  |
|        |               |         | 0.3pF | ±0.05pF | GRM0335C1HR30WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1HR30BA01# |  |
|        |               |         | 0.4pF | ±0.05pF | GRM0335C1HR40WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1HR40BA01# |  |
|        |               |         | 0.5pF | ±0.05pF | GRM0335C1HR50WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1HR50BA01# |  |
|        |               |         | 0.6pF | ±0.05pF | GRM0335C1HR60WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1HR60BA01# |  |
|        |               |         | 0.7pF | ±0.05pF | GRM0335C1HR70WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1HR70BA01# |  |
|        |               |         | 0.8pF | ±0.05pF | GRM0335C1HR80WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1HR80BA01# |  |
|        |               |         | 0.9pF | ±0.05pF | GRM0335C1HR90WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1HR90BA01# |  |
|        |               |         | 1.0pF | ±0.05pF | GRM0335C1H1R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H1R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H1R0CA01# |  |
|        |               |         | 1.1pF | ±0.05pF | GRM0335C1H1R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H1R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H1R1CA01# |  |
|        |               |         | 1.2pF | ±0.05pF | GRM0335C1H1R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H1R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H1R2CA01# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | C0G     | 1.3pF | ±0.05pF | GRM0335C1H1R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H1R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H1R3CA01# |  |
|        |               |         | 1.4pF | ±0.05pF | GRM0335C1H1R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H1R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H1R4CA01# |  |
|        |               |         | 1.5pF | ±0.05pF | GRM0335C1H1R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H1R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H1R5CA01# |  |
|        |               |         | 1.6pF | ±0.05pF | GRM0335C1H1R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H1R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H1R6CA01# |  |
|        |               |         | 1.7pF | ±0.05pF | GRM0335C1H1R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H1R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H1R7CA01# |  |
|        |               |         | 1.8pF | ±0.05pF | GRM0335C1H1R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H1R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H1R8CA01# |  |
|        |               |         | 1.9pF | ±0.05pF | GRM0335C1H1R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H1R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H1R9CA01# |  |
|        |               |         | 2.0pF | ±0.05pF | GRM0335C1H2R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H2R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H2R0CA01# |  |
|        |               |         | 2.1pF | ±0.05pF | GRM0335C1H2R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H2R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H2R1CA01# |  |
|        |               |         | 2.2pF | ±0.05pF | GRM0335C1H2R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H2R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H2R2CA01# |  |
|        |               |         | 2.3pF | ±0.05pF | GRM0335C1H2R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H2R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H2R3CA01# |  |
|        |               |         | 2.4pF | ±0.05pF | GRM0335C1H2R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H2R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H2R4CA01# |  |
|        |               |         | 2.5pF | ±0.05pF | GRM0335C1H2R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H2R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H2R5CA01# |  |
|        |               |         | 2.6pF | ±0.05pF | GRM0335C1H2R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H2R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H2R6CA01# |  |
|        |               |         | 2.7pF | ±0.05pF | GRM0335C1H2R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H2R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H2R7CA01# |  |
|        |               |         | 2.8pF | ±0.05pF | GRM0335C1H2R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H2R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H2R8CA01# |  |
|        |               |         | 2.9pF | ±0.05pF | GRM0335C1H2R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H2R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H2R9CA01# |  |
|        |               |         | 3.0pF | ±0.05pF | GRM0335C1H3R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H3R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H3R0CA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | C0G     | 3.1pF | ±0.05pF | GRM0335C1H3R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H3R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H3R1CA01# |  |
|        |               |         | 3.2pF | ±0.05pF | GRM0335C1H3R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H3R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H3R2CA01# |  |
|        |               |         | 3.3pF | ±0.05pF | GRM0335C1H3R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H3R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H3R3CA01# |  |
|        |               |         | 3.4pF | ±0.05pF | GRM0335C1H3R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H3R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H3R4CA01# |  |
|        |               |         | 3.5pF | ±0.05pF | GRM0335C1H3R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H3R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H3R5CA01# |  |
|        |               |         | 3.6pF | ±0.05pF | GRM0335C1H3R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H3R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H3R6CA01# |  |
|        |               |         | 3.7pF | ±0.05pF | GRM0335C1H3R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H3R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H3R7CA01# |  |
|        |               |         | 3.8pF | ±0.05pF | GRM0335C1H3R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H3R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H3R8CA01# |  |
|        |               |         | 3.9pF | ±0.05pF | GRM0335C1H3R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H3R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H3R9CA01# |  |
|        |               |         | 4.0pF | ±0.05pF | GRM0335C1H4R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H4R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H4R0CA01# |  |
|        |               |         | 4.1pF | ±0.05pF | GRM0335C1H4R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H4R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H4R1CA01# |  |
|        |               |         | 4.2pF | ±0.05pF | GRM0335C1H4R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H4R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H4R2CA01# |  |
|        |               |         | 4.3pF | ±0.05pF | GRM0335C1H4R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H4R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H4R3CA01# |  |
|        |               |         | 4.4pF | ±0.05pF | GRM0335C1H4R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H4R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H4R4CA01# |  |
|        |               |         | 4.5pF | ±0.05pF | GRM0335C1H4R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H4R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H4R5CA01# |  |
|        |               |         | 4.6pF | ±0.05pF | GRM0335C1H4R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H4R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H4R6CA01# |  |
|        |               |         | 4.7pF | ±0.05pF | GRM0335C1H4R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H4R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H4R7CA01# |  |
|        |               |         | 4.8pF | ±0.05pF | GRM0335C1H4R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H4R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H4R8CA01# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | C0G     | 4.9pF | ±0.05pF | GRM0335C1H4R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H4R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H4R9CA01# |  |
|        |               |         | 5.0pF | ±0.05pF | GRM0335C1H5R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H5R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H5R0CA01# |  |
|        |               |         | 5.1pF | ±0.05pF | GRM0335C1H5R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H5R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H5R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H5R1DA01# |  |
|        |               |         | 5.2pF | ±0.05pF | GRM0335C1H5R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H5R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H5R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H5R2DA01# |  |
|        |               |         | 5.3pF | ±0.05pF | GRM0335C1H5R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H5R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H5R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H5R3DA01# |  |
|        |               |         | 5.4pF | ±0.05pF | GRM0335C1H5R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H5R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H5R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H5R4DA01# |  |
|        |               |         | 5.5pF | ±0.05pF | GRM0335C1H5R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H5R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H5R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H5R5DA01# |  |
|        |               |         | 5.6pF | ±0.05pF | GRM0335C1H5R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H5R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H5R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H5R6DA01# |  |
|        |               |         | 5.7pF | ±0.05pF | GRM0335C1H5R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H5R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H5R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H5R7DA01# |  |
|        |               |         | 5.8pF | ±0.05pF | GRM0335C1H5R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H5R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H5R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H5R8DA01# |  |
|        |               |         | 5.9pF | ±0.05pF | GRM0335C1H5R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H5R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H5R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H5R9DA01# |  |
|        |               |         | 6.0pF | ±0.05pF | GRM0335C1H6R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H6R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H6R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H6R0DA01# |  |
|        |               |         | 6.1pF | ±0.05pF | GRM0335C1H6R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H6R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H6R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H6R1DA01# |  |
|        |               |         | 6.2pF | ±0.05pF | GRM0335C1H6R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H6R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H6R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H6R2DA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | C0G     | 6.3pF | ±0.05pF | GRM0335C1H6R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H6R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H6R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H6R3DA01# |  |
|        |               |         | 6.4pF | ±0.05pF | GRM0335C1H6R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H6R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H6R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H6R4DA01# |  |
|        |               |         | 6.5pF | ±0.05pF | GRM0335C1H6R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H6R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H6R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H6R5DA01# |  |
|        |               |         | 6.6pF | ±0.05pF | GRM0335C1H6R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H6R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H6R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H6R6DA01# |  |
|        |               |         | 6.7pF | ±0.05pF | GRM0335C1H6R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H6R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H6R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H6R7DA01# |  |
|        |               |         | 6.8pF | ±0.05pF | GRM0335C1H6R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H6R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H6R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H6R8DA01# |  |
|        |               |         | 6.9pF | ±0.05pF | GRM0335C1H6R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H6R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H6R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H6R9DA01# |  |
|        |               |         | 7.0pF | ±0.05pF | GRM0335C1H7R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H7R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H7R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H7R0DA01# |  |
|        |               |         | 7.1pF | ±0.05pF | GRM0335C1H7R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H7R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H7R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H7R1DA01# |  |
|        |               |         | 7.2pF | ±0.05pF | GRM0335C1H7R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H7R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H7R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H7R2DA01# |  |
|        |               |         | 7.3pF | ±0.05pF | GRM0335C1H7R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H7R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H7R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H7R3DA01# |  |
|        |               |         | 7.4pF | ±0.05pF | GRM0335C1H7R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H7R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H7R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H7R4DA01# |  |
|        |               |         | 7.5pF | ±0.05pF | GRM0335C1H7R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H7R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H7R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H7R5DA01# |  |
|        |               |         | 7.6pF | ±0.05pF | GRM0335C1H7R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H7R6BA01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LL□ Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | C0G     | 7.6pF | ±0.25pF | GRM0335C1H7R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H7R6DA01# |  |
|        |               |         | 7.7pF | ±0.05pF | GRM0335C1H7R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H7R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H7R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H7R7DA01# |  |
|        |               |         | 7.8pF | ±0.05pF | GRM0335C1H7R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H7R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H7R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H7R8DA01# |  |
|        |               |         | 7.9pF | ±0.05pF | GRM0335C1H7R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H7R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H7R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H7R9DA01# |  |
|        |               |         | 8.0pF | ±0.05pF | GRM0335C1H8R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H8R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H8R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H8R0DA01# |  |
|        |               |         | 8.1pF | ±0.05pF | GRM0335C1H8R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H8R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H8R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H8R1DA01# |  |
|        |               |         | 8.2pF | ±0.05pF | GRM0335C1H8R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H8R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H8R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H8R2DA01# |  |
|        |               |         | 8.3pF | ±0.05pF | GRM0335C1H8R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H8R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H8R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H8R3DA01# |  |
|        |               |         | 8.4pF | ±0.05pF | GRM0335C1H8R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H8R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H8R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H8R4DA01# |  |
|        |               |         | 8.5pF | ±0.05pF | GRM0335C1H8R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H8R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H8R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H8R5DA01# |  |
|        |               |         | 8.6pF | ±0.05pF | GRM0335C1H8R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H8R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H8R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H8R6DA01# |  |
|        |               |         | 8.7pF | ±0.05pF | GRM0335C1H8R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H8R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H8R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H8R7DA01# |  |
|        |               |         | 8.8pF | ±0.05pF | GRM0335C1H8R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H8R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H8R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H8R8DA01# |  |
|        |               |         | 8.9pF | ±0.05pF | GRM0335C1H8R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H8R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H8R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H8R9DA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | C0G     | 9.0pF | ±0.05pF | GRM0335C1H9R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H9R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H9R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H9R0DA01# |  |
|        |               |         | 9.1pF | ±0.05pF | GRM0335C1H9R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H9R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H9R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H9R1DA01# |  |
|        |               |         | 9.2pF | ±0.05pF | GRM0335C1H9R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H9R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H9R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H9R2DA01# |  |
|        |               |         | 9.3pF | ±0.05pF | GRM0335C1H9R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H9R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H9R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H9R3DA01# |  |
|        |               |         | 9.4pF | ±0.05pF | GRM0335C1H9R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H9R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H9R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H9R4DA01# |  |
|        |               |         | 9.5pF | ±0.05pF | GRM0335C1H9R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H9R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H9R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H9R5DA01# |  |
|        |               |         | 9.6pF | ±0.05pF | GRM0335C1H9R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H9R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H9R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H9R6DA01# |  |
|        |               |         | 9.7pF | ±0.05pF | GRM0335C1H9R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H9R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H9R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H9R7DA01# |  |
|        |               |         | 9.8pF | ±0.05pF | GRM0335C1H9R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H9R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H9R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H9R8DA01# |  |
|        |               |         | 9.9pF | ±0.05pF | GRM0335C1H9R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0335C1H9R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0335C1H9R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0335C1H9R9DA01# |  |
|        |               |         | 10pF  | ±2%     | GRM0335C1H100GA01# |  |
|        |               |         |       | ±5%     | GRM0335C1H100JA01# |  |
|        |               |         | 12pF  | ±2%     | GRM0335C1H120GA01# |  |
|        |               |         |       | ±5%     | GRM0335C1H120JA01# |  |
|        |               |         | 15pF  | ±2%     | GRM0335C1H150GA01# |  |
|        |               |         |       | ±5%     | GRM0335C1H150JA01# |  |
|        |               |         | 18pF  | ±2%     | GRM0335C1H180GA01# |  |
|        |               |         |       | ±5%     | GRM0335C1H180JA01# |  |
|        |               |         | 22pF  | ±2%     | GRM0335C1H220GA01# |  |
|        |               |         |       | ±5%     | GRM0335C1H220JA01# |  |
|        |               |         | 27pF  | ±2%     | GRM0335C1H270GA01# |  |
|        |               |         |       | ±5%     | GRM0335C1H270JA01# |  |
|        |               |         | 33pF  | ±2%     | GRM0335C1H330GA01# |  |
|        |               |         |       | ±5%     | GRM0335C1H330JA01# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | C0G     | 39pF  | ±2%     | GRM0335C1H390GA01# |  |
|        |               |         |       | ±5%     | GRM0335C1H390JA01# |  |
|        |               |         | 47pF  | ±2%     | GRM0335C1H470GA01# |  |
|        |               |         |       | ±5%     | GRM0335C1H470JA01# |  |
|        |               |         | 56pF  | ±2%     | GRM0335C1H560GA01# |  |
|        |               |         |       | ±5%     | GRM0335C1H560JA01# |  |
|        |               |         | 68pF  | ±2%     | GRM0335C1H680GA01# |  |
|        |               |         |       | ±5%     | GRM0335C1H680JA01# |  |
|        |               |         | 82pF  | ±2%     | GRM0335C1H820GA01# |  |
|        |               |         |       | ±5%     | GRM0335C1H820JA01# |  |
|        |               |         | 100pF | ±2%     | GRM0335C1H101GA01# |  |
|        |               |         |       | ±5%     | GRM0335C1H101JA01# |  |
|        |               |         | 0.1pF | ±0.05pF | GRM0334C1HR10WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR10BA01# |  |
|        |               |         | 0.2pF | ±0.05pF | GRM0334C1HR20WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR20BA01# |  |
|        |               |         | 0.3pF | ±0.05pF | GRM0334C1HR30WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR30BA01# |  |
|        |               |         | 0.4pF | ±0.05pF | GRM0334C1HR40WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR40BA01# |  |
|        |               |         | 0.5pF | ±0.05pF | GRM0334C1HR50WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR50BA01# |  |
|        |               |         | 0.6pF | ±0.05pF | GRM0334C1HR60WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR60BA01# |  |
|        |               |         | 0.7pF | ±0.05pF | GRM0334C1HR70WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR70BA01# |  |
|        |               |         | 0.8pF | ±0.05pF | GRM0334C1HR80WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR80BA01# |  |
|        |               |         | 0.9pF | ±0.05pF | GRM0334C1HR90WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR90BA01# |  |
|        |               |         | 1.0pF | ±0.05pF | GRM0334C1H1R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R0CA01# |  |
|        |               |         | 1.1pF | ±0.05pF | GRM0334C1H1R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R1CA01# |  |
|        |               |         | 1.2pF | ±0.05pF | GRM0334C1H1R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R2CA01# |  |
|        |               |         | 1.3pF | ±0.05pF | GRM0334C1H1R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R3CA01# |  |
|        |               |         | 1.4pF | ±0.05pF | GRM0334C1H1R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R4CA01# |  |
|        |               |         | 1.5pF | ±0.05pF | GRM0334C1H1R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R5CA01# |  |
|        |               |         | 1.6pF | ±0.05pF | GRM0334C1H1R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R6CA01# |  |
|        |               |         | 1.7pF | ±0.05pF | GRM0334C1H1R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R7CA01# |  |
|        |               | CK      | 0.1pF | ±0.05pF | GRM0334C1HR10WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR10BA01# |  |
|        |               |         | 0.2pF | ±0.05pF | GRM0334C1HR20WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR20BA01# |  |
|        |               |         | 0.3pF | ±0.05pF | GRM0334C1HR30WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR30BA01# |  |
|        |               |         | 0.4pF | ±0.05pF | GRM0334C1HR40WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR40BA01# |  |
|        |               |         | 0.5pF | ±0.05pF | GRM0334C1HR50WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR50BA01# |  |
|        |               |         | 0.6pF | ±0.05pF | GRM0334C1HR60WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR60BA01# |  |
|        |               |         | 0.7pF | ±0.05pF | GRM0334C1HR70WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR70BA01# |  |
|        |               |         | 0.8pF | ±0.05pF | GRM0334C1HR80WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR80BA01# |  |
|        |               |         | 0.9pF | ±0.05pF | GRM0334C1HR90WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1HR90BA01# |  |
|        |               |         | 1.0pF | ±0.05pF | GRM0334C1H1R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R0CA01# |  |
|        |               |         | 1.1pF | ±0.05pF | GRM0334C1H1R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R1CA01# |  |
|        |               |         | 1.2pF | ±0.05pF | GRM0334C1H1R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R2CA01# |  |
|        |               |         | 1.3pF | ±0.05pF | GRM0334C1H1R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R3CA01# |  |
|        |               |         | 1.4pF | ±0.05pF | GRM0334C1H1R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R4CA01# |  |
|        |               |         | 1.5pF | ±0.05pF | GRM0334C1H1R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R5CA01# |  |
|        |               |         | 1.6pF | ±0.05pF | GRM0334C1H1R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R6CA01# |  |
|        |               |         | 1.7pF | ±0.05pF | GRM0334C1H1R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R7CA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | CK      | 1.8pF | ±0.05pF | GRM0334C1H1R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R8CA01# |  |
|        |               |         | 1.9pF | ±0.05pF | GRM0334C1H1R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H1R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H1R9CA01# |  |
|        |               |         | 2.0pF | ±0.05pF | GRM0334C1H2R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0334C1H2R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0334C1H2R0CA01# |  |
|        |               | CJ      | 2.1pF | ±0.05pF | GRM0333C1H2R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H2R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H2R1CA01# |  |
|        |               |         | 2.2pF | ±0.05pF | GRM0333C1H2R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H2R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H2R2CA01# |  |
|        |               |         | 2.3pF | ±0.05pF | GRM0333C1H2R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H2R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H2R3CA01# |  |
|        |               |         | 2.4pF | ±0.05pF | GRM0333C1H2R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H2R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H2R4CA01# |  |
|        |               |         | 2.5pF | ±0.05pF | GRM0333C1H2R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H2R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H2R5CA01# |  |
|        |               |         | 2.6pF | ±0.05pF | GRM0333C1H2R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H2R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H2R6CA01# |  |
|        |               |         | 2.7pF | ±0.05pF | GRM0333C1H2R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H2R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H2R7CA01# |  |
|        |               |         | 2.8pF | ±0.05pF | GRM0333C1H2R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H2R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H2R8CA01# |  |
|        |               |         | 2.9pF | ±0.05pF | GRM0333C1H2R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H2R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H2R9CA01# |  |
|        |               |         | 3.0pF | ±0.05pF | GRM0333C1H3R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H3R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H3R0CA01# |  |
|        |               |         | 3.1pF | ±0.05pF | GRM0333C1H3R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H3R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H3R1CA01# |  |
|        |               |         | 3.2pF | ±0.05pF | GRM0333C1H3R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H3R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H3R2CA01# |  |
|        |               |         | 3.3pF | ±0.05pF | GRM0333C1H3R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H3R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H3R3CA01# |  |
|        |               |         | 3.4pF | ±0.05pF | GRM0333C1H3R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H3R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H3R4CA01# |  |
|        |               |         | 3.5pF | ±0.05pF | GRM0333C1H3R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H3R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H3R5CA01# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | CJ      | 3.6pF | ±0.05pF | GRM0333C1H3R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H3R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H3R6CA01# |  |
|        |               |         | 3.7pF | ±0.05pF | GRM0333C1H3R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H3R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H3R7CA01# |  |
|        |               |         | 3.8pF | ±0.05pF | GRM0333C1H3R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H3R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H3R8CA01# |  |
|        |               |         | 3.9pF | ±0.05pF | GRM0333C1H3R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0333C1H3R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0333C1H3R9CA01# |  |
|        |               | CH      | 4.0pF | ±0.05pF | GRM0332C1H4R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H4R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H4R0CA01# |  |
|        |               |         | 4.1pF | ±0.05pF | GRM0332C1H4R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H4R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H4R1CA01# |  |
|        |               |         | 4.2pF | ±0.05pF | GRM0332C1H4R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H4R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H4R2CA01# |  |
|        |               |         | 4.3pF | ±0.05pF | GRM0332C1H4R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H4R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H4R3CA01# |  |
|        |               |         | 4.4pF | ±0.05pF | GRM0332C1H4R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H4R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H4R4CA01# |  |
|        |               |         | 4.5pF | ±0.05pF | GRM0332C1H4R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H4R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H4R5CA01# |  |
|        |               |         | 4.6pF | ±0.05pF | GRM0332C1H4R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H4R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H4R6CA01# |  |
|        |               |         | 4.7pF | ±0.05pF | GRM0332C1H4R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H4R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H4R7CA01# |  |
|        |               |         | 4.8pF | ±0.05pF | GRM0332C1H4R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H4R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H4R8CA01# |  |
|        |               |         | 4.9pF | ±0.05pF | GRM0332C1H4R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H4R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H4R9CA01# |  |
|        |               |         | 5.0pF | ±0.05pF | GRM0332C1H5R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H5R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H5R0CA01# |  |
|        |               |         | 5.1pF | ±0.05pF | GRM0332C1H5R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H5R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H5R1CA01# |  |
|        |               |         | 5.2pF | ±0.05pF | GRM0332C1H5R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H5R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H5R2CA01# |  |
|        |               |         | 5.3pF | ±0.05pF | GRM0332C1H5R3WA01# |  |
|        |               |         |       | ±0.05pF | GRM0332C1H5R3BA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | CH      | 5.3pF | ±0.1pF  | GRM0332C1H5R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H5R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H5R3DA01# |  |
|        |               |         | 5.4pF | ±0.05pF | GRM0332C1H5R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H5R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H5R4CA01# |  |
|        |               |         | 5.5pF | ±0.05pF | GRM0332C1H5R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H5R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H5R5CA01# |  |
|        |               |         | 5.6pF | ±0.05pF | GRM0332C1H5R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H5R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H5R6CA01# |  |
|        |               |         | 5.7pF | ±0.05pF | GRM0332C1H5R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H5R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H5R7CA01# |  |
|        |               |         | 5.8pF | ±0.05pF | GRM0332C1H5R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H5R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H5R8CA01# |  |
|        |               |         | 5.9pF | ±0.05pF | GRM0332C1H5R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H5R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H5R9CA01# |  |
|        |               |         | 6.0pF | ±0.05pF | GRM0332C1H6R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H6R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H6R0CA01# |  |
|        |               |         | 6.1pF | ±0.05pF | GRM0332C1H6R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H6R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H6R1CA01# |  |
|        |               |         | 6.2pF | ±0.05pF | GRM0332C1H6R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H6R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H6R2CA01# |  |
|        |               |         | 6.3pF | ±0.05pF | GRM0332C1H6R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H6R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H6R3CA01# |  |
|        |               |         | 6.4pF | ±0.05pF | GRM0332C1H6R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H6R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H6R4CA01# |  |
|        |               |         | 6.5pF | ±0.05pF | GRM0332C1H6R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H6R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H6R5CA01# |  |
|        |               |         | 6.6pF | ±0.05pF | GRM0332C1H6R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H6R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H6R6CA01# |  |

Part number # indicates the package specification code.

# GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | CH      | 6.6pF | ±0.5pF  | GRM0332C1H6R6DA01# |  |
|        |               |         |       | ±0.05pF | GRM0332C1H6R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H6R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H6R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H6R7DA01# |  |
|        |               |         | 6.8pF | ±0.05pF | GRM0332C1H6R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H6R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H6R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H6R8DA01# |  |
|        |               |         | 6.9pF | ±0.05pF | GRM0332C1H6R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H6R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H6R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H6R9DA01# |  |
|        |               |         | 7.0pF | ±0.05pF | GRM0332C1H7R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H7R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H7R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H7R0DA01# |  |
|        |               |         | 7.1pF | ±0.05pF | GRM0332C1H7R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H7R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H7R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H7R1DA01# |  |
|        |               |         | 7.2pF | ±0.05pF | GRM0332C1H7R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H7R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H7R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H7R2DA01# |  |
|        |               |         | 7.3pF | ±0.05pF | GRM0332C1H7R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H7R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H7R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H7R3DA01# |  |
|        |               |         | 7.4pF | ±0.05pF | GRM0332C1H7R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H7R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H7R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H7R4DA01# |  |
|        |               |         | 7.5pF | ±0.05pF | GRM0332C1H7R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H7R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H7R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H7R5DA01# |  |
|        |               |         | 7.6pF | ±0.05pF | GRM0332C1H7R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H7R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H7R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H7R6DA01# |  |
|        |               |         | 7.7pF | ±0.05pF | GRM0332C1H7R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H7R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H7R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H7R7DA01# |  |
|        |               |         | 7.8pF | ±0.05pF | GRM0332C1H7R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H7R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H7R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H7R8DA01# |  |
|        |               |         | 7.9pF | ±0.05pF | GRM0332C1H7R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H7R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H7R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H7R9DA01# |  |
|        |               |         | 8.0pF | ±0.05pF | GRM0332C1H8R0WA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | CH      | 8.0pF | ±0.1pF  | GRM0332C1H8R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H8R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H8R0DA01# |  |
|        |               |         | 8.1pF | ±0.05pF | GRM0332C1H8R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H8R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H8R1CA01# |  |
|        |               |         | 8.2pF | ±0.05pF | GRM0332C1H8R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H8R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H8R2CA01# |  |
|        |               |         | 8.3pF | ±0.05pF | GRM0332C1H8R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H8R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H8R3CA01# |  |
|        |               |         | 8.4pF | ±0.05pF | GRM0332C1H8R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H8R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H8R4CA01# |  |
|        |               |         | 8.5pF | ±0.05pF | GRM0332C1H8R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H8R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H8R5CA01# |  |
|        |               |         | 8.6pF | ±0.05pF | GRM0332C1H8R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H8R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H8R6CA01# |  |
|        |               |         | 8.7pF | ±0.05pF | GRM0332C1H8R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H8R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H8R7CA01# |  |
|        |               |         | 8.8pF | ±0.05pF | GRM0332C1H8R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H8R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H8R8CA01# |  |
|        |               |         | 8.9pF | ±0.05pF | GRM0332C1H8R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H8R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H8R9CA01# |  |
|        |               |         | 9.0pF | ±0.05pF | GRM0332C1H9R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H9R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H9R0CA01# |  |
|        |               |         | 9.1pF | ±0.05pF | GRM0332C1H9R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H9R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H9R1CA01# |  |
|        |               |         | 9.2pF | ±0.05pF | GRM0332C1H9R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H9R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H9R2CA01# |  |
|        |               |         | 9.3pF | ±0.05pF | GRM0332C1H9R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H9R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H9R3CA01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LL□ Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

# GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | CH      | 9.3pF | ±0.5pF  | GRM0332C1H9R3DA01# |  |
|        |               |         |       | ±0.05pF | GRM0332C1H9R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H9R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H9R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H9R4DA01# |  |
|        |               |         | 9.5pF | ±0.05pF | GRM0332C1H9R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H9R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H9R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H9R5DA01# |  |
|        |               |         | 9.6pF | ±0.05pF | GRM0332C1H9R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H9R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H9R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H9R6DA01# |  |
|        |               |         | 9.7pF | ±0.05pF | GRM0332C1H9R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H9R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H9R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H9R7DA01# |  |
|        |               |         | 9.8pF | ±0.05pF | GRM0332C1H9R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H9R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H9R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H9R8DA01# |  |
|        |               |         | 9.9pF | ±0.05pF | GRM0332C1H9R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM0332C1H9R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM0332C1H9R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM0332C1H9R9DA01# |  |
|        |               |         | 10pF  | ±2%     | GRM0332C1H100GA01# |  |
|        |               |         |       | ±5%     | GRM0332C1H100JA01# |  |
|        |               |         | 12pF  | ±2%     | GRM0332C1H120GA01# |  |
|        |               |         |       | ±5%     | GRM0332C1H120JA01# |  |
|        |               |         | 15pF  | ±2%     | GRM0332C1H150GA01# |  |
|        |               |         |       | ±5%     | GRM0332C1H150JA01# |  |
|        |               |         | 18pF  | ±2%     | GRM0332C1H180GA01# |  |
|        |               |         |       | ±5%     | GRM0332C1H180JA01# |  |
|        |               |         | 22pF  | ±2%     | GRM0332C1H220GA01# |  |
|        |               |         |       | ±5%     | GRM0332C1H220JA01# |  |
|        |               |         | 27pF  | ±2%     | GRM0332C1H270GA01# |  |
|        |               |         |       | ±5%     | GRM0332C1H270JA01# |  |
|        |               |         | 33pF  | ±2%     | GRM0332C1H330GA01# |  |
|        |               |         |       | ±5%     | GRM0332C1H330JA01# |  |
|        |               |         | 39pF  | ±2%     | GRM0332C1H390GA01# |  |
|        |               |         |       | ±5%     | GRM0332C1H390JA01# |  |
|        |               |         | 47pF  | ±2%     | GRM0332C1H470GA01# |  |
|        |               |         |       | ±5%     | GRM0332C1H470JA01# |  |
|        |               |         | 56pF  | ±2%     | GRM0332C1H560GA01# |  |
|        |               |         |       | ±5%     | GRM0332C1H560JA01# |  |
|        |               |         | 68pF  | ±2%     | GRM0332C1H680GA01# |  |
|        |               |         |       | ±5%     | GRM0332C1H680JA01# |  |
|        |               |         | 82pF  | ±2%     | GRM0332C1H820GA01# |  |
|        |               |         |       | ±5%     | GRM0332C1H820JA01# |  |
|        |               |         | 100pF | ±2%     | GRM0332C1H101GA01# |  |
|        |               |         |       | ±5%     | GRM0332C1H101JA01# |  |
|        |               | UK      | 1.0pF | ±0.25pF | GRM0334U1H1R0CD01# |  |
|        |               |         | 2.0pF | ±0.25pF | GRM0334U1H2R0CD01# |  |
|        |               | UJ      | 3.0pF | ±0.25pF | GRM0333U1H3R0CD01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | UJ      | 4.0pF | ±0.25pF | GRM0333U1H4R0CD01# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM0333U1H5R0CD01# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM0333U1H6R0DD01# |  |
|        |               |         | 7.0pF | ±0.5pF  | GRM0333U1H7R0DD01# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM0333U1H8R0DD01# |  |
|        |               |         | 9.0pF | ±0.5pF  | GRM0333U1H9R0DD01# |  |
|        |               |         | 10pF  | ±5%     | GRM0333U1H100JD01# |  |
|        |               |         | 12pF  | ±5%     | GRM0333U1H120JD01# |  |
|        |               |         | 15pF  | ±5%     | GRM0333U1H150JD01# |  |
|        | 25Vdc         | R2H     | 1.0pF | ±0.25pF | GRM0336R1E1R0CD01# |  |
|        |               |         | 2.0pF | ±0.25pF | GRM0336R1E2R0CD01# |  |
|        |               |         | 3.0pF | ±0.25pF | GRM0336R1E3R0CD01# |  |
|        |               |         | 4.0pF | ±0.25pF | GRM0336R1E4R0CD01# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM0336R1E5R0CD01# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM0336R1E6R0DD01# |  |
|        |               |         | 7.0pF | ±0.5pF  | GRM0336R1E7R0DD01# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM0336R1E8R0DD01# |  |
|        |               |         | 9.0pF | ±0.5pF  | GRM0336R1E9R0DD01# |  |
|        |               |         | 10pF  | ±5%     | GRM0336R1E100JD01# |  |
|        |               |         | 12pF  | ±5%     | GRM0336R1E120JD01# |  |
|        |               |         | 15pF  | ±5%     | GRM0336R1E150JD01# |  |
|        |               |         | 18pF  | ±5%     | GRM0336R1E180JD01# |  |
|        |               |         | 22pF  | ±5%     | GRM0336R1E220JD01# |  |
|        |               |         | 27pF  | ±5%     | GRM0336R1E270JD01# |  |
|        |               |         | 33pF  | ±5%     | GRM0336R1E330JD01# |  |
|        |               |         | 39pF  | ±5%     | GRM0336R1E390JD01# |  |
|        |               |         | 47pF  | ±5%     | GRM0336R1E470JD01# |  |
|        |               |         | 56pF  | ±5%     | GRM0336R1E560JD01# |  |
|        |               |         | 68pF  | ±5%     | GRM0336R1E680JD01# |  |
|        |               |         | 82pF  | ±5%     | GRM0336R1E820JD01# |  |
|        |               |         | 100pF | ±5%     | GRM0336R1E101JD01# |  |
|        |               | RK      | 1.0pF | ±0.25pF | GRM0334R1E1R0CD01# |  |
|        |               |         | 2.0pF | ±0.25pF | GRM0334R1E2R0CD01# |  |
|        |               | RJ      | 3.0pF | ±0.25pF | GRM0333R1E3R0CD01# |  |
|        |               | RH      | 4.0pF | ±0.25pF | GRM0332R1E4R0CD01# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM0332R1E5R0CD01# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM0332R1E6R0DD01# |  |
|        |               |         | 7.0pF | ±0.5pF  | GRM0332R1E7R0DD01# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM0332R1E8R0DD01# |  |
|        |               |         | 9.0pF | ±0.5pF  | GRM0332R1E9R0DD01# |  |
|        |               |         | 10pF  | ±5%     | GRM0332R1E100JD01# |  |
|        |               |         | 12pF  | ±5%     | GRM0332R1E120JD01# |  |
|        |               |         | 15pF  | ±5%     | GRM0332R1E150JD01# |  |
|        |               |         | 18pF  | ±5%     | GRM0332R1E180JD01# |  |
|        |               |         | 22pF  | ±5%     | GRM0332R1E220JD01# |  |
|        |               |         | 27pF  | ±5%     | GRM0332R1E270JD01# |  |
|        |               |         | 33pF  | ±5%     | GRM0332R1E330JD01# |  |
|        |               |         | 39pF  | ±5%     | GRM0332R1E390JD01# |  |
|        |               |         | 47pF  | ±5%     | GRM0332R1E470JD01# |  |
|        |               |         | 56pF  | ±5%     | GRM0332R1E560JD01# |  |
|        |               |         | 68pF  | ±5%     | GRM0332R1E680JD01# |  |
|        |               |         | 82pF  | ±5%     | GRM0332R1E820JD01# |  |
|        |               |         | 100pF | ±5%     | GRM0332R1E101JD01# |  |
|        |               | S2H     | 1.0pF | ±0.25pF | GRM0336S1E1R0CD01# |  |

Part number # indicates the package specification code.

# GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | S2H     | 2.0pF | ±0.25pF | GRM0336S1E2R0CD01# |  |
|        |               |         | 3.0pF | ±0.25pF | GRM0336S1E3R0CD01# |  |
|        |               |         | 4.0pF | ±0.25pF | GRM0336S1E4R0CD01# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM0336S1E5R0CD01# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM0336S1E6R0DD01# |  |
|        |               |         | 7.0pF | ±0.5pF  | GRM0336S1E7R0DD01# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM0336S1E8R0DD01# |  |
|        |               |         | 9.0pF | ±0.5pF  | GRM0336S1E9R0DD01# |  |
|        |               |         | 10pF  | ±5%     | GRM0336S1E100JD01# |  |
|        |               |         | 12pF  | ±5%     | GRM0336S1E120JD01# |  |
|        |               |         | 15pF  | ±5%     | GRM0336S1E150JD01# |  |
|        |               |         | 18pF  | ±5%     | GRM0336S1E180JD01# |  |
|        |               |         | 22pF  | ±5%     | GRM0336S1E220JD01# |  |
|        |               |         | 27pF  | ±5%     | GRM0336S1E270JD01# |  |
|        |               |         | 33pF  | ±5%     | GRM0336S1E330JD01# |  |
|        |               |         | 39pF  | ±5%     | GRM0336S1E390JD01# |  |
|        |               |         | 47pF  | ±5%     | GRM0336S1E470JD01# |  |
|        |               |         | 56pF  | ±5%     | GRM0336S1E560JD01# |  |
|        |               |         | 68pF  | ±5%     | GRM0336S1E680JD01# |  |
|        |               |         | 82pF  | ±5%     | GRM0336S1E820JD01# |  |
|        |               |         | 100pF | ±5%     | GRM0336S1E101JD01# |  |
|        |               | SK      | 1.0pF | ±0.25pF | GRM0334S1E1R0CD01# |  |
|        |               |         | 2.0pF | ±0.25pF | GRM0334S1E2R0CD01# |  |
|        |               | SJ      | 3.0pF | ±0.25pF | GRM0333S1E3R0CD01# |  |
|        |               | SH      | 4.0pF | ±0.25pF | GRM0332S1E4R0CD01# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM0332S1E5R0CD01# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM0332S1E6R0DD01# |  |
|        |               |         | 7.0pF | ±0.5pF  | GRM0332S1E7R0DD01# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM0332S1E8R0DD01# |  |
|        |               |         | 9.0pF | ±0.5pF  | GRM0332S1E9R0DD01# |  |
|        |               |         | 10pF  | ±5%     | GRM0332S1E100JD01# |  |
|        |               |         | 12pF  | ±5%     | GRM0332S1E120JD01# |  |
|        |               |         | 15pF  | ±5%     | GRM0332S1E150JD01# |  |
|        |               |         | 18pF  | ±5%     | GRM0332S1E180JD01# |  |
|        |               |         | 22pF  | ±5%     | GRM0332S1E220JD01# |  |
|        |               |         | 27pF  | ±5%     | GRM0332S1E270JD01# |  |
|        |               |         | 33pF  | ±5%     | GRM0332S1E330JD01# |  |
|        |               |         | 39pF  | ±5%     | GRM0332S1E390JD01# |  |
|        |               |         | 47pF  | ±5%     | GRM0332S1E470JD01# |  |
|        |               |         | 56pF  | ±5%     | GRM0332S1E560JD01# |  |
|        |               |         | 68pF  | ±5%     | GRM0332S1E680JD01# |  |
|        |               |         | 82pF  | ±5%     | GRM0332S1E820JD01# |  |
|        |               |         | 100pF | ±5%     | GRM0332S1E101JD01# |  |
|        |               | T2H     | 1.0pF | ±0.25pF | GRM0336T1E1R0CD01# |  |
|        |               |         | 2.0pF | ±0.25pF | GRM0336T1E2R0CD01# |  |
|        |               |         | 3.0pF | ±0.25pF | GRM0336T1E3R0CD01# |  |
|        |               |         | 4.0pF | ±0.25pF | GRM0336T1E4R0CD01# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM0336T1E5R0CD01# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM0336T1E6R0DD01# |  |
|        |               |         | 7.0pF | ±0.5pF  | GRM0336T1E7R0DD01# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM0336T1E8R0DD01# |  |
|        |               |         | 9.0pF | ±0.5pF  | GRM0336T1E9R0DD01# |  |
|        |               |         | 10pF  | ±5%     | GRM0336T1E100JD01# |  |
|        |               |         | 12pF  | ±5%     | GRM0336T1E120JD01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | T2H     | 15pF  | ±5%     | GRM0336T1E150JD01# |  |
|        |               |         | 18pF  | ±5%     | GRM0336T1E180JD01# |  |
|        |               |         | 22pF  | ±5%     | GRM0336T1E220JD01# |  |
|        |               |         | 27pF  | ±5%     | GRM0336T1E270JD01# |  |
|        |               |         | 33pF  | ±5%     | GRM0336T1E330JD01# |  |
|        |               |         | 39pF  | ±5%     | GRM0336T1E390JD01# |  |
|        |               |         | 47pF  | ±5%     | GRM0336T1E470JD01# |  |
|        |               |         | 56pF  | ±5%     | GRM0336T1E560JD01# |  |
|        |               |         | 68pF  | ±5%     | GRM0336T1E680JD01# |  |
|        |               |         | 82pF  | ±5%     | GRM0336T1E820JD01# |  |
|        |               |         | 100pF | ±5%     | GRM0336T1E101JD01# |  |
|        |               | TK      | 1.0pF | ±0.25pF | GRM0334T1E1R0CD01# |  |
|        |               |         | 2.0pF | ±0.25pF | GRM0334T1E2R0CD01# |  |
|        |               | TJ      | 3.0pF | ±0.25pF | GRM0333T1E3R0CD01# |  |
|        |               | TH      | 4.0pF | ±0.25pF | GRM0332T1E4R0CD01# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM0332T1E5R0CD01# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM0332T1E6R0DD01# |  |
|        |               |         | 7.0pF | ±0.5pF  | GRM0332T1E7R0DD01# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM0332T1E8R0DD01# |  |
|        |               |         | 9.0pF | ±0.5pF  | GRM0332T1E9R0DD01# |  |
|        |               |         | 10pF  | ±5%     | GRM0332T1E100JD01# |  |
|        |               |         | 12pF  | ±5%     | GRM0332T1E120JD01# |  |
|        |               |         | 15pF  | ±5%     | GRM0332T1E150JD01# |  |
|        |               |         | 18pF  | ±5%     | GRM0332T1E180JD01# |  |
|        |               |         | 22pF  | ±5%     | GRM0332T1E220JD01# |  |
|        |               |         | 27pF  | ±5%     | GRM0332T1E270JD01# |  |
|        |               |         | 33pF  | ±5%     | GRM0332T1E330JD01# |  |
|        |               |         | 39pF  | ±5%     | GRM0332T1E390JD01# |  |
|        |               |         | 47pF  | ±5%     | GRM0332T1E470JD01# |  |
|        |               |         | 56pF  | ±5%     | GRM0332T1E560JD01# |  |
|        |               |         | 68pF  | ±5%     | GRM0332T1E680JD01# |  |
|        |               |         | 82pF  | ±5%     | GRM0332T1E820JD01# |  |
|        |               |         | 100pF | ±5%     | GRM0332T1E101JD01# |  |
|        |               | UJ      | 18pF  | ±5%     | GRM0333U1E180JD01# |  |
|        |               |         | 22pF  | ±5%     | GRM0333U1E220JD01# |  |
|        |               |         | 27pF  | ±5%     | GRM0333U1E270JD01# |  |
|        |               |         | 33pF  | ±5%     | GRM0333U1E330JD01# |  |
|        |               |         | 39pF  | ±5%     | GRM0333U1E390JD01# |  |
|        |               |         | 47pF  | ±5%     | GRM0333U1E470JD01# |  |
|        |               |         | 56pF  | ±5%     | GRM0333U1E560JD01# |  |
|        |               |         | 68pF  | ±5%     | GRM0333U1E680JD01# |  |
|        |               |         | 82pF  | ±5%     | GRM0333U1E820JD01# |  |
|        |               |         | 100pF | ±5%     | GRM0333U1E101JD01# |  |

■ 1.0×0.5mm

| T max. | Rated Voltage | TC Code | Cap.  | Tol.   | Part Number        |  |
|--------|---------------|---------|-------|--------|--------------------|--|
| 0.33mm | 50Vdc         | C0G     | 0.1pF | ±0.1pF | GRM1535C1HR10BDD5# |  |
|        |               |         | 0.2pF | ±0.1pF | GRM1535C1HR20BDD5# |  |
|        |               |         | 0.3pF | ±0.1pF | GRM1535C1HR30BDD5# |  |
|        |               |         | 0.4pF | ±0.1pF | GRM1535C1HR40BDD5# |  |
|        |               |         | 0.5pF | ±0.1pF | GRM1535C1HR50BDD5# |  |
|        |               |         | 0.6pF | ±0.1pF | GRM1535C1HR60BDD5# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL L□ Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | C0G     | 0.7pF | ±0.1pF  | GRM1535C1HR70BDD5# |  |
|        |               |         | 0.8pF | ±0.1pF  | GRM1535C1HR80BDD5# |  |
|        |               |         | 0.9pF | ±0.1pF  | GRM1535C1HR90BDD5# |  |
|        |               |         | 1.0pF | ±0.25pF | GRM1535C1H1R0CDD5# |  |
|        |               |         | 1.1pF | ±0.25pF | GRM1535C1H1R1CDD5# |  |
|        |               |         | 1.2pF | ±0.25pF | GRM1535C1H1R2CDD5# |  |
|        |               |         | 1.3pF | ±0.25pF | GRM1535C1H1R3CDD5# |  |
|        |               |         | 1.4pF | ±0.25pF | GRM1535C1H1R4CDD5# |  |
|        |               |         | 1.5pF | ±0.25pF | GRM1535C1H1R5CDD5# |  |
|        |               |         | 1.6pF | ±0.25pF | GRM1535C1H1R6CDD5# |  |
|        |               |         | 1.7pF | ±0.25pF | GRM1535C1H1R7CDD5# |  |
|        |               |         | 1.8pF | ±0.25pF | GRM1535C1H1R8CDD5# |  |
|        |               |         | 1.9pF | ±0.25pF | GRM1535C1H1R9CDD5# |  |
|        |               |         | 2.0pF | ±0.25pF | GRM1535C1H2R0CDD5# |  |
|        |               |         | 2.1pF | ±0.25pF | GRM1535C1H2R1CDD5# |  |
|        |               |         | 2.2pF | ±0.25pF | GRM1535C1H2R2CDD5# |  |
|        |               |         | 2.3pF | ±0.25pF | GRM1535C1H2R3CDD5# |  |
|        |               |         | 2.4pF | ±0.25pF | GRM1535C1H2R4CDD5# |  |
|        |               |         | 2.5pF | ±0.25pF | GRM1535C1H2R5CDD5# |  |
|        |               |         | 2.6pF | ±0.25pF | GRM1535C1H2R6CDD5# |  |
|        |               |         | 2.7pF | ±0.25pF | GRM1535C1H2R7CDD5# |  |
|        |               |         | 2.8pF | ±0.25pF | GRM1535C1H2R8CDD5# |  |
|        |               |         | 2.9pF | ±0.25pF | GRM1535C1H2R9CDD5# |  |
|        |               |         | 3.0pF | ±0.25pF | GRM1535C1H3R0CDD5# |  |
|        |               |         | 3.1pF | ±0.25pF | GRM1535C1H3R1CDD5# |  |
|        |               |         | 3.2pF | ±0.25pF | GRM1535C1H3R2CDD5# |  |
|        |               |         | 3.3pF | ±0.25pF | GRM1535C1H3R3CDD5# |  |
|        |               |         | 3.4pF | ±0.25pF | GRM1535C1H3R4CDD5# |  |
|        |               |         | 3.5pF | ±0.25pF | GRM1535C1H3R5CDD5# |  |
|        |               |         | 3.6pF | ±0.25pF | GRM1535C1H3R6CDD5# |  |
|        |               |         | 3.7pF | ±0.25pF | GRM1535C1H3R7CDD5# |  |
|        |               |         | 3.8pF | ±0.25pF | GRM1535C1H3R8CDD5# |  |
|        |               |         | 3.9pF | ±0.25pF | GRM1535C1H3R9CDD5# |  |
|        |               |         | 4.0pF | ±0.25pF | GRM1535C1H4R0CDD5# |  |
|        |               |         | 4.1pF | ±0.25pF | GRM1535C1H4R1CDD5# |  |
|        |               |         | 4.2pF | ±0.25pF | GRM1535C1H4R2CDD5# |  |
|        |               |         | 4.3pF | ±0.25pF | GRM1535C1H4R3CDD5# |  |
|        |               |         | 4.4pF | ±0.25pF | GRM1535C1H4R4CDD5# |  |
|        |               |         | 4.5pF | ±0.25pF | GRM1535C1H4R5CDD5# |  |
|        |               |         | 4.6pF | ±0.25pF | GRM1535C1H4R6CDD5# |  |
|        |               |         | 4.7pF | ±0.25pF | GRM1535C1H4R7CDD5# |  |
|        |               |         | 4.8pF | ±0.25pF | GRM1535C1H4R8CDD5# |  |
|        |               |         | 4.9pF | ±0.25pF | GRM1535C1H4R9CDD5# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM1535C1H5R0CDD5# |  |
|        |               |         | 5.1pF | ±0.5pF  | GRM1535C1H5R1DDD5# |  |
|        |               |         | 5.2pF | ±0.5pF  | GRM1535C1H5R2DDD5# |  |
|        |               |         | 5.3pF | ±0.5pF  | GRM1535C1H5R3DDD5# |  |
|        |               |         | 5.4pF | ±0.5pF  | GRM1535C1H5R4DDD5# |  |
|        |               |         | 5.5pF | ±0.5pF  | GRM1535C1H5R5DDD5# |  |
|        |               |         | 5.6pF | ±0.5pF  | GRM1535C1H5R6DDD5# |  |
|        |               |         | 5.7pF | ±0.5pF  | GRM1535C1H5R7DDD5# |  |
|        |               |         | 5.8pF | ±0.5pF  | GRM1535C1H5R8DDD5# |  |
|        |               |         | 5.9pF | ±0.5pF  | GRM1535C1H5R9DDD5# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM1535C1H6R0DDD5# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.   | Part Number        |  |
|--------|---------------|---------|-------|--------|--------------------|--|
| 0.33mm | 50Vdc         | C0G     | 6.1pF | ±0.5pF | GRM1535C1H6R1DDD5# |  |
|        |               |         | 6.2pF | ±0.5pF | GRM1535C1H6R2DDD5# |  |
|        |               |         | 6.3pF | ±0.5pF | GRM1535C1H6R3DDD5# |  |
|        |               |         | 6.4pF | ±0.5pF | GRM1535C1H6R4DDD5# |  |
|        |               |         | 6.5pF | ±0.5pF | GRM1535C1H6R5DDD5# |  |
|        |               |         | 6.6pF | ±0.5pF | GRM1535C1H6R6DDD5# |  |
|        |               |         | 6.7pF | ±0.5pF | GRM1535C1H6R7DDD5# |  |
|        |               |         | 6.8pF | ±0.5pF | GRM1535C1H6R8DDD5# |  |
|        |               |         | 6.9pF | ±0.5pF | GRM1535C1H6R9DDD5# |  |
|        |               |         | 7.0pF | ±0.5pF | GRM1535C1H7R0DDD5# |  |
|        |               |         | 7.1pF | ±0.5pF | GRM1535C1H7R1DDD5# |  |
|        |               |         | 7.2pF | ±0.5pF | GRM1535C1H7R2DDD5# |  |
|        |               |         | 7.3pF | ±0.5pF | GRM1535C1H7R3DDD5# |  |
|        |               |         | 7.4pF | ±0.5pF | GRM1535C1H7R4DDD5# |  |
|        |               |         | 7.5pF | ±0.5pF | GRM1535C1H7R5DDD5# |  |
|        |               |         | 7.6pF | ±0.5pF | GRM1535C1H7R6DDD5# |  |
|        |               |         | 7.7pF | ±0.5pF | GRM1535C1H7R7DDD5# |  |
|        |               |         | 7.8pF | ±0.5pF | GRM1535C1H7R8DDD5# |  |
|        |               |         | 7.9pF | ±0.5pF | GRM1535C1H7R9DDD5# |  |
|        |               |         | 8.0pF | ±0.5pF | GRM1535C1H8R0DDD5# |  |
|        |               |         | 8.1pF | ±0.5pF | GRM1535C1H8R1DDD5# |  |
|        |               |         | 8.2pF | ±0.5pF | GRM1535C1H8R2DDD5# |  |
|        |               |         | 8.3pF | ±0.5pF | GRM1535C1H8R3DDD5# |  |
|        |               |         | 8.4pF | ±0.5pF | GRM1535C1H8R4DDD5# |  |
|        |               |         | 8.5pF | ±0.5pF | GRM1535C1H8R5DDD5# |  |
|        |               |         | 8.6pF | ±0.5pF | GRM1535C1H8R6DDD5# |  |
|        |               |         | 8.7pF | ±0.5pF | GRM1535C1H8R7DDD5# |  |
|        |               |         | 8.8pF | ±0.5pF | GRM1535C1H8R8DDD5# |  |
|        |               |         | 8.9pF | ±0.5pF | GRM1535C1H8R9DDD5# |  |
|        |               |         | 9.0pF | ±0.5pF | GRM1535C1H9R0DDD5# |  |
|        |               |         | 9.1pF | ±0.5pF | GRM1535C1H9R1DDD5# |  |
|        |               |         | 9.2pF | ±0.5pF | GRM1535C1H9R2DDD5# |  |
|        |               |         | 9.3pF | ±0.5pF | GRM1535C1H9R3DDD5# |  |
|        |               |         | 9.4pF | ±0.5pF | GRM1535C1H9R4DDD5# |  |
|        |               |         | 9.5pF | ±0.5pF | GRM1535C1H9R5DDD5# |  |
|        |               |         | 9.6pF | ±0.5pF | GRM1535C1H9R6DDD5# |  |
|        |               |         | 9.7pF | ±0.5pF | GRM1535C1H9R7DDD5# |  |
|        |               |         | 9.8pF | ±0.5pF | GRM1535C1H9R8DDD5# |  |
|        |               |         | 9.9pF | ±0.5pF | GRM1535C1H9R9DDD5# |  |
|        |               |         | 10pF  | ±5%    | GRM1535C1H100JDD5# |  |
|        |               |         | 12pF  | ±5%    | GRM1535C1H120JDD5# |  |
|        |               |         | 15pF  | ±5%    | GRM1535C1H150JDD5# |  |
|        |               |         | 18pF  | ±5%    | GRM1535C1H180JDD5# |  |
|        |               |         | 22pF  | ±5%    | GRM1535C1H220JDD5# |  |
|        |               |         | 27pF  | ±5%    | GRM1535C1H270JDD5# |  |
|        |               |         | 33pF  | ±5%    | GRM1535C1H330JDD5# |  |
|        |               |         | 39pF  | ±5%    | GRM1535C1H390JDD5# |  |
|        |               |         | 47pF  | ±5%    | GRM1535C1H470JDD5# |  |
|        |               |         | 56pF  | ±5%    | GRM1535C1H560JDD5# |  |
|        |               |         | 68pF  | ±5%    | GRM1535C1H680JDD5# |  |
|        |               |         | 82pF  | ±5%    | GRM1535C1H820JDD5# |  |
|        |               |         | 100pF | ±5%    | GRM1535C1H101JDD5# |  |
|        |               |         | 120pF | ±5%    | GRM1535C1H121JDD5# |  |
|        |               |         | 150pF | ±5%    | GRM1535C1H151JDD5# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | C0G     | 180pF | ±5%     | GRM1535C1H181JDD5# |  |
|        |               |         | 220pF | ±5%     | GRM1535C1H221JDD5# |  |
|        |               |         | 270pF | ±5%     | GRM1535C1H271JDD5# |  |
|        |               |         | 330pF | ±5%     | GRM1535C1H331JDD5# |  |
|        |               |         | 390pF | ±5%     | GRM1535C1H391JDD5# |  |
|        |               |         | 470pF | ±5%     | GRM1535C1H471JDD5# |  |
|        |               |         | 560pF | ±5%     | GRM1535C1H561JDD5# |  |
|        |               |         | 680pF | ±5%     | GRM1535C1H681JDD5# |  |
|        |               | CK      | 0.1pF | ±0.1pF  | GRM1534C1HR10BDD5# |  |
|        |               |         | 0.2pF | ±0.1pF  | GRM1534C1HR20BDD5# |  |
|        |               |         | 0.3pF | ±0.1pF  | GRM1534C1HR30BDD5# |  |
|        |               |         | 0.4pF | ±0.1pF  | GRM1534C1HR40BDD5# |  |
|        |               |         | 0.5pF | ±0.1pF  | GRM1534C1HR50BDD5# |  |
|        |               |         | 0.6pF | ±0.1pF  | GRM1534C1HR60BDD5# |  |
|        |               |         | 0.7pF | ±0.1pF  | GRM1534C1HR70BDD5# |  |
|        |               |         | 0.8pF | ±0.1pF  | GRM1534C1HR80BDD5# |  |
|        |               |         | 0.9pF | ±0.1pF  | GRM1534C1HR90BDD5# |  |
|        |               |         | 1.0pF | ±0.25pF | GRM1534C1H1R0CDD5# |  |
|        |               |         | 1.1pF | ±0.25pF | GRM1534C1H1R1CDD5# |  |
|        |               |         | 1.2pF | ±0.25pF | GRM1534C1H1R2CDD5# |  |
|        |               |         | 1.3pF | ±0.25pF | GRM1534C1H1R3CDD5# |  |
|        |               |         | 1.4pF | ±0.25pF | GRM1534C1H1R4CDD5# |  |
|        |               |         | 1.5pF | ±0.25pF | GRM1534C1H1R5CDD5# |  |
|        |               |         | 1.6pF | ±0.25pF | GRM1534C1H1R6CDD5# |  |
|        |               |         | 1.7pF | ±0.25pF | GRM1534C1H1R7CDD5# |  |
|        |               |         | 1.8pF | ±0.25pF | GRM1534C1H1R8CDD5# |  |
|        |               |         | 1.9pF | ±0.25pF | GRM1534C1H1R9CDD5# |  |
|        |               |         | 2.0pF | ±0.25pF | GRM1534C1H2R0CDD5# |  |
|        |               | CJ      | 2.1pF | ±0.25pF | GRM1533C1H2R1CDD5# |  |
|        |               |         | 2.2pF | ±0.25pF | GRM1533C1H2R2CDD5# |  |
|        |               |         | 2.3pF | ±0.25pF | GRM1533C1H2R3CDD5# |  |
|        |               |         | 2.4pF | ±0.25pF | GRM1533C1H2R4CDD5# |  |
|        |               |         | 2.5pF | ±0.25pF | GRM1533C1H2R5CDD5# |  |
|        |               |         | 2.6pF | ±0.25pF | GRM1533C1H2R6CDD5# |  |
|        |               |         | 2.7pF | ±0.25pF | GRM1533C1H2R7CDD5# |  |
|        |               |         | 2.8pF | ±0.25pF | GRM1533C1H2R8CDD5# |  |
|        |               |         | 2.9pF | ±0.25pF | GRM1533C1H2R9CDD5# |  |
|        |               |         | 3.0pF | ±0.25pF | GRM1533C1H3R0CDD5# |  |
|        |               |         | 3.1pF | ±0.25pF | GRM1533C1H3R1CDD5# |  |
|        |               |         | 3.2pF | ±0.25pF | GRM1533C1H3R2CDD5# |  |
|        |               | CH      | 3.3pF | ±0.25pF | GRM1533C1H3R3CDD5# |  |
|        |               |         | 3.4pF | ±0.25pF | GRM1533C1H3R4CDD5# |  |
|        |               |         | 3.5pF | ±0.25pF | GRM1533C1H3R5CDD5# |  |
|        |               |         | 3.6pF | ±0.25pF | GRM1533C1H3R6CDD5# |  |
|        |               |         | 3.7pF | ±0.25pF | GRM1533C1H3R7CDD5# |  |
|        |               |         | 3.8pF | ±0.25pF | GRM1533C1H3R8CDD5# |  |
|        |               |         | 3.9pF | ±0.25pF | GRM1533C1H3R9CDD5# |  |
|        |               |         | 4.0pF | ±0.25pF | GRM1532C1H4R0CDD5# |  |
|        |               |         | 4.1pF | ±0.25pF | GRM1532C1H4R1CDD5# |  |
|        |               |         | 4.2pF | ±0.25pF | GRM1532C1H4R2CDD5# |  |
|        |               |         | 4.3pF | ±0.25pF | GRM1532C1H4R3CDD5# |  |
|        |               |         | 4.4pF | ±0.25pF | GRM1532C1H4R4CDD5# |  |
|        |               |         | 4.5pF | ±0.25pF | GRM1532C1H4R5CDD5# |  |
|        |               |         | 4.6pF | ±0.25pF | GRM1532C1H4R6CDD5# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | CH      | 4.7pF | ±0.25pF | GRM1532C1H4R7CDD5# |  |
|        |               |         | 4.8pF | ±0.25pF | GRM1532C1H4R8CDD5# |  |
|        |               |         | 4.9pF | ±0.25pF | GRM1532C1H4R9CDD5# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM1532C1H5R0CDD5# |  |
|        |               |         | 5.1pF | ±0.5pF  | GRM1532C1H5R1DDD5# |  |
|        |               |         | 5.2pF | ±0.5pF  | GRM1532C1H5R2DDD5# |  |
|        |               |         | 5.3pF | ±0.5pF  | GRM1532C1H5R3DDD5# |  |
|        |               |         | 5.4pF | ±0.5pF  | GRM1532C1H5R4DDD5# |  |
|        |               |         | 5.5pF | ±0.5pF  | GRM1532C1H5R5DDD5# |  |
|        |               |         | 5.6pF | ±0.5pF  | GRM1532C1H5R6DDD5# |  |
|        |               |         | 5.7pF | ±0.5pF  | GRM1532C1H5R7DDD5# |  |
|        |               |         | 5.8pF | ±0.5pF  | GRM1532C1H5R8DDD5# |  |
|        |               |         | 5.9pF | ±0.5pF  | GRM1532C1H5R9DDD5# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM1532C1H6R0DDD5# |  |
|        |               |         | 6.1pF | ±0.5pF  | GRM1532C1H6R1DDD5# |  |
|        |               |         | 6.2pF | ±0.5pF  | GRM1532C1H6R2DDD5# |  |
|        |               |         | 6.3pF | ±0.5pF  | GRM1532C1H6R3DDD5# |  |
|        |               |         | 6.4pF | ±0.5pF  | GRM1532C1H6R4DDD5# |  |
|        |               |         | 6.5pF | ±0.5pF  | GRM1532C1H6R5DDD5# |  |
|        |               |         | 6.6pF | ±0.5pF  | GRM1532C1H6R6DDD5# |  |
|        |               |         | 6.7pF | ±0.5pF  | GRM1532C1H6R7DDD5# |  |
|        |               |         | 6.8pF | ±0.5pF  | GRM1532C1H6R8DDD5# |  |
|        |               |         | 6.9pF | ±0.5pF  | GRM1532C1H6R9DDD5# |  |
|        |               |         | 7.0pF | ±0.5pF  | GRM1532C1H7R0DDD5# |  |
|        |               |         | 7.1pF | ±0.5pF  | GRM1532C1H7R1DDD5# |  |
|        |               |         | 7.2pF | ±0.5pF  | GRM1532C1H7R2DDD5# |  |
|        |               |         | 7.3pF | ±0.5pF  | GRM1532C1H7R3DDD5# |  |
|        |               |         | 7.4pF | ±0.5pF  | GRM1532C1H7R4DDD5# |  |
|        |               |         | 7.5pF | ±0.5pF  | GRM1532C1H7R5DDD5# |  |
|        |               |         | 7.6pF | ±0.5pF  | GRM1532C1H7R6DDD5# |  |
|        |               |         | 7.7pF | ±0.5pF  | GRM1532C1H7R7DDD5# |  |
|        |               |         | 7.8pF | ±0.5pF  | GRM1532C1H7R8DDD5# |  |
|        |               |         | 7.9pF | ±0.5pF  | GRM1532C1H7R9DDD5# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM1532C1H8R0DDD5# |  |
|        |               |         | 8.1pF | ±0.5pF  | GRM1532C1H8R1DDD5# |  |
|        |               |         | 8.2pF | ±0.5pF  | GRM1532C1H8R2DDD5# |  |
|        |               |         | 8.3pF | ±0.5pF  | GRM1532C1H8R3DDD5# |  |
|        |               |         | 8.4pF | ±0.5pF  | GRM1532C1H8R4DDD5# |  |
|        |               |         | 8.5pF | ±0.5pF  | GRM1532C1H8R5DDD5# |  |
|        |               |         | 8.6pF | ±0.5pF  | GRM1532C1H8R6DDD5# |  |
|        |               |         | 8.7pF | ±0.5pF  | GRM1532C1H8R7DDD5# |  |
|        |               |         | 8.8pF | ±0.5pF  | GRM1532C1H8R8DDD5# |  |
|        |               |         | 8.9pF | ±0.5pF  | GRM1532C1H8R9DDD5# |  |
|        |               |         | 9.0pF | ±0.5pF  | GRM1532C1H9R0DDD5# |  |
|        |               |         | 9.1pF | ±0.5pF  | GRM1532C1H9R1DDD5# |  |
|        |               |         | 9.2pF | ±0.5pF  | GRM1532C1H9R2DDD5# |  |
|        |               |         | 9.3pF | ±0.5pF  | GRM1532C1H9R3DDD5# |  |
|        |               |         | 9.4pF | ±0.5pF  | GRM1532C1H9R4DDD5# |  |
|        |               |         | 9.5pF | ±0.5pF  | GRM1532C1H9R5DDD5# |  |
|        |               |         | 9.6pF | ±0.5pF  | GRM1532C1H9R6DDD5# |  |
|        |               |         | 9.7pF | ±0.5pF  | GRM1532C1H9R7DDD5# |  |
|        |               |         | 9.8pF | ±0.5pF  | GRM1532C1H9R8DDD5# |  |
|        |               |         | 9.9pF | ±0.5pF  | GRM1532C1H9R9DDD5# |  |
|        |               |         | 10pF  | ±5%     | GRM1532C1H100JDD5# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LLI Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 50Vdc         | CH      | 12pF  | ±5%     | GRM1532C1H120JDD5# |  |
|        |               |         | 15pF  | ±5%     | GRM1532C1H150JDD5# |  |
|        |               |         | 18pF  | ±5%     | GRM1532C1H180JDD5# |  |
|        |               |         | 22pF  | ±5%     | GRM1532C1H220JDD5# |  |
|        |               |         | 27pF  | ±5%     | GRM1532C1H270JDD5# |  |
|        |               |         | 33pF  | ±5%     | GRM1532C1H330JDD5# |  |
|        |               |         | 39pF  | ±5%     | GRM1532C1H390JDD5# |  |
|        |               |         | 47pF  | ±5%     | GRM1532C1H470JDD5# |  |
|        |               |         | 56pF  | ±5%     | GRM1532C1H560JDD5# |  |
|        |               |         | 68pF  | ±5%     | GRM1532C1H680JDD5# |  |
|        |               |         | 82pF  | ±5%     | GRM1532C1H820JDD5# |  |
|        |               |         | 100pF | ±5%     | GRM1532C1H101JDD5# |  |
|        |               |         | 120pF | ±5%     | GRM1532C1H121JDD5# |  |
|        |               |         | 150pF | ±5%     | GRM1532C1H151JDD5# |  |
|        |               |         | 180pF | ±5%     | GRM1532C1H181JDD5# |  |
|        |               |         | 220pF | ±5%     | GRM1532C1H221JDD5# |  |
|        |               |         | 270pF | ±5%     | GRM1532C1H271JDD5# |  |
|        |               |         | 330pF | ±5%     | GRM1532C1H331JDD5# |  |
|        |               |         | 390pF | ±5%     | GRM1532C1H391JDD5# |  |
|        |               |         | 470pF | ±5%     | GRM1532C1H471JDD5# |  |
|        |               |         | 560pF | ±5%     | GRM1532C1H561JDD5# |  |
|        |               |         | 680pF | ±5%     | GRM1532C1H681JDD5# |  |
| 0.55mm | 50Vdc         | C0G     | 0.1pF | ±0.05pF | GRM1555C1HR10WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1HR10BA01# |  |
|        |               |         | 0.2pF | ±0.05pF | GRM1555C1HR20WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1HR20BA01# |  |
|        |               |         | 0.3pF | ±0.05pF | GRM1555C1HR30WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1HR30BA01# |  |
|        |               |         | 0.4pF | ±0.05pF | GRM1555C1HR40WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1HR40BA01# |  |
|        |               |         | 0.5pF | ±0.05pF | GRM1555C1HR50WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1HR50BA01# |  |
|        |               |         | 0.6pF | ±0.05pF | GRM1555C1HR60WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1HR60BA01# |  |
|        |               |         | 0.7pF | ±0.05pF | GRM1555C1HR70WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1HR70BA01# |  |
|        |               |         | 0.8pF | ±0.05pF | GRM1555C1HR80WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1HR80BA01# |  |
|        |               |         | 0.9pF | ±0.05pF | GRM1555C1HR90WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1HR90BA01# |  |
|        |               |         | 1.0pF | ±0.05pF | GRM1555C1H1R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H1R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H1R0CA01# |  |
|        |               |         | 1.1pF | ±0.05pF | GRM1555C1H1R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H1R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H1R1CA01# |  |
|        |               |         | 1.2pF | ±0.05pF | GRM1555C1H1R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H1R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H1R2CA01# |  |
|        |               |         | 1.3pF | ±0.05pF | GRM1555C1H1R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H1R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H1R3CA01# |  |
|        |               |         | 1.4pF | ±0.05pF | GRM1555C1H1R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H1R4BA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 1.4pF | ±0.25pF | GRM1555C1H1R4CA01# |  |
|        |               |         |       | ±0.05pF | GRM1555C1H1R5WA01# |  |
|        |               |         | 1.5pF | ±0.1pF  | GRM1555C1H1R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H1R5CA01# |  |
|        |               |         | 1.6pF | ±0.05pF | GRM1555C1H1R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H1R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H1R6CA01# |  |
|        |               |         | 1.7pF | ±0.05pF | GRM1555C1H1R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H1R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H1R7CA01# |  |
|        |               |         | 1.8pF | ±0.05pF | GRM1555C1H1R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H1R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H1R8CA01# |  |
|        |               |         | 1.9pF | ±0.05pF | GRM1555C1H1R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H1R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H1R9CA01# |  |
|        |               |         | 2.0pF | ±0.05pF | GRM1555C1H2R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H2R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H2R0CA01# |  |
|        |               |         | 2.1pF | ±0.05pF | GRM1555C1H2R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H2R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H2R1CA01# |  |
|        |               |         | 2.2pF | ±0.05pF | GRM1555C1H2R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H2R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H2R2CA01# |  |
|        |               |         | 2.3pF | ±0.05pF | GRM1555C1H2R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H2R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H2R3CA01# |  |
|        |               |         | 2.4pF | ±0.05pF | GRM1555C1H2R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H2R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H2R4CA01# |  |
|        |               |         | 2.5pF | ±0.05pF | GRM1555C1H2R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H2R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H2R5CA01# |  |
|        |               |         | 2.6pF | ±0.05pF | GRM1555C1H2R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H2R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H2R6CA01# |  |
|        |               |         | 2.7pF | ±0.05pF | GRM1555C1H2R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H2R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H2R7CA01# |  |
|        |               |         | 2.8pF | ±0.05pF | GRM1555C1H2R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H2R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H2R8CA01# |  |
|        |               |         | 2.9pF | ±0.05pF | GRM1555C1H2R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H2R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H2R9CA01# |  |
|        |               |         | 3.0pF | ±0.05pF | GRM1555C1H3R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H3R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H3R0CA01# |  |
|        |               |         | 3.1pF | ±0.05pF | GRM1555C1H3R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H3R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H3R1CA01# |  |
|        |               |         | 3.2pF | ±0.05pF | GRM1555C1H3R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H3R2BA01# |  |

Part number # indicates the package specification code.

# GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 3.2pF | ±0.25pF | GRM1555C1H3R2CA01# |  |
|        |               |         |       | ±0.05pF | GRM1555C1H3R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H3R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H3R3CA01# |  |
|        |               |         | 3.4pF | ±0.05pF | GRM1555C1H3R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H3R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H3R4CA01# |  |
|        |               |         | 3.5pF | ±0.05pF | GRM1555C1H3R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H3R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H3R5CA01# |  |
|        |               |         | 3.6pF | ±0.05pF | GRM1555C1H3R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H3R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H3R6CA01# |  |
|        |               |         | 3.7pF | ±0.05pF | GRM1555C1H3R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H3R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H3R7CA01# |  |
|        |               |         | 3.8pF | ±0.05pF | GRM1555C1H3R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H3R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H3R8CA01# |  |
|        |               |         | 3.9pF | ±0.05pF | GRM1555C1H3R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H3R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H3R9CA01# |  |
|        |               |         | 4.0pF | ±0.05pF | GRM1555C1H4R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H4R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H4R0CA01# |  |
|        |               |         | 4.1pF | ±0.05pF | GRM1555C1H4R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H4R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H4R1CA01# |  |
|        |               |         | 4.2pF | ±0.05pF | GRM1555C1H4R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H4R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H4R2CA01# |  |
|        |               |         | 4.3pF | ±0.05pF | GRM1555C1H4R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H4R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H4R3CA01# |  |
|        |               |         | 4.4pF | ±0.05pF | GRM1555C1H4R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H4R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H4R4CA01# |  |
|        |               |         | 4.5pF | ±0.05pF | GRM1555C1H4R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H4R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H4R5CA01# |  |
|        |               |         | 4.6pF | ±0.05pF | GRM1555C1H4R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H4R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H4R6CA01# |  |
|        |               |         | 4.7pF | ±0.05pF | GRM1555C1H4R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H4R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H4R7CA01# |  |
|        |               |         | 4.8pF | ±0.05pF | GRM1555C1H4R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H4R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H4R8CA01# |  |
|        |               |         | 4.9pF | ±0.05pF | GRM1555C1H4R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H4R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H4R9CA01# |  |
|        |               |         | 5.0pF | ±0.05pF | GRM1555C1H5R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H5R0BA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 5.0pF | ±0.25pF | GRM1555C1H5R0CA01# |  |
|        |               |         |       | ±0.05pF | GRM1555C1H5R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H5R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H5R1CA01# |  |
|        |               |         | 5.1pF | ±0.05pF | GRM1555C1H5R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H5R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H5R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H5R2DA01# |  |
|        |               |         | 5.2pF | ±0.05pF | GRM1555C1H5R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H5R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H5R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H5R3DA01# |  |
|        |               |         | 5.3pF | ±0.05pF | GRM1555C1H5R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H5R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H5R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H5R4DA01# |  |
|        |               |         | 5.4pF | ±0.05pF | GRM1555C1H5R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H5R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H5R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H5R5DA01# |  |
|        |               |         | 5.5pF | ±0.05pF | GRM1555C1H5R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H5R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H5R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H5R6DA01# |  |
|        |               |         | 5.6pF | ±0.05pF | GRM1555C1H5R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H5R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H5R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H5R7DA01# |  |
|        |               |         | 5.7pF | ±0.05pF | GRM1555C1H5R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H5R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H5R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H5R8DA01# |  |
|        |               |         | 5.8pF | ±0.05pF | GRM1555C1H5R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H5R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H5R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H5R9DA01# |  |
|        |               |         | 5.9pF | ±0.05pF | GRM1555C1H6R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H6R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H6R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H6R0DA01# |  |
|        |               |         | 6.0pF | ±0.05pF | GRM1555C1H6R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H6R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H6R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H6R1DA01# |  |
|        |               |         | 6.1pF | ±0.05pF | GRM1555C1H6R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H6R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H6R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H6R2DA01# |  |
|        |               |         | 6.2pF | ±0.05pF | GRM1555C1H6R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H6R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H6R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H6R3DA01# |  |
|        |               |         | 6.3pF | ±0.05pF | GRM1555C1H6R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H6R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H6R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H6R4DA01# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 6.4pF | ±0.1pF  | GRM1555C1H6R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H6R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H6R4DA01# |  |
|        |               |         | 6.5pF | ±0.05pF | GRM1555C1H6R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H6R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H6R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H6R5DA01# |  |
|        |               |         | 6.6pF | ±0.05pF | GRM1555C1H6R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H6R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H6R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H6R6DA01# |  |
|        |               |         | 6.7pF | ±0.05pF | GRM1555C1H6R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H6R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H6R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H6R7DA01# |  |
|        |               |         | 6.8pF | ±0.05pF | GRM1555C1H6R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H6R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H6R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H6R8DA01# |  |
|        |               |         | 6.9pF | ±0.05pF | GRM1555C1H6R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H6R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H6R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H6R9DA01# |  |
|        |               |         | 7.0pF | ±0.05pF | GRM1555C1H7R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H7R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H7R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H7R0DA01# |  |
|        |               |         | 7.1pF | ±0.05pF | GRM1555C1H7R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H7R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H7R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H7R1DA01# |  |
|        |               |         | 7.2pF | ±0.05pF | GRM1555C1H7R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H7R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H7R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H7R2DA01# |  |
|        |               |         | 7.3pF | ±0.05pF | GRM1555C1H7R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H7R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H7R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H7R3DA01# |  |
|        |               |         | 7.4pF | ±0.05pF | GRM1555C1H7R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H7R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H7R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H7R4DA01# |  |
|        |               |         | 7.5pF | ±0.05pF | GRM1555C1H7R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H7R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H7R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H7R5DA01# |  |
|        |               |         | 7.6pF | ±0.05pF | GRM1555C1H7R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H7R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H7R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H7R6DA01# |  |
|        |               |         | 7.7pF | ±0.05pF | GRM1555C1H7R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H7R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H7R7CA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 7.7pF | ±0.5pF  | GRM1555C1H7R7DA01# |  |
|        |               |         |       | ±0.05pF | GRM1555C1H7R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H7R8BA01# |  |
|        |               |         | 7.8pF | ±0.25pF | GRM1555C1H7R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H7R8DA01# |  |
|        |               |         | 7.9pF | ±0.05pF | GRM1555C1H7R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H7R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H7R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H7R9DA01# |  |
|        |               |         | 8.0pF | ±0.05pF | GRM1555C1H8R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H8R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H8R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H8R0DA01# |  |
|        |               |         | 8.1pF | ±0.05pF | GRM1555C1H8R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H8R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H8R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H8R1DA01# |  |
|        |               |         | 8.2pF | ±0.05pF | GRM1555C1H8R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H8R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H8R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H8R2DA01# |  |
|        |               |         | 8.3pF | ±0.05pF | GRM1555C1H8R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H8R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H8R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H8R3DA01# |  |
|        |               |         | 8.4pF | ±0.05pF | GRM1555C1H8R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H8R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H8R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H8R4DA01# |  |
|        |               |         | 8.5pF | ±0.05pF | GRM1555C1H8R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H8R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H8R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H8R5DA01# |  |
|        |               |         | 8.6pF | ±0.05pF | GRM1555C1H8R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H8R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H8R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H8R6DA01# |  |
|        |               |         | 8.7pF | ±0.05pF | GRM1555C1H8R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H8R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H8R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H8R7DA01# |  |
|        |               |         | 8.8pF | ±0.05pF | GRM1555C1H8R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H8R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H8R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H8R8DA01# |  |
|        |               |         | 8.9pF | ±0.05pF | GRM1555C1H8R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H8R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H8R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H8R9DA01# |  |
|        |               |         | 9.0pF | ±0.05pF | GRM1555C1H9R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H9R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H9R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H9R0DA01# |  |
|        |               |         | 9.1pF | ±0.05pF | GRM1555C1H9R1WA01# |  |

Part number # indicates the package specification code.

# GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 9.1pF | ±0.1pF  | GRM1555C1H9R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H9R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1555C1H9R1DA01# |  |
|        |               |         | 9.2pF | ±0.05pF | GRM1555C1H9R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H9R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H9R2CA01# |  |
|        |               |         | 9.3pF | ±0.05pF | GRM1555C1H9R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H9R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H9R3CA01# |  |
|        |               |         | 9.4pF | ±0.05pF | GRM1555C1H9R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H9R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H9R4CA01# |  |
|        |               |         | 9.5pF | ±0.05pF | GRM1555C1H9R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H9R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H9R5CA01# |  |
|        |               |         | 9.6pF | ±0.05pF | GRM1555C1H9R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H9R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H9R6CA01# |  |
|        |               |         | 9.7pF | ±0.05pF | GRM1555C1H9R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H9R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H9R7CA01# |  |
|        |               |         | 9.8pF | ±0.05pF | GRM1555C1H9R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H9R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H9R8CA01# |  |
|        |               |         | 9.9pF | ±0.05pF | GRM1555C1H9R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1555C1H9R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1555C1H9R9CA01# |  |
|        |               |         | 10pF  | ±2%     | GRM1555C1H100GA01# |  |
|        |               |         |       | ±5%     | GRM1555C1H100JA01# |  |
|        |               |         | 12pF  | ±2%     | GRM1555C1H120GA01# |  |
|        |               |         |       | ±5%     | GRM1555C1H120JA01# |  |
|        |               |         | 15pF  | ±2%     | GRM1555C1H150GA01# |  |
|        |               |         |       | ±5%     | GRM1555C1H150JA01# |  |
|        |               |         | 18pF  | ±2%     | GRM1555C1H180GA01# |  |
|        |               |         |       | ±5%     | GRM1555C1H180JA01# |  |
|        |               |         | 22pF  | ±2%     | GRM1555C1H220GA01# |  |
|        |               |         |       | ±5%     | GRM1555C1H220JA01# |  |
|        |               |         | 27pF  | ±2%     | GRM1555C1H270GA01# |  |
|        |               |         |       | ±5%     | GRM1555C1H270JA01# |  |
|        |               |         | 33pF  | ±2%     | GRM1555C1H330GA01# |  |
|        |               |         |       | ±5%     | GRM1555C1H330JA01# |  |
|        |               |         | 39pF  | ±2%     | GRM1555C1H390GA01# |  |
|        |               |         |       | ±5%     | GRM1555C1H390JA01# |  |
|        |               |         | 47pF  | ±2%     | GRM1555C1H470GA01# |  |
|        |               |         |       | ±5%     | GRM1555C1H470JA01# |  |
|        |               |         | 56pF  | ±2%     | GRM1555C1H560GA01# |  |

| T max. | Rated Voltage | TC Code | Cap.   | Tol.    | Part Number        |  |
|--------|---------------|---------|--------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 56pF   | ±5%     | GRM1555C1H560JA01# |  |
|        |               |         |        | ±2%     | GRM1555C1H680GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H680JA01# |  |
|        |               |         | 82pF   | ±2%     | GRM1555C1H820GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H820JA01# |  |
|        |               |         | 100pF  | ±2%     | GRM1555C1H101GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H101JA01# |  |
|        |               |         | 120pF  | ±2%     | GRM1555C1H121GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H121JA01# |  |
|        |               |         | 150pF  | ±2%     | GRM1555C1H151GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H151JA01# |  |
|        |               |         | 180pF  | ±2%     | GRM1555C1H181GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H181JA01# |  |
|        |               |         | 220pF  | ±2%     | GRM1555C1H221GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H221JA01# |  |
|        |               |         | 270pF  | ±2%     | GRM1555C1H271GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H271JA01# |  |
|        |               |         | 330pF  | ±2%     | GRM1555C1H331GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H331JA01# |  |
|        |               |         | 390pF  | ±2%     | GRM1555C1H391GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H391JA01# |  |
|        |               |         | 470pF  | ±2%     | GRM1555C1H471GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H471JA01# |  |
|        |               |         | 560pF  | ±2%     | GRM1555C1H561GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H561JA01# |  |
|        |               |         | 680pF  | ±2%     | GRM1555C1H681GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H681JA01# |  |
|        |               |         | 820pF  | ±2%     | GRM1555C1H821GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H821JA01# |  |
|        |               |         | 1000pF | ±2%     | GRM1555C1H102GA01# |  |
|        |               |         |        | ±5%     | GRM1555C1H102JA01# |  |
|        |               | CK      | 0.1pF  | ±0.05pF | GRM1554C1HR10WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1554C1HR10BA01# |  |
|        |               |         | 0.2pF  | ±0.05pF | GRM1554C1HR20WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1554C1HR20BA01# |  |
|        |               |         | 0.3pF  | ±0.05pF | GRM1554C1HR30WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1554C1HR30BA01# |  |
|        |               |         | 0.4pF  | ±0.05pF | GRM1554C1HR40WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1554C1HR40BA01# |  |
|        |               |         | 0.5pF  | ±0.05pF | GRM1554C1HR50WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1554C1HR50BA01# |  |
|        |               |         | 0.6pF  | ±0.05pF | GRM1554C1HR60WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1554C1HR60BA01# |  |
|        |               |         | 0.7pF  | ±0.05pF | GRM1554C1HR70WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1554C1HR70BA01# |  |
|        |               |         | 0.8pF  | ±0.05pF | GRM1554C1HR80WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1554C1HR80BA01# |  |
|        |               |         | 0.9pF  | ±0.05pF | GRM1554C1HR90WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1554C1HR90BA01# |  |
|        |               |         | 1.0pF  | ±0.05pF | GRM1554C1H1R0WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1554C1H1R0BA01# |  |
|        |               |         |        | ±0.25pF | GRM1554C1H1R0CA01# |  |
|        |               |         | 1.1pF  | ±0.05pF | GRM1554C1H1R1WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1554C1H1R1BA01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LL Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | CK      | 1.1pF | ±0.25pF | GRM1554C1H1R1CA01# |  |
|        |               |         |       | ±0.05pF | GRM1554C1H1R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1554C1H1R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1554C1H1R2CA01# |  |
|        |               |         | 1.3pF | ±0.05pF | GRM1554C1H1R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1554C1H1R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1554C1H1R3CA01# |  |
|        |               |         | 1.4pF | ±0.05pF | GRM1554C1H1R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1554C1H1R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1554C1H1R4CA01# |  |
|        |               |         | 1.5pF | ±0.05pF | GRM1554C1H1R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1554C1H1R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1554C1H1R5CA01# |  |
|        |               |         | 1.6pF | ±0.05pF | GRM1554C1H1R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1554C1H1R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1554C1H1R6CA01# |  |
|        |               |         | 1.7pF | ±0.05pF | GRM1554C1H1R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1554C1H1R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1554C1H1R7CA01# |  |
|        |               |         | 1.8pF | ±0.05pF | GRM1554C1H1R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1554C1H1R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1554C1H1R8CA01# |  |
|        |               |         | 1.9pF | ±0.05pF | GRM1554C1H1R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1554C1H1R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1554C1H1R9CA01# |  |
|        |               |         | 2.0pF | ±0.05pF | GRM1554C1H2R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1554C1H2R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1554C1H2R0CA01# |  |
|        |               | CJ      | 2.1pF | ±0.05pF | GRM1553C1H2R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H2R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H2R1CA01# |  |
|        |               |         | 2.2pF | ±0.05pF | GRM1553C1H2R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H2R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H2R2CA01# |  |
|        |               |         | 2.3pF | ±0.05pF | GRM1553C1H2R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H2R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H2R3CA01# |  |
|        |               |         | 2.4pF | ±0.05pF | GRM1553C1H2R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H2R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H2R4CA01# |  |
|        |               |         | 2.5pF | ±0.05pF | GRM1553C1H2R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H2R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H2R5CA01# |  |
|        |               |         | 2.6pF | ±0.05pF | GRM1553C1H2R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H2R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H2R6CA01# |  |
|        |               |         | 2.7pF | ±0.05pF | GRM1553C1H2R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H2R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H2R7CA01# |  |
|        |               |         | 2.8pF | ±0.05pF | GRM1553C1H2R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H2R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H2R8CA01# |  |
|        |               |         | 2.9pF | ±0.05pF | GRM1553C1H2R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H2R9BA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | CJ      | 2.9pF | ±0.25pF | GRM1553C1H2R9CA01# |  |
|        |               |         |       | ±0.05pF | GRM1553C1H3R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H3R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H3R0CA01# |  |
|        |               |         | 3.1pF | ±0.05pF | GRM1553C1H3R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H3R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H3R1CA01# |  |
|        |               |         | 3.2pF | ±0.05pF | GRM1553C1H3R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H3R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H3R2CA01# |  |
|        |               |         | 3.3pF | ±0.05pF | GRM1553C1H3R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H3R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H3R3CA01# |  |
|        |               |         | 3.4pF | ±0.05pF | GRM1553C1H3R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H3R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H3R4CA01# |  |
|        |               |         | 3.5pF | ±0.05pF | GRM1553C1H3R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H3R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H3R5CA01# |  |
|        |               |         | 3.6pF | ±0.05pF | GRM1553C1H3R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H3R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H3R6CA01# |  |
|        |               |         | 3.7pF | ±0.05pF | GRM1553C1H3R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H3R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H3R7CA01# |  |
|        |               |         | 3.8pF | ±0.05pF | GRM1553C1H3R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H3R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H3R8CA01# |  |
|        |               |         | 3.9pF | ±0.05pF | GRM1553C1H3R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1553C1H3R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1553C1H3R9CA01# |  |
|        |               | CH      | 4.0pF | ±0.05pF | GRM1552C1H4R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H4R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H4R0CA01# |  |
|        |               |         | 4.1pF | ±0.05pF | GRM1552C1H4R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H4R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H4R1CA01# |  |
|        |               |         | 4.2pF | ±0.05pF | GRM1552C1H4R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H4R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H4R2CA01# |  |
|        |               |         | 4.3pF | ±0.05pF | GRM1552C1H4R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H4R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H4R3CA01# |  |
|        |               |         | 4.4pF | ±0.05pF | GRM1552C1H4R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H4R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H4R4CA01# |  |
|        |               |         | 4.5pF | ±0.05pF | GRM1552C1H4R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H4R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H4R5CA01# |  |
|        |               |         | 4.6pF | ±0.05pF | GRM1552C1H4R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H4R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H4R6CA01# |  |
|        |               |         | 4.7pF | ±0.05pF | GRM1552C1H4R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H4R7BA01# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | CH      | 4.7pF | ±0.25pF | GRM1552C1H4R7CA01# |  |
|        |               |         |       | ±0.05pF | GRM1552C1H4R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H4R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H4R8CA01# |  |
|        |               |         | 4.9pF | ±0.05pF | GRM1552C1H4R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H4R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H4R9CA01# |  |
|        |               |         | 5.0pF | ±0.05pF | GRM1552C1H5R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H5R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H5R0CA01# |  |
|        |               |         | 5.1pF | ±0.05pF | GRM1552C1H5R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H5R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H5R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H5R1DA01# |  |
|        |               |         | 5.2pF | ±0.05pF | GRM1552C1H5R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H5R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H5R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H5R2DA01# |  |
|        |               |         | 5.3pF | ±0.05pF | GRM1552C1H5R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H5R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H5R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H5R3DA01# |  |
|        |               |         | 5.4pF | ±0.05pF | GRM1552C1H5R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H5R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H5R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H5R4DA01# |  |
|        |               |         | 5.5pF | ±0.05pF | GRM1552C1H5R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H5R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H5R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H5R5DA01# |  |
|        |               |         | 5.6pF | ±0.05pF | GRM1552C1H5R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H5R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H5R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H5R6DA01# |  |
|        |               |         | 5.7pF | ±0.05pF | GRM1552C1H5R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H5R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H5R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H5R7DA01# |  |
|        |               |         | 5.8pF | ±0.05pF | GRM1552C1H5R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H5R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H5R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H5R8DA01# |  |
|        |               |         | 5.9pF | ±0.05pF | GRM1552C1H5R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H5R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H5R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H5R9DA01# |  |
|        |               |         | 6.0pF | ±0.05pF | GRM1552C1H6R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H6R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H6R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H6R0DA01# |  |
|        |               |         | 6.1pF | ±0.05pF | GRM1552C1H6R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H6R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H6R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H6R1DA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | CH      | 6.2pF | ±0.05pF | GRM1552C1H6R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H6R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H6R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H6R2DA01# |  |
|        |               |         | 6.3pF | ±0.05pF | GRM1552C1H6R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H6R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H6R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H6R3DA01# |  |
|        |               |         | 6.4pF | ±0.05pF | GRM1552C1H6R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H6R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H6R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H6R4DA01# |  |
|        |               |         | 6.5pF | ±0.05pF | GRM1552C1H6R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H6R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H6R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H6R5DA01# |  |
|        |               |         | 6.6pF | ±0.05pF | GRM1552C1H6R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H6R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H6R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H6R6DA01# |  |
|        |               |         | 6.7pF | ±0.05pF | GRM1552C1H6R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H6R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H6R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H6R7DA01# |  |
|        |               |         | 6.8pF | ±0.05pF | GRM1552C1H6R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H6R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H6R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H6R8DA01# |  |
|        |               |         | 6.9pF | ±0.05pF | GRM1552C1H6R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H6R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H6R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H6R9DA01# |  |
|        |               |         | 7.0pF | ±0.05pF | GRM1552C1H7R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H7R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H7R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H7R0DA01# |  |
|        |               |         | 7.1pF | ±0.05pF | GRM1552C1H7R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H7R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H7R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H7R1DA01# |  |
|        |               |         | 7.2pF | ±0.05pF | GRM1552C1H7R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H7R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H7R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H7R2DA01# |  |
|        |               |         | 7.3pF | ±0.05pF | GRM1552C1H7R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H7R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H7R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H7R3DA01# |  |
|        |               |         | 7.4pF | ±0.05pF | GRM1552C1H7R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H7R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H7R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H7R4DA01# |  |
|        |               |         | 7.5pF | ±0.05pF | GRM1552C1H7R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H7R5BA01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LL Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | CH      | 7.5pF | ±0.25pF | GRM1552C1H7R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H7R5DA01# |  |
|        |               |         | 7.6pF | ±0.05pF | GRM1552C1H7R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H7R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H7R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H7R6DA01# |  |
|        |               |         | 7.7pF | ±0.05pF | GRM1552C1H7R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H7R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H7R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H7R7DA01# |  |
|        |               |         | 7.8pF | ±0.05pF | GRM1552C1H7R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H7R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H7R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H7R8DA01# |  |
|        |               |         | 7.9pF | ±0.05pF | GRM1552C1H7R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H7R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H7R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H7R9DA01# |  |
|        |               |         | 8.0pF | ±0.05pF | GRM1552C1H8R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H8R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H8R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H8R0DA01# |  |
|        |               |         | 8.1pF | ±0.05pF | GRM1552C1H8R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H8R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H8R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H8R1DA01# |  |
|        |               |         | 8.2pF | ±0.05pF | GRM1552C1H8R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H8R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H8R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H8R2DA01# |  |
|        |               |         | 8.3pF | ±0.05pF | GRM1552C1H8R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H8R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H8R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H8R3DA01# |  |
|        |               |         | 8.4pF | ±0.05pF | GRM1552C1H8R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H8R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H8R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H8R4DA01# |  |
|        |               |         | 8.5pF | ±0.05pF | GRM1552C1H8R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H8R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H8R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H8R5DA01# |  |
|        |               |         | 8.6pF | ±0.05pF | GRM1552C1H8R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H8R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H8R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H8R6DA01# |  |
|        |               |         | 8.7pF | ±0.05pF | GRM1552C1H8R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H8R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H8R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H8R7DA01# |  |
|        |               |         | 8.8pF | ±0.05pF | GRM1552C1H8R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H8R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H8R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H8R8DA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | CH      | 8.9pF | ±0.05pF | GRM1552C1H8R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H8R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H8R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H8R9DA01# |  |
|        |               |         | 9.0pF | ±0.05pF | GRM1552C1H9R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H9R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H9R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H9R0DA01# |  |
|        |               |         | 9.1pF | ±0.05pF | GRM1552C1H9R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H9R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H9R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H9R1DA01# |  |
|        |               |         | 9.2pF | ±0.05pF | GRM1552C1H9R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H9R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H9R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H9R2DA01# |  |
|        |               |         | 9.3pF | ±0.05pF | GRM1552C1H9R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H9R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H9R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H9R3DA01# |  |
|        |               |         | 9.4pF | ±0.05pF | GRM1552C1H9R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H9R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H9R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H9R4DA01# |  |
|        |               |         | 9.5pF | ±0.05pF | GRM1552C1H9R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H9R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H9R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H9R5DA01# |  |
|        |               |         | 9.6pF | ±0.05pF | GRM1552C1H9R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H9R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H9R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H9R6DA01# |  |
|        |               |         | 9.7pF | ±0.05pF | GRM1552C1H9R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H9R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H9R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H9R7DA01# |  |
|        |               |         | 9.8pF | ±0.05pF | GRM1552C1H9R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H9R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H9R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H9R8DA01# |  |
|        |               |         | 9.9pF | ±0.05pF | GRM1552C1H9R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1552C1H9R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1552C1H9R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1552C1H9R9DA01# |  |
|        |               |         | 10pF  | ±2%     | GRM1552C1H100GA01# |  |
|        |               |         |       | ±5%     | GRM1552C1H100JA01# |  |
|        |               |         | 12pF  | ±2%     | GRM1552C1H120GA01# |  |
|        |               |         |       | ±5%     | GRM1552C1H120JA01# |  |
|        |               |         | 15pF  | ±2%     | GRM1552C1H150GA01# |  |
|        |               |         |       | ±5%     | GRM1552C1H150JA01# |  |
|        |               |         | 18pF  | ±2%     | GRM1552C1H180GA01# |  |
|        |               |         |       | ±5%     | GRM1552C1H180JA01# |  |
|        |               |         | 22pF  | ±2%     | GRM1552C1H220GA01# |  |
|        |               |         |       | ±5%     | GRM1552C1H220JA01# |  |

Part number # indicates the package specification code.

# GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.   | Tol.    | Part Number        |  |
|--------|---------------|---------|--------|---------|--------------------|--|
| 0.55mm | 50Vdc         | CH      | 27pF   | ±2%     | GRM1552C1H270GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H270JA01# |  |
|        |               |         | 33pF   | ±2%     | GRM1552C1H330GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H330JA01# |  |
|        |               |         | 39pF   | ±2%     | GRM1552C1H390GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H390JA01# |  |
|        |               |         | 47pF   | ±2%     | GRM1552C1H470GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H470JA01# |  |
|        |               |         | 56pF   | ±2%     | GRM1552C1H560GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H560JA01# |  |
|        |               |         | 68pF   | ±2%     | GRM1552C1H680GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H680JA01# |  |
|        |               |         | 82pF   | ±2%     | GRM1552C1H820GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H820JA01# |  |
|        |               |         | 100pF  | ±2%     | GRM1552C1H101GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H101JA01# |  |
|        |               |         | 120pF  | ±2%     | GRM1552C1H121GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H121JA01# |  |
|        |               |         | 150pF  | ±2%     | GRM1552C1H151GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H151JA01# |  |
|        |               |         | 180pF  | ±2%     | GRM1552C1H181GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H181JA01# |  |
|        |               |         | 220pF  | ±2%     | GRM1552C1H221GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H221JA01# |  |
|        |               |         | 270pF  | ±2%     | GRM1552C1H271GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H271JA01# |  |
|        |               |         | 330pF  | ±2%     | GRM1552C1H331GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H331JA01# |  |
|        |               |         | 390pF  | ±2%     | GRM1552C1H391GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H391JA01# |  |
|        |               |         | 470pF  | ±2%     | GRM1552C1H471GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H471JA01# |  |
|        |               |         | 560pF  | ±2%     | GRM1552C1H561GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H561JA01# |  |
|        |               |         | 680pF  | ±2%     | GRM1552C1H681GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H681JA01# |  |
|        |               |         | 820pF  | ±2%     | GRM1552C1H821GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H821JA01# |  |
|        |               |         | 1000pF | ±2%     | GRM1552C1H102GA01# |  |
|        |               |         |        | ±5%     | GRM1552C1H102JA01# |  |
|        |               | P2H     | 1.0pF  | ±0.25pF | GRM1556P1H1R0CZ01# |  |
|        |               |         | 2.0pF  | ±0.25pF | GRM1556P1H2R0CZ01# |  |
|        |               |         | 3.0pF  | ±0.25pF | GRM1556P1H3R0CZ01# |  |
|        |               |         | 4.0pF  | ±0.25pF | GRM1556P1H4R0CZ01# |  |
|        |               |         | 5.0pF  | ±0.25pF | GRM1556P1H5R0CZ01# |  |
|        |               |         | 6.0pF  | ±0.5pF  | GRM1556P1H6R0DZ01# |  |
|        |               |         | 7.0pF  | ±0.5pF  | GRM1556P1H7R0DZ01# |  |
|        |               |         | 8.0pF  | ±0.5pF  | GRM1556P1H8R0DZ01# |  |
|        |               |         | 9.0pF  | ±0.5pF  | GRM1556P1H9R0DZ01# |  |
|        |               |         | 10pF   | ±5%     | GRM1556P1H100JZ01# |  |
|        |               |         | 12pF   | ±5%     | GRM1556P1H120JZ01# |  |
|        |               |         | 15pF   | ±5%     | GRM1556P1H150JZ01# |  |
|        |               |         | 18pF   | ±5%     | GRM1556P1H180JZ01# |  |
|        |               |         | 22pF   | ±5%     | GRM1556P1H220JZ01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | P2H     | 27pF  | ±5%     | GRM1556P1H270JZ01# |  |
|        |               |         | 1.0pF | ±0.25pF | GRM1554P1H1R0CZ01# |  |
|        |               | PK      | 2.0pF | ±0.25pF | GRM1554P1H2R0CZ01# |  |
|        |               |         | 3.0pF | ±0.25pF | GRM1553P1H3R0CZ01# |  |
|        |               | PJ      | 4.0pF | ±0.25pF | GRM1552P1H4R0CZ01# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM1552P1H5R0CZ01# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM1552P1H6R0DZ01# |  |
|        |               |         | 7.0pF | ±0.5pF  | GRM1552P1H7R0DZ01# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM1552P1H8R0DZ01# |  |
|        |               |         | 9.0pF | ±0.5pF  | GRM1552P1H9R0DZ01# |  |
|        |               |         | 10pF  | ±5%     | GRM1552P1H100JZ01# |  |
|        |               |         | 12pF  | ±5%     | GRM1552P1H120JZ01# |  |
|        |               |         | 15pF  | ±5%     | GRM1552P1H150JZ01# |  |
|        |               |         | 18pF  | ±5%     | GRM1552P1H180JZ01# |  |
|        |               |         | 22pF  | ±5%     | GRM1552P1H220JZ01# |  |
|        |               |         | 27pF  | ±5%     | GRM1552P1H270JZ01# |  |
|        |               | R2H     | 1.0pF | ±0.25pF | GRM1556R1H1R0CD01# |  |
|        |               |         | 2.0pF | ±0.25pF | GRM1556R1H2R0CZ01# |  |
|        |               |         | 3.0pF | ±0.25pF | GRM1556R1H3R0CZ01# |  |
|        |               |         | 4.0pF | ±0.25pF | GRM1556R1H4R0CZ01# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM1556R1H5R0CZ01# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM1556R1H6R0DZ01# |  |
|        |               |         | 7.0pF | ±0.5pF  | GRM1556R1H7R0DZ01# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM1556R1H8R0DZ01# |  |
|        |               |         | 9.0pF | ±0.5pF  | GRM1556R1H9R0DZ01# |  |
|        |               |         | 10pF  | ±5%     | GRM1556R1H100JZ01# |  |
|        |               |         | 12pF  | ±5%     | GRM1556R1H120JZ01# |  |
|        |               |         | 15pF  | ±5%     | GRM1556R1H150JZ01# |  |
|        |               |         | 18pF  | ±5%     | GRM1556R1H180JZ01# |  |
|        |               |         | 22pF  | ±5%     | GRM1556R1H220JZ01# |  |
|        |               |         | 27pF  | ±5%     | GRM1556R1H270JZ01# |  |
|        |               | RK      | 1.0pF | ±0.25pF | GRM1554R1H1R0CD01# |  |
|        |               |         | 2.0pF | ±0.25pF | GRM1554R1H2R0CZ01# |  |
|        |               | RJ      | 3.0pF | ±0.25pF | GRM1553R1H3R0CZ01# |  |
|        |               | RH      | 4.0pF | ±0.25pF | GRM1552R1H4R0CZ01# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM1552R1H5R0CZ01# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM1552R1H6R0DZ01# |  |
|        |               |         | 7.0pF | ±0.5pF  | GRM1552R1H7R0DZ01# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM1552R1H8R0DZ01# |  |
|        |               |         | 9.0pF | ±0.5pF  | GRM1552R1H9R0DZ01# |  |
|        |               |         | 10pF  | ±5%     | GRM1552R1H100JZ01# |  |
|        |               |         | 12pF  | ±5%     | GRM1552R1H120JZ01# |  |
|        |               |         | 15pF  | ±5%     | GRM1552R1H150JZ01# |  |
|        |               |         | 18pF  | ±5%     | GRM1552R1H180JZ01# |  |
|        |               |         | 22pF  | ±5%     | GRM1552R1H220JZ01# |  |
|        |               |         | 27pF  | ±5%     | GRM1552R1H270JZ01# |  |
|        |               |         | 33pF  | ±5%     | GRM1552R1H330JZ01# |  |
|        |               | S2H     | 1.0pF | ±0.25pF | GRM1556S1H1R0CD01# |  |
|        |               |         | 2.0pF | ±0.25pF | GRM1556S1H2R0CZ01# |  |
|        |               |         | 3.0pF | ±0.25pF | GRM1556S1H3R0CZ01# |  |
|        |               |         | 4.0pF | ±0.25pF | GRM1556S1H4R0CZ01# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM1556S1H5R0CZ01# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM1556S1H6R0DZ01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL L□ Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | S2H     | 7.0pF | ±0.5pF  | GRM1556S1H7R0DZ01# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM1556S1H8R0DZ01# |  |
|        |               |         | 9.0pF | ±0.5pF  | GRM1556S1H9R0DZ01# |  |
|        |               |         | 10pF  | ±5%     | GRM1556S1H100JZ01# |  |
|        |               |         | 12pF  | ±5%     | GRM1556S1H120JZ01# |  |
|        |               |         | 15pF  | ±5%     | GRM1556S1H150JZ01# |  |
|        |               |         | 18pF  | ±5%     | GRM1556S1H180JZ01# |  |
|        |               |         | 22pF  | ±5%     | GRM1556S1H220JZ01# |  |
|        |               |         | 27pF  | ±5%     | GRM1556S1H270JZ01# |  |
|        |               |         | 33pF  | ±5%     | GRM1556S1H330JZ01# |  |
|        |               |         | 39pF  | ±5%     | GRM1556S1H390JZ01# |  |
|        |               | SK      | 1.0pF | ±0.25pF | GRM1554S1H1R0CD01# |  |
|        |               |         | 2.0pF | ±0.25pF | GRM1554S1H2R0CZ01# |  |
|        |               | SJ      | 3.0pF | ±0.25pF | GRM1553S1H3R0CZ01# |  |
|        |               | SH      | 4.0pF | ±0.25pF | GRM1552S1H4R0CZ01# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM1552S1H5R0CZ01# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM1552S1H6R0DZ01# |  |
|        |               |         | 7.0pF | ±0.5pF  | GRM1552S1H7R0DZ01# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM1552S1H8R0DZ01# |  |
|        |               |         | 9.0pF | ±0.5pF  | GRM1552S1H9R0DZ01# |  |
|        |               |         | 10pF  | ±5%     | GRM1552S1H100JZ01# |  |
|        |               |         | 12pF  | ±5%     | GRM1552S1H120JZ01# |  |
|        |               |         | 15pF  | ±5%     | GRM1552S1H150JZ01# |  |
|        |               |         | 18pF  | ±5%     | GRM1552S1H180JZ01# |  |
|        |               |         | 22pF  | ±5%     | GRM1552S1H220JZ01# |  |
|        |               |         | 27pF  | ±5%     | GRM1552S1H270JZ01# |  |
|        |               |         | 33pF  | ±5%     | GRM1552S1H330JZ01# |  |
|        |               |         | 39pF  | ±5%     | GRM1552S1H390JZ01# |  |
|        |               | T2H     | 1.0pF | ±0.25pF | GRM1556T1H1R0CD01# |  |
|        |               |         | 2.0pF | ±0.25pF | GRM1556T1H2R0CD01# |  |
|        |               |         | 3.0pF | ±0.25pF | GRM1556T1H3R0CD01# |  |
|        |               |         | 4.0pF | ±0.25pF | GRM1556T1H4R0CD01# |  |
|        |               |         | 5.0pF | ±0.25pF | GRM1556T1H5R0CD01# |  |
|        |               |         | 6.0pF | ±0.5pF  | GRM1556T1H6R0DD01# |  |
|        |               |         | 7.0pF | ±0.5pF  | GRM1556T1H7R0DD01# |  |
|        |               |         | 8.0pF | ±0.5pF  | GRM1556T1H8R0DD01# |  |
|        |               |         | 9.0pF | ±0.5pF  | GRM1556T1H9R0DD01# |  |
|        |               |         | 10pF  | ±5%     | GRM1556T1H100JD01# |  |
|        |               |         | 12pF  | ±5%     | GRM1556T1H120JD01# |  |
|        |               |         | 15pF  | ±5%     | GRM1556T1H150JD01# |  |
|        |               |         | 18pF  | ±5%     | GRM1556T1H180JD01# |  |
|        |               |         | 22pF  | ±5%     | GRM1556T1H220JD01# |  |
|        |               |         | 27pF  | ±5%     | GRM1556T1H270JD01# |  |
|        |               |         | 33pF  | ±5%     | GRM1556T1H330JD01# |  |
|        |               |         | 39pF  | ±5%     | GRM1556T1H390JD01# |  |
|        |               |         | 47pF  | ±5%     | GRM1556T1H470JD01# |  |
|        |               |         | 56pF  | ±5%     | GRM1556T1H560JD01# |  |
|        |               |         | 68pF  | ±5%     | GRM1556T1H680JD01# |  |
|        |               |         | 82pF  | ±5%     | GRM1556T1H820JD01# |  |
|        |               |         | 100pF | ±5%     | GRM1556T1H101JD01# |  |
|        |               | TK      | 1.0pF | ±0.25pF | GRM1554T1H1R0CD01# |  |
|        |               |         | 2.0pF | ±0.25pF | GRM1554T1H2R0CD01# |  |
|        |               | TJ      | 3.0pF | ±0.25pF | GRM1553T1H3R0CD01# |  |
|        |               | TH      | 4.0pF | ±0.25pF | GRM1552T1H4R0CD01# |  |

| T max. | Rated Voltage | TC Code | Cap.   | Tol.    | Part Number        |  |
|--------|---------------|---------|--------|---------|--------------------|--|
| 0.55mm | 50Vdc         | TH      | 5.0pF  | ±0.25pF | GRM1552T1H5R0CD01# |  |
|        |               |         | 6.0pF  | ±0.5pF  | GRM1552T1H6R0DD01# |  |
|        |               |         | 7.0pF  | ±0.5pF  | GRM1552T1H7R0DD01# |  |
|        |               |         | 8.0pF  | ±0.5pF  | GRM1552T1H8R0DD01# |  |
|        |               |         | 9.0pF  | ±0.5pF  | GRM1552T1H9R0DD01# |  |
|        |               |         | 10pF   | ±5%     | GRM1552T1H100JD01# |  |
|        |               |         | 12pF   | ±5%     | GRM1552T1H120JD01# |  |
|        |               |         | 15pF   | ±5%     | GRM1552T1H150JD01# |  |
|        |               |         | 18pF   | ±5%     | GRM1552T1H180JD01# |  |
|        |               |         | 22pF   | ±5%     | GRM1552T1H220JD01# |  |
|        |               |         | 27pF   | ±5%     | GRM1552T1H270JD01# |  |
|        |               |         | 33pF   | ±5%     | GRM1552T1H330JD01# |  |
|        |               |         | 39pF   | ±5%     | GRM1552T1H390JD01# |  |
|        |               |         | 47pF   | ±5%     | GRM1552T1H470JD01# |  |
|        |               |         | 56pF   | ±5%     | GRM1552T1H560JD01# |  |
|        |               |         | 68pF   | ±5%     | GRM1552T1H680JD01# |  |
|        |               |         | 82pF   | ±5%     | GRM1552T1H820JD01# |  |
|        |               |         | 100pF  | ±5%     | GRM1552T1H101JD01# |  |
|        |               | UK      | 1.0pF  | ±0.25pF | GRM1554U1H1R0CZ01# |  |
|        |               |         | 2.0pF  | ±0.25pF | GRM1554U1H2R0CZ01# |  |
|        |               | UJ      | 3.0pF  | ±0.25pF | GRM1553U1H3R0CZ01# |  |
|        |               |         | 4.0pF  | ±0.25pF | GRM1553U1H4R0CZ01# |  |
|        |               |         | 5.0pF  | ±0.25pF | GRM1553U1H5R0CZ01# |  |
|        |               |         | 6.0pF  | ±0.5pF  | GRM1553U1H6R0DZ01# |  |
|        |               |         | 7.0pF  | ±0.5pF  | GRM1553U1H7R0DZ01# |  |
|        |               |         | 8.0pF  | ±0.5pF  | GRM1553U1H8R0DZ01# |  |
|        |               |         | 9.0pF  | ±0.5pF  | GRM1553U1H9R0DZ01# |  |
|        |               |         | 10pF   | ±5%     | GRM1553U1H100JZ01# |  |
|        |               |         | 12pF   | ±5%     | GRM1553U1H120JZ01# |  |
|        |               |         | 15pF   | ±5%     | GRM1553U1H150JZ01# |  |
|        |               |         | 18pF   | ±5%     | GRM1553U1H180JZ01# |  |
|        |               |         | 22pF   | ±5%     | GRM1553U1H220JZ01# |  |
|        |               |         | 27pF   | ±5%     | GRM1553U1H270JZ01# |  |
|        |               |         | 33pF   | ±5%     | GRM1553U1H330JZ01# |  |
|        |               |         | 39pF   | ±5%     | GRM1553U1H390JZ01# |  |
|        |               |         | 47pF   | ±5%     | GRM1553U1H470JZ01# |  |
|        |               |         | 56pF   | ±5%     | GRM1553U1H560JZ01# |  |
|        |               |         | 68pF   | ±5%     | GRM1553U1H680JZ01# |  |
|        |               |         | 82pF   | ±5%     | GRM1553U1H820JZ01# |  |
|        |               |         | 100pF  | ±5%     | GRM1553U1H101JZ01# |  |
|        |               |         | 120pF  | ±5%     | GRM1553U1H121JZ01# |  |
|        |               |         | 150pF  | ±5%     | GRM1553U1H151JZ01# |  |
|        |               |         | 180pF  | ±5%     | GRM1553U1H181JZ01# |  |
|        | 10Vdc         | SL      | 1200pF | ±5%     | GRM1551X1A122JA01# |  |
|        |               |         | 1500pF | ±5%     | GRM1551X1A152JA01# |  |
|        |               |         | 1800pF | ±5%     | GRM1551X1A182JA01# |  |
|        |               |         | 2200pF | ±5%     | GRM1551X1A222JA01# |  |
|        |               |         | 2700pF | ±5%     | GRM1551X1A272JA01# |  |
|        |               |         | 3300pF | ±5%     | GRM1551X1A332JA01# |  |
|        |               |         | 3900pF | ±5%     | GRM1551X1A392JA01# |  |
|        |               |         | 4700pF | ±5%     | GRM1551X1A472JA01# |  |
|        |               |         | 1200pF | ±5%     | GRM1557U1A122JA01# |  |
|        |               |         | 1500pF | ±5%     | GRM1557U1A152JA01# |  |
|        |               |         | 1800pF | ±5%     | GRM1557U1A182JA01# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.   | Tol. | Part Number        |  |
|--------|---------------|---------|--------|------|--------------------|--|
| 0.55mm | 10Vdc         | U2J     | 2200pF | ±5%  | GRM1557U1A222JA01# |  |
|        |               |         | 2700pF | ±5%  | GRM1557U1A272JA01# |  |
|        |               |         | 3300pF | ±5%  | GRM1557U1A332JA01# |  |
|        |               |         | 3900pF | ±5%  | GRM1557U1A392JA01# |  |
|        |               |         | 4700pF | ±5%  | GRM1557U1A472JA01# |  |
|        |               | UJ      | 1200pF | ±5%  | GRM1553U1A122JA01# |  |
|        |               |         | 1500pF | ±5%  | GRM1553U1A152JA01# |  |
|        |               |         | 1800pF | ±5%  | GRM1553U1A182JA01# |  |
|        |               |         | 2200pF | ±5%  | GRM1553U1A222JA01# |  |
|        |               |         | 2700pF | ±5%  | GRM1553U1A272JA01# |  |
|        |               |         | 3300pF | ±5%  | GRM1553U1A332JA01# |  |
|        |               |         | 3900pF | ±5%  | GRM1553U1A392JA01# |  |
|        |               |         | 4700pF | ±5%  | GRM1553U1A472JA01# |  |

■ 1.6×0.8mm

| T max. | Rated Voltage | TC Code | Cap.    | Tol.    | Part Number        |  |
|--------|---------------|---------|---------|---------|--------------------|--|
| 0.5mm  | 50Vdc         | SL      | 2200pF  | ±5%     | GRM1851X1H222JA44# |  |
|        |               |         | 2700pF  | ±5%     | GRM1851X1H272JA44# |  |
|        |               |         | 3300pF  | ±5%     | GRM1851X1H332JA44# |  |
|        |               |         | 3900pF  | ±5%     | GRM1851X1H392JA44# |  |
|        |               |         | 4700pF  | ±5%     | GRM1851X1H472JA44# |  |
|        |               | U2J     | 2200pF  | ±5%     | GRM1857U1H222JA44# |  |
|        |               |         | 2700pF  | ±5%     | GRM1857U1H272JA44# |  |
|        |               |         | 3300pF  | ±5%     | GRM1857U1H332JA44# |  |
|        |               |         | 3900pF  | ±5%     | GRM1857U1H392JA44# |  |
|        |               |         | 4700pF  | ±5%     | GRM1857U1H472JA44# |  |
|        |               | UJ      | 2200pF  | ±5%     | GRM1853U1H222JA44# |  |
|        |               |         | 2700pF  | ±5%     | GRM1853U1H272JA44# |  |
|        |               |         | 3300pF  | ±5%     | GRM1853U1H332JA44# |  |
|        |               |         | 3900pF  | ±5%     | GRM1853U1H392JA44# |  |
|        |               |         | 4700pF  | ±5%     | GRM1853U1H472JA44# |  |
|        | 10Vdc         | SL      | 5600pF  | ±5%     | GRM1851X1A562JA44# |  |
|        |               |         | 6800pF  | ±5%     | GRM1851X1A682JA44# |  |
|        |               |         | 8200pF  | ±5%     | GRM1851X1A822JA44# |  |
|        |               |         | 10000pF | ±5%     | GRM1851X1A103JA44# |  |
|        |               | U2J     | 5600pF  | ±5%     | GRM1857U1A562JA44# |  |
|        |               |         | 6800pF  | ±5%     | GRM1857U1A682JA44# |  |
|        |               |         | 8200pF  | ±5%     | GRM1857U1A822JA44# |  |
|        |               |         | 10000pF | ±5%     | GRM1857U1A103JA44# |  |
|        |               | UJ      | 5600pF  | ±5%     | GRM1853U1A562JA44# |  |
|        |               |         | 6800pF  | ±5%     | GRM1853U1A682JA44# |  |
|        |               |         | 8200pF  | ±5%     | GRM1853U1A822JA44# |  |
|        |               |         | 10000pF | ±5%     | GRM1853U1A103JA44# |  |
| 0.9mm  | 100Vdc        | C0G     | 0.5pF   | ±0.05pF | GRM1885C2AR50WA01# |  |
|        |               |         |         | ±0.1pF  | GRM1885C2AR50BA01# |  |
|        |               |         | 0.6pF   | ±0.05pF | GRM1885C2AR60WA01# |  |
|        |               |         |         | ±0.1pF  | GRM1885C2AR60BA01# |  |
|        |               |         | 0.7pF   | ±0.05pF | GRM1885C2AR70WA01# |  |
|        |               |         |         | ±0.1pF  | GRM1885C2AR70BA01# |  |
|        |               |         | 0.8pF   | ±0.05pF | GRM1885C2AR80WA01# |  |
|        |               |         |         | ±0.1pF  | GRM1885C2AR80BA01# |  |
|        |               |         | 0.9pF   | ±0.05pF | GRM1885C2AR90WA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | C0G     | 0.9pF | ±0.1pF  | GRM1885C2AR90BA01# |  |
|        |               |         |       | ±0.05pF | GRM1885C2A1R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A1R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A1R0CA01# |  |
|        |               |         | 1.1pF | ±0.05pF | GRM1885C2A1R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A1R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A1R1CA01# |  |
|        |               |         | 1.2pF | ±0.05pF | GRM1885C2A1R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A1R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A1R2CA01# |  |
|        |               |         | 1.3pF | ±0.05pF | GRM1885C2A1R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A1R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A1R3CA01# |  |
|        |               |         | 1.4pF | ±0.05pF | GRM1885C2A1R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A1R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A1R4CA01# |  |
|        |               |         | 1.5pF | ±0.05pF | GRM1885C2A1R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A1R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A1R5CA01# |  |
|        |               |         | 1.6pF | ±0.05pF | GRM1885C2A1R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A1R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A1R6CA01# |  |
|        |               |         | 1.7pF | ±0.05pF | GRM1885C2A1R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A1R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A1R7CA01# |  |
|        |               |         | 1.8pF | ±0.05pF | GRM1885C2A1R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A1R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A1R8CA01# |  |
|        |               |         | 1.9pF | ±0.05pF | GRM1885C2A1R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A1R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A1R9CA01# |  |
|        |               |         | 2.0pF | ±0.05pF | GRM1885C2A2R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A2R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A2R0CA01# |  |
|        |               |         | 2.1pF | ±0.05pF | GRM1885C2A2R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A2R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A2R1CA01# |  |
|        |               |         | 2.2pF | ±0.05pF | GRM1885C2A2R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A2R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A2R2CA01# |  |
|        |               |         | 2.3pF | ±0.05pF | GRM1885C2A2R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A2R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A2R3CA01# |  |
|        |               |         | 2.4pF | ±0.05pF | GRM1885C2A2R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A2R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A2R4CA01# |  |
|        |               |         | 2.5pF | ±0.05pF | GRM1885C2A2R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A2R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A2R5CA01# |  |
|        |               |         | 2.6pF | ±0.05pF | GRM1885C2A2R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A2R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A2R6CA01# |  |
|        |               |         | 2.7pF | ±0.05pF | GRM1885C2A2R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A2R7BA01# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | C0G     | 2.7pF | ±0.25pF | GRM1885C2A2R7CA01# |  |
|        |               |         |       | ±0.05pF | GRM1885C2A2R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A2R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A2R8CA01# |  |
|        |               |         | 2.9pF | ±0.05pF | GRM1885C2A2R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A2R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A2R9CA01# |  |
|        |               |         | 3.0pF | ±0.05pF | GRM1885C2A3R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A3R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A3R0CA01# |  |
|        |               |         | 3.1pF | ±0.05pF | GRM1885C2A3R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A3R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A3R1CA01# |  |
|        |               |         | 3.2pF | ±0.05pF | GRM1885C2A3R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A3R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A3R2CA01# |  |
|        |               |         | 3.3pF | ±0.05pF | GRM1885C2A3R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A3R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A3R3CA01# |  |
|        |               |         | 3.4pF | ±0.05pF | GRM1885C2A3R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A3R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A3R4CA01# |  |
|        |               |         | 3.5pF | ±0.05pF | GRM1885C2A3R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A3R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A3R5CA01# |  |
|        |               |         | 3.6pF | ±0.05pF | GRM1885C2A3R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A3R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A3R6CA01# |  |
|        |               |         | 3.7pF | ±0.05pF | GRM1885C2A3R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A3R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A3R7CA01# |  |
|        |               |         | 3.8pF | ±0.05pF | GRM1885C2A3R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A3R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A3R8CA01# |  |
|        |               |         | 3.9pF | ±0.05pF | GRM1885C2A3R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A3R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A3R9CA01# |  |
|        |               |         | 4.0pF | ±0.05pF | GRM1885C2A4R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A4R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A4R0CA01# |  |
|        |               |         | 4.1pF | ±0.05pF | GRM1885C2A4R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A4R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A4R1CA01# |  |
|        |               |         | 4.2pF | ±0.05pF | GRM1885C2A4R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A4R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A4R2CA01# |  |
|        |               |         | 4.3pF | ±0.05pF | GRM1885C2A4R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A4R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A4R3CA01# |  |
|        |               |         | 4.4pF | ±0.05pF | GRM1885C2A4R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A4R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A4R4CA01# |  |
|        |               |         | 4.5pF | ±0.05pF | GRM1885C2A4R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A4R5BA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | C0G     | 4.5pF | ±0.25pF | GRM1885C2A4R5CA01# |  |
|        |               |         |       | ±0.05pF | GRM1885C2A4R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A4R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A4R6CA01# |  |
|        |               |         | 4.7pF | ±0.05pF | GRM1885C2A4R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A4R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A4R7CA01# |  |
|        |               |         | 4.8pF | ±0.05pF | GRM1885C2A4R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A4R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A4R8CA01# |  |
|        |               |         | 4.9pF | ±0.05pF | GRM1885C2A4R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A4R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A4R9CA01# |  |
|        |               |         | 5.0pF | ±0.05pF | GRM1885C2A5R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A5R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A5R0CA01# |  |
|        |               |         | 5.1pF | ±0.05pF | GRM1885C2A5R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A5R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A5R1CA01# |  |
|        |               |         | 5.2pF | ±0.05pF | GRM1885C2A5R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A5R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A5R2CA01# |  |
|        |               |         | 5.3pF | ±0.05pF | GRM1885C2A5R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A5R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A5R3CA01# |  |
|        |               |         | 5.4pF | ±0.05pF | GRM1885C2A5R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A5R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A5R4CA01# |  |
|        |               |         | 5.5pF | ±0.05pF | GRM1885C2A5R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A5R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A5R5CA01# |  |
|        |               |         | 5.6pF | ±0.05pF | GRM1885C2A5R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A5R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A5R6CA01# |  |
|        |               |         | 5.7pF | ±0.05pF | GRM1885C2A5R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A5R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A5R7CA01# |  |
|        |               |         | 5.8pF | ±0.05pF | GRM1885C2A5R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A5R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A5R8CA01# |  |
|        |               |         | 5.9pF | ±0.05pF | GRM1885C2A5R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A5R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A5R9CA01# |  |
|        |               |         | 6.0pF | ±0.05pF | GRM1885C2A6R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A6R0BA01# |  |

Part number # indicates the package specification code.

# GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | C0G     | 6.0pF | ±0.25pF | GRM1885C2A6R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A6R0DA01# |  |
|        |               |         | 6.1pF | ±0.05pF | GRM1885C2A6R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A6R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A6R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A6R1DA01# |  |
|        |               |         | 6.2pF | ±0.05pF | GRM1885C2A6R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A6R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A6R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A6R2DA01# |  |
|        |               |         | 6.3pF | ±0.05pF | GRM1885C2A6R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A6R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A6R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A6R3DA01# |  |
|        |               |         | 6.4pF | ±0.05pF | GRM1885C2A6R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A6R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A6R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A6R4DA01# |  |
|        |               |         | 6.5pF | ±0.05pF | GRM1885C2A6R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A6R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A6R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A6R5DA01# |  |
|        |               |         | 6.6pF | ±0.05pF | GRM1885C2A6R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A6R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A6R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A6R6DA01# |  |
|        |               |         | 6.7pF | ±0.05pF | GRM1885C2A6R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A6R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A6R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A6R7DA01# |  |
|        |               |         | 6.8pF | ±0.05pF | GRM1885C2A6R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A6R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A6R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A6R8DA01# |  |
|        |               |         | 6.9pF | ±0.05pF | GRM1885C2A6R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A6R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A6R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A6R9DA01# |  |
|        |               |         | 7.0pF | ±0.05pF | GRM1885C2A7R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A7R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A7R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A7R0DA01# |  |
|        |               |         | 7.1pF | ±0.05pF | GRM1885C2A7R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A7R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A7R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A7R1DA01# |  |
|        |               |         | 7.2pF | ±0.05pF | GRM1885C2A7R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A7R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A7R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A7R2DA01# |  |
|        |               |         | 7.3pF | ±0.05pF | GRM1885C2A7R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A7R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A7R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A7R3DA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | C0G     | 7.4pF | ±0.05pF | GRM1885C2A7R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A7R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A7R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A7R4DA01# |  |
|        |               |         | 7.5pF | ±0.05pF | GRM1885C2A7R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A7R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A7R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A7R5DA01# |  |
|        |               |         | 7.6pF | ±0.05pF | GRM1885C2A7R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A7R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A7R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A7R6DA01# |  |
|        |               |         | 7.7pF | ±0.05pF | GRM1885C2A7R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A7R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A7R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A7R7DA01# |  |
|        |               |         | 7.8pF | ±0.05pF | GRM1885C2A7R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A7R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A7R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A7R8DA01# |  |
|        |               |         | 7.9pF | ±0.05pF | GRM1885C2A7R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A7R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A7R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A7R9DA01# |  |
|        |               |         | 8.0pF | ±0.05pF | GRM1885C2A8R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A8R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A8R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A8R0DA01# |  |
|        |               |         | 8.1pF | ±0.05pF | GRM1885C2A8R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A8R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A8R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A8R1DA01# |  |
|        |               |         | 8.2pF | ±0.05pF | GRM1885C2A8R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A8R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A8R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A8R2DA01# |  |
|        |               |         | 8.3pF | ±0.05pF | GRM1885C2A8R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A8R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A8R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A8R3DA01# |  |
|        |               |         | 8.4pF | ±0.05pF | GRM1885C2A8R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A8R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A8R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A8R4DA01# |  |
|        |               |         | 8.5pF | ±0.05pF | GRM1885C2A8R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A8R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A8R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A8R5DA01# |  |
|        |               |         | 8.6pF | ±0.05pF | GRM1885C2A8R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A8R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A8R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A8R6DA01# |  |
|        |               |         | 8.7pF | ±0.05pF | GRM1885C2A8R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A8R7BA01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LL□ Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | C0G     | 8.7pF | ±0.25pF | GRM1885C2A8R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A8R7DA01# |  |
|        |               |         | 8.8pF | ±0.05pF | GRM1885C2A8R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A8R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A8R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A8R8DA01# |  |
|        |               |         | 8.9pF | ±0.05pF | GRM1885C2A8R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A8R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A8R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A8R9DA01# |  |
|        |               |         | 9.0pF | ±0.05pF | GRM1885C2A9R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A9R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A9R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A9R0DA01# |  |
|        |               |         | 9.1pF | ±0.05pF | GRM1885C2A9R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A9R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A9R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A9R1DA01# |  |
|        |               |         | 9.2pF | ±0.05pF | GRM1885C2A9R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A9R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A9R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A9R2DA01# |  |
|        |               |         | 9.3pF | ±0.05pF | GRM1885C2A9R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A9R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A9R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A9R3DA01# |  |
|        |               |         | 9.4pF | ±0.05pF | GRM1885C2A9R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A9R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A9R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A9R4DA01# |  |
|        |               |         | 9.5pF | ±0.05pF | GRM1885C2A9R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A9R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A9R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A9R5DA01# |  |
|        |               |         | 9.6pF | ±0.05pF | GRM1885C2A9R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A9R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A9R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A9R6DA01# |  |
|        |               |         | 9.7pF | ±0.05pF | GRM1885C2A9R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A9R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A9R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A9R7DA01# |  |
|        |               |         | 9.8pF | ±0.05pF | GRM1885C2A9R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A9R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A9R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A9R8DA01# |  |
|        |               |         | 9.9pF | ±0.05pF | GRM1885C2A9R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C2A9R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C2A9R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C2A9R9DA01# |  |
|        |               |         | 10pF  | ±5%     | GRM1885C2A100JA01# |  |
|        |               |         | 12pF  | ±5%     | GRM1885C2A120JA01# |  |
|        |               |         | 15pF  | ±5%     | GRM1885C2A150JA01# |  |
|        |               |         | 18pF  | ±5%     | GRM1885C2A180JA01# |  |

| T max. | Rated Voltage | TC Code | Cap.   | Tol.    | Part Number        |  |
|--------|---------------|---------|--------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | C0G     | 22pF   | ±5%     | GRM1885C2A220JA01# |  |
|        |               |         | 27pF   | ±5%     | GRM1885C2A270JA01# |  |
|        |               |         | 33pF   | ±5%     | GRM1885C2A330JA01# |  |
|        |               |         | 39pF   | ±5%     | GRM1885C2A390JA01# |  |
|        |               |         | 47pF   | ±5%     | GRM1885C2A470JA01# |  |
|        |               |         | 56pF   | ±5%     | GRM1885C2A560JA01# |  |
|        |               |         | 68pF   | ±5%     | GRM1885C2A680JA01# |  |
|        |               |         | 82pF   | ±5%     | GRM1885C2A820JA01# |  |
|        |               |         | 100pF  | ±5%     | GRM1885C2A101JA01# |  |
|        |               |         | 120pF  | ±5%     | GRM1885C2A121JA01# |  |
|        |               |         | 150pF  | ±5%     | GRM1885C2A151JA01# |  |
|        |               |         | 180pF  | ±5%     | GRM1885C2A181JA01# |  |
|        |               |         | 220pF  | ±5%     | GRM1885C2A221JA01# |  |
|        |               |         | 270pF  | ±5%     | GRM1885C2A271JA01# |  |
|        |               |         | 330pF  | ±5%     | GRM1885C2A331JA01# |  |
|        |               |         | 390pF  | ±5%     | GRM1885C2A391JA01# |  |
|        |               |         | 470pF  | ±5%     | GRM1885C2A471JA01# |  |
|        |               |         | 560pF  | ±5%     | GRM1885C2A561JA01# |  |
|        |               |         | 680pF  | ±5%     | GRM1885C2A681JA01# |  |
|        |               |         | 820pF  | ±5%     | GRM1885C2A821JA01# |  |
|        |               |         | 1000pF | ±5%     | GRM1885C2A102JA01# |  |
|        |               |         | 1200pF | ±5%     | GRM1885C2A122JA01# |  |
|        |               |         | 1500pF | ±5%     | GRM1885C2A152JA01# |  |
|        |               | CK      | 0.5pF  | ±0.05pF | GRM1884C2AR50WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C2AR50BA01# |  |
|        |               |         | 0.6pF  | ±0.05pF | GRM1884C2AR60WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C2AR60BA01# |  |
|        |               |         | 0.7pF  | ±0.05pF | GRM1884C2AR70WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C2AR70BA01# |  |
|        |               |         | 0.8pF  | ±0.05pF | GRM1884C2AR80WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C2AR80BA01# |  |
|        |               |         | 0.9pF  | ±0.05pF | GRM1884C2AR90WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C2AR90BA01# |  |
|        |               |         | 1.0pF  | ±0.05pF | GRM1884C2A1R0WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C2A1R0BA01# |  |
|        |               |         |        | ±0.25pF | GRM1884C2A1R0CA01# |  |
|        |               |         | 1.1pF  | ±0.05pF | GRM1884C2A1R1WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C2A1R1BA01# |  |
|        |               |         |        | ±0.25pF | GRM1884C2A1R1CA01# |  |
|        |               |         | 1.2pF  | ±0.05pF | GRM1884C2A1R2WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C2A1R2BA01# |  |
|        |               |         |        | ±0.25pF | GRM1884C2A1R2CA01# |  |
|        |               |         | 1.3pF  | ±0.05pF | GRM1884C2A1R3WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C2A1R3BA01# |  |
|        |               |         |        | ±0.25pF | GRM1884C2A1R3CA01# |  |
|        |               |         | 1.4pF  | ±0.05pF | GRM1884C2A1R4WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C2A1R4BA01# |  |
|        |               |         |        | ±0.25pF | GRM1884C2A1R4CA01# |  |
|        |               |         | 1.5pF  | ±0.05pF | GRM1884C2A1R5WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C2A1R5BA01# |  |
|        |               |         |        | ±0.25pF | GRM1884C2A1R5CA01# |  |
|        |               |         | 1.6pF  | ±0.05pF | GRM1884C2A1R6WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C2A1R6BA01# |  |
|        |               |         |        | ±0.25pF | GRM1884C2A1R6CA01# |  |

Part number # indicates the package specification code.

# GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | CK      | 1.7pF | ±0.05pF | GRM1884C2A1R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1884C2A1R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1884C2A1R7CA01# |  |
|        |               |         | 1.8pF | ±0.05pF | GRM1884C2A1R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1884C2A1R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1884C2A1R8CA01# |  |
|        |               |         | 1.9pF | ±0.05pF | GRM1884C2A1R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1884C2A1R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1884C2A1R9CA01# |  |
|        |               |         | 2.0pF | ±0.05pF | GRM1884C2A2R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1884C2A2R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1884C2A2R0CA01# |  |
|        |               | CJ      | 2.1pF | ±0.05pF | GRM1883C2A2R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A2R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A2R1CA01# |  |
|        |               |         | 2.2pF | ±0.05pF | GRM1883C2A2R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A2R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A2R2CA01# |  |
|        |               |         | 2.3pF | ±0.05pF | GRM1883C2A2R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A2R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A2R3CA01# |  |
|        |               |         | 2.4pF | ±0.05pF | GRM1883C2A2R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A2R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A2R4CA01# |  |
|        |               |         | 2.5pF | ±0.05pF | GRM1883C2A2R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A2R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A2R5CA01# |  |
|        |               |         | 2.6pF | ±0.05pF | GRM1883C2A2R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A2R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A2R6CA01# |  |
|        |               |         | 2.7pF | ±0.05pF | GRM1883C2A2R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A2R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A2R7CA01# |  |
|        |               |         | 2.8pF | ±0.05pF | GRM1883C2A2R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A2R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A2R8CA01# |  |
|        |               |         | 2.9pF | ±0.05pF | GRM1883C2A2R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A2R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A2R9CA01# |  |
|        |               |         | 3.0pF | ±0.05pF | GRM1883C2A3R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A3R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A3R0CA01# |  |
|        |               |         | 3.1pF | ±0.05pF | GRM1883C2A3R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A3R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A3R1CA01# |  |
|        |               |         | 3.2pF | ±0.05pF | GRM1883C2A3R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A3R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A3R2CA01# |  |
|        |               |         | 3.3pF | ±0.05pF | GRM1883C2A3R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A3R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A3R3CA01# |  |
|        |               |         | 3.4pF | ±0.05pF | GRM1883C2A3R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A3R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A3R4CA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | CJ      | 3.5pF | ±0.05pF | GRM1883C2A3R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A3R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A3R5CA01# |  |
|        |               |         | 3.6pF | ±0.05pF | GRM1883C2A3R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A3R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A3R6CA01# |  |
|        |               |         | 3.7pF | ±0.05pF | GRM1883C2A3R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A3R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A3R7CA01# |  |
|        |               |         | 3.8pF | ±0.05pF | GRM1883C2A3R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A3R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A3R8CA01# |  |
|        |               |         | 3.9pF | ±0.05pF | GRM1883C2A3R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C2A3R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C2A3R9CA01# |  |
|        |               | CH      | 4.0pF | ±0.05pF | GRM1882C2A4R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A4R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A4R0CA01# |  |
|        |               |         | 4.1pF | ±0.05pF | GRM1882C2A4R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A4R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A4R1CA01# |  |
|        |               |         | 4.2pF | ±0.05pF | GRM1882C2A4R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A4R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A4R2CA01# |  |
|        |               |         | 4.3pF | ±0.05pF | GRM1882C2A4R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A4R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A4R3CA01# |  |
|        |               |         | 4.4pF | ±0.05pF | GRM1882C2A4R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A4R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A4R4CA01# |  |
|        |               |         | 4.5pF | ±0.05pF | GRM1882C2A4R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A4R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A4R5CA01# |  |
|        |               |         | 4.6pF | ±0.05pF | GRM1882C2A4R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A4R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A4R6CA01# |  |
|        |               |         | 4.7pF | ±0.05pF | GRM1882C2A4R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A4R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A4R7CA01# |  |
|        |               |         | 4.8pF | ±0.05pF | GRM1882C2A4R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A4R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A4R8CA01# |  |
|        |               |         | 4.9pF | ±0.05pF | GRM1882C2A4R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A4R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A4R9CA01# |  |
|        |               |         | 5.0pF | ±0.05pF | GRM1882C2A5R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A5R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A5R0CA01# |  |
|        |               |         | 5.1pF | ±0.05pF | GRM1882C2A5R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A5R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A5R1CA01# |  |
|        |               |         | 5.2pF | ±0.5pF  | GRM1882C2A5R1DA01# |  |
|        |               |         |       | ±0.05pF | GRM1882C2A5R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A5R2BA01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LL Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | CH      | 5.2pF | ±0.25pF | GRM1882C2A5R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A5R2DA01# |  |
|        |               |         | 5.3pF | ±0.05pF | GRM1882C2A5R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A5R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A5R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A5R3DA01# |  |
|        |               |         | 5.4pF | ±0.05pF | GRM1882C2A5R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A5R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A5R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A5R4DA01# |  |
|        |               |         | 5.5pF | ±0.05pF | GRM1882C2A5R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A5R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A5R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A5R5DA01# |  |
|        |               |         | 5.6pF | ±0.05pF | GRM1882C2A5R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A5R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A5R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A5R6DA01# |  |
|        |               |         | 5.7pF | ±0.05pF | GRM1882C2A5R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A5R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A5R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A5R7DA01# |  |
|        |               |         | 5.8pF | ±0.05pF | GRM1882C2A5R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A5R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A5R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A5R8DA01# |  |
|        |               |         | 5.9pF | ±0.05pF | GRM1882C2A5R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A5R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A5R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A5R9DA01# |  |
|        |               |         | 6.0pF | ±0.05pF | GRM1882C2A6R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A6R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A6R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A6R0DA01# |  |
|        |               |         | 6.1pF | ±0.05pF | GRM1882C2A6R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A6R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A6R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A6R1DA01# |  |
|        |               |         | 6.2pF | ±0.05pF | GRM1882C2A6R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A6R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A6R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A6R2DA01# |  |
|        |               |         | 6.3pF | ±0.05pF | GRM1882C2A6R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A6R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A6R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A6R3DA01# |  |
|        |               |         | 6.4pF | ±0.05pF | GRM1882C2A6R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A6R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A6R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A6R4DA01# |  |
|        |               |         | 6.5pF | ±0.05pF | GRM1882C2A6R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A6R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A6R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A6R5DA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | CH      | 6.6pF | ±0.05pF | GRM1882C2A6R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A6R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A6R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A6R6DA01# |  |
|        |               |         | 6.7pF | ±0.05pF | GRM1882C2A6R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A6R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A6R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A6R7DA01# |  |
|        |               |         | 6.8pF | ±0.05pF | GRM1882C2A6R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A6R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A6R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A6R8DA01# |  |
|        |               |         | 6.9pF | ±0.05pF | GRM1882C2A6R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A6R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A6R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A6R9DA01# |  |
|        |               |         | 7.0pF | ±0.05pF | GRM1882C2A7R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A7R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A7R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A7R0DA01# |  |
|        |               |         | 7.1pF | ±0.05pF | GRM1882C2A7R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A7R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A7R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A7R1DA01# |  |
|        |               |         | 7.2pF | ±0.05pF | GRM1882C2A7R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A7R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A7R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A7R2DA01# |  |
|        |               |         | 7.3pF | ±0.05pF | GRM1882C2A7R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A7R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A7R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A7R3DA01# |  |
|        |               |         | 7.4pF | ±0.05pF | GRM1882C2A7R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A7R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A7R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A7R4DA01# |  |
|        |               |         | 7.5pF | ±0.05pF | GRM1882C2A7R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A7R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A7R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A7R5DA01# |  |
|        |               |         | 7.6pF | ±0.05pF | GRM1882C2A7R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A7R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A7R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A7R6DA01# |  |
|        |               |         | 7.7pF | ±0.05pF | GRM1882C2A7R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A7R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A7R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A7R7DA01# |  |
|        |               |         | 7.8pF | ±0.05pF | GRM1882C2A7R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A7R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A7R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A7R8DA01# |  |
|        |               |         | 7.9pF | ±0.05pF | GRM1882C2A7R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A7R9BA01# |  |

Part number # indicates the package specification code.

# GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | CH      | 7.9pF | ±0.25pF | GRM1882C2A7R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A7R9DA01# |  |
|        |               |         | 8.0pF | ±0.05pF | GRM1882C2A8R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A8R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A8R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A8R0DA01# |  |
|        |               |         | 8.1pF | ±0.05pF | GRM1882C2A8R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A8R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A8R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A8R1DA01# |  |
|        |               |         | 8.2pF | ±0.05pF | GRM1882C2A8R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A8R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A8R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A8R2DA01# |  |
|        |               |         | 8.3pF | ±0.05pF | GRM1882C2A8R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A8R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A8R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A8R3DA01# |  |
|        |               |         | 8.4pF | ±0.05pF | GRM1882C2A8R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A8R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A8R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A8R4DA01# |  |
|        |               |         | 8.5pF | ±0.05pF | GRM1882C2A8R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A8R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A8R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A8R5DA01# |  |
|        |               |         | 8.6pF | ±0.05pF | GRM1882C2A8R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A8R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A8R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A8R6DA01# |  |
|        |               |         | 8.7pF | ±0.05pF | GRM1882C2A8R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A8R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A8R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A8R7DA01# |  |
|        |               |         | 8.8pF | ±0.05pF | GRM1882C2A8R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A8R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A8R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A8R8DA01# |  |
|        |               |         | 8.9pF | ±0.05pF | GRM1882C2A8R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A8R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A8R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A8R9DA01# |  |
|        |               |         | 9.0pF | ±0.05pF | GRM1882C2A9R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A9R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A9R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A9R0DA01# |  |
|        |               |         | 9.1pF | ±0.05pF | GRM1882C2A9R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A9R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A9R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A9R1DA01# |  |
|        |               |         | 9.2pF | ±0.05pF | GRM1882C2A9R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C2A9R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C2A9R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C2A9R2DA01# |  |

| T max. | Rated Voltage | TC Code | Cap.   | Tol.    | Part Number        |  |
|--------|---------------|---------|--------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | CH      | 9.3pF  | ±0.05pF | GRM1882C2A9R3WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1882C2A9R3BA01# |  |
|        |               |         |        | ±0.25pF | GRM1882C2A9R3CA01# |  |
|        |               |         |        | ±0.5pF  | GRM1882C2A9R3DA01# |  |
|        |               |         | 9.4pF  | ±0.05pF | GRM1882C2A9R4WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1882C2A9R4BA01# |  |
|        |               |         |        | ±0.25pF | GRM1882C2A9R4CA01# |  |
|        |               |         |        | ±0.5pF  | GRM1882C2A9R4DA01# |  |
|        |               |         | 9.5pF  | ±0.05pF | GRM1882C2A9R5WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1882C2A9R5BA01# |  |
|        |               |         |        | ±0.25pF | GRM1882C2A9R5CA01# |  |
|        |               |         |        | ±0.5pF  | GRM1882C2A9R5DA01# |  |
|        |               |         | 9.6pF  | ±0.05pF | GRM1882C2A9R6WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1882C2A9R6BA01# |  |
|        |               |         |        | ±0.25pF | GRM1882C2A9R6CA01# |  |
|        |               |         |        | ±0.5pF  | GRM1882C2A9R6DA01# |  |
|        |               |         | 9.7pF  | ±0.05pF | GRM1882C2A9R7WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1882C2A9R7BA01# |  |
|        |               |         |        | ±0.25pF | GRM1882C2A9R7CA01# |  |
|        |               |         |        | ±0.5pF  | GRM1882C2A9R7DA01# |  |
|        |               |         | 9.8pF  | ±0.05pF | GRM1882C2A9R8WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1882C2A9R8BA01# |  |
|        |               |         |        | ±0.25pF | GRM1882C2A9R8CA01# |  |
|        |               |         |        | ±0.5pF  | GRM1882C2A9R8DA01# |  |
|        |               |         | 9.9pF  | ±0.05pF | GRM1882C2A9R9WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1882C2A9R9BA01# |  |
|        |               |         |        | ±0.25pF | GRM1882C2A9R9CA01# |  |
|        |               |         |        | ±0.5pF  | GRM1882C2A9R9DA01# |  |
|        |               |         | 10pF   | ±5%     | GRM1882C2A100JA01# |  |
|        |               |         | 12pF   | ±5%     | GRM1882C2A120JA01# |  |
|        |               |         | 15pF   | ±5%     | GRM1882C2A150JA01# |  |
|        |               |         | 18pF   | ±5%     | GRM1882C2A180JA01# |  |
|        |               |         | 22pF   | ±5%     | GRM1882C2A220JA01# |  |
|        |               |         | 27pF   | ±5%     | GRM1882C2A270JA01# |  |
|        |               |         | 33pF   | ±5%     | GRM1882C2A330JA01# |  |
|        |               |         | 39pF   | ±5%     | GRM1882C2A390JA01# |  |
|        |               |         | 47pF   | ±5%     | GRM1882C2A470JA01# |  |
|        |               |         | 56pF   | ±5%     | GRM1882C2A560JA01# |  |
|        |               |         | 68pF   | ±5%     | GRM1882C2A680JA01# |  |
|        |               |         | 82pF   | ±5%     | GRM1882C2A820JA01# |  |
|        |               |         | 100pF  | ±5%     | GRM1882C2A101JA01# |  |
|        |               |         | 120pF  | ±5%     | GRM1882C2A121JA01# |  |
|        |               |         | 150pF  | ±5%     | GRM1882C2A151JA01# |  |
|        |               |         | 180pF  | ±5%     | GRM1882C2A181JA01# |  |
|        |               |         | 220pF  | ±5%     | GRM1882C2A221JA01# |  |
|        |               |         | 270pF  | ±5%     | GRM1882C2A271JA01# |  |
|        |               |         | 330pF  | ±5%     | GRM1882C2A331JA01# |  |
|        |               |         | 390pF  | ±5%     | GRM1882C2A391JA01# |  |
|        |               |         | 470pF  | ±5%     | GRM1882C2A471JA01# |  |
|        |               |         | 560pF  | ±5%     | GRM1882C2A561JA01# |  |
|        |               |         | 680pF  | ±5%     | GRM1882C2A681JA01# |  |
|        |               |         | 820pF  | ±5%     | GRM1882C2A821JA01# |  |
|        |               |         | 1000pF | ±5%     | GRM1882C2A102JA01# |  |
|        |               |         | 1200pF | ±5%     | GRM1882C2A122JA01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LL□ Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.   | Tol.    | Part Number        |  |
|--------|---------------|---------|--------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | CH      | 1500pF | ±5%     | GRM1882C2A152JA01# |  |
|        |               |         | 0.5pF  | ±0.05pF | GRM1885C1HR50WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1HR50BA01# |  |
|        |               |         |        |         |                    |  |
|        |               |         | 0.6pF  | ±0.05pF | GRM1885C1HR60WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1HR60BA01# |  |
|        |               |         | 0.7pF  | ±0.05pF | GRM1885C1HR70WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1HR70BA01# |  |
|        |               |         | 0.8pF  | ±0.05pF | GRM1885C1HR80WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1HR80BA01# |  |
|        |               |         | 0.9pF  | ±0.05pF | GRM1885C1HR90WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1HR90BA01# |  |
|        |               |         | 1.0pF  | ±0.05pF | GRM1885C1H1R0WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H1R0BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H1R0CA01# |  |
|        |               |         | 1.1pF  | ±0.05pF | GRM1885C1H1R1WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H1R1BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H1R1CA01# |  |
|        |               |         | 1.2pF  | ±0.05pF | GRM1885C1H1R2WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H1R2BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H1R2CA01# |  |
|        |               |         | 1.3pF  | ±0.05pF | GRM1885C1H1R3WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H1R3BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H1R3CA01# |  |
|        |               |         | 1.4pF  | ±0.05pF | GRM1885C1H1R4WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H1R4BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H1R4CA01# |  |
|        |               |         | 1.5pF  | ±0.05pF | GRM1885C1H1R5WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H1R5BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H1R5CA01# |  |
|        |               |         | 1.6pF  | ±0.05pF | GRM1885C1H1R6WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H1R6BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H1R6CA01# |  |
|        |               |         | 1.7pF  | ±0.05pF | GRM1885C1H1R7WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H1R7BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H1R7CA01# |  |
|        |               |         | 1.8pF  | ±0.05pF | GRM1885C1H1R8WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H1R8BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H1R8CA01# |  |
|        |               |         | 1.9pF  | ±0.05pF | GRM1885C1H1R9WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H1R9BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H1R9CA01# |  |
|        |               |         | 2.0pF  | ±0.05pF | GRM1885C1H2R0WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H2R0BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H2R0CA01# |  |
|        |               |         | 2.1pF  | ±0.05pF | GRM1885C1H2R1WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H2R1BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H2R1CA01# |  |
|        |               |         | 2.2pF  | ±0.05pF | GRM1885C1H2R2WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H2R2BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H2R2CA01# |  |
|        |               |         | 2.3pF  | ±0.05pF | GRM1885C1H2R3WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H2R3BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H2R3CA01# |  |
|        |               |         | 2.4pF  | ±0.05pF | GRM1885C1H2R4WA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 50Vdc         | C0G     | 2.4pF | ±0.1pF  | GRM1885C1H2R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H2R4CA01# |  |
|        |               |         | 2.5pF | ±0.05pF | GRM1885C1H2R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H2R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H2R5CA01# |  |
|        |               |         | 2.6pF | ±0.05pF | GRM1885C1H2R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H2R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H2R6CA01# |  |
|        |               |         | 2.7pF | ±0.05pF | GRM1885C1H2R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H2R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H2R7CA01# |  |
|        |               |         | 2.8pF | ±0.05pF | GRM1885C1H2R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H2R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H2R8CA01# |  |
|        |               |         | 2.9pF | ±0.05pF | GRM1885C1H2R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H2R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H2R9CA01# |  |
|        |               |         | 3.0pF | ±0.05pF | GRM1885C1H3R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H3R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H3R0CA01# |  |
|        |               |         | 3.1pF | ±0.05pF | GRM1885C1H3R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H3R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H3R1CA01# |  |
|        |               |         | 3.2pF | ±0.05pF | GRM1885C1H3R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H3R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H3R2CA01# |  |
|        |               |         | 3.3pF | ±0.05pF | GRM1885C1H3R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H3R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H3R3CA01# |  |
|        |               |         | 3.4pF | ±0.05pF | GRM1885C1H3R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H3R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H3R4CA01# |  |
|        |               |         | 3.5pF | ±0.05pF | GRM1885C1H3R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H3R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H3R5CA01# |  |
|        |               |         | 3.6pF | ±0.05pF | GRM1885C1H3R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H3R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H3R6CA01# |  |
|        |               |         | 3.7pF | ±0.05pF | GRM1885C1H3R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H3R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H3R7CA01# |  |
|        |               |         | 3.8pF | ±0.05pF | GRM1885C1H3R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H3R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H3R8CA01# |  |
|        |               |         | 3.9pF | ±0.05pF | GRM1885C1H3R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H3R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H3R9CA01# |  |
|        |               |         | 4.0pF | ±0.05pF | GRM1885C1H4R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H4R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H4R0CA01# |  |
|        |               |         | 4.1pF | ±0.05pF | GRM1885C1H4R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H4R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H4R1CA01# |  |
|        |               |         | 4.2pF | ±0.05pF | GRM1885C1H4R2WA01# |  |

Part number # indicates the package specification code.

# GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 50Vdc         | C0G     | 4.2pF | ±0.1pF  | GRM1885C1H4R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H4R2CA01# |  |
|        |               |         | 4.3pF | ±0.05pF | GRM1885C1H4R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H4R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H4R3CA01# |  |
|        |               |         | 4.4pF | ±0.05pF | GRM1885C1H4R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H4R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H4R4CA01# |  |
|        |               |         | 4.5pF | ±0.05pF | GRM1885C1H4R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H4R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H4R5CA01# |  |
|        |               |         | 4.6pF | ±0.05pF | GRM1885C1H4R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H4R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H4R6CA01# |  |
|        |               |         | 4.7pF | ±0.05pF | GRM1885C1H4R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H4R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H4R7CA01# |  |
|        |               |         | 4.8pF | ±0.05pF | GRM1885C1H4R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H4R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H4R8CA01# |  |
|        |               |         | 4.9pF | ±0.05pF | GRM1885C1H4R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H4R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H4R9CA01# |  |
|        |               |         | 5.0pF | ±0.05pF | GRM1885C1H5R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H5R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H5R0CA01# |  |
|        |               |         | 5.1pF | ±0.05pF | GRM1885C1H5R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H5R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H5R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H5R1DA01# |  |
|        |               |         | 5.2pF | ±0.05pF | GRM1885C1H5R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H5R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H5R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H5R2DA01# |  |
|        |               |         | 5.3pF | ±0.05pF | GRM1885C1H5R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H5R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H5R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H5R3DA01# |  |
|        |               |         | 5.4pF | ±0.05pF | GRM1885C1H5R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H5R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H5R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H5R4DA01# |  |
|        |               |         | 5.5pF | ±0.05pF | GRM1885C1H5R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H5R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H5R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H5R5DA01# |  |
|        |               |         | 5.6pF | ±0.05pF | GRM1885C1H5R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H5R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H5R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H5R6DA01# |  |
|        |               |         | 5.7pF | ±0.05pF | GRM1885C1H5R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H5R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H5R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H5R7DA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 50Vdc         | C0G     | 5.8pF | ±0.05pF | GRM1885C1H5R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H5R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H5R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H5R8DA01# |  |
|        |               |         | 5.9pF | ±0.05pF | GRM1885C1H5R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H5R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H5R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H5R9DA01# |  |
|        |               |         | 6.0pF | ±0.05pF | GRM1885C1H6R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H6R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H6R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H6R0DA01# |  |
|        |               |         | 6.1pF | ±0.05pF | GRM1885C1H6R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H6R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H6R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H6R1DA01# |  |
|        |               |         | 6.2pF | ±0.05pF | GRM1885C1H6R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H6R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H6R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H6R2DA01# |  |
|        |               |         | 6.3pF | ±0.05pF | GRM1885C1H6R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H6R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H6R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H6R3DA01# |  |
|        |               |         | 6.4pF | ±0.05pF | GRM1885C1H6R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H6R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H6R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H6R4DA01# |  |
|        |               |         | 6.5pF | ±0.05pF | GRM1885C1H6R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H6R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H6R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H6R5DA01# |  |
|        |               |         | 6.6pF | ±0.05pF | GRM1885C1H6R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H6R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H6R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H6R6DA01# |  |
|        |               |         | 6.7pF | ±0.05pF | GRM1885C1H6R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H6R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H6R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H6R7DA01# |  |
|        |               |         | 6.8pF | ±0.05pF | GRM1885C1H6R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H6R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H6R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H6R8DA01# |  |
|        |               |         | 6.9pF | ±0.05pF | GRM1885C1H6R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H6R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H6R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H6R9DA01# |  |
|        |               |         | 7.0pF | ±0.05pF | GRM1885C1H7R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H7R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H7R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H7R0DA01# |  |
|        |               |         | 7.1pF | ±0.05pF | GRM1885C1H7R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H7R1BA01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LL□ Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 50Vdc         | C0G     | 7.1pF | ±0.25pF | GRM1885C1H7R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H7R1DA01# |  |
|        |               |         | 7.2pF | ±0.05pF | GRM1885C1H7R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H7R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H7R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H7R2DA01# |  |
|        |               |         | 7.3pF | ±0.05pF | GRM1885C1H7R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H7R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H7R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H7R3DA01# |  |
|        |               |         | 7.4pF | ±0.05pF | GRM1885C1H7R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H7R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H7R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H7R4DA01# |  |
|        |               |         | 7.5pF | ±0.05pF | GRM1885C1H7R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H7R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H7R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H7R5DA01# |  |
|        |               |         | 7.6pF | ±0.05pF | GRM1885C1H7R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H7R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H7R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H7R6DA01# |  |
|        |               |         | 7.7pF | ±0.05pF | GRM1885C1H7R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H7R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H7R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H7R7DA01# |  |
|        |               |         | 7.8pF | ±0.05pF | GRM1885C1H7R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H7R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H7R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H7R8DA01# |  |
|        |               |         | 7.9pF | ±0.05pF | GRM1885C1H7R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H7R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H7R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H7R9DA01# |  |
|        |               |         | 8.0pF | ±0.05pF | GRM1885C1H8R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H8R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H8R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H8R0DA01# |  |
|        |               |         | 8.1pF | ±0.05pF | GRM1885C1H8R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H8R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H8R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H8R1DA01# |  |
|        |               |         | 8.2pF | ±0.05pF | GRM1885C1H8R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H8R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H8R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H8R2DA01# |  |
|        |               |         | 8.3pF | ±0.05pF | GRM1885C1H8R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H8R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H8R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H8R3DA01# |  |
|        |               |         | 8.4pF | ±0.05pF | GRM1885C1H8R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H8R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H8R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H8R4DA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 50Vdc         | C0G     | 8.5pF | ±0.05pF | GRM1885C1H8R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H8R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H8R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H8R5DA01# |  |
|        |               |         | 8.6pF | ±0.05pF | GRM1885C1H8R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H8R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H8R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H8R6DA01# |  |
|        |               |         | 8.7pF | ±0.05pF | GRM1885C1H8R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H8R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H8R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H8R7DA01# |  |
|        |               |         | 8.8pF | ±0.05pF | GRM1885C1H8R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H8R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H8R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H8R8DA01# |  |
|        |               |         | 8.9pF | ±0.05pF | GRM1885C1H8R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H8R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H8R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H8R9DA01# |  |
|        |               |         | 9.0pF | ±0.05pF | GRM1885C1H9R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H9R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H9R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H9R0DA01# |  |
|        |               |         | 9.1pF | ±0.05pF | GRM1885C1H9R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H9R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H9R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H9R1DA01# |  |
|        |               |         | 9.2pF | ±0.05pF | GRM1885C1H9R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H9R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H9R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H9R2DA01# |  |
|        |               |         | 9.3pF | ±0.05pF | GRM1885C1H9R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H9R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H9R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H9R3DA01# |  |
|        |               |         | 9.4pF | ±0.05pF | GRM1885C1H9R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H9R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H9R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H9R4DA01# |  |
|        |               |         | 9.5pF | ±0.05pF | GRM1885C1H9R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H9R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H9R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H9R5DA01# |  |
|        |               |         | 9.6pF | ±0.05pF | GRM1885C1H9R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H9R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H9R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H9R6DA01# |  |
|        |               |         | 9.7pF | ±0.05pF | GRM1885C1H9R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H9R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1885C1H9R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1885C1H9R7DA01# |  |
|        |               |         | 9.8pF | ±0.05pF | GRM1885C1H9R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1885C1H9R8BA01# |  |

Part number # indicates the package specification code.

# GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.   | Tol.    | Part Number        |  |
|--------|---------------|---------|--------|---------|--------------------|--|
| 0.9mm  | 50Vdc         | C0G     | 9.8pF  | ±0.25pF | GRM1885C1H9R8CA01# |  |
|        |               |         |        | ±0.5pF  | GRM1885C1H9R8DA01# |  |
|        |               |         | 9.9pF  | ±0.05pF | GRM1885C1H9R9WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1885C1H9R9BA01# |  |
|        |               |         |        | ±0.25pF | GRM1885C1H9R9CA01# |  |
|        |               |         |        | ±0.5pF  | GRM1885C1H9R9DA01# |  |
|        |               |         | 10pF   | ±5%     | GRM1885C1H100JA01# |  |
|        |               |         | 12pF   | ±5%     | GRM1885C1H120JA01# |  |
|        |               |         | 15pF   | ±5%     | GRM1885C1H150JA01# |  |
|        |               |         | 18pF   | ±5%     | GRM1885C1H180JA01# |  |
|        |               |         | 22pF   | ±5%     | GRM1885C1H220JA01# |  |
|        |               |         | 27pF   | ±5%     | GRM1885C1H270JA01# |  |
|        |               |         | 33pF   | ±5%     | GRM1885C1H330JA01# |  |
|        |               |         | 39pF   | ±5%     | GRM1885C1H390JA01# |  |
|        |               |         | 47pF   | ±5%     | GRM1885C1H470JA01# |  |
|        |               |         | 56pF   | ±5%     | GRM1885C1H560JA01# |  |
|        |               |         | 68pF   | ±5%     | GRM1885C1H680JA01# |  |
|        |               |         | 82pF   | ±5%     | GRM1885C1H820JA01# |  |
|        |               |         | 100pF  | ±5%     | GRM1885C1H101JA01# |  |
|        |               |         | 120pF  | ±5%     | GRM1885C1H121JA01# |  |
|        |               |         | 150pF  | ±5%     | GRM1885C1H151JA01# |  |
|        |               |         | 180pF  | ±5%     | GRM1885C1H181JA01# |  |
|        |               |         | 220pF  | ±5%     | GRM1885C1H221JA01# |  |
|        |               |         | 270pF  | ±5%     | GRM1885C1H271JA01# |  |
|        |               |         | 330pF  | ±5%     | GRM1885C1H331JA01# |  |
|        |               |         | 390pF  | ±5%     | GRM1885C1H391JA01# |  |
|        |               |         | 470pF  | ±5%     | GRM1885C1H471JA01# |  |
|        |               |         | 560pF  | ±5%     | GRM1885C1H561JA01# |  |
|        |               |         | 680pF  | ±5%     | GRM1885C1H681JA01# |  |
|        |               |         | 820pF  | ±5%     | GRM1885C1H821JA01# |  |
|        |               |         | 1000pF | ±5%     | GRM1885C1H102JA01# |  |
|        |               |         | 1200pF | ±5%     | GRM1885C1H122JA01# |  |
|        |               |         | 1500pF | ±5%     | GRM1885C1H152JA01# |  |
|        |               |         | 1800pF | ±5%     | GRM1885C1H182JA01# |  |
|        |               |         | 2200pF | ±5%     | GRM1885C1H222JA01# |  |
|        |               |         | 2700pF | ±5%     | GRM1885C1H272JA01# |  |
|        |               |         | 3300pF | ±5%     | GRM1885C1H332JA01# |  |
|        |               |         | 3900pF | ±5%     | GRM1885C1H392JA01# |  |
|        |               | CK      | 0.5pF  | ±0.05pF | GRM1884C1HR50WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C1HR50BA01# |  |
|        |               |         | 0.6pF  | ±0.05pF | GRM1884C1HR60WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C1HR60BA01# |  |
|        |               |         | 0.7pF  | ±0.05pF | GRM1884C1HR70WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C1HR70BA01# |  |
|        |               |         | 0.8pF  | ±0.05pF | GRM1884C1HR80WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C1HR80BA01# |  |
|        |               |         | 0.9pF  | ±0.05pF | GRM1884C1HR90WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C1HR90BA01# |  |
|        |               |         | 1.0pF  | ±0.05pF | GRM1884C1H1R0WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C1H1R0BA01# |  |
|        |               |         |        | ±0.25pF | GRM1884C1H1R0CA01# |  |
|        |               |         | 1.1pF  | ±0.05pF | GRM1884C1H1R1WA01# |  |
|        |               |         |        | ±0.1pF  | GRM1884C1H1R1BA01# |  |
|        |               |         |        | ±0.25pF | GRM1884C1H1R1CA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 50Vdc         | CK      | 1.2pF | ±0.05pF | GRM1884C1H1R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1884C1H1R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1884C1H1R2CA01# |  |
|        |               |         | 1.3pF | ±0.05pF | GRM1884C1H1R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1884C1H1R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1884C1H1R3CA01# |  |
|        |               |         | 1.4pF | ±0.05pF | GRM1884C1H1R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1884C1H1R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1884C1H1R4CA01# |  |
|        |               |         | 1.5pF | ±0.05pF | GRM1884C1H1R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1884C1H1R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1884C1H1R5CA01# |  |
|        |               |         | 1.6pF | ±0.05pF | GRM1884C1H1R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1884C1H1R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1884C1H1R6CA01# |  |
|        |               |         | 1.7pF | ±0.05pF | GRM1884C1H1R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1884C1H1R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1884C1H1R7CA01# |  |
|        |               |         | 1.8pF | ±0.05pF | GRM1884C1H1R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1884C1H1R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1884C1H1R8CA01# |  |
|        |               |         | 1.9pF | ±0.05pF | GRM1884C1H1R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1884C1H1R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1884C1H1R9CA01# |  |
|        |               | CJ      | 2.0pF | ±0.05pF | GRM1884C1H2R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1884C1H2R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1884C1H2R0CA01# |  |
|        |               |         | 2.1pF | ±0.05pF | GRM1883C1H2R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H2R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H2R1CA01# |  |
|        |               |         | 2.2pF | ±0.05pF | GRM1883C1H2R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H2R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H2R2CA01# |  |
|        |               |         | 2.3pF | ±0.05pF | GRM1883C1H2R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H2R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H2R3CA01# |  |
|        |               |         | 2.4pF | ±0.05pF | GRM1883C1H2R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H2R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H2R4CA01# |  |
|        |               |         | 2.5pF | ±0.05pF | GRM1883C1H2R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H2R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H2R5CA01# |  |
|        |               |         | 2.6pF | ±0.05pF | GRM1883C1H2R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H2R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H2R6CA01# |  |
|        |               |         | 2.7pF | ±0.05pF | GRM1883C1H2R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H2R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H2R7CA01# |  |
|        |               |         | 2.8pF | ±0.05pF | GRM1883C1H2R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H2R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H2R8CA01# |  |
|        |               |         | 2.9pF | ±0.05pF | GRM1883C1H2R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H2R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H2R9CA01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LL□ Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 50Vdc         | CJ      | 3.0pF | ±0.05pF | GRM1883C1H3R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H3R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H3R0CA01# |  |
|        |               |         | 3.1pF | ±0.05pF | GRM1883C1H3R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H3R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H3R1CA01# |  |
|        |               |         | 3.2pF | ±0.05pF | GRM1883C1H3R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H3R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H3R2CA01# |  |
|        |               |         | 3.3pF | ±0.05pF | GRM1883C1H3R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H3R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H3R3CA01# |  |
|        |               |         | 3.4pF | ±0.05pF | GRM1883C1H3R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H3R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H3R4CA01# |  |
|        |               |         | 3.5pF | ±0.05pF | GRM1883C1H3R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H3R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H3R5CA01# |  |
|        |               |         | 3.6pF | ±0.05pF | GRM1883C1H3R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H3R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H3R6CA01# |  |
|        |               |         | 3.7pF | ±0.05pF | GRM1883C1H3R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H3R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H3R7CA01# |  |
|        |               |         | 3.8pF | ±0.05pF | GRM1883C1H3R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H3R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H3R8CA01# |  |
|        |               |         | 3.9pF | ±0.05pF | GRM1883C1H3R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1883C1H3R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1883C1H3R9CA01# |  |
|        |               | CH      | 4.0pF | ±0.05pF | GRM1882C1H4R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H4R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H4R0CA01# |  |
|        |               |         | 4.1pF | ±0.05pF | GRM1882C1H4R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H4R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H4R1CA01# |  |
|        |               |         | 4.2pF | ±0.05pF | GRM1882C1H4R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H4R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H4R2CA01# |  |
|        |               |         | 4.3pF | ±0.05pF | GRM1882C1H4R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H4R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H4R3CA01# |  |
|        |               |         | 4.4pF | ±0.05pF | GRM1882C1H4R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H4R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H4R4CA01# |  |
|        |               |         | 4.5pF | ±0.05pF | GRM1882C1H4R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H4R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H4R5CA01# |  |
|        |               |         | 4.6pF | ±0.05pF | GRM1882C1H4R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H4R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H4R6CA01# |  |
|        |               |         | 4.7pF | ±0.05pF | GRM1882C1H4R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H4R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H4R7CA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 50Vdc         | CH      | 4.8pF | ±0.05pF | GRM1882C1H4R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H4R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H4R8CA01# |  |
|        |               |         | 4.9pF | ±0.05pF | GRM1882C1H4R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H4R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H4R9CA01# |  |
|        |               |         | 5.0pF | ±0.05pF | GRM1882C1H5R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H5R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H5R0CA01# |  |
|        |               |         | 5.1pF | ±0.05pF | GRM1882C1H5R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H5R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H5R1CA01# |  |
|        |               |         | 5.2pF | ±0.05pF | GRM1882C1H5R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H5R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H5R2CA01# |  |
|        |               |         | 5.3pF | ±0.05pF | GRM1882C1H5R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H5R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H5R3CA01# |  |
|        |               |         | 5.4pF | ±0.05pF | GRM1882C1H5R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H5R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H5R4CA01# |  |
|        |               |         | 5.5pF | ±0.05pF | GRM1882C1H5R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H5R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H5R5CA01# |  |
|        |               |         | 5.6pF | ±0.05pF | GRM1882C1H5R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H5R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H5R6CA01# |  |
|        |               |         | 5.7pF | ±0.05pF | GRM1882C1H5R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H5R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H5R7CA01# |  |
|        |               |         | 5.8pF | ±0.05pF | GRM1882C1H5R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H5R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H5R8CA01# |  |
|        |               |         | 5.9pF | ±0.05pF | GRM1882C1H5R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H5R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H5R9CA01# |  |
|        |               |         | 6.0pF | ±0.05pF | GRM1882C1H6R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H6R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H6R0CA01# |  |
|        |               |         | 6.1pF | ±0.05pF | GRM1882C1H6R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H6R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H6R1CA01# |  |
|        |               |         | 6.2pF | ±0.05pF | GRM1882C1H6R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H6R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H6R2CA01# |  |

Part number # indicates the package specification code.

# GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 50Vdc         | CH      | 6.2pF | ±0.1pF  | GRM1882C1H6R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H6R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C1H6R2DA01# |  |
|        |               |         | 6.3pF | ±0.05pF | GRM1882C1H6R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H6R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H6R3CA01# |  |
|        |               |         | 6.4pF | ±0.05pF | GRM1882C1H6R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H6R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H6R4CA01# |  |
|        |               |         | 6.5pF | ±0.05pF | GRM1882C1H6R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H6R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H6R5CA01# |  |
|        |               |         | 6.6pF | ±0.05pF | GRM1882C1H6R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H6R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H6R6CA01# |  |
|        |               |         | 6.7pF | ±0.05pF | GRM1882C1H6R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H6R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H6R7CA01# |  |
|        |               |         | 6.8pF | ±0.05pF | GRM1882C1H6R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H6R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H6R8CA01# |  |
|        |               |         | 6.9pF | ±0.05pF | GRM1882C1H6R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H6R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H6R9CA01# |  |
|        |               |         | 7.0pF | ±0.05pF | GRM1882C1H7R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H7R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H7R0CA01# |  |
|        |               |         | 7.1pF | ±0.05pF | GRM1882C1H7R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H7R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H7R1CA01# |  |
|        |               |         | 7.2pF | ±0.05pF | GRM1882C1H7R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H7R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H7R2CA01# |  |
|        |               |         | 7.3pF | ±0.05pF | GRM1882C1H7R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H7R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H7R3CA01# |  |
|        |               |         | 7.4pF | ±0.05pF | GRM1882C1H7R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H7R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H7R4CA01# |  |
|        |               |         | 7.5pF | ±0.05pF | GRM1882C1H7R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H7R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H7R5CA01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 50Vdc         | CH      | 7.5pF | ±0.5pF  | GRM1882C1H7R5DA01# |  |
|        |               |         |       | ±0.05pF | GRM1882C1H7R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H7R6BA01# |  |
|        |               |         | 7.6pF | ±0.25pF | GRM1882C1H7R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C1H7R6DA01# |  |
|        |               |         | 7.7pF | ±0.05pF | GRM1882C1H7R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H7R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H7R7CA01# |  |
|        |               |         | 7.8pF | ±0.05pF | GRM1882C1H7R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H7R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H7R8CA01# |  |
|        |               |         | 7.9pF | ±0.05pF | GRM1882C1H7R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H7R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H7R9CA01# |  |
|        |               |         | 8.0pF | ±0.05pF | GRM1882C1H8R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H8R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H8R0CA01# |  |
|        |               |         | 8.1pF | ±0.05pF | GRM1882C1H8R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H8R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H8R1CA01# |  |
|        |               |         | 8.2pF | ±0.05pF | GRM1882C1H8R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H8R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H8R2CA01# |  |
|        |               |         | 8.3pF | ±0.05pF | GRM1882C1H8R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H8R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H8R3CA01# |  |
|        |               |         | 8.4pF | ±0.05pF | GRM1882C1H8R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H8R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H8R4CA01# |  |
|        |               |         | 8.5pF | ±0.05pF | GRM1882C1H8R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H8R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H8R5CA01# |  |
|        |               |         | 8.6pF | ±0.05pF | GRM1882C1H8R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H8R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H8R6CA01# |  |
|        |               |         | 8.7pF | ±0.05pF | GRM1882C1H8R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H8R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H8R7CA01# |  |
|        |               |         | 8.8pF | ±0.05pF | GRM1882C1H8R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H8R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H8R8CA01# |  |
|        |               |         | 8.9pF | ±0.05pF | GRM1882C1H8R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H8R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H8R9CA01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LLI Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 50Vdc         | CH      | 8.9pF | ±0.1pF  | GRM1882C1H8R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H8R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C1H8R9DA01# |  |
|        |               |         | 9.0pF | ±0.05pF | GRM1882C1H9R0WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H9R0BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H9R0CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C1H9R0DA01# |  |
|        |               |         | 9.1pF | ±0.05pF | GRM1882C1H9R1WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H9R1BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H9R1CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C1H9R1DA01# |  |
|        |               |         | 9.2pF | ±0.05pF | GRM1882C1H9R2WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H9R2BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H9R2CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C1H9R2DA01# |  |
|        |               |         | 9.3pF | ±0.05pF | GRM1882C1H9R3WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H9R3BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H9R3CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C1H9R3DA01# |  |
|        |               |         | 9.4pF | ±0.05pF | GRM1882C1H9R4WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H9R4BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H9R4CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C1H9R4DA01# |  |
|        |               |         | 9.5pF | ±0.05pF | GRM1882C1H9R5WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H9R5BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H9R5CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C1H9R5DA01# |  |
|        |               |         | 9.6pF | ±0.05pF | GRM1882C1H9R6WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H9R6BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H9R6CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C1H9R6DA01# |  |
|        |               |         | 9.7pF | ±0.05pF | GRM1882C1H9R7WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H9R7BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H9R7CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C1H9R7DA01# |  |
|        |               |         | 9.8pF | ±0.05pF | GRM1882C1H9R8WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H9R8BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H9R8CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C1H9R8DA01# |  |
|        |               |         | 9.9pF | ±0.05pF | GRM1882C1H9R9WA01# |  |
|        |               |         |       | ±0.1pF  | GRM1882C1H9R9BA01# |  |
|        |               |         |       | ±0.25pF | GRM1882C1H9R9CA01# |  |
|        |               |         |       | ±0.5pF  | GRM1882C1H9R9DA01# |  |
|        |               |         | 10pF  | ±5%     | GRM1882C1H100JA01# |  |
|        |               |         | 12pF  | ±5%     | GRM1882C1H120JA01# |  |
|        |               |         | 15pF  | ±5%     | GRM1882C1H150JA01# |  |
|        |               |         | 18pF  | ±5%     | GRM1882C1H180JA01# |  |
|        |               |         | 22pF  | ±5%     | GRM1882C1H220JA01# |  |
|        |               |         | 27pF  | ±5%     | GRM1882C1H270JA01# |  |
|        |               |         | 33pF  | ±5%     | GRM1882C1H330JA01# |  |
|        |               |         | 39pF  | ±5%     | GRM1882C1H390JA01# |  |
|        |               |         | 47pF  | ±5%     | GRM1882C1H470JA01# |  |
|        |               |         | 56pF  | ±5%     | GRM1882C1H560JA01# |  |
|        |               |         | 68pF  | ±5%     | GRM1882C1H680JA01# |  |

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.9mm  | 50Vdc         | CH      | 82pF    | ±5%  | GRM1882C1H820JA01# |  |
|        |               |         | 100pF   | ±5%  | GRM1882C1H101JA01# |  |
|        |               |         | 120pF   | ±5%  | GRM1882C1H121JA01# |  |
|        |               |         | 150pF   | ±5%  | GRM1882C1H151JA01# |  |
|        |               |         | 180pF   | ±5%  | GRM1882C1H181JA01# |  |
|        |               |         | 220pF   | ±5%  | GRM1882C1H221JA01# |  |
|        |               |         | 270pF   | ±5%  | GRM1882C1H271JA01# |  |
|        |               |         | 330pF   | ±5%  | GRM1882C1H331JA01# |  |
|        |               |         | 390pF   | ±5%  | GRM1882C1H391JA01# |  |
|        |               |         | 470pF   | ±5%  | GRM1882C1H471JA01# |  |
|        |               |         | 560pF   | ±5%  | GRM1882C1H561JA01# |  |
|        |               |         | 680pF   | ±5%  | GRM1882C1H681JA01# |  |
|        |               |         | 820pF   | ±5%  | GRM1882C1H821JA01# |  |
|        |               |         | 1000pF  | ±5%  | GRM1882C1H102JA01# |  |
|        |               |         | 1200pF  | ±5%  | GRM1882C1H122JA01# |  |
|        |               |         | 1500pF  | ±5%  | GRM1882C1H152JA01# |  |
|        |               |         | 1800pF  | ±5%  | GRM1882C1H182JA01# |  |
|        |               |         | 2200pF  | ±5%  | GRM1882C1H222JA01# |  |
|        |               |         | 2700pF  | ±5%  | GRM1882C1H272JA01# |  |
|        |               |         | 3300pF  | ±5%  | GRM1882C1H332JA01# |  |
|        |               |         | 3900pF  | ±5%  | GRM1882C1H392JA01# |  |
|        |               | SL      | 1200pF  | ±5%  | GRM1881X1H122JA01# |  |
|        |               |         | 1500pF  | ±5%  | GRM1881X1H152JA01# |  |
|        |               |         | 1800pF  | ±5%  | GRM1881X1H182JA01# |  |
|        |               |         | 2200pF  | ±5%  | GRM1881X1H222JA01# |  |
|        |               |         | 2700pF  | ±5%  | GRM1881X1H272JA01# |  |
|        |               |         | 3300pF  | ±5%  | GRM1881X1H332JA01# |  |
|        |               |         | 3900pF  | ±5%  | GRM1881X1H392JA01# |  |
|        |               |         | 4700pF  | ±5%  | GRM1881X1H472JA01# |  |
|        |               |         | 5600pF  | ±5%  | GRM1881X1H562JA01# |  |
|        |               |         | 6800pF  | ±5%  | GRM1881X1H682JA01# |  |
|        |               |         | 8200pF  | ±5%  | GRM1881X1H822JA01# |  |
|        |               |         | 10000pF | ±5%  | GRM1881X1H103JA01# |  |
|        |               | U2J     | 1200pF  | ±5%  | GRM1887U1H122JA01# |  |
|        |               |         | 1500pF  | ±5%  | GRM1887U1H152JA01# |  |
|        |               |         | 1800pF  | ±5%  | GRM1887U1H182JA01# |  |
|        |               |         | 2200pF  | ±5%  | GRM1887U1H222JA01# |  |
|        |               |         | 2700pF  | ±5%  | GRM1887U1H272JA01# |  |
|        |               |         | 3300pF  | ±5%  | GRM1887U1H332JA01# |  |
|        |               |         | 3900pF  | ±5%  | GRM1887U1H392JA01# |  |
|        |               |         | 4700pF  | ±5%  | GRM1887U1H472JA01# |  |
|        |               |         | 5600pF  | ±5%  | GRM1887U1H562JA01# |  |
|        |               |         | 6800pF  | ±5%  | GRM1887U1H682JA01# |  |
|        |               |         | 8200pF  | ±5%  | GRM1887U1H822JA01# |  |
|        |               |         | 10000pF | ±5%  | GRM1887U1H103JA01# |  |
|        |               | UJ      | 1000pF  | ±5%  | GRM1883U1H102JA01# |  |
|        |               |         | 1200pF  | ±5%  | GRM1883U1H122JA01# |  |
|        |               |         | 1500pF  | ±5%  | GRM1883U1H152JA01# |  |
|        |               |         | 1800pF  | ±5%  | GRM1883U1H182JA01# |  |
|        |               |         | 2200pF  | ±5%  | GRM1883U1H222JA01# |  |
|        |               |         | 2700pF  | ±5%  | GRM1883U1H272JA01# |  |
|        |               |         | 3300pF  | ±5%  | GRM1883U1H332JA01# |  |
|        |               |         | 3900pF  | ±5%  | GRM1883U1H392JA01# |  |
|        |               |         | 4700pF  | ±5%  | GRM1883U1H472JA01# |  |
|        |               |         | 5600pF  | ±5%  | GRM1883U1H562JA01# |  |
|        |               |         | 6800pF  | ±5%  | GRM1883U1H682JA01# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.9mm  | 50Vdc         | UJ      | 5600pF  | ±5%  | GRM1883U1H562JA01# |  |
|        |               |         | 6800pF  | ±5%  | GRM1883U1H682JA01# |  |
|        |               |         | 8200pF  | ±5%  | GRM1883U1H822JA01# |  |
|        |               |         | 10000pF | ±5%  | GRM1883U1H103JA01# |  |
|        | 10Vdc         | SL      | 12000pF | ±5%  | GRM1881X1A123JA01# |  |
|        |               |         | 15000pF | ±5%  | GRM1881X1A153JA01# |  |
|        |               |         | 18000pF | ±5%  | GRM1881X1A183JA01# |  |
|        |               |         | 22000pF | ±5%  | GRM1881X1A223JA01# |  |
|        |               | U2J     | 12000pF | ±5%  | GRM1887U1A123JA01# |  |
|        |               |         | 15000pF | ±5%  | GRM1887U1A153JA01# |  |
|        |               |         | 18000pF | ±5%  | GRM1887U1A183JA01# |  |
|        |               |         | 22000pF | ±5%  | GRM1887U1A223JA01# |  |
|        |               | UJ      | 12000pF | ±5%  | GRM1883U1A123JA01# |  |
|        |               |         | 15000pF | ±5%  | GRM1883U1A153JA01# |  |
|        |               |         | 18000pF | ±5%  | GRM1883U1A183JA01# |  |
|        |               |         | 22000pF | ±5%  | GRM1883U1A223JA01# |  |

■ 2.0×1.25mm

| T max. | Rated Voltage | TC Code | Cap.   | Tol. | Part Number        |  |
|--------|---------------|---------|--------|------|--------------------|--|
| 0.7mm  | 100Vdc        | C0G     | 100pF  | ±5%  | GRM2165C2A101JA01# |  |
|        |               |         | 120pF  | ±5%  | GRM2165C2A121JA01# |  |
|        |               |         | 150pF  | ±5%  | GRM2165C2A151JA01# |  |
|        |               |         | 180pF  | ±5%  | GRM2165C2A181JA01# |  |
|        |               |         | 220pF  | ±5%  | GRM2165C2A221JA01# |  |
|        |               |         | 270pF  | ±5%  | GRM2165C2A271JA01# |  |
|        |               |         | 330pF  | ±5%  | GRM2165C2A331JA01# |  |
|        |               |         | 390pF  | ±5%  | GRM2165C2A391JA01# |  |
|        |               |         | 470pF  | ±5%  | GRM2165C2A471JA01# |  |
|        |               |         | 560pF  | ±5%  | GRM2165C2A561JA01# |  |
|        |               |         | 680pF  | ±5%  | GRM2165C2A681JA01# |  |
|        |               |         | 820pF  | ±5%  | GRM2165C2A821JA01# |  |
|        |               |         | 1000pF | ±5%  | GRM2165C2A102JA01# |  |
|        |               |         | 1200pF | ±5%  | GRM2165C2A122JA01# |  |
|        |               |         | 1500pF | ±5%  | GRM2165C2A152JA01# |  |
|        |               |         | 1800pF | ±5%  | GRM2165C2A182JA01# |  |
|        |               |         | 2200pF | ±5%  | GRM2165C2A222JA01# |  |
|        |               |         | 2700pF | ±5%  | GRM2165C2A272JA01# |  |
|        |               |         | 3300pF | ±5%  | GRM2165C2A332JA01# |  |
|        |               | CH      | 100pF  | ±5%  | GRM2162C2A101JA01# |  |
|        |               |         | 120pF  | ±5%  | GRM2162C2A121JA01# |  |
|        |               |         | 150pF  | ±5%  | GRM2162C2A151JA01# |  |
|        |               |         | 180pF  | ±5%  | GRM2162C2A181JA01# |  |
|        |               |         | 220pF  | ±5%  | GRM2162C2A221JA01# |  |
|        |               |         | 270pF  | ±5%  | GRM2162C2A271JA01# |  |
|        |               |         | 330pF  | ±5%  | GRM2162C2A331JA01# |  |
|        |               |         | 390pF  | ±5%  | GRM2162C2A391JA01# |  |
|        |               |         | 470pF  | ±5%  | GRM2162C2A471JA01# |  |
|        |               |         | 560pF  | ±5%  | GRM2162C2A561JA01# |  |
|        |               |         | 680pF  | ±5%  | GRM2162C2A681JA01# |  |
|        |               |         | 820pF  | ±5%  | GRM2162C2A821JA01# |  |
|        |               |         | 1000pF | ±5%  | GRM2162C2A102JA01# |  |
|        |               |         | 1200pF | ±5%  | GRM2162C2A122JA01# |  |

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.7mm  | 100Vdc        | CH      | 1500pF  | ±5%  | GRM2162C2A152JA01# |  |
|        |               |         | 1800pF  | ±5%  | GRM2162C2A182JA01# |  |
|        |               |         | 2200pF  | ±5%  | GRM2162C2A222JA01# |  |
|        |               |         | 2700pF  | ±5%  | GRM2162C2A272JA01# |  |
|        |               |         | 3300pF  | ±5%  | GRM2162C2A332JA01# |  |
|        |               | C0G     | 1200pF  | ±5%  | GRM2165C1H122JA01# |  |
|        |               |         | 1500pF  | ±5%  | GRM2165C1H152JA01# |  |
|        |               |         | 1800pF  | ±5%  | GRM2165C1H182JA01# |  |
|        |               |         | 2200pF  | ±5%  | GRM2165C1H222JA01# |  |
|        |               |         | 2700pF  | ±5%  | GRM2165C1H272JA01# |  |
|        |               |         | 3300pF  | ±5%  | GRM2165C1H332JA01# |  |
|        |               |         | 3900pF  | ±5%  | GRM2165C1H392JA01# |  |
|        |               |         | 4700pF  | ±5%  | GRM2165C1H472JA01# |  |
|        | 50Vdc         | CH      | 1200pF  | ±5%  | GRM2162C1H122JA01# |  |
|        |               |         | 1500pF  | ±5%  | GRM2162C1H152JA01# |  |
|        |               |         | 1800pF  | ±5%  | GRM2162C1H182JA01# |  |
|        |               |         | 2200pF  | ±5%  | GRM2162C1H222JA01# |  |
|        |               |         | 2700pF  | ±5%  | GRM2162C1H272JA01# |  |
|        |               |         | 3300pF  | ±5%  | GRM2162C1H332JA01# |  |
|        |               |         | 3900pF  | ±5%  | GRM2162C1H392JA01# |  |
|        |               |         | 4700pF  | ±5%  | GRM2162C1H472JA01# |  |
|        |               | SL      | 12000pF | ±5%  | GRM2161X1H123JA01# |  |
|        |               |         | 15000pF | ±5%  | GRM2161X1H153JA01# |  |
|        |               |         | 18000pF | ±5%  | GRM2161X1H183JA01# |  |
|        |               | U2J     | 12000pF | ±5%  | GRM2167U1H123JA01# |  |
|        |               |         | 15000pF | ±5%  | GRM2167U1H153JA01# |  |
|        |               |         | 18000pF | ±5%  | GRM2167U1H183JA01# |  |
|        |               | UJ      | 10000pF | ±5%  | GRM2163U1H103JA01# |  |
|        |               |         | 12000pF | ±5%  | GRM2163U1H123JA01# |  |
|        |               |         | 15000pF | ±5%  | GRM2163U1H153JA01# |  |
|        |               |         | 18000pF | ±5%  | GRM2163U1H183JA01# |  |
| 0.95mm | 50Vdc         | C0G     | 5600pF  | ±5%  | GRM2195C1H562JA01# |  |
|        |               |         | 6800pF  | ±5%  | GRM2195C1H682JA01# |  |
|        |               |         | 8200pF  | ±5%  | GRM2195C1H822JA01# |  |
|        |               |         | 10000pF | ±5%  | GRM2195C1H103JA01# |  |
|        |               |         | 12000pF | ±5%  | GRM2195C1H123JA01# |  |
|        |               |         | 15000pF | ±5%  | GRM2195C1H153JA01# |  |
|        |               | CH      | 5600pF  | ±5%  | GRM2192C1H562JA01# |  |
|        |               |         | 6800pF  | ±5%  | GRM2192C1H682JA01# |  |
|        |               |         | 8200pF  | ±5%  | GRM2192C1H822JA01# |  |
|        |               |         | 10000pF | ±5%  | GRM2192C1H103JA01# |  |
|        |               |         | 12000pF | ±5%  | GRM2192C1H123JA01# |  |
|        |               |         | 15000pF | ±5%  | GRM2192C1H153JA01# |  |
|        | 10Vdc         | SL      | 22000pF | ±5%  | GRM2191X1H223JA01# |  |
|        |               |         | 27000pF | ±5%  | GRM2191X1H273JA01# |  |
|        |               | U2J     | 22000pF | ±5%  | GRM2197U1H223JA01# |  |
|        |               |         | 27000pF | ±5%  | GRM2197U1H273JA01# |  |
|        |               | UJ      | 22000pF | ±5%  | GRM2193U1H223JA01# |  |
|        |               |         | 27000pF | ±5%  | GRM2193U1H273JA01# |  |
| 1mm    | 50Vdc         | SL      | 56000pF | ±5%  | GRM2191X1A563JA01# |  |
|        |               |         | 56000pF | ±5%  | GRM2197U1A563JA01# |  |
|        |               | UJ      | 56000pF | ±5%  | GRM2193U1A563JA01# |  |
|        |               |         | 56000pF | ±5%  | GRM2193U1A563JA01# |  |

Part number # indicates the package specification code.

## GRM Series Temperature Compensating Type Part Number List

(→ ■ 2.0×1.25mm)

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 1mm    | 50Vdc         | UJ      | 33000pF | ±5%  | GRM21A3U1H333JA39# |  |
| 1.35mm | 50Vdc         | C0G     | 18000pF | ±5%  | GRM21B5C1H183JA01# |  |
|        |               |         | 22000pF | ±5%  | GRM21B5C1H223JA01# |  |
|        |               |         |         |      |                    |  |
|        |               | CH      | 18000pF | ±5%  | GRM21B2C1H183JA01# |  |
|        |               |         | 22000pF | ±5%  | GRM21B2C1H223JA01# |  |
|        |               | SL      | 39000pF | ±5%  | GRM21B1X1H393JA01# |  |
|        |               |         | 47000pF | ±5%  | GRM21B1X1H473JA01# |  |
|        |               | U2J     | 39000pF | ±5%  | GRM21B7U1H393JA01# |  |
|        |               |         | 47000pF | ±5%  | GRM21B7U1H473JA01# |  |
|        |               | UJ      | 39000pF | ±5%  | GRM21B3U1H393JA01# |  |
|        |               |         | 47000pF | ±5%  | GRM21B3U1H473JA01# |  |
|        | 10Vdc         | SL      | 68000pF | ±5%  | GRM21B1X1A683JA01# |  |
|        |               |         | 82000pF | ±5%  | GRM21B1X1A823JA01# |  |
|        |               |         | 0.1μF   | ±5%  | GRM21B1X1A104JA01# |  |
|        |               | U2J     | 68000pF | ±5%  | GRM21B7U1A683JA01# |  |
|        |               |         | 82000pF | ±5%  | GRM21B7U1A823JA01# |  |
|        |               |         | 0.1μF   | ±5%  | GRM21B7U1A104JA01# |  |
|        |               | UJ      | 68000pF | ±5%  | GRM21B3U1A683JA01# |  |
|        |               |         | 82000pF | ±5%  | GRM21B3U1A823JA01# |  |
|        |               |         | 0.1μF   | ±5%  | GRM21B3U1A104JA01# |  |

■ 3.2×1.6mm

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.95mm | 100Vdc        | C0G     | 1800pF  | ±5%  | GRM3195C2A182JA01# |  |
|        |               |         | 2200pF  | ±5%  | GRM3195C2A222JA01# |  |
|        |               |         | 2700pF  | ±5%  | GRM3195C2A272JA01# |  |
|        |               |         | 3300pF  | ±5%  | GRM3195C2A332JA01# |  |
|        |               |         | 3900pF  | ±5%  | GRM3195C2A392JA01# |  |
|        |               |         | 4700pF  | ±5%  | GRM3195C2A472JA01# |  |
|        |               |         | 5600pF  | ±5%  | GRM3195C2A562JA01# |  |
|        |               |         | 6800pF  | ±5%  | GRM3195C2A682JA01# |  |
|        |               |         | 8200pF  | ±5%  | GRM3195C2A822JA01# |  |
|        |               |         | 10000pF | ±5%  | GRM3195C2A103JA01# |  |
|        |               |         | 12000pF | ±5%  | GRM3195C2A123JA01# |  |
|        |               |         | 15000pF | ±5%  | GRM3195C2A153JA01# |  |
|        |               |         | 18000pF | ±5%  | GRM3195C2A183JA01# |  |
|        |               |         | 22000pF | ±5%  | GRM3195C2A223JA01# |  |
|        |               | CH      | 1800pF  | ±5%  | GRM3192C2A182JA01# |  |
|        |               |         | 2200pF  | ±5%  | GRM3192C2A222JA01# |  |
|        |               |         | 2700pF  | ±5%  | GRM3192C2A272JA01# |  |
|        |               |         | 3300pF  | ±5%  | GRM3192C2A332JA01# |  |
|        |               |         | 3900pF  | ±5%  | GRM3192C2A392JA01# |  |
|        |               |         | 4700pF  | ±5%  | GRM3192C2A472JA01# |  |
|        |               |         | 5600pF  | ±5%  | GRM3192C2A562JA01# |  |
|        |               |         | 6800pF  | ±5%  | GRM3192C2A682JA01# |  |
|        |               |         | 8200pF  | ±5%  | GRM3192C2A822JA01# |  |
|        |               |         | 10000pF | ±5%  | GRM3192C2A103JA01# |  |
|        |               |         | 12000pF | ±5%  | GRM3192C2A123JA01# |  |
|        |               |         | 15000pF | ±5%  | GRM3192C2A153JA01# |  |
|        |               |         | 18000pF | ±5%  | GRM3192C2A183JA01# |  |
|        |               |         | 22000pF | ±5%  | GRM3192C2A223JA01# |  |
|        | 50Vdc         | C0G     | 12000pF | ±5%  | GRM3195C1H123JA01# |  |

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.95mm | 50Vdc         | C0G     | 15000pF | ±5%  | GRM3195C1H153JA01# |  |
|        |               |         | 18000pF | ±5%  | GRM3195C1H183JA01# |  |
|        |               |         | 22000pF | ±5%  | GRM3195C1H223JA01# |  |
|        |               |         | 27000pF | ±5%  | GRM3195C1H273JA01# |  |
|        |               |         | 33000pF | ±5%  | GRM3195C1H333JA01# |  |
|        |               |         | 39000pF | ±5%  | GRM3195C1H393JA01# |  |
|        |               | CH      | 12000pF | ±5%  | GRM3192C1H123JA01# |  |
|        |               |         | 15000pF | ±5%  | GRM3192C1H153JA01# |  |
|        |               |         | 18000pF | ±5%  | GRM3192C1H183JA01# |  |
|        |               |         | 22000pF | ±5%  | GRM3192C1H223JA01# |  |
|        |               |         | 27000pF | ±5%  | GRM3192C1H273JA01# |  |
|        |               |         | 33000pF | ±5%  | GRM3192C1H333JA01# |  |
|        |               |         | 39000pF | ±5%  | GRM3192C1H393JA01# |  |
|        |               | SL      | 56000pF | ±5%  | GRM3191X1H563JA01# |  |
|        |               | U2J     | 56000pF | ±5%  | GRM3197U1H563JA01# |  |
|        |               | UJ      | 56000pF | ±5%  | GRM3193U1H563JA01# |  |
| 1.25mm | 50Vdc         | C0G     | 47000pF | ±5%  | GRM31M5C1H473JA01# |  |
|        |               |         | 56000pF | ±5%  | GRM31M5C1H563JA01# |  |
|        |               |         |         |      |                    |  |
|        |               | CH      | 47000pF | ±5%  | GRM31M2C1H473JA01# |  |
|        |               |         | 56000pF | ±5%  | GRM31M2C1H563JA01# |  |
|        |               |         |         |      |                    |  |
|        |               | SL      | 68000pF | ±5%  | GRM31M1X1H683JA01# |  |
|        |               |         | 82000pF | ±5%  | GRM31M1X1H823JA01# |  |
|        |               |         | 0.1μF   | ±5%  | GRM31M1X1H104JA01# |  |
|        |               | U2J     | 68000pF | ±5%  | GRM31M7U1H683JA01# |  |
|        |               |         | 82000pF | ±5%  | GRM31M7U1H823JA01# |  |
|        |               |         | 0.1μF   | ±5%  | GRM31M7U1H104JA01# |  |
|        |               | UJ      | 68000pF | ±5%  | GRM31M3U1H683JA01# |  |
|        |               |         | 82000pF | ±5%  | GRM31M3U1H823JA01# |  |
|        |               |         | 0.1μF   | ±5%  | GRM31M3U1H104JA01# |  |
| 1.8mm  | 50Vdc         | C0G     | 68000pF | ±5%  | GRM31C5C1H683JA01# |  |
|        |               |         | 82000pF | ±5%  | GRM31C5C1H823JA01# |  |
|        |               |         | 0.1μF   | ±5%  | GRM31C5C1H104JA01# |  |
|        |               | CH      | 68000pF | ±5%  | GRM31C2C1H683JA01# |  |
|        |               |         | 82000pF | ±5%  | GRM31C2C1H823JA01# |  |
|        |               |         | 0.1μF   | ±5%  | GRM31C2C1H104JA01# |  |

Part number # indicates the package specification code.

## GRM Series High Dielectric Constant Type Part Number List

■ 0.4×0.2mm **Ultra-compact**

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.22mm | 10Vdc         | X7R     | 68pF    | ±10% | GRM022R71A680KA01# |  |
|        |               |         |         | ±20% | GRM022R71A680MA01# |  |
|        |               |         | 100pF   | ±10% | GRM022R71A101KA01# |  |
|        |               |         |         | ±20% | GRM022R71A101MA01# |  |
|        |               |         | 150pF   | ±10% | GRM022R71A151KA01# |  |
|        |               |         |         | ±20% | GRM022R71A151MA01# |  |
|        |               |         | 220pF   | ±10% | GRM022R71A221KA01# |  |
|        |               |         |         | ±20% | GRM022R71A221MA01# |  |
|        |               |         | 330pF   | ±10% | GRM022R71A331KA01# |  |
|        |               |         |         | ±20% | GRM022R71A331MA01# |  |
|        |               |         | 470pF   | ±10% | GRM022R71A471KA01# |  |
|        |               |         |         | ±20% | GRM022R71A471MA01# |  |
|        |               | X5R     | 68pF    | ±10% | GRM022R61A680KA01# |  |
|        |               |         |         | ±20% | GRM022R61A680MA01# |  |
|        |               |         | 100pF   | ±10% | GRM022R61A101KA01# |  |
|        |               |         |         | ±20% | GRM022R61A101MA01# |  |
|        |               |         | 150pF   | ±10% | GRM022R61A151KA01# |  |
|        |               |         |         | ±20% | GRM022R61A151MA01# |  |
|        |               |         | 220pF   | ±10% | GRM022R61A221KA01# |  |
|        |               |         |         | ±20% | GRM022R61A221MA01# |  |
|        |               |         | 330pF   | ±10% | GRM022R61A331KA01# |  |
|        |               |         |         | ±20% | GRM022R61A331MA01# |  |
|        |               |         | 470pF   | ±10% | GRM022R61A471KA01# |  |
|        |               |         |         | ±20% | GRM022R61A471MA01# |  |
|        |               |         | 680pF   | ±10% | GRM022R61A681KE19# |  |
|        |               |         |         | ±20% | GRM022R61A681ME19# |  |
|        |               |         | 1000pF  | ±10% | GRM022R61A102KE19# |  |
|        |               |         |         | ±20% | GRM022R61A102ME19# |  |
|        |               |         | 1500pF  | ±10% | GRM022R61A152KE19# |  |
|        |               |         |         | ±20% | GRM022R61A152ME19# |  |
|        |               |         | 2200pF  | ±10% | GRM022R61A222KE19# |  |
|        |               |         |         | ±20% | GRM022R61A222ME19# |  |
|        |               |         | 3300pF  | ±10% | GRM022R61A332KE19# |  |
|        |               |         |         | ±20% | GRM022R61A332ME19# |  |
|        |               |         | 4700pF  | ±10% | GRM022R61A472KE19# |  |
|        |               |         |         | ±20% | GRM022R61A472ME19# |  |
|        |               |         | 6800pF  | ±10% | GRM022R61A682KE19# |  |
|        |               |         |         | ±20% | GRM022R61A682ME19# |  |
|        |               |         | 10000pF | ±10% | GRM022R61A103KE19# |  |
|        |               |         |         | ±20% | GRM022R61A103ME19# |  |
|        |               | B       | 68pF    | ±10% | GRM022B11A680KA01# |  |
|        |               |         |         | ±20% | GRM022B11A680MA01# |  |
|        |               |         | 100pF   | ±10% | GRM022B11A101KA01# |  |
|        |               |         |         | ±20% | GRM022B11A101MA01# |  |
|        |               |         | 150pF   | ±10% | GRM022B11A151KA01# |  |
|        |               |         |         | ±20% | GRM022B11A151MA01# |  |
|        |               |         | 220pF   | ±10% | GRM022B11A221KA01# |  |
|        |               |         |         | ±20% | GRM022B11A221MA01# |  |
|        |               |         | 330pF   | ±10% | GRM022B11A331KA01# |  |
|        |               |         |         | ±20% | GRM022B11A331MA01# |  |
|        |               |         | 470pF   | ±10% | GRM022B11A471KA01# |  |
|        |               |         |         | ±20% | GRM022B11A471MA01# |  |

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |           |
|--------|---------------|---------|---------|------|--------------------|-----------|
| 0.22mm | 10Vdc         | B       | 680pF   | ±10% | GRM022B31A681KE19# |           |
|        |               |         |         | ±20% | GRM022B31A681ME19# |           |
|        |               |         | 1000pF  | ±10% | GRM022B31A102KE19# |           |
|        |               |         |         | ±20% | GRM022B31A102ME19# |           |
|        |               |         | 1500pF  | ±10% | GRM022B31A152KE19# |           |
|        |               |         |         | ±20% | GRM022B31A152ME19# |           |
|        |               |         | 2200pF  | ±10% | GRM022B31A222KE19# |           |
|        |               |         |         | ±20% | GRM022B31A222ME19# |           |
|        |               |         | 3300pF  | ±10% | GRM022B31A332KE19# |           |
|        |               |         |         | ±20% | GRM022B31A332ME19# |           |
|        |               |         | 4700pF  | ±10% | GRM022B31A472KE19# |           |
|        |               |         |         | ±20% | GRM022B31A472ME19# |           |
|        |               |         | 6800pF  | ±10% | GRM022B31A682KE19# |           |
|        |               |         |         | ±20% | GRM022B31A682ME19# |           |
|        |               |         | 10000pF | ±10% | GRM022B31A103KE19# |           |
|        |               |         |         | ±20% | GRM022B31A103ME19# |           |
|        | 6.3Vdc        | X5R     | 680pF   | ±20% | GRM022R60J681ME19# |           |
|        |               |         |         | ±20% | GRM022R60J102ME19# |           |
|        |               |         | 1000pF  | ±20% | GRM022R60J102ME19# |           |
|        |               |         |         | ±20% | GRM022R60J152ME19# |           |
|        |               |         | 1500pF  | ±20% | GRM022R60J152ME19# |           |
|        |               |         |         | ±20% | GRM022R60J222ME19# |           |
|        |               |         | 2200pF  | ±20% | GRM022R60J222ME19# |           |
|        |               |         |         | ±20% | GRM022R60J332ME19# |           |
|        |               |         | 3300pF  | ±20% | GRM022R60J332ME19# |           |
|        |               |         |         | ±20% | GRM022R60J472ME19# |           |
|        |               |         | 4700pF  | ±20% | GRM022R60J472ME19# |           |
|        |               |         |         | ±20% | GRM022R60J682ME19# |           |
|        |               |         | 6800pF  | ±20% | GRM022R60J682ME19# |           |
|        |               |         |         | ±20% | GRM022R60J103ME19# |           |
|        |               |         | 10000pF | ±20% | GRM022R60J103ME19# |           |
|        |               |         |         | ±20% | GRM022R60J153ME15# | Degrating |
|        |               |         | 15000pF | ±20% | GRM022R60J223KE15# | Degrating |
|        |               |         |         | ±20% | GRM022R60J223ME15# | Degrating |
|        |               |         | 22000pF | ±20% | GRM022R60J223ME15# | Degrating |
|        |               |         |         | ±20% | GRM022R60J333ME15# | Degrating |
|        |               |         | 33000pF | ±20% | GRM022R60J333ME15# | Degrating |
|        |               |         |         | ±20% | GRM022R60J473ME15# | Degrating |
|        |               |         | 47000pF | ±20% | GRM022R60J473ME15# | Degrating |
|        |               |         |         | ±20% | GRM022R60J683ME15# | Degrating |
|        |               |         | 68000pF | ±20% | GRM022R60J683ME15# | Degrating |
|        |               |         |         | ±20% | GRM022R60J104ME15# | Degrating |
|        |               | B       | 680pF   | ±20% | GRM022B30J681ME19# |           |
|        |               |         |         | ±20% | GRM022B30J102ME19# |           |
|        |               |         | 1000pF  | ±20% | GRM022B30J102ME19# |           |
|        |               |         |         | ±20% | GRM022B30J152ME19# |           |
|        |               |         | 1500pF  | ±20% | GRM022B30J152ME19# |           |
|        |               |         |         | ±20% | GRM022B30J222ME19# |           |
|        |               |         | 2200pF  | ±20% | GRM022B30J222ME19# |           |
|        |               |         |         | ±20% | GRM022B30J332ME19# |           |
|        |               |         | 3300pF  | ±20% | GRM022B30J332ME19# |           |
|        |               |         |         | ±20% | GRM022B30J472ME19# |           |
|        |               |         | 4700pF  | ±20% | GRM022B30J472ME19# |           |
|        |               |         |         | ±20% | GRM022B30J682ME19# |           |
|        |               |         | 6800pF  | ±20% | GRM022B30J682ME19# |           |
|        |               |         |         | ±20% | GRM022B30J103ME19# |           |
|        | 4Vdc          | X5R     | 15000pF | ±10% | GRM022R60G153KE15# |           |
|        |               |         |         | ±20% | GRM022R60G153ME15# |           |
|        |               |         | 22000pF | ±10% | GRM022R60G223KE15# |           |
|        |               |         |         | ±20% | GRM022R60G223ME15# |           |
|        |               |         | 33000pF | ±10% | GRM022R60G333KE15# |           |
|        |               |         |         | ±20% | GRM022R60G333ME15# |           |
|        |               |         | 47000pF | ±10% | GRM022R60G473KE15# |           |
|        |               |         |         | ±20% | GRM022R60G473ME15# |           |
|        |               |         | 68000pF | ±20% | GRM022R60G683ME15# |           |
|        |               |         |         | ±20% | GRM022R60G104ME15# |           |

Part number # indicates the package specification code.

## GRM Series High Dielectric Constant Type Part Number List

■ 0.6×0.3mm **Ultra-compact**

| T max. | Rated Voltage | TC Code | Cap.   | Tol. | Part Number        |  |
|--------|---------------|---------|--------|------|--------------------|--|
| 0.33mm | 50Vdc         | X7R     | 100pF  | ±10% | GRM033R71H101KA12# |  |
|        |               |         |        | ±20% | GRM033R71H101MA12# |  |
|        |               |         | 150pF  | ±10% | GRM033R71H151KA12# |  |
|        |               |         |        | ±20% | GRM033R71H151MA12# |  |
|        |               |         | 220pF  | ±10% | GRM033R71H221KA12# |  |
|        |               |         |        | ±20% | GRM033R71H221MA12# |  |
|        |               |         | 330pF  | ±10% | GRM033R71H331KA12# |  |
|        |               |         |        | ±20% | GRM033R71H331MA12# |  |
|        |               |         | 470pF  | ±10% | GRM033R71H471KA12# |  |
|        |               |         |        | ±20% | GRM033R71H471MA12# |  |
|        |               |         | 680pF  | ±10% | GRM033R71H681KA12# |  |
|        |               |         |        | ±20% | GRM033R71H681MA12# |  |
|        |               |         | 1000pF | ±10% | GRM033R71H102KA12# |  |
|        |               |         |        | ±20% | GRM033R71H102MA12# |  |
|        |               |         | 1500pF | ±10% | GRM033R71H152KA12# |  |
|        |               |         |        | ±20% | GRM033R71H152MA12# |  |
|        |               | B       | 100pF  | ±10% | GRM033B31H101KA12# |  |
|        |               |         |        | ±20% | GRM033B31H101MA12# |  |
|        |               |         | 150pF  | ±10% | GRM033B31H151KA12# |  |
|        |               |         |        | ±20% | GRM033B31H151MA12# |  |
|        |               |         | 220pF  | ±10% | GRM033B31H221KA12# |  |
|        |               |         |        | ±20% | GRM033B31H221MA12# |  |
|        |               |         | 330pF  | ±10% | GRM033B31H331KA12# |  |
|        |               |         |        | ±20% | GRM033B31H331MA12# |  |
|        |               |         | 470pF  | ±10% | GRM033B31H471KA12# |  |
|        |               |         |        | ±20% | GRM033B31H471MA12# |  |
|        |               |         | 680pF  | ±10% | GRM033B31H681KA12# |  |
|        |               |         |        | ±20% | GRM033B31H681MA12# |  |
|        |               |         | 1000pF | ±10% | GRM033B31H102KA12# |  |
|        |               |         |        | ±20% | GRM033B31H102MA12# |  |
|        |               |         | 1500pF | ±10% | GRM033B31H152KA12# |  |
|        |               |         |        | ±20% | GRM033B31H152MA12# |  |
|        | 25Vdc         | X7R     | 100pF  | ±10% | GRM033R71E101KA01# |  |
|        |               |         | 150pF  | ±10% | GRM033R71E151KA01# |  |
|        |               |         | 220pF  | ±10% | GRM033R71E221KA01# |  |
|        |               |         | 330pF  | ±10% | GRM033R71E331KA01# |  |
|        |               |         | 470pF  | ±10% | GRM033R71E471KA01# |  |
|        |               |         | 680pF  | ±10% | GRM033R71E681KA01# |  |
|        |               |         | 1000pF | ±10% | GRM033R71E102KA01# |  |
|        |               |         | 1500pF | ±10% | GRM033R71E152KA01# |  |
|        |               |         | 2200pF | ±10% | GRM033R71E222KA12# |  |
|        |               |         |        | ±20% | GRM033R71E222MA12# |  |
|        |               |         | 3300pF | ±10% | GRM033R71E332KA12# |  |
|        |               |         |        | ±20% | GRM033R71E332MA12# |  |
|        |               | R       | 100pF  | ±10% | GRM033R11E101KA01# |  |
|        |               |         | 150pF  | ±10% | GRM033R11E151KA01# |  |
|        |               |         | 220pF  | ±10% | GRM033R11E221KA01# |  |
|        |               |         | 330pF  | ±10% | GRM033R11E331KA01# |  |
|        |               |         | 470pF  | ±10% | GRM033R11E471KA01# |  |
|        |               |         | 680pF  | ±10% | GRM033R11E681KA01# |  |
|        |               |         | 1000pF | ±10% | GRM033R11E102KA01# |  |
|        |               |         | 1500pF | ±10% | GRM033R11E152KA01# |  |

| T max. | Rated Voltage | TC Code | Cap.    | Tol.   | Part Number        |                    |                    |  |
|--------|---------------|---------|---------|--------|--------------------|--------------------|--------------------|--|
| 0.33mm | 25Vdc         | X5R     | 100pF   | ±10%   | GRM033R61E101KA01# |                    |                    |  |
|        |               |         | 150pF   | ±10%   | GRM033R61E151KA01# |                    |                    |  |
|        |               |         | 220pF   | ±10%   | GRM033R61E221KA01# |                    |                    |  |
|        |               |         | 330pF   | ±10%   | GRM033R61E331KA01# |                    |                    |  |
|        |               |         | 470pF   | ±10%   | GRM033R61E471KA01# |                    |                    |  |
|        |               |         | 680pF   | ±10%   | GRM033R61E681KA01# |                    |                    |  |
|        |               |         | 1000pF  | ±10%   | GRM033R61E102KA01# |                    |                    |  |
|        |               |         | 10000pF | ±10%   | GRM033R61E103KA12# | Derating           |                    |  |
|        |               |         |         | ±20%   | GRM033R61E103MA12# | Derating           |                    |  |
|        |               |         | B       | 100pF  | ±10%               | GRM033B11E101KA01# |                    |  |
|        |               |         |         | 150pF  | ±10%               | GRM033B11E151KA01# |                    |  |
|        |               |         |         | 220pF  | ±10%               | GRM033B11E221KA01# |                    |  |
|        |               |         |         | 330pF  | ±10%               | GRM033B11E331KA01# |                    |  |
|        |               |         |         | 470pF  | ±10%               | GRM033B11E471KA01# |                    |  |
|        |               | 680pF   |         | ±10%   | GRM033B11E681KA01# |                    |                    |  |
|        |               | 1000pF  |         | ±10%   | GRM033B11E102KA01# |                    |                    |  |
|        |               |         |         | ±20%   | GRM033B11E102MA01# |                    |                    |  |
|        |               | 1500pF  |         | ±10%   | GRM033B11E152KA01# |                    |                    |  |
|        |               |         |         | ±20%   | GRM033B11E152MA01# |                    |                    |  |
|        |               | 2200pF  |         | ±10%   | GRM033B31E222KA12# |                    |                    |  |
|        |               |         |         | ±20%   | GRM033B31E222MA12# |                    |                    |  |
|        |               | 3300pF  |         | ±10%   | GRM033B31E332KA12# |                    |                    |  |
|        |               |         |         | ±20%   | GRM033B31E332MA12# |                    |                    |  |
|        |               | 10000pF |         | ±10%   | GRM033B31E103KA12# | Derating           |                    |  |
|        |               |         |         | ±20%   | GRM033B31E103MA12# | Derating           |                    |  |
|        |               | 16Vdc   |         | X7R    | 2200pF             | ±10%               | GRM033R71C222KA88# |  |
|        | 3300pF        |         |         |        | ±10%               | GRM033R71C332KA88# |                    |  |
|        | R             |         | 2200pF  |        | ±10%               | GRM033R11C222KA88# |                    |  |
|        |               |         | 3300pF  |        | ±10%               | GRM033R11C332KA88# |                    |  |
|        | X5R           |         | 10000pF | ±10%   | GRM033R61C103KA12# |                    |                    |  |
|        |               |         |         | ±20%   | GRM033R61C103MA12# |                    |                    |  |
|        |               |         | 0.1μF   | ±10%   | GRM033R61C104KE84# | Derating           |                    |  |
|        |               |         |         | ±20%   | GRM033R61C104ME84# | Derating           |                    |  |
|        | B             |         | 2200pF  | ±10%   | GRM033B31C222KA87# |                    |                    |  |
|        |               |         |         | ±20%   | GRM033B31C222MA87# |                    |                    |  |
|        |               |         | 3300pF  | ±10%   | GRM033B31C332KA87# |                    |                    |  |
|        |               |         |         | ±20%   | GRM033B31C332MA87# |                    |                    |  |
|        |               |         | 10000pF | ±10%   | GRM033B31C103KA12# |                    |                    |  |
|        |               |         |         | ±20%   | GRM033B31C103MA12# |                    |                    |  |
|        |               |         | 0.1μF   | ±10%   | GRM033B31C104KE84# | Derating           |                    |  |
|        |               |         |         | ±20%   | GRM033B31C104ME84# | Derating           |                    |  |
|        |               |         | 10Vdc   | X7R    | 4700pF             | ±10%               | GRM033R71A472KA01# |  |
|        |               |         |         |        |                    | ±20%               | GRM033R71A472MA01# |  |
|        | 6800pF        |         |         |        | ±10%               | GRM033R71A682KA01# |                    |  |
|        |               |         |         |        | ±20%               | GRM033R71A682MA01# |                    |  |
|        | 10000pF       |         |         |        | ±10%               | GRM033R71A103KA01# |                    |  |
|        |               |         |         |        | ±20%               | GRM033R71A103MA01# |                    |  |
|        | R             |         |         |        | 4700pF             | ±10%               | GRM033R11A472KA01# |  |
|        |               |         |         |        |                    | ±20%               | GRM033R11A472MA01# |  |
|        |               |         |         | 6800pF | ±10%               | GRM033R11A682KA01# |                    |  |
|        |               |         |         |        | ±20%               | GRM033R11A682MA01# |                    |  |
|        |               | 10000pF |         | ±10%   | GRM033R11A103KA01# |                    |                    |  |
|        |               |         |         | ±20%   | GRM033R11A103MA01# |                    |                    |  |
|        | X5R           | 4700pF  |         | ±10%   | GRM033R61A472KA01# |                    |                    |  |

Part number # indicates the package specification code.

## GRM Series High Dielectric Constant Type Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.    | Tol.               | Part Number        |                    |  |  |
|--------|---------------|---------|---------|--------------------|--------------------|--------------------|--|--|
| 0.33mm | 10Vdc         | X5R     | 4700pF  | ±20%               | GRM033R61A472MA01# |                    |  |  |
|        |               |         | 6800pF  | ±10%               | GRM033R61A682KA01# |                    |  |  |
|        |               |         |         | ±20%               | GRM033R61A682MA01# |                    |  |  |
|        |               |         | 10000pF | ±10%               | GRM033R61A103KA01# |                    |  |  |
|        |               |         |         | ±20%               | GRM033R61A103MA01# |                    |  |  |
|        |               |         | 12000pF | ±10%               | GRM033R61A123KE84# |                    |  |  |
|        |               |         |         | ±20%               | GRM033R61A123ME84# |                    |  |  |
|        |               |         | 15000pF | ±10%               | GRM033R61A153KE84# |                    |  |  |
|        |               |         |         | ±20%               | GRM033R61A153ME84# |                    |  |  |
|        |               |         | 18000pF | ±10%               | GRM033R61A183KE84# |                    |  |  |
|        |               |         |         | ±20%               | GRM033R61A183ME84# |                    |  |  |
|        |               |         | 22000pF | ±10%               | GRM033R61A223KE84# |                    |  |  |
|        |               |         |         | ±20%               | GRM033R61A223ME84# |                    |  |  |
|        |               |         | 27000pF | ±10%               | GRM033R61A273KE84# |                    |  |  |
|        |               |         |         | ±20%               | GRM033R61A273ME84# |                    |  |  |
|        |               |         | 33000pF | ±10%               | GRM033R61A333KE84# |                    |  |  |
|        |               |         |         | ±20%               | GRM033R61A333ME84# |                    |  |  |
|        |               |         | 39000pF | ±10%               | GRM033R61A393KE84# |                    |  |  |
|        |               |         |         | ±20%               | GRM033R61A393ME84# |                    |  |  |
|        |               |         | 47000pF | ±10%               | GRM033R61A473KE84# |                    |  |  |
|        |               |         |         | ±20%               | GRM033R61A473ME84# |                    |  |  |
|        |               |         | 68000pF | ±10%               | GRM033R61A683KE84# |                    |  |  |
|        |               |         |         | ±20%               | GRM033R61A683ME84# |                    |  |  |
|        |               |         | 0.1μF   | ±10%               | GRM033R61A104KE84# |                    |  |  |
|        |               |         |         | ±20%               | GRM033R61A104ME84# |                    |  |  |
|        |               |         | 0.22μF  | ±20%               | GRM033R61A224ME90# | Derating           |  |  |
|        |               | B       |         | 4700pF             | ±10%               | GRM033B11A472KA01# |  |  |
|        |               |         | ±20%    |                    | GRM033B11A472MA01# |                    |  |  |
|        |               |         | 6800pF  | ±10%               | GRM033B11A682KA01# |                    |  |  |
|        |               |         |         | ±20%               | GRM033B11A682MA01# |                    |  |  |
|        | 10000pF       |         | ±10%    | GRM033B11A103KA01# |                    |                    |  |  |
|        |               |         | ±20%    | GRM033B11A103MA01# |                    |                    |  |  |
|        | 12000pF       |         | ±10%    | GRM033B31A123KE84# |                    |                    |  |  |
|        |               |         | ±20%    | GRM033B31A123ME84# |                    |                    |  |  |
|        | 15000pF       |         | ±10%    | GRM033B31A153KE84# |                    |                    |  |  |
|        |               |         | ±20%    | GRM033B31A153ME84# |                    |                    |  |  |
|        | 18000pF       |         | ±10%    | GRM033B31A183KE84# |                    |                    |  |  |
|        |               |         | ±20%    | GRM033B31A183ME84# |                    |                    |  |  |
|        | 22000pF       |         | ±10%    | GRM033B31A223KE84# |                    |                    |  |  |
|        |               |         | ±20%    | GRM033B31A223ME84# |                    |                    |  |  |
|        | 27000pF       |         | ±10%    | GRM033B31A273KE84# |                    |                    |  |  |
|        |               |         | ±20%    | GRM033B31A273ME84# |                    |                    |  |  |
|        | 33000pF       |         | ±10%    | GRM033B31A333KE84# |                    |                    |  |  |
|        |               |         | ±20%    | GRM033B31A333ME84# |                    |                    |  |  |
|        | 39000pF       |         | ±10%    | GRM033B31A393KE84# |                    |                    |  |  |
|        |               |         | ±20%    | GRM033B31A393ME84# |                    |                    |  |  |
|        | 47000pF       |         | ±10%    | GRM033B31A473KE84# |                    |                    |  |  |
|        |               |         | ±20%    | GRM033B31A473ME84# |                    |                    |  |  |
|        | 68000pF       |         | ±10%    | GRM033B31A683KE84# |                    |                    |  |  |
|        |               |         | ±20%    | GRM033B31A683ME84# |                    |                    |  |  |
|        | 0.1μF         |         | ±10%    | GRM033B31A104KE84# |                    |                    |  |  |
|        |               |         | ±20%    | GRM033B31A104ME84# |                    |                    |  |  |
|        | 6.3Vdc        |         | X7R     | 4700pF             | ±10%               | GRM033R70J472KA01# |  |  |
|        |               |         |         | 6800pF             | ±10%               | GRM033R70J682KA01# |  |  |

| T max. | Rated Voltage | TC Code | Cap.    | Tol.    | Part Number        |                    |
|--------|---------------|---------|---------|---------|--------------------|--------------------|
| 0.33mm | 6.3Vdc        | X7R     | 10000pF | ±10%    | GRM033R70J103KA01# |                    |
|        |               |         | R       | 4700pF  | ±10%               | GRM033R10J472KA01# |
|        |               |         |         | 6800pF  | ±10%               | GRM033R10J682KA01# |
|        |               |         |         | 10000pF | ±10%               | GRM033R10J103KA01# |
|        |               |         | X6S     | 15000pF | ±10%               | GRM033C80J153KE01# |
|        |               |         |         | ±20%    | GRM033C80J153ME01# |                    |
|        |               |         |         | 22000pF | ±10%               | GRM033C80J223KE01# |
|        |               |         |         | ±20%    | GRM033C80J223ME01# |                    |
|        |               |         |         | 33000pF | ±10%               | GRM033C80J333KE01# |
|        |               |         |         | ±20%    | GRM033C80J333ME01# |                    |
|        |               |         |         | 47000pF | ±10%               | GRM033C80J473KE19# |
|        |               |         |         | ±20%    | GRM033C80J473ME19# |                    |
|        |               |         |         | 68000pF | ±10%               | GRM033C80J683KE84# |
|        |               |         |         | ±20%    | GRM033C80J683ME84# | Derating           |
|        |               |         |         | 0.1μF   | ±10%               | GRM033C80J104KE84# |
|        |               |         |         | ±20%    | GRM033C80J104ME84# | Derating           |
|        |               |         |         | 0.22μF  | ±20%               | GRM033C80J224ME90# |
|        |               |         |         |         |                    | Derating           |
|        |               | X5R     | 10000pF | ±10%    | GRM033R60J103KA01# |                    |
|        |               |         | 15000pF | ±10%    | GRM033R60J153KE01# |                    |
|        |               |         |         | ±20%    | GRM033R60J153ME01# |                    |
|        |               |         | 22000pF | ±10%    | GRM033R60J223KE01# |                    |
|        |               |         |         | ±20%    | GRM033R60J223ME01# |                    |
|        |               |         | 33000pF | ±10%    | GRM033R60J333KE01# |                    |
|        |               |         |         | ±20%    | GRM033R60J333ME01# |                    |
|        |               |         | 47000pF | ±10%    | GRM033R60J473KE19# |                    |
|        |               |         |         | ±20%    | GRM033R60J473ME19# |                    |
|        |               |         | 0.22μF  | ±20%    | GRM033R60J224ME90# |                    |
|        |               |         |         |         |                    |                    |
|        |               | B       | 4700pF  | ±10%    | GRM033B10J472KA01# |                    |
|        |               |         | 6800pF  | ±10%    | GRM033B10J682KA01# |                    |
|        |               |         | 10000pF | ±10%    | GRM033B10J103KA01# |                    |
|        |               |         | 15000pF | ±10%    | GRM033B10J153KE01# |                    |
|        |               |         |         | ±20%    | GRM033B10J153ME01# |                    |
|        |               |         | 22000pF | ±10%    | GRM033B10J223KE01# |                    |
|        |               |         |         | ±20%    | GRM033B10J223ME01# |                    |
|        |               |         | 33000pF | ±10%    | GRM033B10J333KE01# |                    |
|        |               |         |         | ±20%    | GRM033B10J333ME01# |                    |
|        |               |         | 47000pF | ±10%    | GRM033B30J473KE18# |                    |
|        |               |         |         | ±20%    | GRM033B30J473ME18# |                    |
|        |               |         | 0.22μF  | ±20%    | GRM033C80G224ME90# |                    |

■ 1.0×0.5mm

| T max. | Rated Voltage | TC Code | Cap.   | Tol. | Part Number        |          |
|--------|---------------|---------|--------|------|--------------------|----------|
| 0.22mm | 10Vdc         | X5R     | 0.1μF  | ±10% | GRM152R61A104KE19# | Derating |
|        |               |         |        | ±20% | GRM152R61A104ME19# | Derating |
|        |               |         | 0.22μF | ±10% | GRM152R61A224KE19# | Derating |
|        |               |         |        | ±20% | GRM152R61A224ME19# | Derating |
|        |               | B       | 0.1μF  | ±10% | GRM152B31A104KE19# | Derating |
|        |               |         |        | ±20% | GRM152B31A104ME19# | Derating |
|        |               |         | 0.22μF | ±10% | GRM152B31A224KE19# | Derating |
|        |               |         |        | ±20% | GRM152B31A224ME19# | Derating |
|        | 6.3Vdc        | X6S     | 0.1μF  | ±10% | GRM152C80J104KE19# | Derating |
|        |               |         |        | ±20% | GRM152C80J104ME19# | Derating |

Part number # indicates the package specification code.

## GRM Series High Dielectric Constant Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.   | Tol. | Part Number        |  |
|--------|---------------|---------|--------|------|--------------------|--|
| 0.22mm | 6.3Vdc        | X6S     | 0.22μF | ±10% | GRM152C80J224KE19# |  |
|        |               |         |        | ±20% | GRM152C80J224ME19# |  |
|        |               | X5R     | 0.1μF  | ±10% | GRM152R60J104KE19# |  |
|        |               |         |        | ±20% | GRM152R60J104ME19# |  |
|        |               |         | 0.22μF | ±10% | GRM152R60J224KE19# |  |
|        |               |         |        | ±20% | GRM152R60J224ME19# |  |
|        |               |         | 0.47μF | ±20% | GRM152R60J474ME15# |  |
|        |               |         |        |      |                    |  |
|        |               | B       | 0.1μF  | ±10% | GRM152B30J104KE19# |  |
|        |               |         |        | ±20% | GRM152B30J104ME19# |  |
|        |               |         | 0.22μF | ±10% | GRM152B30J224KE19# |  |
|        |               |         |        | ±20% | GRM152B30J224ME19# |  |
|        | 4Vdc          | X7T     | 0.1μF  | ±10% | GRM152D70G104KE15# |  |
|        |               |         |        | ±20% | GRM152D70G104ME15# |  |
|        |               |         | 0.22μF | ±10% | GRM152D70G224KE15# |  |
|        |               |         |        | ±20% | GRM152D70G224ME15# |  |
|        |               | X6S     | 0.1μF  | ±10% | GRM152C80G104KE19# |  |
|        |               |         |        | ±20% | GRM152C80G104ME19# |  |
|        |               |         | 0.22μF | ±10% | GRM152C80G224KE19# |  |
|        |               |         |        | ±20% | GRM152C80G224ME19# |  |
|        | 2.5Vdc        | X7T     | 0.1μF  | ±10% | GRM152D70E104KE19# |  |
|        |               |         |        | ±20% | GRM152D70E104ME19# |  |
|        |               |         | 0.22μF | ±10% | GRM152D70E224KE19# |  |
|        |               |         |        | ±20% | GRM152D70E224ME19# |  |
| 0.3mm  | 50Vdc         | X7R     | 220pF  | ±10% | GRM15XR71H221KA86# |  |
|        |               |         | 330pF  | ±10% | GRM15XR71H331KA86# |  |
|        |               |         | 470pF  | ±10% | GRM15XR71H471KA86# |  |
|        |               |         | 680pF  | ±10% | GRM15XR71H681KA86# |  |
|        |               |         | 1000pF | ±10% | GRM15XR71H102KA86# |  |
|        |               |         | 1500pF | ±10% | GRM15XR71H152KA86# |  |
|        |               | R       | 220pF  | ±10% | GRM15XR11H221KA86# |  |
|        |               |         | 330pF  | ±10% | GRM15XR11H331KA86# |  |
|        |               |         | 470pF  | ±10% | GRM15XR11H471KA86# |  |
|        |               |         | 680pF  | ±10% | GRM15XR11H681KA86# |  |
|        |               |         | 1000pF | ±10% | GRM15XR11H102KA86# |  |
|        |               |         | 1500pF | ±10% | GRM15XR11H152KA86# |  |
|        |               | B       | 220pF  | ±10% | GRM15XB11H221KA86# |  |
|        |               |         |        | ±20% | GRM15XB11H221MA86# |  |
|        |               |         | 330pF  | ±10% | GRM15XB11H331KA86# |  |
|        |               |         |        | ±20% | GRM15XB11H331MA86# |  |
|        |               |         | 470pF  | ±10% | GRM15XB11H471KA86# |  |
|        |               |         |        | ±20% | GRM15XB11H471MA86# |  |
|        |               |         | 680pF  | ±10% | GRM15XB11H681KA86# |  |
|        |               |         |        | ±20% | GRM15XB11H681MA86# |  |
|        | 25Vdc         | X7R     | 2200pF | ±10% | GRM15XR71E222KA86# |  |
|        |               |         |        | ±20% | GRM15XR71E222MA86# |  |
|        |               | B       | 2200pF | ±10% | GRM15XB11E222KA86# |  |
|        |               |         |        | ±20% | GRM15XB11E222MA86# |  |
|        | 16Vdc         | X7R     | 3300pF | ±10% | GRM15XR71C332KA86# |  |

| T max.  | Rated Voltage | TC Code | Cap.               | Tol.               | Part Number        |                    |  |
|---------|---------------|---------|--------------------|--------------------|--------------------|--------------------|--|
| 0.3mm   | 16Vdc         | X7R     | 3300pF             | ±20%               | GRM15XR71C332MA86# |                    |  |
|         |               |         |                    | ±10%               | GRM15XR71C472KA86# |                    |  |
|         |               |         | 4700pF             | ±20%               | GRM15XR71C472MA86# |                    |  |
|         |               |         |                    |                    |                    |                    |  |
|         |               |         | 6800pF             | ±10%               | GRM15XR71C682KA86# |                    |  |
|         |               |         |                    | ±20%               | GRM15XR71C682MA86# |                    |  |
|         |               | 10000pF | ±10%               | GRM15XR71C103KA86# |                    |                    |  |
|         |               |         | ±20%               | GRM15XR71C103MA86# |                    |                    |  |
|         |               | B       | 3300pF             | ±10%               | GRM15XB11C332KA86# |                    |  |
|         |               |         |                    | ±20%               | GRM15XB11C332MA86# |                    |  |
|         |               |         | 4700pF             | ±10%               | GRM15XB11C472KA86# |                    |  |
|         |               |         |                    | ±20%               | GRM15XB11C472MA86# |                    |  |
|         | 6800pF        |         | ±10%               | GRM15XB11C682KA86# |                    |                    |  |
|         |               |         | ±20%               | GRM15XB11C682MA86# |                    |                    |  |
|         | 10000pF       | ±10%    | GRM15XB11C103KA86# |                    |                    |                    |  |
|         |               | ±20%    | GRM15XB11C103MA86# |                    |                    |                    |  |
|         |               | 10Vdc   | X5R                | 15000pF            | ±10%               | GRM15XR61A153KA86# |  |
|         |               |         |                    |                    | ±20%               | GRM15XR61A153MA86# |  |
|         |               |         |                    | 22000pF            | ±10%               | GRM15XR61A223KA86# |  |
|         |               |         |                    |                    | ±20%               | GRM15XR61A223MA86# |  |
| 33000pF | ±10%          |         |                    | GRM15XR61A333KA86# |                    |                    |  |
|         | ±20%          |         |                    | GRM15XR61A333MA86# |                    |                    |  |
| 0.33mm  | 10Vdc         | X5R     | 1.0μF              | ±20%               | GRM153R61A105ME95# |                    |  |
|         |               | B       | 1.0μF              | ±20%               | GRM153B31A105ME95# |                    |  |
|         |               | 6.3Vdc  | X6T                | 1.0μF              | ±20%               | GRM153D80J105ME95# |  |
|         |               |         | X5R                | 1.0μF              | ±20%               | GRM153R60J105ME95# |  |
|         | B             | 1.0μF   | ±20%               | GRM153B30J105ME95# |                    |                    |  |
|         |               | 4Vdc    | X6T                | 1.0μF              | ±20%               | GRM153D80G105ME95# |  |
|         | X5R           |         | 1.0μF              | ±20%               | GRM153R60G105ME95# |                    |  |
|         | 0.55mm        | 100Vdc  | X7R                | 220pF              | ±10%               | GRM155R72A221KA01# |  |
| 330pF   |               |         |                    | ±10%               | GRM155R72A331KA01# |                    |  |
| 470pF   |               |         |                    | ±10%               | GRM155R72A471KA01# |                    |  |
| 680pF   |               |         |                    | ±10%               | GRM155R72A681KA01# |                    |  |
| 1000pF  |               |         |                    | ±10%               | GRM155R72A102KA01# |                    |  |
| 1500pF  |               |         |                    | ±10%               | GRM155R72A152KA01# |                    |  |
| 2200pF  |               |         |                    | ±10%               | GRM155R72A222KA01# |                    |  |
| 3300pF  |               |         |                    | ±10%               | GRM155R72A332KA01# |                    |  |
| 4700pF  |               |         | ±10%               | GRM155R72A472KA01# |                    |                    |  |
| 50Vdc   |               |         | X7R                | 220pF              | ±10%               | GRM155R71H221KA01# |  |
|         |               |         |                    | 330pF              | ±10%               | GRM155R71H331KA01# |  |
|         |               |         |                    | 470pF              | ±10%               | GRM155R71H471KA01# |  |
|         |               |         |                    | 680pF              | ±10%               | GRM155R71H681KA01# |  |
|         |               |         |                    | 1000pF             | ±10%               | GRM155R71H102KA01# |  |
|         |               | 1500pF  |                    | ±10%               | GRM155R71H152KA01# |                    |  |
|         |               | 2200pF  |                    | ±10%               | GRM155R71H222KA01# |                    |  |
|         |               | 3300pF  |                    | ±10%               | GRM155R71H332KA01# |                    |  |
|         |               | 4700pF  | ±10%               | GRM155R71H472KA01# |                    |                    |  |
|         |               | 6800pF  | ±10%               | GRM155R71H682KA88# |                    |                    |  |
| 10000pF |               | ±10%    | GRM155R71H103KA88# |                    |                    |                    |  |
| 15000pF |               | ±10%    | GRM155R71H153KA12# |                    |                    |                    |  |
| 22000pF |               | ±10%    | GRM155R71H223KA12# |                    |                    |                    |  |
| X7S     |               | 33000pF | ±10%               | GRM155C71H333KE19# |                    |                    |  |
|         |               |         | ±20%               | GRM155C71H333ME19# |                    |                    |  |
|         |               |         |                    |                    |                    |                    |  |
|         |               |         |                    |                    |                    |                    |  |

Part number # indicates the package specification code.

# GRM Series High Dielectric Constant Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.55mm | 50Vdc         | X7S     | 47000pF | ±10% | GRM155C71H473KE19# |  |
|        |               |         |         | ±20% | GRM155C71H473ME19# |  |
|        |               |         | 68000pF | ±10% | GRM155C71H683KE19# |  |
|        |               |         |         | ±20% | GRM155C71H683ME19# |  |
|        |               | R       | 220pF   | ±10% | GRM155R11H221KA01# |  |
|        |               |         | 330pF   | ±10% | GRM155R11H331KA01# |  |
|        |               |         | 470pF   | ±10% | GRM155R11H471KA01# |  |
|        |               |         | 680pF   | ±10% | GRM155R11H681KA01# |  |
|        |               |         | 1000pF  | ±10% | GRM155R11H102KA01# |  |
|        |               |         | 1500pF  | ±10% | GRM155R11H152KA01# |  |
|        |               |         | 2200pF  | ±10% | GRM155R11H222KA01# |  |
|        |               |         | 3300pF  | ±10% | GRM155R11H332KA01# |  |
|        |               |         | 4700pF  | ±10% | GRM155R11H472KA01# |  |
|        |               |         | 6800pF  | ±10% | GRM155R11H682KA88# |  |
|        |               |         | 10000pF | ±10% | GRM155R11H103KA88# |  |
|        |               | X6S     | 0.1μF   | ±10% | GRM155C81H104KE14# |  |
|        |               |         |         | ±20% | GRM155C81H104ME14# |  |
|        |               | X5R     | 1000pF  | ±10% | GRM155R61H102KA01# |  |
|        |               |         | 2200pF  | ±10% | GRM155R61H222KA01# |  |
|        |               |         | 4700pF  | ±10% | GRM155R61H472KA01# |  |
|        |               |         | 33000pF | ±10% | GRM155R61H333KE19# |  |
|        |               |         |         | ±20% | GRM155R61H333ME19# |  |
|        |               |         | 47000pF | ±10% | GRM155R61H473KE19# |  |
|        |               |         | 68000pF | ±10% | GRM155R61H683KE19# |  |
|        |               |         |         | ±20% | GRM155R61H683ME19# |  |
|        |               | 0.1μF   |         | ±10% | GRM155R61H104KE14# |  |
|        |               |         |         | ±20% | GRM155R61H104ME14# |  |
|        |               |         |         | ±10% | GRM155B11H221KA01# |  |
|        |               |         |         | ±20% | GRM155B11H221MA01# |  |
|        |               |         |         | ±10% | GRM155B11H331KA01# |  |
|        |               |         |         | ±20% | GRM155B11H331MA01# |  |
|        |               | 470pF   |         | ±10% | GRM155B11H471KA01# |  |
|        |               |         |         | ±20% | GRM155B11H471MA01# |  |
|        |               |         |         | ±10% | GRM155B11H681KA01# |  |
|        |               |         |         | ±20% | GRM155B11H681MA01# |  |
|        |               | 1000pF  |         | ±10% | GRM155B11H102KA01# |  |
|        |               |         |         | ±20% | GRM155B11H102MA01# |  |
|        |               | 1500pF  |         | ±10% | GRM155B11H152KA01# |  |
|        |               |         |         | ±20% | GRM155B11H152MA01# |  |
|        |               | 2200pF  |         | ±10% | GRM155B11H222KA01# |  |
|        |               |         |         | ±20% | GRM155B11H222MA01# |  |
|        |               | 3300pF  |         | ±10% | GRM155B11H332KA01# |  |
|        |               |         |         | ±20% | GRM155B11H332MA01# |  |
|        |               | 4700pF  |         | ±10% | GRM155B11H472KA01# |  |
|        |               |         |         | ±20% | GRM155B11H472MA01# |  |
|        |               | 6800pF  |         | ±10% | GRM155B31H682KA88# |  |
|        |               |         |         | ±20% | GRM155B31H682MA88# |  |
|        |               | 10000pF |         | ±10% | GRM155B31H103KA88# |  |
|        |               |         |         | ±20% | GRM155B31H103MA88# |  |
|        |               | 15000pF |         | ±10% | GRM155B31H153KA12# |  |
|        |               |         |         | ±20% | GRM155B31H153MA12# |  |
|        |               | 22000pF |         | ±10% | GRM155B31H223KA12# |  |
|        |               |         |         | ±20% | GRM155B31H223MA12# |  |

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |          |
|--------|---------------|---------|---------|------|--------------------|----------|
| 0.55mm | 50Vdc         | B       | 0.1μF   | ±10% | GRM155B31H104KE14# |          |
|        |               |         |         | ±20% | GRM155B31H104ME14# |          |
|        |               |         | 25Vdc   | ±10% | GRM155R71E682KA01# |          |
|        |               |         |         | ±10% | GRM155R71E103KA01# |          |
|        |               | X7R     | 6800pF  | ±10% | GRM155R71E682KA01# |          |
|        |               |         | 10000pF | ±10% | GRM155R71E103KA01# |          |
|        |               |         | 15000pF | ±10% | GRM155R71E153KA61# |          |
|        |               |         | 22000pF | ±10% | GRM155R71E223KA61# |          |
|        |               |         | 33000pF | ±10% | GRM155R71E333KA88# |          |
|        |               |         | 47000pF | ±10% | GRM155R71E473KA88# |          |
|        |               |         | 0.1μF   | ±10% | GRM155R71E104KE14# |          |
|        |               |         |         | ±20% | GRM155R71E104ME14# |          |
|        |               | R       | 6800pF  | ±10% | GRM155R11E682KA01# |          |
|        |               |         | 10000pF | ±10% | GRM155R11E103KA01# |          |
|        |               |         | 15000pF | ±10% | GRM155R11E153KA61# |          |
|        |               |         | 22000pF | ±10% | GRM155R11E223KA61# |          |
|        |               |         | 33000pF | ±10% | GRM155R11E333KA88# |          |
|        |               |         | 47000pF | ±10% | GRM155R11E473KA88# |          |
|        |               |         | 68000pF | ±10% | GRM155C81E683KA12# |          |
|        |               |         |         | ±10% | GRM155C81E104KA12# |          |
|        |               | X6S     | 0.1μF   | ±10% | GRM155C81E104KA12# |          |
|        |               |         |         | ±20% | GRM155C81E104MA12# |          |
|        |               | X5R     | 68000pF | ±10% | GRM155R61E683KA87# |          |
|        |               |         | 0.1μF   | ±10% | GRM155R61E104KA87# |          |
|        |               |         |         | ±20% | GRM155R61E104MA87# |          |
|        |               |         | 1.0μF   | ±10% | GRM155R61E105KA12# | Derating |
|        |               |         |         | ±20% | GRM155R61E105MA12# | Derating |
|        |               | B       | 4700pF  | ±10% | GRM155B11E472KA01# |          |
|        |               |         | 6800pF  | ±10% | GRM155B11E682KA01# |          |
|        |               |         | 10000pF | ±10% | GRM155B11E103KA01# |          |
|        |               |         |         | ±20% | GRM155B11E103MA01# |          |
|        |               |         |         | ±10% | GRM155B11E153KA61# |          |
|        |               |         |         | ±20% | GRM155B11E153MA61# |          |
|        |               |         |         | ±10% | GRM155B11E223KA61# |          |
|        |               |         |         | ±20% | GRM155B11E223MA61# |          |
|        |               |         |         | ±10% | GRM155B31E333KA87# |          |
|        |               |         |         | ±20% | GRM155B31E333MA87# |          |
|        |               |         |         | ±10% | GRM155B31E473KA87# |          |
|        |               |         |         | ±20% | GRM155B31E473MA87# |          |
|        |               |         |         | ±10% | GRM155B31E683KA87# |          |
|        |               |         |         | ±20% | GRM155B31E683MA87# |          |
|        |               |         |         | ±10% | GRM155B31E104KA87# |          |
|        |               |         | 0.1μF   | ±10% | GRM155B31E104KA87# |          |
|        |               |         |         | ±20% | GRM155B31E104MA87# |          |
|        |               |         | 1.0μF   | ±10% | GRM155B31E105KA12# | Derating |
|        |               |         |         | ±20% | GRM155B31E105MA12# | Derating |
|        | 16Vdc         | X7R     | 33000pF | ±10% | GRM155R71C333KA01# |          |
|        |               |         | 47000pF | ±10% | GRM155R71C473KA01# |          |
|        |               |         | 68000pF | ±10% | GRM155R71C683KA88# |          |
|        |               |         | 0.15μF  | ±10% | GRM155R71C154KA12# |          |
|        |               |         | 0.22μF  | ±10% | GRM155R71C224KA12# |          |
|        |               |         |         | ±10% | GRM155R11C333KA01# |          |
|        |               | R       | 47000pF | ±10% | GRM155R11C473KA01# |          |
|        |               |         | 68000pF | ±10% | GRM155R11C683KA88# |          |
|        |               |         | 33000pF | ±10% | GRM155R61C333KA01# |          |
|        |               | X5R     | 47000pF | ±10% | GRM155R61C473KA01# |          |
|        |               |         | 68000pF | ±10% | GRM155R61C683KA88# |          |
|        |               |         | 68000pF | ±10% | GRM155R61C683KA88# |          |

Part number # indicates the package specification code.

For General Purpose GRM Series  
Capacitor Array GNM Series  
Low ESL LL Series  
High-Q Type GJM Series  
High Frequency GQM Series  
Monolithic Microchip GMA Series  
For Bonding GMD Series  
Product Information

## GRM Series High Dielectric Constant Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |          |
|--------|---------------|---------|---------|------|--------------------|----------|
| 0.55mm | 16Vdc         | X5R     | 1.0μF   | ±10% | GRM155R61C105KA12# |          |
|        |               |         |         | ±20% | GRM155R61C105MA12# |          |
|        |               | B       | 33000pF | ±10% | GRM155B11C333KA01# |          |
|        |               |         | 47000pF | ±10% | GRM155B11C473KA01# |          |
|        |               |         | 68000pF | ±10% | GRM155B31C683KA87# |          |
|        |               |         |         | ±20% | GRM155B31C105KA12# |          |
|        |               | X7R     | 68000pF | ±10% | GRM155R71A683KA01# |          |
|        |               |         |         | ±20% | GRM155R71A683MA01# |          |
|        |               |         | 68000pF | ±10% | GRM155R11A683KA01# |          |
|        |               |         |         | ±20% | GRM155R11A683MA01# |          |
|        |               | X6S     | 1.0μF   | ±10% | GRM155C81A105KA12# |          |
|        |               |         |         | ±20% | GRM155C81A105MA12# |          |
|        | 10Vdc         | X5R     | 0.15μF  | ±10% | GRM155R61A154KE19# |          |
|        |               |         |         | ±20% | GRM155R61A154ME19# |          |
|        |               |         | 0.22μF  | ±10% | GRM155R61A224KE19# |          |
|        |               |         |         | ±20% | GRM155R61A224ME19# |          |
|        |               | X6S     | 0.33μF  | ±10% | GRM155R61A334KE15# |          |
|        |               |         |         | ±20% | GRM155R61A334ME15# |          |
|        |               |         | 0.47μF  | ±10% | GRM155R61A474KE15# |          |
|        |               |         |         | ±20% | GRM155R61A474ME15# |          |
|        |               | X7R     | 0.68μF  | ±10% | GRM155R61A684KE15# |          |
|        |               |         |         | ±20% | GRM155R61A684ME15# |          |
|        |               |         | 2.2μF   | ±10% | GRM155R61A225KE95# | Derating |
|        |               |         |         | ±20% | GRM155R61A225ME95# | Derating |
|        |               | B       | 0.15μF  | ±10% | GRM155B31A154KE18# |          |
|        |               |         |         | ±20% | GRM155B31A154ME18# |          |
|        |               |         | 0.22μF  | ±10% | GRM155B31A224KE18# |          |
|        |               |         |         | ±20% | GRM155B31A224ME18# |          |
|        |               |         | 0.33μF  | ±10% | GRM155B31A334KE14# |          |
|        |               |         |         | ±20% | GRM155B31A334ME14# |          |
|        |               |         | 0.47μF  | ±10% | GRM155B31A474KE14# |          |
|        |               |         |         | ±20% | GRM155B31A474ME14# |          |
|        |               |         | 0.68μF  | ±10% | GRM155B31A684KE15# |          |
|        |               |         |         | ±20% | GRM155B31A684ME15# |          |
|        |               |         | 2.2μF   | ±10% | GRM155B31A225KE95# | Derating |
|        |               |         |         | ±20% | GRM155B31A225ME95# | Derating |
|        | 6.3Vdc        | X7R     | 1.0μF   | ±10% | GRM155R70J105KA12# | Derating |
|        |               |         |         | ±20% | GRM155R70J105MA12# | Derating |
|        |               | X6S     | 0.15μF  | ±10% | GRM155C80J154KE01# |          |
|        |               |         |         | ±20% | GRM155C80J154ME01# |          |
|        |               |         | 0.22μF  | ±10% | GRM155C80J224KE01# |          |
|        |               |         |         | ±20% | GRM155C80J224ME01# |          |
|        |               |         | 0.33μF  | ±10% | GRM155C80J334KE01# |          |
|        |               |         |         | ±20% | GRM155C80J334ME01# |          |
|        |               |         | 0.47μF  | ±10% | GRM155C80J474KE19# |          |
|        |               |         |         | ±20% | GRM155C80J474ME19# |          |
|        |               |         | 2.2μF   | ±10% | GRM155C80J225KE95# | Derating |
|        |               |         |         | ±20% | GRM155C80J225ME95# | Derating |
|        |               | X5R     | 0.15μF  | ±10% | GRM155R60J154KE01# |          |
|        |               |         |         | ±20% | GRM155R60J154ME01# |          |
|        |               |         | 0.22μF  | ±10% | GRM155R60J224KE01# |          |
|        |               |         |         | ±20% | GRM155R60J224ME01# |          |
|        |               | X6S     | 0.33μF  | ±10% | GRM155C80J334KE01# |          |
|        |               |         |         | ±10% | GRM155R60J334KE01# |          |

| T max. | Rated Voltage | TC Code | Cap.   | Tol. | Part Number        |          |
|--------|---------------|---------|--------|------|--------------------|----------|
| 0.55mm | 6.3Vdc        | X5R     | 0.33μF | ±20% | GRM155R60J334ME01# |          |
|        |               |         |        | ±10% | GRM155R60J474KE19# |          |
|        |               |         | 0.47μF | ±10% | GRM155R60J474ME19# |          |
|        |               |         |        | ±20% | GRM155R60J474ME19# |          |
|        |               |         | 0.68μF | ±10% | GRM155R60J684KE19# |          |
|        |               |         |        | ±20% | GRM155R60J684ME19# |          |
|        |               |         | 2.2μF  | ±10% | GRM155R60J225KE95# |          |
|        |               |         |        | ±20% | GRM155R60J225ME95# |          |
|        |               | B       | 0.15μF | ±10% | GRM155B10J154KE01# |          |
|        |               |         |        | ±20% | GRM155B10J154ME01# |          |
|        |               |         | 0.22μF | ±10% | GRM155B10J224KE01# |          |
|        |               |         |        | ±20% | GRM155B10J224ME01# |          |
|        |               |         | 0.33μF | ±10% | GRM155B10J334KE01# |          |
|        |               |         |        | ±20% | GRM155B10J334ME01# |          |
|        |               |         | 0.47μF | ±10% | GRM155B30J474KE18# |          |
|        |               |         |        | ±20% | GRM155B30J474ME18# |          |
|        |               |         | 0.68μF | ±10% | GRM155B30J684KE18# |          |
|        |               |         |        | ±20% | GRM155B30J684ME18# |          |
|        |               |         | 2.2μF  | ±10% | GRM155B30J225KE95# |          |
|        |               |         |        | ±20% | GRM155B30J225ME95# |          |
|        | 4Vdc          | X7R     | 1.0μF  | ±10% | GRM155R70G105KA12# |          |
|        |               |         |        | ±20% | GRM155R70G105MA12# |          |
|        |               |         | 0.15μF | ±10% | GRM155C80G154KE01# |          |
|        |               |         |        | ±20% | GRM155C80G154ME01# |          |
|        |               |         | 0.22μF | ±10% | GRM155C80G224KE01# |          |
|        |               |         |        | ±20% | GRM155C80G224ME01# |          |
|        |               |         | 0.33μF | ±10% | GRM155C80G334KE01# |          |
|        |               |         |        | ±20% | GRM155C80G334ME01# |          |
|        |               |         | 0.47μF | ±10% | GRM155C80G474KE01# |          |
|        |               |         |        | ±20% | GRM155C80G474ME01# |          |
|        |               | X6T     | 2.2μF  | ±10% | GRM155D80G225KE95# |          |
|        |               |         |        | ±20% | GRM155D80G225ME95# |          |
|        | 6.3Vdc        | X5R     | 4.7μF  | ±20% | GRM155R60J475ME47# | Derating |
|        |               |         |        | ±20% | GRM155B30J475ME47# | Derating |
|        |               | B       | 4.7μF  | ±20% | GRM155R60G475ME47# |          |
|        |               |         |        | ±20% | GRM155B30G475ME47# |          |
|        |               | X6T     | 4.7μF  | ±20% | GRM155D80E475ME47# | Derating |
|        |               |         |        | ±20% | GRM155R60G106ME44# |          |
|        | 2.5Vdc        | X5R     | 10μF   | ±20% | GRM155R60E106ME16# |          |
|        |               |         |        | ±20% | GRM155R60E106ME16# |          |

■ 1.6×0.8mm

| T max. | Rated Voltage | TC Code | Cap.  | Tol. | Part Number        |          |
|--------|---------------|---------|-------|------|--------------------|----------|
| 0.5mm  | 25Vdc         | X5R     | 1.0μF | ±10% | GRM185R61E105KA12# | Derating |
|        |               |         |       | ±20% | GRM185R61E105MA12# | Derating |
|        |               |         |       | ±10% | GRM185B31E105KA12# | Derating |
|        |               | B       | 1.0μF | ±10% | GRM185B31E105MA12# | Derating |
|        |               |         |       | ±20% | GRM185B31E105ME44# |          |
|        |               |         |       | ±20% | GRM185B31C105ME43# |          |
|        | 16Vdc         | X5R     | 1.0μF | ±10% | GRM185R61C105KE44# |          |
|        |               |         |       | ±20% | GRM185R61C105ME44# |          |
|        |               |         |       | ±10% | GRM185B31C105KE43# |          |
|        |               | B       | 1.0μF | ±10% | GRM185B31C105ME43# |          |
|        |               |         |       | ±20% | GRM185B31C105ME43# |          |
|        |               |         |       | ±10% | GRM188R72A221KA01# |          |
| 0.9mm  | 100Vdc        | X7R     | 220pF | ±10% | GRM188R72A221KA01# |          |
|        |               |         | 330pF | ±10% | GRM188R72A331KA01# |          |
|        |               |         | 470pF | ±10% | GRM188R72A471KA01# |          |

Part number # indicates the package specification code.

# GRM Series High Dielectric Constant Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.9mm  | 100Vdc        | X7R     | 680pF   | ±10% | GRM188R72A681KA01# |  |
|        |               |         | 1000pF  | ±10% | GRM188R72A102KA01# |  |
|        |               |         | 1500pF  | ±10% | GRM188R72A152KA01# |  |
|        |               |         | 2200pF  | ±10% | GRM188R72A222KA01# |  |
|        |               |         | 3300pF  | ±10% | GRM188R72A332KA01# |  |
|        |               |         | 4700pF  | ±10% | GRM188R72A472KA01# |  |
|        |               |         | 6800pF  | ±10% | GRM188R72A682KA01# |  |
|        |               |         | 10000pF | ±10% | GRM188R72A103KA01# |  |
|        |               |         | 15000pF | ±10% | GRM188R72A153KAC4# |  |
|        |               |         |         | ±20% | GRM188R72A153MAC4# |  |
|        |               |         | 22000pF | ±10% | GRM188R72A223KAC4# |  |
|        |               |         |         | ±20% | GRM188R72A223MAC4# |  |
|        |               |         | 0.1μF   | ±10% | GRM188R72A104KA35# |  |
|        | 50Vdc         | X7R     | 220pF   | ±10% | GRM188R71H221KA01# |  |
|        |               |         | 330pF   | ±10% | GRM188R71H331KA01# |  |
|        |               |         | 470pF   | ±10% | GRM188R71H471KA01# |  |
|        |               |         | 680pF   | ±10% | GRM188R71H681KA01# |  |
|        |               |         | 1000pF  | ±10% | GRM188R71H102KA01# |  |
|        |               |         | 1500pF  | ±10% | GRM188R71H152KA01# |  |
|        |               |         | 2200pF  | ±10% | GRM188R71H222KA01# |  |
|        |               |         | 3300pF  | ±10% | GRM188R71H332KA01# |  |
|        |               |         | 4700pF  | ±10% | GRM188R71H472KA01# |  |
|        |               |         | 6800pF  | ±10% | GRM188R71H682KA01# |  |
|        |               |         | 10000pF | ±10% | GRM188R71H103KA01# |  |
|        |               |         | 15000pF | ±10% | GRM188R71H153KA01# |  |
|        |               |         | 22000pF | ±10% | GRM188R71H223KA01# |  |
|        |               |         | 33000pF | ±10% | GRM188R71H333KA61# |  |
|        |               |         | 47000pF | ±10% | GRM188R71H473KA61# |  |
|        |               |         | 68000pF | ±10% | GRM188R71H683KA93# |  |
|        |               |         | 0.1μF   | ±10% | GRM188R71H104KA93# |  |
|        |               | R       | 220pF   | ±10% | GRM188R11H221KA01# |  |
|        |               |         | 330pF   | ±10% | GRM188R11H331KA01# |  |
|        |               |         | 470pF   | ±10% | GRM188R11H471KA01# |  |
|        |               |         | 680pF   | ±10% | GRM188R11H681KA01# |  |
|        |               |         | 1000pF  | ±10% | GRM188R11H102KA01# |  |
|        |               |         | 1500pF  | ±10% | GRM188R11H152KA01# |  |
|        |               |         | 2200pF  | ±10% | GRM188R11H222KA01# |  |
|        |               |         | 3300pF  | ±10% | GRM188R11H332KA01# |  |
|        |               |         | 4700pF  | ±10% | GRM188R11H472KA01# |  |
|        |               |         | 6800pF  | ±10% | GRM188R11H682KA01# |  |
|        |               |         | 10000pF | ±10% | GRM188R11H103KA01# |  |
|        |               |         | 15000pF | ±10% | GRM188R11H153KA01# |  |
|        |               |         | 22000pF | ±10% | GRM188R11H223KA01# |  |
|        |               |         | 33000pF | ±10% | GRM188R11H333KA61# |  |
|        |               |         | 47000pF | ±10% | GRM188R11H473KA61# |  |
|        |               |         | 68000pF | ±10% | GRM188R11H683KA93# |  |
|        |               |         | 0.1μF   | ±10% | GRM188R11H104KA93# |  |
|        |               | X5R     | 1000pF  | ±10% | GRM188R61H102KA01# |  |
|        |               |         | 2200pF  | ±10% | GRM188R61H222KA01# |  |
|        |               |         | 4700pF  | ±10% | GRM188R61H472KA01# |  |
|        |               |         | 10000pF | ±10% | GRM188R61H103KA01# |  |
|        |               |         | 22000pF | ±10% | GRM188R61H223KA01# |  |
|        |               |         | 0.22μF  | ±10% | GRM188R61H224KAC4# |  |
|        |               |         | 0.47μF  | ±10% | GRM188R61H474KA12# |  |

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.9mm  | 50Vdc         | X5R     | 0.47μF  | ±20% | GRM188R61H474MA12# |  |
|        |               |         | 1.0μF   | ±10% | GRM188R61H105KAAL# |  |
|        |               |         |         | ±20% | GRM188R61H105MAAL# |  |
|        |               | B       | 220pF   | ±10% | GRM188B11H221KA01# |  |
|        |               |         |         | ±20% | GRM188B11H221MA01# |  |
|        |               |         | 330pF   | ±10% | GRM188B11H331KA01# |  |
|        |               |         |         | ±20% | GRM188B11H331MA01# |  |
|        |               |         | 470pF   | ±10% | GRM188B11H471KA01# |  |
|        |               |         |         | ±20% | GRM188B11H471MA01# |  |
|        |               |         | 680pF   | ±10% | GRM188B11H681KA01# |  |
|        |               |         |         | ±20% | GRM188B11H681MA01# |  |
|        |               |         | 1000pF  | ±10% | GRM188B11H102KA01# |  |
|        |               |         |         | ±20% | GRM188B11H102MA01# |  |
|        |               |         | 1500pF  | ±10% | GRM188B11H152KA01# |  |
|        |               |         |         | ±20% | GRM188B11H152MA01# |  |
|        |               |         | 2200pF  | ±10% | GRM188B11H222KA01# |  |
|        |               |         |         | ±20% | GRM188B11H222MA01# |  |
|        |               |         | 3300pF  | ±10% | GRM188B11H332KA01# |  |
|        |               |         |         | ±20% | GRM188B11H332MA01# |  |
|        |               |         | 4700pF  | ±10% | GRM188B11H472KA01# |  |
|        |               |         |         | ±20% | GRM188B11H472MA01# |  |
|        |               |         | 6800pF  | ±10% | GRM188B11H682KA01# |  |
|        |               |         |         | ±20% | GRM188B11H682MA01# |  |
|        |               |         | 10000pF | ±10% | GRM188B11H103KA01# |  |
|        |               |         |         | ±20% | GRM188B11H103MA01# |  |
|        |               |         | 15000pF | ±10% | GRM188B11H153KA01# |  |
|        |               |         |         | ±20% | GRM188B11H153MA01# |  |
|        |               |         | 22000pF | ±10% | GRM188B11H223KA01# |  |
|        |               |         |         | ±20% | GRM188B11H223MA01# |  |
|        |               |         | 33000pF | ±10% | GRM188B11H333KA61# |  |
|        |               |         |         | ±20% | GRM188B11H333MA61# |  |
|        |               |         | 47000pF | ±10% | GRM188B11H473KA61# |  |
|        |               |         |         | ±20% | GRM188B11H473MA61# |  |
|        |               |         | 68000pF | ±10% | GRM188B31H683KA92# |  |
|        |               |         |         | ±20% | GRM188B31H683MA92# |  |
|        |               |         | 0.1μF   | ±10% | GRM188B31H104KA92# |  |
|        |               |         |         | ±20% | GRM188B31H104MA92# |  |
|        |               |         | 0.15μF  | ±10% | GRM188B31H154KAC4# |  |
|        |               |         |         | ±20% | GRM188B31H154MAC4# |  |
|        |               |         | 0.22μF  | ±10% | GRM188B31H224KAC4# |  |
|        |               |         |         | ±20% | GRM188B31H224MAC4# |  |
|        |               |         | 1.0μF   | ±10% | GRM188B31H105KAAL# |  |
|        |               |         |         | ±20% | GRM188B31H105MAAL# |  |
|        | 25Vdc         | X7R     | 15000pF | ±10% | GRM188R71E153KA01# |  |
|        |               |         | 22000pF | ±10% | GRM188R71E223KA01# |  |
|        |               |         |         | ±20% | GRM188R71E223MA01# |  |
|        |               |         | 33000pF | ±10% | GRM188R71E333KA01# |  |
|        |               |         | 47000pF | ±10% | GRM188R71E473KA01# |  |
|        |               |         | 68000pF | ±10% | GRM188R71E683KA01# |  |
|        |               |         | 0.15μF  | ±10% | GRM188R71E154KA01# |  |
|        |               |         | 0.22μF  | ±10% | GRM188R71E224KA88# |  |
|        |               |         | 0.47μF  | ±10% | GRM188R71E474KA12# |  |
|        |               |         | 1.0μF   | ±10% | GRM188R71E105KA12# |  |
|        |               |         |         | ±20% | GRM188R71E105MA12# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LL□ Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GRM Series High Dielectric Constant Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.9mm  | 25Vdc         | R       | 15000pF | ±10% | GRM188R11E153KA01# |  |
|        |               |         | 22000pF | ±10% | GRM188R11E223KA01# |  |
|        |               |         |         | ±20% | GRM188R11E223MA01# |  |
|        |               |         | 33000pF | ±10% | GRM188R11E333KA01# |  |
|        |               |         | 47000pF | ±10% | GRM188R11E473KA01# |  |
|        |               |         | 68000pF | ±10% | GRM188R11E683KA01# |  |
|        |               |         | 0.15μF  | ±10% | GRM188R11E154KA01# |  |
|        |               |         | 0.22μF  | ±10% | GRM188R11E224KA88# |  |
|        |               | X6S     | 1.0μF   | ±10% | GRM188C81E105KAAD# |  |
|        |               |         |         | ±20% | GRM188C81E105MAAD# |  |
|        |               | X5R     | 0.1μF   | ±10% | GRM188R61E104KA01# |  |
|        |               |         |         | ±10% | GRM188R61E224KA88# |  |
|        |               |         | 0.47μF  | ±10% | GRM188R61E474KA12# |  |
|        |               |         |         | ±20% | GRM188R61E474MA12# |  |
|        |               |         | 0.68μF  | ±10% | GRM188R61E684KA75# |  |
|        |               |         |         | ±20% | GRM188R61E684MA75# |  |
|        |               |         | 1.0μF   | ±10% | GRM188R61E105KA12# |  |
|        |               |         |         | ±20% | GRM188R61E105MA12# |  |
|        |               |         | 2.2μF   | ±10% | GRM188R61E225KA12# |  |
|        |               |         |         | ±20% | GRM188R61E225MA12# |  |
|        |               | B       | 2200pF  | ±10% | GRM188B11E222KA01# |  |
|        |               |         | 3300pF  | ±10% | GRM188B11E332KA01# |  |
|        |               |         | 4700pF  | ±10% | GRM188B11E472KA01# |  |
|        |               |         | 6800pF  | ±10% | GRM188B11E682KA01# |  |
|        |               |         | 10000pF | ±10% | GRM188B11E103KA01# |  |
|        |               |         |         | ±20% | GRM188B11E103MA01# |  |
|        |               |         | 15000pF | ±10% | GRM188B11E153KA01# |  |
|        |               |         |         | ±20% | GRM188B11E153MA01# |  |
|        |               |         | 22000pF | ±10% | GRM188B11E223KA01# |  |
|        |               |         |         | ±20% | GRM188B11E223MA01# |  |
|        |               |         | 33000pF | ±10% | GRM188B11E333KA01# |  |
|        |               |         |         | ±20% | GRM188B11E333MA01# |  |
|        |               |         | 47000pF | ±10% | GRM188B11E473KA01# |  |
|        |               |         |         | ±20% | GRM188B11E473MA01# |  |
|        |               |         | 68000pF | ±10% | GRM188B11E683KA01# |  |
|        |               |         |         | ±20% | GRM188B11E683MA01# |  |
|        |               |         | 0.1μF   | ±10% | GRM188B11E104KA01# |  |
|        |               |         |         | ±20% | GRM188B11E104MA01# |  |
|        |               |         | 0.15μF  | ±10% | GRM188B11E154KA01# |  |
|        |               |         | 0.22μF  | ±10% | GRM188B31E224KA87# |  |
|        |               |         | 0.47μF  | ±10% | GRM188B31E474KA75# |  |
|        |               |         |         | ±20% | GRM188B31E474MA75# |  |
|        |               |         | 0.68μF  | ±10% | GRM188B31E684KA75# |  |
|        |               |         |         | ±20% | GRM188B31E684MA75# |  |
|        |               |         | 1.0μF   | ±10% | GRM188B31E105KA75# |  |
|        |               |         |         | ±20% | GRM188B31E105MA75# |  |
|        |               |         | 2.2μF   | ±10% | GRM188B31E225KA12# |  |
|        |               |         |         | ±20% | GRM188B31E225MA12# |  |
|        | 16Vdc         | X7R     | 0.15μF  | ±10% | GRM188R71C154KA01# |  |
|        |               |         | 0.22μF  | ±10% | GRM188R71C224KA01# |  |
|        |               |         | 0.33μF  | ±10% | GRM188R71C334KA01# |  |
|        |               |         | 0.47μF  | ±10% | GRM188R71C474KA88# |  |
|        |               |         | 1.0μF   | ±10% | GRM188R71C105KA12# |  |
|        |               |         |         | ±10% | GRM188R71C105KE15# |  |
|        |               |         |         |      |                    |  |
|        |               |         |         |      |                    |  |
|        |               |         |         |      |                    |  |
|        |               |         |         |      |                    |  |

| T max. | Rated Voltage | TC Code | Cap.   | Tol. | Part Number        |  |
|--------|---------------|---------|--------|------|--------------------|--|
| 0.9mm  | 16Vdc         | X7R     | 1.0μF  | ±20% | GRM188R71C105MA12# |  |
|        |               |         |        | ±20% | GRM188R71C105ME15# |  |
|        |               | X7S     | 0.68μF | ±10% | GRM188C71C684KA12# |  |
|        |               |         |        | ±10% | GRM188R11C154KA01# |  |
|        |               | R       | 0.15μF | ±10% | GRM188R11C154KA01# |  |
|        |               |         | 0.22μF | ±10% | GRM188R11C224KA01# |  |
|        |               |         | 0.33μF | ±10% | GRM188R11C334KA01# |  |
|        |               |         | 0.47μF | ±10% | GRM188R11C474KA88# |  |
|        |               | X6S     | 1.0μF  | ±10% | GRM188C81C105KA12# |  |
|        |               |         |        | ±20% | GRM188C81C105MA12# |  |
|        |               |         | 2.2μF  | ±10% | GRM188C81C225KA12# |  |
|        |               |         |        | ±20% | GRM188C81C225MA12# |  |
|        |               | X5R     | 0.22μF | ±10% | GRM188R61C224KA88# |  |
|        |               |         |        | ±10% | GRM188R61C224KA75# |  |
|        |               |         | 0.68μF | ±10% | GRM188R61C684KA75# |  |
|        |               |         |        | ±20% | GRM188R61C684MA75# |  |
|        |               |         | 1.0μF  | ±10% | GRM188R61C105KA93# |  |
|        |               |         | 2.2μF  | ±10% | GRM188R61C225KE15# |  |
|        |               | B       | 0.15μF | ±10% | GRM188B11C154KA01# |  |
|        |               |         |        | ±10% | GRM188B11C224KA01# |  |
|        |               |         | 0.22μF | ±10% | GRM188B11C224KA01# |  |
|        |               |         |        | ±10% | GRM188B11C334KA01# |  |
|        |               |         | 0.33μF | ±10% | GRM188B11C334MA01# |  |
|        |               |         |        | ±20% | GRM188B11C334MA01# |  |
|        |               |         | 0.68μF | ±10% | GRM188B31C684KA75# |  |
|        |               |         |        | ±20% | GRM188B31C684MA75# |  |
|        |               |         | 1.0μF  | ±10% | GRM188B31C105KA92# |  |
|        |               |         |        | ±20% | GRM188B31C105MA92# |  |
|        |               |         | 2.2μF  | ±10% | GRM188B31C225KE14# |  |
|        | 10Vdc         | X7R     | 0.33μF | ±10% | GRM188R71A334KA61# |  |
|        |               |         |        | ±20% | GRM188R71A334MA61# |  |
|        |               |         | 0.47μF | ±10% | GRM188R71A474KA61# |  |
|        |               |         |        | ±10% | GRM188R71A474KA61# |  |
|        |               |         | 0.68μF | ±10% | GRM188R71A684KA61# |  |
|        |               |         |        | ±20% | GRM188R71A684MA61# |  |
|        |               |         | 2.2μF  | ±10% | GRM188R71A225KE15# |  |
|        |               |         |        | ±20% | GRM188R71A225ME15# |  |
|        |               | X7T     | 2.2μF  | ±10% | GRM188D71A225KE34# |  |
|        |               |         |        | ±20% | GRM188D71A225ME34# |  |
|        |               | X6S     | 2.2μF  | ±10% | GRM188C81A225KE34# |  |
|        |               |         |        | ±20% | GRM188C81A225ME34# |  |
|        |               | X5R     | 0.33μF | ±10% | GRM188R61A334KA61# |  |
|        |               |         |        | ±20% | GRM188R61A334MA61# |  |
|        |               |         | 0.68μF | ±10% | GRM188R61A684KA61# |  |
|        |               |         |        | ±20% | GRM188R61A684MA61# |  |
|        |               |         | 2.2μF  | ±10% | GRM188R61A225KE34# |  |
|        |               |         |        | ±20% | GRM188R61A225ME34# |  |
|        |               | B       | 0.33μF | ±10% | GRM188B11A334KA61# |  |
|        |               |         |        | ±20% | GRM188B11A334MA61# |  |
|        |               |         | 0.68μF | ±10% | GRM188B11A684KA61# |  |
|        |               |         |        | ±20% | GRM188B11A684MA61# |  |
|        |               |         | 2.2μF  | ±10% | GRM188B31A225KE33# |  |
|        |               |         |        | ±20% | GRM188B31A225ME33# |  |
|        | 6.3Vdc        | X7R     | 1.0μF  | ±10% | GRM188R70J105KA01# |  |
|        |               |         |        | ±20% | GRM188R70J105MA01# |  |
|        |               | X7S     | 2.2μF  | ±10% | GRM188C70J225KE20# |  |
|        |               |         |        | ±20% | GRM188C70J225ME20# |  |
|        |               | X6S     | 2.2μF  | ±10% | GRM188C80J225KE19# |  |
|        |               |         |        | ±20% | GRM188C80J225ME19# |  |
|        |               |         |        |      |                    |  |
|        |               |         |        |      |                    |  |
|        |               |         |        |      |                    |  |
|        |               |         |        |      |                    |  |

Part number # indicates the package specification code.

## GRM Series High Dielectric Constant Type Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol. | Part Number        |  |
|--------|---------------|---------|-------|------|--------------------|--|
| 0.9mm  | 6.3Vdc        | X6S     | 4.7μF | ±10% | GRM188C80J475KE15# |  |
|        |               |         |       | ±20% | GRM188C80J475ME15# |  |
|        |               | X5R     | 10μF  | ±20% | GRM188R60J106ME47# |  |
|        |               | B       | 10μF  | ±20% | GRM188B30J106ME47# |  |
|        | 4Vdc          | X6S     | 4.7μF | ±10% | GRM188C80G475KE19# |  |
|        |               |         |       | ±20% | GRM188C80G475ME19# |  |
|        |               |         | 10μF  | ±20% | GRM188C80G106ME47# |  |
|        |               | X5R     | 10μF  | ±20% | GRM188R60G106ME47# |  |
|        |               | B       | 10μF  | ±20% | GRM188B30G106ME46# |  |
|        | 2.5Vdc        | X6S     | 10μF  | ±20% | GRM188C80E106ME47# |  |
| 0.95mm | 25Vdc         | X5R     | 4.7μF | ±10% | GRM188R61E475KE11# |  |
|        |               |         |       | ±10% | GRM188R61C475KAAJ# |  |
|        | 16Vdc         | X5R     | 4.7μF | ±10% | GRM188R61C475MAAJ# |  |
|        |               |         |       | ±20% | GRM188R61C475MAAJ# |  |
|        |               | B       | 4.7μF | ±10% | GRM188B31C475KAAJ# |  |
|        |               |         |       | ±20% | GRM188B31C475MAAJ# |  |
|        | 10Vdc         | B       | 10μF  | ±20% | GRM188B31A106ME69# |  |
|        | 35Vdc         | X5R     | 4.7μF | ±10% | GRM188R6YA475KE15# |  |
|        |               |         |       | ±20% | GRM188R6YA475ME15# |  |
|        | 25Vdc         | X5R     | 4.7μF | ±10% | GRM188R61E475KE15# |  |
|        |               |         |       | ±20% | GRM188R61E475ME15# |  |
|        |               |         | 10μF  | ±20% | GRM188R61E106MA73# |  |
|        |               |         |       | ±20% | GRM188R61E106MA73# |  |
| 1mm    | 16Vdc         | X6S     | 10μF  | ±20% | GRM188C81C106MA73# |  |
|        |               | X5R     | 10μF  | ±20% | GRM188R61C106MA73# |  |
|        | 10Vdc         | X7T     | 10μF  | ±20% | GRM188D71A106MA73# |  |
|        |               | X6S     | 10μF  | ±20% | GRM188C81A106MA73# |  |
|        | 6.3Vdc        | X7T     | 10μF  | ±20% | GRM188D70J106MA73# |  |
|        |               | X5R     | 22μF  | ±20% | GRM188R60J226MEA0# |  |
|        |               | B       | 22μF  | ±20% | GRM188B30J226MEA0# |  |
|        |               |         |       |      |                    |  |
|        | 4Vdc          | X6S     | 22μF  | ±20% | GRM188C80G226MEA0# |  |
|        |               | X5R     | 22μF  | ±20% | GRM188R60G226MEA0# |  |
|        |               | B       | 22μF  | ±20% | GRM188B30G226MEA0# |  |

■ 2.0×1.25mm

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.7mm  | 25Vdc         | X5R     | 1.0μF   | ±10% | GRM216R61E105KA12# |  |
|        | 16Vdc         | X6S     | 1.0μF   | ±10% | GRM216C81C105KA12# |  |
| 0.95mm | 100Vdc        | X7R     | 6800pF  | ±10% | GRM219R72A682KA01# |  |
|        |               |         | 10000pF | ±10% | GRM219R72A103KA01# |  |
|        |               |         |         | ±20% | GRM219R72A103MA01# |  |
|        | 50Vdc         | X7R     | 10000pF | ±10% | GRM219R71H103KA01# |  |
|        |               |         |         | ±20% | GRM219R71H103MA01# |  |
|        |               |         | 15000pF | ±10% | GRM219R71H153KA01# |  |
|        |               |         |         | ±20% | GRM219R71H153MA01# |  |
|        |               |         | 33000pF | ±10% | GRM219R71H333KA01# |  |
|        |               |         | 0.33μF  | ±10% | GRM219R71H334KA88# |  |
|        |               | R       | 33000pF | ±10% | GRM219R11H333KA01# |  |
|        |               | X5R     | 1.0μF   | ±10% | GRM219R61H105KA73# |  |
|        |               |         |         | ±20% | GRM219R61H105MA73# |  |
|        |               |         | 2.2μF   | ±10% | GRM219R61H225KE15# |  |
|        |               |         |         | ±20% | GRM219R61H225ME15# |  |
|        |               | B       | 33000pF | ±10% | GRM219B11H333KA01# |  |
|        |               |         | 0.33μF  | ±10% | GRM219B31H334KA87# |  |

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.95mm | 50Vdc         | B       | 0.33μF  | ±20% | GRM219B31H334MA87# |  |
|        |               |         | 1.0μF   | ±10% | GRM219B31H105KA73# |  |
|        |               |         |         | ±20% | GRM219B31H105MA73# |  |
|        |               |         | 2.2μF   | ±10% | GRM219B31H225KE15# |  |
|        |               |         |         | ±20% | GRM219B31H225ME15# |  |
|        |               |         |         |      |                    |  |
|        | 35Vdc         | X6S     | 2.2μF   | ±10% | GRM219C8YA225KE15# |  |
|        |               |         |         | ±20% | GRM219C8YA225ME15# |  |
|        |               | X5R     | 4.7μF   | ±10% | GRM219R6YA475KA73# |  |
|        |               |         |         | ±20% | GRM219R6YA475MA73# |  |
|        |               |         |         |      |                    |  |
|        |               |         |         |      |                    |  |
|        | 25Vdc         | X7R     | 68000pF | ±10% | GRM219R71E683KA01# |  |
|        |               |         | 0.1μF   | ±10% | GRM219R71E104KA01# |  |
|        |               |         |         | ±20% | GRM219R71E104MA01# |  |
|        |               |         | 0.68μF  | ±10% | GRM219R71E684KA88# |  |
|        |               |         | 1.0μF   | ±10% | GRM219R71E105KA88# |  |
|        |               |         |         |      |                    |  |
|        |               | R       | 68000pF | ±10% | GRM219R11E683KA01# |  |
|        |               | X6S     | 2.2μF   | ±10% | GRM219C81E225KE15# |  |
|        |               |         |         | ±20% | GRM219C81E225ME15# |  |
|        |               | X5R     | 2.2μF   | ±10% | GRM219R61E225KA12# |  |
|        |               |         |         | ±20% | GRM219R61E225MA12# |  |
|        |               |         | 4.7μF   | ±10% | GRM219R61E475KA73# |  |
|        |               |         |         | ±20% | GRM219R61E475MA73# |  |
|        |               |         | 10μF    | ±10% | GRM219R61E106KA12# |  |
|        |               |         |         | ±20% | GRM219R61E106MA12# |  |
|        |               | B       | 0.47μF  | ±10% | GRM219B31E474KA88# |  |
|        |               |         | 0.68μF  | ±10% | GRM219B31E684KA88# |  |
|        |               |         | 1.0μF   | ±10% | GRM219B31E105KA88# |  |
|        |               |         | 2.2μF   | ±10% | GRM219B31E225KA75# |  |
|        |               |         |         | ±20% | GRM219B31E225MA75# |  |
|        |               |         | 10μF    | ±10% | GRM219B31E106KA12# |  |
|        |               |         |         | ±20% | GRM219B31E106MA12# |  |
|        | 16Vdc         | X7R     | 0.33μF  | ±10% | GRM219R71C334KA88# |  |
|        |               |         | 0.68μF  | ±10% | GRM219R71C684KA01# |  |
|        |               |         | 2.2μF   | ±10% | GRM219R71C225KE15# |  |
|        |               | R       |         | ±20% | GRM219R71C225ME15# |  |
|        |               |         | 0.68μF  | ±10% | GRM219R11C684KA01# |  |
|        |               |         |         |      |                    |  |
|        | 10Vdc         | X6S     | 4.7μF   | ±10% | GRM219C81C475KA73# |  |
|        |               |         |         | ±20% | GRM219C81C475MA73# |  |
|        |               | X5R     | 4.7μF   | ±10% | GRM219R61C475KE15# |  |
|        |               |         | 10μF    | ±10% | GRM219R61C106KA73# |  |
|        |               | B       |         | ±20% | GRM219R61C106MA73# |  |
|        |               |         | 0.68μF  | ±10% | GRM219B11C684KA01# |  |
|        |               |         | 4.7μF   | ±10% | GRM219B31C475KE15# |  |
|        |               |         | 10μF    | ±10% | GRM219B31C106KA73# |  |
|        |               |         |         | ±20% | GRM219B31C106MA73# |  |
|        |               | X7R     | 2.2μF   | ±10% | GRM219R71A225KE15# |  |
|        |               |         |         | ±20% | GRM219R71A225ME15# |  |
|        |               | X7T     | 4.7μF   | ±10% | GRM219D71A475KE15# |  |
|        |               |         |         | ±20% | GRM219D71A475ME15# |  |
|        | 6.3Vdc        | X5R     | 22μF    | ±20% | GRM219R61A226MEA0# |  |
|        |               |         |         |      |                    |  |
|        |               | B       | 22μF    | ±20% | GRM219B31A226MEA0# |  |
|        |               |         |         |      |                    |  |
|        |               | X6S     | 10μF    | ±10% | GRM219C80J106KE39# |  |
|        |               |         |         | ±20% | GRM219C80J106ME39# |  |
|        |               | X5R     | 22μF    | ±20% | GRM219R60J226ME47# |  |
|        |               |         |         |      |                    |  |
|        |               | B       | 22μF    | ±20% | GRM219B30J226ME47# |  |

Part number # indicates the package specification code.

## GRM Series High Dielectric Constant Type Part Number List

(→ ■ 2.0×1.25mm)

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |          |
|--------|---------------|---------|---------|------|--------------------|----------|
| 0.95mm | 4Vdc          | X6S     | 10μF    | ±10% | GRM219C80G106KE19# |          |
|        |               |         |         | ±20% | GRM219C80G106ME19# |          |
|        |               | X5R     | 47μF    | ±20% | GRM219R60G476ME44# | Derating |
| 1mm    | 100Vdc        | X7R     | 0.22μF  | ±10% | GRM21AR72A224KAC5# |          |
|        |               |         | 0.33μF  | ±10% | GRM21AR72A334KAC5# |          |
|        | 50Vdc         | X7R     | 22000pF | ±10% | GRM219R71H223KA17# |          |
|        |               |         |         | ±20% | GRM219R71H223MA17# |          |
| 1.35mm | 100Vdc        | X7R     | 10000pF | ±10% | GRM21BR72A103KA01# |          |
|        |               |         | 15000pF | ±10% | GRM21BR72A153KA01# |          |
|        |               |         | 22000pF | ±10% | GRM21BR72A223KA01# |          |
|        |               |         | 33000pF | ±10% | GRM21BR72A333KA01# |          |
|        |               |         | 47000pF | ±10% | GRM21BR72A473KA01# |          |
|        |               |         | 68000pF | ±10% | GRM21BR72A683KAC4# |          |
|        |               |         |         | ±20% | GRM21BR72A683MAC4# |          |
|        |               |         | 0.1μF   | ±10% | GRM21BR72A104KAC4# |          |
|        |               |         |         | ±20% | GRM21BR72A104MAC4# |          |
|        | 50Vdc         | X7R     | 47000pF | ±10% | GRM21BR71H473KA01# |          |
|        |               |         | 68000pF | ±10% | GRM21BR71H683KA01# |          |
|        |               |         | 0.1μF   | ±10% | GRM21BR71H104KA01# |          |
|        |               |         |         | ±20% | GRM21BR71H104MA01# |          |
|        |               |         | 0.15μF  | ±10% | GRM21BR71H154KA01# |          |
|        |               |         | 0.22μF  | ±10% | GRM21BR71H224KA01# |          |
|        |               |         | 0.47μF  | ±10% | GRM21BR71H474KA88# |          |
|        |               |         | 1.0μF   | ±10% | GRM21BR71H105KA12# |          |
|        |               | R       | 47000pF | ±10% | GRM21BR11H473KA01# |          |
|        |               |         | 68000pF | ±10% | GRM21BR11H683KA01# |          |
|        |               |         | 0.1μF   | ±10% | GRM21BR11H104KA01# |          |
|        |               |         |         | ±20% | GRM21BR11H104MA01# |          |
|        |               | X5R     | 1.0μF   | ±10% | GRM21BR61H105KA12# |          |
|        |               | B       | 47000pF | ±10% | GRM21BB11H473KA01# |          |
|        |               |         | 68000pF | ±10% | GRM21BB11H683KA01# |          |
|        |               |         | 0.1μF   | ±10% | GRM21BB11H104KA01# |          |
|        |               |         |         | ±20% | GRM21BB11H104MA01# |          |
|        |               |         | 0.15μF  | ±10% | GRM21BB31H154KA88# |          |
|        |               |         |         | ±20% | GRM21BB31H154MA88# |          |
|        |               |         | 0.22μF  | ±10% | GRM21BB31H224KA88# |          |
|        |               |         |         | ±20% | GRM21BB31H224MA88# |          |
|        |               |         | 0.47μF  | ±10% | GRM21BB31H474KA87# |          |
|        |               |         |         | ±20% | GRM21BB31H474MA87# |          |
|        |               |         | 0.68μF  | ±10% | GRM21BB31H684KAC4# |          |
|        |               |         |         | ±20% | GRM21BB31H684MAC4# |          |
|        |               |         | 1.0μF   | ±10% | GRM21BB31H105KA12# |          |
|        |               |         |         | ±20% | GRM21BB31H105MA12# |          |
|        | 25Vdc         | X7R     | 0.1μF   | ±10% | GRM21BR71E104KA01# |          |
|        |               |         | 0.15μF  | ±10% | GRM21BR71E154KA01# |          |
|        |               | R       | 0.1μF   | ±10% | GRM21BR11E104KA01# |          |
|        |               |         | 0.15μF  | ±10% | GRM21BR11E154KA01# |          |
|        |               |         |         | ±20% | GRM21BR11E154MA01# |          |
|        |               |         | 0.68μF  | ±10% | GRM21BR11E684KA88# |          |
|        |               | X6S     | 4.7μF   | ±10% | GRM21BC81E475KA12# |          |
|        |               |         |         | ±20% | GRM21BC81E475MA12# |          |
|        |               | X5R     | 2.2μF   | ±10% | GRM21BR61E225KA12# |          |
|        |               |         |         | ±20% | GRM21BR61E225MA12# |          |
|        |               |         | 4.7μF   | ±10% | GRM21BR61E475KA12# |          |

| T max. | Rated Voltage | TC Code | Cap.   | Tol.               | Part Number        |                    |                    |
|--------|---------------|---------|--------|--------------------|--------------------|--------------------|--------------------|
| 1.35mm | 25Vdc         | X5R     | 4.7μF  | ±20%               | GRM21BR61E475MA12# |                    |                    |
|        |               | B       | 0.15μF | ±10%               | GRM21BB11E154KA01# |                    |                    |
|        |               |         | 0.22μF | ±10%               | GRM21BB11E224KA01# |                    |                    |
|        |               |         | 0.33μF | ±10%               | GRM21BB11E334KA01# |                    |                    |
|        |               |         | 2.2μF  | ±10%               | GRM21BB31E225KA75# |                    |                    |
|        |               |         |        | ±20%               | GRM21BB31E225MA75# |                    |                    |
|        |               |         | 4.7μF  | ±10%               | GRM21BB31E475KA75# |                    |                    |
|        |               |         |        | ±20%               | GRM21BB31E475MA75# |                    |                    |
|        |               |         | 16Vdc  | X7R                | 2.2μF              | ±10%               | GRM21BR71C225KA12# |
|        |               |         |        |                    | ±20%               | GRM21BR71C225MA12# |                    |
|        | X6S           | 4.7μF   |        | ±10%               | GRM21BC81C475KA88# |                    |                    |
|        | X5R           | 2.2μF   |        | ±10%               | GRM21BR61C225KA88# |                    |                    |
|        |               | 4.7μF   |        | ±10%               | GRM21BR61C475KA88# |                    |                    |
|        |               | 10μF    |        | ±10%               | GRM21BR61C106KE15# |                    |                    |
|        |               |         |        | ±20%               | GRM21BR61C106ME15# |                    |                    |
|        |               | B       |        | 2.2μF              | ±10%               | GRM21BB31C225KA87# |                    |
|        | 4.7μF         |         | ±10%   | GRM21BB31C475KA87# |                    |                    |                    |
|        | 10μF          |         | ±10%   | GRM21BB31C106KE15# |                    |                    |                    |
|        |               |         | ±20%   | GRM21BB31C106ME15# |                    |                    |                    |
|        | 10Vdc         | X6S     | 10μF   | ±10%               | GRM21BC81A106KE18# |                    |                    |
|        |               |         |        | ±20%               | GRM21BC81A106ME18# |                    |                    |
|        |               | 6.3Vdc  | X6S    | 10μF               | ±10%               | GRM21BC80J106KE19# |                    |
|        |               |         |        |                    | ±20%               | GRM21BC80J106ME19# |                    |
|        | 1.4mm         | 100Vdc  | X7R    | 0.47μF             | ±10%               | GRM21BR72A474KA73# |                    |
|        |               | 50Vdc   | X5R    | 2.2μF              | ±10%               | GRM21BR61H225KA73# |                    |
|        |               |         |        |                    | ±20%               | GRM21BR61H225MA73# |                    |
| 4.7μF  |               |         |        | ±10%               | GRM21BR61H475KE51# |                    |                    |
|        |               |         |        | ±20%               | GRM21BR61H475ME51# |                    |                    |
| B      |               |         | 2.2μF  | ±10%               | GRM21BB31H225KA73# |                    |                    |
|        |               |         |        | ±20%               | GRM21BB31H225MA73# |                    |                    |
|        |               |         | 4.7μF  | ±10%               | GRM21BB31H475KE51# |                    |                    |
|        |               |         | ±20%   | GRM21BB31H475ME51# |                    |                    |                    |
| 25Vdc  |               | X7R     | 1.0μF  | ±10%               | GRM21BR71E105KA99# |                    |                    |
|        |               |         | 2.2μF  | ±10%               | GRM21BR71E225KA73# |                    |                    |
|        |               | R       | 1.0μF  | ±10%               | GRM21BR11E105KA99# |                    |                    |
|        |               | X5R     | 10μF   | ±10%               | GRM21BR61E106KA73# |                    |                    |
|        |               |         |        | ±20%               | GRM21BR61E106MA73# |                    |                    |
|        |               | B       | 1.0μF  | ±10%               | GRM21BB31E105KA98# |                    |                    |
|        |               |         | 10μF   | ±10%               | GRM21BB31E106KA73# |                    |                    |
|        |               |         | ±20%   | GRM21BB31E106MA73# |                    |                    |                    |
| 16Vdc  |               | X7R     | 4.7μF  | ±10%               | GRM21BR71C475KA73# |                    |                    |
|        |               |         |        | ±20%               | GRM21BR71C475MA73# |                    |                    |
|        |               | X6S     | 10μF   | ±10%               | GRM21BC81C106KA73# |                    |                    |
|        |               |         |        | ±20%               | GRM21BC81C106MA73# |                    |                    |
|        |               | 10Vdc   | X7R    | 4.7μF              | ±10%               | GRM21BR71A475KA73# |                    |
|        |               |         |        |                    | ±20%               | GRM21BR71A475MA73# |                    |
|        |               |         | 10μF   | ±10%               | GRM21BR71A106KE51# |                    |                    |
|        |               |         |        | ±20%               | GRM21BR71A106ME51# |                    |                    |
| 6.3Vdc |               | B       | 22μF   | ±20%               | GRM21BB31A226ME51# | Derating           |                    |
|        |               |         |        |                    |                    |                    |                    |
|        |               | X7R     | 10μF   | ±10%               | GRM21BR70J106KE76# |                    |                    |
|        |               |         |        | ±20%               | GRM21BR70J106ME76# |                    |                    |
|        |               | X6S     | 22μF   | ±20%               | GRM21BC80J226ME51# | Derating           |                    |
|        |               | X5R     | 22μF   | ±20%               | GRM21BR60J226ME39# |                    |                    |
|        |               | B       | 22μF   | ±20%               | GRM21BB30J226ME38# |                    |                    |

Part number # indicates the package specification code.

## GRM Series High Dielectric Constant Type Part Number List

(→ ■ 2.0×1.25mm)

| T max. | Rated Voltage | TC Code | Cap. | Tol. | Part Number        |           |
|--------|---------------|---------|------|------|--------------------|-----------|
| 1.4mm  | 4Vdc          | X7U     | 22μF | ±20% | GRM21BE70G226ME51# |           |
|        |               | X6S     | 22μF | ±20% | GRM21BC80G226ME39# |           |
| 1.45mm | 25Vdc         | X5R     | 22μF | ±20% | GRM21BR61E226ME44# |           |
|        |               | X5R     | 47μF | ±20% | GRM21BR60J476ME15# | Degrating |
|        | 6.3Vdc        | B       | 47μF | ±20% | GRM21BB30J476ME15# | Degrating |
|        |               | X6S     | 47μF | ±20% | GRM21BC80G476ME15# | Degrating |
|        | 4Vdc          | X5R     | 47μF | ±20% | GRM21BR60G476ME15# |           |
|        |               | B       | 47μF | ±20% | GRM21BB30G476ME15# |           |

■ 3.2×1.6mm

| T max. | Rated Voltage | TC Code            | Cap.               | Tol.               | Part Number        |                    |                    |
|--------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 0.7mm  | 25Vdc         | X5R                | 2.2μF              | ±10%               | GRM316R61E225KA12# |                    |                    |
|        |               | B                  | 2.2μF              | ±10%               | GRM316B31E225KA75# |                    |                    |
|        | 16Vdc         | X6S                | 2.2μF              | ±10%               | GRM316C81C225KA12# |                    |                    |
| 0.95mm | 100Vdc        | X7R                | 15000pF            | ±10%               | GRM319R72A153KA01# |                    |                    |
|        |               |                    | 0.1μF              | ±10%               | GRM319R72A104KA01# |                    |                    |
|        | 50Vdc         | X7R                | 0.33μF             | ±10%               | GRM319R71H334KA01# |                    |                    |
|        | 35Vdc         | X5R                | 10μF               | ±10%               | GRM319R6YA106KA12# |                    |                    |
|        |               |                    |                    | ±20%               | GRM319R6YA106MA12# |                    |                    |
|        | 25Vdc         | X7R                | 0.33μF             | ±10%               | GRM319R71E334KA01# |                    |                    |
|        |               |                    |                    | ±10%               | GRM319R11E334KA01# |                    |                    |
|        |               |                    |                    | ±10%               | GRM319B11E334KA01# |                    |                    |
|        |               |                    |                    | ±10%               | GRM319B11E684KA01# |                    |                    |
|        | 16Vdc         | X6S                | 4.7μF              | ±10%               | GRM319C81C475KA12# |                    |                    |
|        |               |                    |                    | X5R                | 10μF               | ±10%               | GRM319R61C106KE15# |
|        |               | ±20%               | GRM319R61C106ME15# |                    |                    |                    |                    |
|        |               | B                  | 0.47μF             | ±10%               | GRM319B11C474KA01# |                    |                    |
|        |               |                    | 10μF               | ±10%               | GRM319B31C106KE15# |                    |                    |
|        |               | ±20%               | GRM319B31C106ME15# |                    |                    |                    |                    |
|        | 10Vdc         | X5R                | 22μF               | ±20%               | GRM319R61A226ME15# |                    |                    |
|        |               |                    |                    | ±20%               | GRM319B31A226ME15# |                    |                    |
| 6.3Vdc | X6S           | 22μF               | ±20%               | GRM319C80J226ME15# |                    |                    |                    |
|        |               |                    | X5R                | 22μF               | ±20%               | GRM319R60J226ME15# |                    |
|        |               |                    | B                  | 22μF               | ±20%               | GRM319B30J226ME15# |                    |
| 1.25mm | 100Vdc        | X7R                | 22000pF            | ±10%               | GRM31MR72A223KA01# |                    |                    |
|        |               |                    | 33000pF            | ±10%               | GRM31MR72A333KA01# |                    |                    |
|        |               |                    | 47000pF            | ±10%               | GRM31MR72A473KA01# |                    |                    |
|        |               |                    | 68000pF            | ±10%               | GRM31MR72A683KA01# |                    |                    |
|        |               |                    | 0.15μF             | ±10%               | GRM31MR72A154KA01# |                    |                    |
|        |               |                    | 0.22μF             | ±10%               | GRM31MR72A224KA01# |                    |                    |
|        | 50Vdc         | X7R                | 0.15μF             | ±10%               | GRM31MR71H154KA01# |                    |                    |
|        |               |                    |                    | ±10%               | GRM31MR71H224KA01# |                    |                    |
|        |               |                    |                    | ±10%               | GRM31MR71H474KA01# |                    |                    |
|        |               |                    |                    | ±10%               | GRM31MR71H684KA88# |                    |                    |
|        |               |                    |                    | ±10%               | GRM31MR71H105KA88# |                    |                    |
|        |               | R                  | 0.15μF             | ±10%               | GRM31MR11H154KA01# |                    |                    |
|        |               |                    | 0.22μF             | ±10%               | GRM31MR11H224KA01# |                    |                    |
|        |               |                    | B                  | 0.15μF             | ±10%               | GRM31MB11H154KA01# |                    |
|        | 0.22μF        | ±10%               |                    | GRM31MB11H224KA01# |                    |                    |                    |
| 1.0μF  | ±10%          | GRM31MB31H105KA87# |                    |                    |                    |                    |                    |
| 25Vdc  | X5R           | 10μF               | ±20%               | GRM31MR61E106MA12# |                    |                    |                    |
|        |               |                    | B                  | 0.22μF             | ±10%               | GRM31MB11E224KA01# |                    |

| T max. | Rated Voltage | TC Code | Cap.   | Tol.               | Part Number        |                    |           |
|--------|---------------|---------|--------|--------------------|--------------------|--------------------|-----------|
| 1.25mm | 16Vdc         | X6S     | 10μF   | ±10%               | GRM31MC81C106KA12# |                    |           |
|        |               | B       | 0.68μF | ±10%               | GRM31MB11C684KA01# |                    |           |
| 1.3mm  | 100Vdc        | X7R     | 0.47μF | ±10%               | GRM31MR72A474KA35# |                    |           |
|        |               |         |        | ±20%               | GRM31MR72A474MA35# |                    |           |
|        |               |         | 0.68μF | ±10%               | GRM31MR72A684KA35# |                    |           |
|        | 25Vdc         | B       | 2.2μF  | ±10%               | GRM31MB31E225KA92# |                    |           |
| 1.8mm  | 100Vdc        | X7R     | 1.0μF  | ±10%               | GRM31CR72A105KA01# |                    |           |
|        |               |         |        |                    |                    |                    |           |
|        |               |         | 2.2μF  | ±10%               | GRM31CR71H225KA88# |                    |           |
|        |               |         |        | 4.7μF              | ±10%               | GRM31CR71H475KA12# |           |
|        |               | X5R     | 2.2μF  | ±10%               | GRM31CR61H225KA88# |                    |           |
|        |               |         | B      | 2.2μF              | ±10%               | GRM31CB31H225KA87# |           |
|        |               |         |        | ±20%               | GRM31CB31H225MA87# |                    |           |
|        |               |         |        | 4.7μF              | ±10%               | GRM31CB31H475KA12# |           |
|        |               | ±20%    |        | GRM31CB31H475MA12# |                    |                    |           |
|        | 25Vdc         | X7R     | 4.7μF  | ±10%               | GRM31CR71E475KA88# |                    |           |
|        |               |         | 10μF   | ±10%               | GRM31CR71E106KA12# |                    |           |
|        |               |         |        | ±20%               | GRM31CR71E106MA12# |                    |           |
|        |               | X6S     | 10μF   | ±10%               | GRM31CC81E106KE15# |                    |           |
|        |               |         |        | ±20%               | GRM31CC81E106MA12# |                    |           |
|        |               | X5R     | 10μF   | ±10%               | GRM31CR61E106KA12# |                    |           |
|        |               |         |        | 22μF               | ±20%               | GRM31CR61E226ME15# |           |
|        |               | B       | 10μF   | ±10%               | GRM31CB31E106KA75# |                    |           |
|        |               |         |        | 22μF               | ±20%               | GRM31CB31E226ME15# |           |
|        |               | 16Vdc   | X7R    | 4.7μF              | ±20%               | GRM31CR71C475MA01# |           |
|        |               |         |        | 10μF               | ±10%               | GRM31CR71C106KAC7# |           |
|        |               |         |        |                    | ±20%               | GRM31CR71C106MAC7# |           |
|        |               |         | R      | 4.7μF              | ±20%               | GRM31CR11C475MA01# |           |
|        |               |         | X6S    | 22μF               | ±20%               | GRM31CC81C226ME15# |           |
|        |               |         | X5R    | 10μF               | ±10%               | GRM31CR61C106KA88# |           |
|        |               |         |        | 22μF               | ±20%               | GRM31CR61C226ME15# |           |
| B      | 10μF          |         | ±10%   | GRM31CB31C106KA88# |                    |                    |           |
|        |               |         | 22μF   | ±20%               | GRM31CB31C226ME15# |                    |           |
| 10Vdc  | X7R           |         | 22μF   | ±20%               | GRM31CR71A226ME15# |                    |           |
|        |               |         | X6S    | 22μF               | ±20%               | GRM31CC81A226ME19# |           |
|        | X5R           |         | 22μF   | ±20%               | GRM31CR61A226ME19# |                    |           |
|        |               |         | 47μF   | ±20%               | GRM31CR61A476ME15# |                    |           |
|        | B             | 22μF    | ±20%   | GRM31CB31A226ME19# |                    |                    |           |
|        |               |         | 47μF   | ±20%               | GRM31CB31A476ME15# |                    |           |
|        | 6.3Vdc        | X7R     | 22μF   | ±20%               | GRM31CR70J226ME19# |                    |           |
|        |               |         | X7U    | 47μF               | ±20%               | GRM31CE70J476ME15# | Degrating |
|        |               | X6S     | 22μF   | ±20%               | GRM31CC80J226ME19# |                    |           |
|        |               |         |        | 47μF               | ±20%               | GRM31CC80J476ME18# |           |
| X5R    |               | 47μF    | ±20%   | GRM31CR60J476ME19# |                    |                    |           |
|        |               | B       | 47μF   | ±20%               | GRM31CB30J476ME18# |                    |           |
| 4Vdc   | X7U           | 47μF    | ±20%   | GRM31CE70G476ME15# |                    |                    |           |
|        | X6S           | 47μF    | ±20%   | GRM31CC80G476ME19# |                    |                    |           |
| 1.9mm  | 100Vdc        | X7R     | 2.2μF  | ±10%               | GRM31CR72A225KA73# |                    |           |
|        |               |         |        | ±20%               | GRM31CR72A225MA73# |                    |           |
|        | 6.3Vdc        | X6T     | 100μF  | ±20%               | GRM31CD80J107ME39# | Degrating          |           |
|        |               | X5R     | 100μF  | ±20%               | GRM31CR60J107ME39# |                    |           |
|        | 4Vdc          | X7U     | 100μF  | ±20%               | GRM31CE70G107ME39# | Degrating          |           |
|        |               | X6T     | 100μF  | ±20%               | GRM31CD80G107ME39# |                    |           |
|        |               | X5R     | 100μF  | ±20%               | GRM31CR60G107ME39# |                    |           |

Part number # indicates the package specification code.

## GRM Series High Dielectric Constant Type Part Number List

### ■ 3.2x2.5mm

| T max. | Rated Voltage | TC Code | Cap.               | Tol.  | Part Number        |                    |          |
|--------|---------------|---------|--------------------|-------|--------------------|--------------------|----------|
| 1mm    | 6.3Vdc        | X5S     | 150μF              | ±20%  | GRM32RC60J157ME15# | Derating           |          |
|        | 4Vdc          | X6T     | 150μF              | ±20%  | GRM32RD80G157ME15# | Derating           |          |
|        |               | X5S     | 150μF              | ±20%  | GRM32RC60G157ME15# |                    |          |
|        | 2.5Vdc        | X6T     | 150μF              | ±20%  | GRM32RD80E157ME15# |                    |          |
| 1.5mm  | 50Vdc         | X7R     | 0.68μF             | ±10%  | GRM32NR71H684KA01# |                    |          |
|        |               | B       | 0.68μF             | ±10%  | GRM32NB11H684KA01# |                    |          |
|        | 10Vdc         | X6S     | 22μF               | ±20%  | GRM32NC81A226ME19# |                    |          |
| 1.8mm  | 100Vdc        | X7R     | 0.68μF             | ±10%  | GRM32CR72A684KA01# |                    |          |
|        |               |         | 1.0μF              | ±10%  | GRM32CR72A105KA35# |                    |          |
| 2.2mm  | 25Vdc         | X7R     | 10μF               | ±10%  | GRM32DR71E106KA12# |                    |          |
|        |               | X6S     | 10μF               | ±10%  | GRM32DC81E106KA12# |                    |          |
| 2.7mm  | 100Vdc        | X7R     | 2.2μF              | ±10%  | GRM32ER72A225KA35# |                    |          |
|        |               |         |                    | ±20%  | GRM32ER72A225MA35# |                    |          |
|        | 50Vdc         | X7R     | 4.7μF              | ±10%  | GRM32ER71H475KA88# |                    |          |
|        |               |         | 10μF               | ±10%  | GRM32ER71H106KA12# |                    |          |
|        |               | X5R     | 10μF               | ±10%  | GRM32ER61H106KA12# |                    |          |
|        |               |         |                    | ±20%  | GRM32ER61H106MA12# |                    |          |
|        |               | B       | 4.7μF              | ±10%  | GRM32EB31H475KA87# |                    |          |
|        |               |         | 10μF               | ±10%  | GRM32EB31H106KA12# |                    |          |
|        | ±20%          |         | GRM32EB31H106MA12# |       |                    |                    |          |
|        | 35Vdc         | X7R     | 10μF               | ±10%  | GRM32ER7YA106KA12# |                    |          |
|        |               | X5R     | 10μF               | ±10%  | GRM32ER6YA106KA12# |                    |          |
|        |               | B       | 10μF               | ±10%  | GRM32EB3YA106KA12# |                    |          |
|        | 25Vdc         | X7R     | 22μF               | ±20%  | GRM32ER71E226ME15# |                    |          |
|        |               | X6S     | 22μF               | ±20%  | GRM32EC81E226ME15# |                    |          |
|        |               | X5R     | 22μF               | ±20%  | GRM32ER61E226ME15# |                    |          |
|        |               | B       | 22μF               | ±20%  | GRM32EB31E226ME15# |                    |          |
|        | 16Vdc         | X7R     | 22μF               | ±20%  | GRM32ER71C226MEA8# |                    |          |
|        |               |         | X6S                | 47μF  | ±20%               | GRM32EC81C476ME15# | Derating |
|        |               |         | X5R                | 47μF  | ±20%               | GRM32ER61C476ME15# |          |
|        |               | B       | 22μF               | ±20%  | GRM32EB31C226ME16# |                    |          |
|        |               |         | 47μF               | ±20%  | GRM32EB31C476ME15# |                    |          |
|        | 10Vdc         | X7R     | 47μF               | ±20%  | GRM32ER71A476ME15# |                    |          |
|        |               | X6S     | 47μF               | ±20%  | GRM32EC81A476ME19# |                    |          |
|        |               | X5R     | 47μF               | ±20%  | GRM32ER61A476ME20# |                    |          |
|        |               | B       | 47μF               | ±20%  | GRM32EB31A476ME20# |                    |          |
|        | 6.3Vdc        | X7R     | 47μF               | ±20%  | GRM32ER70J476ME20# |                    |          |
|        |               | X7U     | 100μF              | ±20%  | GRM32EE70J107ME15# | Derating           |          |
|        |               | X6S     | 47μF               | ±20%  | GRM32EC80J476ME64# |                    |          |
|        |               |         | 100μF              | ±20%  | GRM32EC80J107ME20# |                    |          |
|        |               | X5R     | 100μF              | ±20%  | GRM32ER60J107ME20# |                    |          |
|        |               | B       | 100μF              | ±20%  | GRM32EB30J107ME16# |                    |          |
|        |               | 4Vdc    | X7U                | 100μF | ±20%               | GRM32EE70G107ME19# |          |
|        | X6S           |         | 100μF              | ±20%  | GRM32EC80G107ME20# |                    |          |

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL□ Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

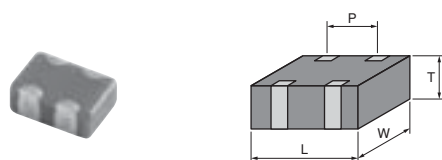
For Bonding  
GMD Series

Product Information

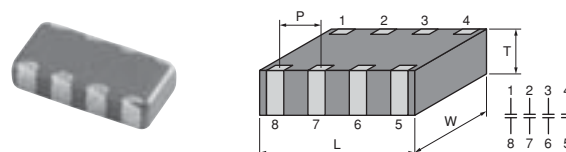
## Chip Monolithic Ceramic Capacitors

# Capacitor Array GNM Series

Ideal for reducing the mounting area and mounting costs.



2 Elements



4 Elements

- 1 The number of parts can be reduced.
- 2 Also contributes to the low profile of the set.
- 3 Ideal for decoupling and smoothing.
- 4 Reduction of environmental impact substances is possible.  
 (Accommodates 2 or 4 times the number of individual chips per reel.)

For General Purpose  
 GRM Series

Capacitor Array  
 GNM Series

Low ESL  
 LL□ Series

High-Q Type  
 GJM Series

High Frequency  
 GQM Series

Monolithic Microchip  
 GMA Series

For Bonding  
 GMD Series

Product Information

## GNM Series High Dielectric Constant Type Part Number List

### ■ 2 Elements 0.9×0.6mm

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.5mm  | 16Vdc         | X5R     | 10000pF | ±20% | GNM0M2R61C103ME18# |  |
|        |               |         | 22000pF | ±20% | GNM0M2R61C223ME18# |  |
|        |               |         | 47000pF | ±20% | GNM0M2R61C473ME18# |  |
|        |               |         | 0.1μF   | ±20% | GNM0M2R61C104ME18# |  |
|        |               | B       | 10000pF | ±20% | GNM0M2B31C103ME18# |  |
|        |               |         | 22000pF | ±20% | GNM0M2B31C223ME18# |  |
|        |               |         | 47000pF | ±20% | GNM0M2B31C473ME18# |  |
|        |               |         | 0.1μF   | ±20% | GNM0M2B31C104ME18# |  |
|        | 10Vdc         | X5R     | 10000pF | ±20% | GNM0M2R61A103ME17# |  |
|        |               |         | 22000pF | ±20% | GNM0M2R61A223ME17# |  |
|        |               |         | 47000pF | ±20% | GNM0M2R61A473ME17# |  |
|        |               |         | 0.1μF   | ±20% | GNM0M2R61A104ME17# |  |
|        |               | B       | 10000pF | ±20% | GNM0M2B31A103ME17# |  |
|        |               |         | 22000pF | ±20% | GNM0M2B31A223ME17# |  |
|        |               |         | 47000pF | ±20% | GNM0M2B31A473ME17# |  |
|        |               |         | 0.1μF   | ±20% | GNM0M2B31A104ME17# |  |
|        | 4Vdc          | X5R     | 1.0μF   | ±20% | GNM0M2R60G105ME17# |  |
|        |               | B       | 1.0μF   | ±20% | GNM0M2B30G105ME17# |  |

### ■ 2 Elements 1.37×1.0mm

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.55mm | 16Vdc         | X7R     | 0.1μF   | ±20% | GNM1M2R71C104MAA1# |  |
|        |               | R       | 0.1μF   | ±20% | GNM1M2R11C104MAA1# |  |
|        |               | X5R     | 1.0μF   | ±20% | GNM1M2R61C105MEA2# |  |
|        |               | B       | 0.1μF   | ±20% | GNM1M2B11C104MAA1# |  |
|        | 10Vdc         | X5R     | 1.0μF   | ±20% | GNM1M2R61A105MEA4# |  |
|        |               | B       | 1.0μF   | ±20% | GNM1M2B31A105MEA4# |  |
| 0.7mm  | 50Vdc         | X7R     | 1000pF  | ±20% | GNM1M2R71H102MA01# |  |
|        |               | R       | 1000pF  | ±20% | GNM1M2R11H102MA01# |  |
|        |               | X5R     | 1000pF  | ±20% | GNM1M2R61H102MA01# |  |
|        |               | B       | 1000pF  | ±20% | GNM1M2B11H102MA01# |  |
|        | 25Vdc         | X7R     | 2200pF  | ±20% | GNM1M2R71E222MA01# |  |
|        |               |         | 4700pF  | ±20% | GNM1M2R71E472MA01# |  |
|        |               |         | 10000pF | ±20% | GNM1M2R71E103MA01# |  |
|        |               | R       | 2200pF  | ±20% | GNM1M2R11E222MA01# |  |
|        |               |         | 4700pF  | ±20% | GNM1M2R11E472MA01# |  |
|        |               |         | 10000pF | ±20% | GNM1M2R11E103MA01# |  |
|        |               | X5R     | 2200pF  | ±20% | GNM1M2R61E222MA01# |  |
|        |               |         | 4700pF  | ±20% | GNM1M2R61E472MA01# |  |
|        |               |         | 10000pF | ±20% | GNM1M2R61E103MA01# |  |
|        |               | B       | 2200pF  | ±20% | GNM1M2B11E222MA01# |  |
|        |               |         | 4700pF  | ±20% | GNM1M2B11E472MA01# |  |
|        |               |         | 10000pF | ±20% | GNM1M2B11E103MA01# |  |
|        | 16Vdc         | X7R     | 22000pF | ±20% | GNM1M2R71C223MA01# |  |
|        |               |         | 47000pF | ±20% | GNM1M2R71C473MA01# |  |
|        |               |         | 0.1μF   | ±20% | GNM1M2R71C104MA01# |  |
|        |               | R       | 22000pF | ±20% | GNM1M2R11C223MA01# |  |
|        |               |         | 47000pF | ±20% | GNM1M2R11C473MA01# |  |
|        |               |         | 0.1μF   | ±20% | GNM1M2R11C104MA01# |  |
|        |               | X5R     | 22000pF | ±20% | GNM1M2R61C223MA01# |  |

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.7mm  | 16Vdc         | X5R     | 47000pF | ±20% | GNM1M2R61C473MA01# |  |
|        |               |         | 22000pF | ±20% | GNM1M2B11C223MA01# |  |
|        |               |         | 47000pF | ±20% | GNM1M2B11C473MA01# |  |
|        |               |         | 0.1μF   | ±20% | GNM1M2B11C104MA01# |  |
|        | 10Vdc         | X7R     | 22000pF | ±20% | GNM1M2R71A223MA01# |  |
|        |               |         | 47000pF | ±20% | GNM1M2R71A473MA01# |  |
|        |               | R       | 22000pF | ±20% | GNM1M2R11A223MA01# |  |
|        |               |         | 47000pF | ±20% | GNM1M2R11A473MA01# |  |
|        |               | X5R     | 22000pF | ±20% | GNM1M2R61A223MA01# |  |
|        |               |         | 47000pF | ±20% | GNM1M2R61A473MA01# |  |
|        |               |         | 0.1μF   | ±20% | GNM1M2R61A104MA01# |  |
|        |               | B       | 22000pF | ±20% | GNM1M2B11A223MA01# |  |
|        |               |         | 47000pF | ±20% | GNM1M2B11A473MA01# |  |
|        |               |         | 0.1μF   | ±20% | GNM1M2B11A104MA01# |  |
| 0.8mm  | 16Vdc         | X5R     | 0.22μF  | ±20% | GNM1M2R61C224ME18# |  |
|        |               |         | 1.0μF   | ±20% | GNM1M2R61C105ME18# |  |
|        |               | B       | 1.0μF   | ±20% | GNM1M2B31C105ME18# |  |
|        | 10Vdc         | X5R     | 1.0μF   | ±20% | GNM1M2R61A105ME17# |  |
|        |               |         | 2.2μF   | ±20% | GNM1M2R61A225ME18# |  |
|        |               | B       | 0.22μF  | ±20% | GNM1M2B31A224ME17# |  |
|        |               |         | 0.47μF  | ±20% | GNM1M2B31A474ME17# |  |
|        |               |         | 1.0μF   | ±20% | GNM1M2B31A105ME17# |  |
|        |               |         | 2.2μF   | ±20% | GNM1M2B31A225ME18# |  |
|        | 6.3Vdc        | X5R     | 2.2μF   | ±20% | GNM1M2R60J225ME18# |  |
|        |               | B       | 2.2μF   | ±20% | GNM1M2B30J225ME18# |  |

### ■ 4 Elements 2.0×1.25mm

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.55mm | 16Vdc         | X7R     | 0.1μF   | ±20% | GNM214R71C104MAA1# |  |
|        |               |         | 0.1μF   | ±20% | GNM214R11C104MAA1# |  |
|        |               |         | 0.1μF   | ±20% | GNM214B11C104MAA1# |  |
|        | 10Vdc         | X5R     | 0.22μF  | ±20% | GNM214R61A224MEA2# |  |
|        |               |         | 1.0μF   | ±20% | GNM214R61A105MEA2# |  |
|        |               | B       | 0.22μF  | ±20% | GNM214B31A224MEA2# |  |
|        | 6.3Vdc        | X5R     | 1.0μF   | ±20% | GNM214B31A105MEA2# |  |
|        |               |         | 0.22μF  | ±20% | GNM214R60J224MEA2# |  |
|        |               |         | 1.0μF   | ±20% | GNM214R60J105MEA2# |  |
|        |               | B       | 0.22μF  | ±20% | GNM214B30J224MEA2# |  |
|        |               |         | 1.0μF   | ±20% | GNM214B30J105MEA2# |  |
|        |               |         | 1.0μF   | ±20% | GNM214B31A105MEA2# |  |
| 0.7mm  | 50Vdc         | X7R     | 470pF   | ±20% | GNM214R71H471MA01# |  |
|        |               |         | 1000pF  | ±20% | GNM214R71H102MA01# |  |
|        |               |         | 1000pF  | ±20% | GNM214R11H102MA01# |  |
|        |               | B       | 470pF   | ±20% | GNM214B11H471MA01# |  |
|        |               |         | 1000pF  | ±20% | GNM214B11H102MA01# |  |
|        |               |         | 1000pF  | ±20% | GNM214B11H102MA01# |  |
|        | 25Vdc         | X7R     | 2200pF  | ±20% | GNM214R71E222MA01# |  |
|        |               |         | 4700pF  | ±20% | GNM214R71E472MA01# |  |
|        |               |         | 10000pF | ±20% | GNM214R71E103MA01# |  |
|        |               | R       | 2200pF  | ±20% | GNM214R11E222MA01# |  |
|        |               |         | 4700pF  | ±20% | GNM214R11E472MA01# |  |
|        |               |         | 10000pF | ±20% | GNM214R11E103MA01# |  |
|        |               | B       | 2200pF  | ±20% | GNM214B11E222MA01# |  |
|        |               |         | 4700pF  | ±20% | GNM214B11E472MA01# |  |

Part number # indicates the package specification code.

GNM Series High Dielectric Constant Type    Part Number List

(→ ■ 4 Elements 2.0×1.25mm)

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.7mm  | 25Vdc         | B       | 10000pF | ±20% | GNM214B11E103MA01# |  |
| 0.95mm | 16Vdc         | X7R     | 22000pF | ±20% | GNM214R71C223MA01# |  |
|        |               |         | 47000pF | ±20% | GNM214R71C473MA01# |  |
|        |               |         | 0.1μF   | ±20% | GNM214R71C104MA01# |  |
|        |               | R       | 22000pF | ±20% | GNM214R11C223MA01# |  |
|        |               |         | 47000pF | ±20% | GNM214R11C473MA01# |  |
|        |               |         | 0.1μF   | ±20% | GNM214R11C104MA01# |  |
|        |               | B       | 22000pF | ±20% | GNM214B11C223MA01# |  |
|        |               |         | 47000pF | ±20% | GNM214B11C473MA01# |  |
|        |               |         | 0.1μF   | ±20% | GNM214B11C104MA01# |  |
|        | 10Vdc         | X5R     | 1.0μF   | ±20% | GNM214R61A105ME17# |  |
|        |               | B       | 1.0μF   | ±20% | GNM214B31A105ME17# |  |
|        | 6.3Vdc        | X5R     | 1.0μF   | ±20% | GNM214R60J105ME17# |  |
|        |               | B       | 1.0μF   | ±20% | GNM214B30J105ME17# |  |

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL□ Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information

Part number # indicates the package specification code.

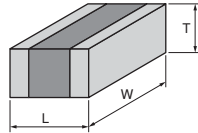


## Chip Monolithic Ceramic Capacitors

# Low ESL LLL/LLR/LLA/LLM Series

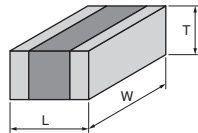
**Low  
ESL**

**LLL Series** Ideal decoupling solution for equipment having advanced features.



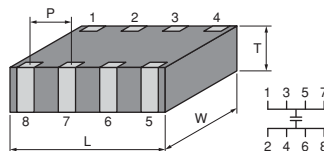
- 1 Ideal for IC decoupling of high-speed operating equipment, due to the low inductance value (ESL value).
- 2 LW reversed geometry type/multi-terminal type and a large lineup of capacitors are available according to performance requirements.

**LLR Series** Low ESL capacitor that suppresses the anti-resonance in circuits.



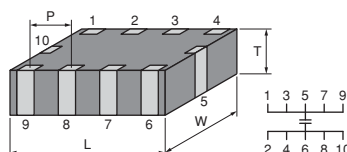
- 1 Reduces the anti-resonance generated in the high-frequency range.
- 2 An optimal ESR value can be selected from four types, according to the characteristics of the circuit.
- 3 The low ESL type, is also ideal as a decoupling component.

**LLA Series** Ideal decoupling solution for equipment having advanced features.



- 1 Ideal for IC decoupling of high-speed operating equipment, due to the low inductance value (ESL value).
- 2 LW reversed geometry type/multi-terminal type and a large lineup of capacitors are available according to performance requirements.

**LLM Series** Ideal decoupling solution for equipment having advanced features.



- 1 Ideal for IC decoupling of high-speed operating equipment, due to the low inductance value (ESL value).
- 2 LW reversed geometry type/multi-terminal type and a large lineup of capacitors are available according to performance requirements.

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL□ Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information

## LLL Series High Dielectric Constant Type Low ESL Part Number List

### 0.5×1.0mm

| T max. | Rated Voltage | TC Code | Cap.   | Tol. | Part Number        |  |
|--------|---------------|---------|--------|------|--------------------|--|
| 0.35mm | 6.3Vdc        | X6S     | 0.1μF  | ±20% | LLL153C80J104ME01# |  |
|        |               |         | 0.22μF | ±20% | LLL153C80J224ME14# |  |
|        | 4Vdc          | X7S     | 0.47μF | ±20% | LLL153C70G474ME17# |  |
|        |               |         |        |      |                    |  |

### 0.8×1.6mm

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.5mm  | 25Vdc         | X7R     | 10000pF | ±20% | LLL185R71E103MA11# |  |
|        | 16Vdc         | X7R     | 22000pF | ±20% | LLL185R71C223MA11# |  |
|        |               |         | 47000pF | ±20% | LLL185R71C473MA11# |  |
|        | 10Vdc         | X7R     | 0.1μF   | ±20% | LLL185R71A104MA11# |  |
|        | 4Vdc          | X7S     | 0.22μF  | ±20% | LLL185C70G224MA11# |  |
| 0.55mm | 4Vdc          | X7S     | 1.0μF   | ±20% | LLL185C70G105ME01# |  |
|        |               |         | 2.2μF   | ±20% | LLL185C70G225ME01# |  |
| 0.6mm  | 50Vdc         | X7R     | 2200pF  | ±20% | LLL185R71H222MA01# |  |
|        |               |         | 4700pF  | ±20% | LLL185R71H472MA01# |  |
|        | 25Vdc         | X7R     | 10000pF | ±20% | LLL185R71E103MA01# |  |
|        |               |         | 22000pF | ±20% | LLL185R71E223MA01# |  |
|        | 16Vdc         | X7R     | 47000pF | ±20% | LLL185R71C473MA01# |  |
|        |               |         | 0.1μF   | ±20% | LLL185R71A104MA01# |  |
|        | 10Vdc         | X7R     | 0.22μF  | ±20% | LLL185R71A224MA01# |  |
|        |               |         | 0.47μF  | ±20% | LLL185C70G474MA01# |  |

### 1.25×2.0mm

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.5mm  | 50Vdc         | X7R     | 10000pF | ±20% | LLL215R71H103MA11# |  |
|        | 25Vdc         | X7R     | 22000pF | ±20% | LLL215R71E223MA11# |  |
|        | 16Vdc         | X7R     | 47000pF | ±20% | LLL215R71C473MA11# |  |
|        |               |         | 0.1μF   | ±20% | LLL215R71C104MA11# |  |
|        | 10Vdc         | X7R     | 0.22μF  | ±20% | LLL215R71A224MA11# |  |
|        | 6.3Vdc        | X7R     | 0.47μF  | ±20% | LLL215R70J474MA11# |  |

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.5mm  | 4Vdc          | X7S     | 1.0μF   | ±20% | LLL215C70G105MA11# |  |
| 0.7mm  | 50Vdc         | X7R     | 10000pF | ±20% | LLL216R71H103MA01# |  |
|        |               |         | 22000pF | ±20% | LLL216R71H223MA01# |  |
|        | 25Vdc         | X7R     | 47000pF | ±20% | LLL216R71E473MA01# |  |
|        |               |         | 0.1μF   | ±20% | LLL216R71E104MA01# |  |
| 0.95mm | 10Vdc         | X7R     | 0.22μF  | ±20% | LLL216R71A224MA01# |  |
|        | 16Vdc         | X7R     | 0.22μF  | ±20% | LLL219R71C224MA01# |  |
|        |               |         | 0.47μF  | ±20% | LLL219R71A474MA01# |  |
|        | 10Vdc         | X7R     | 1.0μF   | ±20% | LLL219R71A105MA01# |  |
|        |               |         | 2.2μF   | ±20% | LLL219C70G225MA01# |  |

### 1.6×3.2mm

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.5mm  | 50Vdc         | X7R     | 10000pF | ±20% | LLL315R71H103MA11# |  |
|        |               |         | 22000pF | ±20% | LLL315R71H223MA11# |  |
|        | 25Vdc         | X7R     | 47000pF | ±20% | LLL315R71E473MA11# |  |
|        |               |         | 0.1μF   | ±20% | LLL315R71E104MA11# |  |
|        | 16Vdc         | X7R     | 0.22μF  | ±20% | LLL315R71C224MA11# |  |
|        | 10Vdc         | X7R     | 0.47μF  | ±20% | LLL315R71A474MA11# |  |
| 0.8mm  | 50Vdc         | X7R     | 10000pF | ±20% | LLL317R71H103MA01# |  |
|        |               |         | 22000pF | ±20% | LLL317R71H223MA01# |  |
|        |               |         | 47000pF | ±20% | LLL317R71H473MA01# |  |
|        | 25Vdc         | X7R     | 0.1μF   | ±20% | LLL317R71E104MA01# |  |
|        | 16Vdc         | X7R     | 0.22μF  | ±20% | LLL317R71C224MA01# |  |
|        |               |         | 0.47μF  | ±20% | LLL317R71C474MA01# |  |
|        | 10Vdc         | X7R     | 1.0μF   | ±20% | LLL317R71A105MA01# |  |
|        | 6.3Vdc        | X7R     | 2.2μF   | ±20% | LLL317R70J225MA01# |  |
|        | 1.25mm        | 50Vdc   | 0.1μF   | ±20% | LLL31MR71H104MA01# |  |
|        |               |         | 0.22μF  | ±20% | LLL31MR71E224MA01# |  |
|        |               | X7R     | 0.47μF  | ±20% | LLL31MR71E474MA01# |  |
|        |               |         | 1.0μF   | ±20% | LLL31MR71C105MA01# |  |
|        | 10Vdc         | X7R     | 2.2μF   | ±20% | LLL31MR71A225MA01# |  |
|        | 6.3Vdc        | X7R     | 4.7μF   | ±20% | LLL31MR70J475MA01# |  |
|        |               | X5R     | 10μF    | ±20% | LLL31MR60J106ME01# |  |

## LLR Series High Dielectric Constant Type Low ESL Part Number List

### 0.8×1.6mm

| T max. | Rated Voltage | TC Code | Cap.  | Tol. | ESR    | Part Number        |  |
|--------|---------------|---------|-------|------|--------|--------------------|--|
| 0.55mm | 4Vdc          | X7S     | 1.0μF | ±20% | 100mΩ  | LLR185C70G105ME01# |  |
|        |               |         |       | ±20% | 220mΩ  | LLR185C70G105ME03# |  |
|        |               |         |       | ±20% | 470mΩ  | LLR185C70G105ME05# |  |
|        |               |         |       | ±20% | 1000mΩ | LLR185C70G105ME07# |  |

Part number # indicates the package specification code.

## LLA Series High Dielectric Constant Type Low ESL Part Number List

### ■ 1.6×0.8mm

| T max. | Rated Voltage | TC Code | Cap.   | Tol. | Part Number        |  |
|--------|---------------|---------|--------|------|--------------------|--|
| 0.55mm | 4Vdc          | X7S     | 0.1μF  | ±20% | LLA185C70G104MA01# |  |
|        |               |         | 0.22μF | ±20% | LLA185C70G224MA01# |  |
|        |               |         | 0.47μF | ±20% | LLA185C70G474MA01# |  |
|        |               |         | 1.0μF  | ±20% | LLA185C70G105ME01# |  |
|        |               |         | 2.2μF  | ±20% | LLA185C70G225ME16# |  |
|        |               |         |        |      |                    |  |

### ■ 2.0×1.25mm

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.55mm | 25Vdc         | X7R     | 10000pF | ±20% | LLA215R71E103MA14# |  |
|        |               |         | 22000pF | ±20% | LLA215R71E223MA14# |  |
|        | 16Vdc         | X7R     | 47000pF | ±20% | LLA215R71C473MA14# |  |
|        |               |         | 0.1μF   | ±20% | LLA215R71C104MA14# |  |
|        | 10Vdc         | X7R     | 0.22μF  | ±20% | LLA215R71A224MA14# |  |
|        | 6.3Vdc        | X7R     | 0.47μF  | ±20% | LLA215R70J474MA14# |  |
|        | 4Vdc          | X7S     | 1.0μF   | ±20% | LLA215C70G105MA14# |  |
|        |               |         | 2.2μF   | ±20% | LLA215C70G225ME11# |  |
|        |               |         | 4.7μF   | ±20% | LLA215C70G475ME19# |  |
|        | 0.95mm        | 25Vdc   | 10000pF | ±20% | LLA219R71E103MA01# |  |
|        |               |         |         |      |                    |  |

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.95mm | 25Vdc         | X7R     | 22000pF | ±20% | LLA219R71E223MA01# |  |
|        |               |         | 47000pF | ±20% | LLA219R71E473MA01# |  |
|        | 16Vdc         | X7R     | 0.1μF   | ±20% | LLA219R71C104MA01# |  |
|        |               |         | 0.22μF  | ±20% | LLA219R71C224MA01# |  |
|        | 10Vdc         | X7R     | 0.47μF  | ±20% | LLA219R71A474MA01# |  |
|        | 6.3Vdc        | X7R     | 1.0μF   | ±20% | LLA219R70J105MA01# |  |
|        | 4Vdc          | X7S     | 2.2μF   | ±20% | LLA219C70G225MA01# |  |
|        |               |         | 4.7μF   | ±20% | LLA219C70G475ME01# |  |

### ■ 3.2×1.6mm

| T max. | Rated Voltage | TC Code | Cap.   | Tol. | Part Number        |  |
|--------|---------------|---------|--------|------|--------------------|--|
| 0.55mm | 16Vdc         | X7R     | 0.22μF | ±20% | LLA315R71C224MA14# |  |
|        | 10Vdc         | X7R     | 0.47μF | ±20% | LLA315R71A474MA14# |  |
|        | 6.3Vdc        | X7R     | 1.0μF  | ±20% | LLA315R70J105MA14# |  |
|        |               |         | 2.2μF  | ±20% | LLA315R70J225MA14# |  |
| 0.95mm | 16Vdc         | X7R     | 0.47μF | ±20% | LLA319R71C474MA01# |  |
|        | 10Vdc         | X7R     | 1.0μF  | ±20% | LLA319R71A105MA01# |  |
| 1.25mm | 16Vdc         | X7R     | 1.0μF  | ±20% | LLA31MR71C105MA01# |  |
|        | 10Vdc         | X7R     | 2.2μF  | ±20% | LLA31MR71A225MA01# |  |

## LLM Series High Dielectric Constant Type Low ESL Part Number List

### ■ 2.0×1.25mm

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.55mm | 25Vdc         | X7R     | 10000pF | ±20% | LLM215R71E103MA11# |  |
|        |               |         | 22000pF | ±20% | LLM215R71E223MA11# |  |
|        | 16Vdc         | X7R     | 47000pF | ±20% | LLM215R71C473MA11# |  |
|        |               |         | 0.1μF   | ±20% | LLM215R71C104MA11# |  |
|        | 6.3Vdc        | X7R     | 0.22μF  | ±20% | LLM215R70J224MA11# |  |
|        |               |         | 0.47μF  | ±20% | LLM215R70J474MA11# |  |
|        | 4Vdc          | X7S     | 1.0μF   | ±20% | LLM215C70G105MA11# |  |
|        |               |         | 2.2μF   | ±20% | LLM215C70G225ME11# |  |
|        |               |         |         |      |                    |  |
|        |               |         |         |      |                    |  |

### ■ 3.2×1.6mm

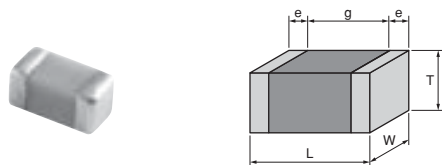
| T max. | Rated Voltage | TC Code | Cap.   | Tol. | Part Number        |  |
|--------|---------------|---------|--------|------|--------------------|--|
| 0.55mm | 16Vdc         | X7R     | 0.1μF  | ±20% | LLM315R71C104MA11# |  |
|        |               |         | 0.22μF | ±20% | LLM315R71C224MA11# |  |
|        | 10Vdc         | X7R     | 0.47μF | ±20% | LLM315R71A474MA11# |  |
|        | 6.3Vdc        | X7R     | 2.2μF  | ±20% | LLM315R70J225MA11# |  |

## Chip Monolithic Ceramic Capacitors

# High-Q Type GJM Series

**HiQ**

Contributes to improvements in the reduction of power consumption and processing yield by HiQ or low ESR.



- 1 Ideal for high-frequency decoupling applications.
- 2 HiQ and low ESR in VHF, UHF and microwave frequency bands.
- 3 Compatible to tight tolerances.

For General Purpose  
GRM Series

Capacitor Array  
GJM Series

Low ESL  
LLQ Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information

# GJM Series Temperature Compensating Type **HiQ** Part Number List

■ 0.4×0.2mm **Ultra-compact**

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | C0G     | 0.2pF | ±0.05pF | GJM0225C1CR20WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1CR20BB01# |  |
|        |               |         | 0.3pF | ±0.05pF | GJM0225C1CR30WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1CR30BB01# |  |
|        |               |         | 0.4pF | ±0.05pF | GJM0225C1CR40WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1CR40BB01# |  |
|        |               |         | 0.5pF | ±0.05pF | GJM0225C1CR50WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1CR50BB01# |  |
|        |               |         | 0.6pF | ±0.05pF | GJM0225C1CR60WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1CR60BB01# |  |
|        |               |         | 0.7pF | ±0.05pF | GJM0225C1CR70WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1CR70BB01# |  |
|        |               |         | 0.8pF | ±0.05pF | GJM0225C1CR80WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1CR80BB01# |  |
|        |               |         | 0.9pF | ±0.05pF | GJM0225C1CR90WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1CR90BB01# |  |
|        |               |         | 1.0pF | ±0.05pF | GJM0225C1C1R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C1R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C1R0CB01# |  |
|        |               |         | 1.1pF | ±0.05pF | GJM0225C1C1R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C1R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C1R1CB01# |  |
|        |               |         | 1.2pF | ±0.05pF | GJM0225C1C1R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C1R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C1R2CB01# |  |
|        |               |         | 1.3pF | ±0.05pF | GJM0225C1C1R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C1R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C1R3CB01# |  |
|        |               |         | 1.4pF | ±0.05pF | GJM0225C1C1R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C1R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C1R4CB01# |  |
|        |               |         | 1.5pF | ±0.05pF | GJM0225C1C1R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C1R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C1R5CB01# |  |
|        |               |         | 1.6pF | ±0.05pF | GJM0225C1C1R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C1R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C1R6CB01# |  |
|        |               |         | 1.7pF | ±0.05pF | GJM0225C1C1R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C1R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C1R7CB01# |  |
|        |               |         | 1.8pF | ±0.05pF | GJM0225C1C1R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C1R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C1R8CB01# |  |
|        |               |         | 1.9pF | ±0.05pF | GJM0225C1C1R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C1R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C1R9CB01# |  |
|        |               |         | 2.0pF | ±0.05pF | GJM0225C1C2R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C2R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C2R0CB01# |  |
|        |               |         | 2.1pF | ±0.05pF | GJM0225C1C2R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C2R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C2R1CB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | C0G     | 2.2pF | ±0.05pF | GJM0225C1C2R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C2R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C2R2CB01# |  |
|        |               |         | 2.3pF | ±0.05pF | GJM0225C1C2R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C2R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C2R3CB01# |  |
|        |               |         | 2.4pF | ±0.05pF | GJM0225C1C2R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C2R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C2R4CB01# |  |
|        |               |         | 2.5pF | ±0.05pF | GJM0225C1C2R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C2R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C2R5CB01# |  |
|        |               |         | 2.6pF | ±0.05pF | GJM0225C1C2R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C2R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C2R6CB01# |  |
|        |               |         | 2.7pF | ±0.05pF | GJM0225C1C2R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C2R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C2R7CB01# |  |
|        |               |         | 2.8pF | ±0.05pF | GJM0225C1C2R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C2R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C2R8CB01# |  |
|        |               |         | 2.9pF | ±0.05pF | GJM0225C1C2R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C2R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C2R9CB01# |  |
|        |               |         | 3.0pF | ±0.05pF | GJM0225C1C3R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C3R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C3R0CB01# |  |
|        |               |         | 3.1pF | ±0.05pF | GJM0225C1C3R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C3R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C3R1CB01# |  |
|        |               |         | 3.2pF | ±0.05pF | GJM0225C1C3R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C3R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C3R2CB01# |  |
|        |               |         | 3.3pF | ±0.05pF | GJM0225C1C3R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C3R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C3R3CB01# |  |
|        |               |         | 3.4pF | ±0.05pF | GJM0225C1C3R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C3R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C3R4CB01# |  |
|        |               |         | 3.5pF | ±0.05pF | GJM0225C1C3R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C3R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C3R5CB01# |  |
|        |               |         | 3.6pF | ±0.05pF | GJM0225C1C3R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C3R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C3R6CB01# |  |
|        |               |         | 3.7pF | ±0.05pF | GJM0225C1C3R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C3R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C3R7CB01# |  |
|        |               |         | 3.8pF | ±0.05pF | GJM0225C1C3R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C3R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C3R8CB01# |  |
|        |               |         | 3.9pF | ±0.05pF | GJM0225C1C3R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C3R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C3R9CB01# |  |

Part number # indicates the package specification code.

# GJM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 0.4×0.2mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | C0G     | 4.0pF | ±0.05pF | GJM0225C1C4R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C4R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C4R0CB01# |  |
|        |               |         | 4.1pF | ±0.05pF | GJM0225C1C4R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C4R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C4R1CB01# |  |
|        |               |         | 4.2pF | ±0.05pF | GJM0225C1C4R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C4R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C4R2CB01# |  |
|        |               |         | 4.3pF | ±0.05pF | GJM0225C1C4R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C4R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C4R3CB01# |  |
|        |               |         | 4.4pF | ±0.05pF | GJM0225C1C4R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C4R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C4R4CB01# |  |
|        |               |         | 4.5pF | ±0.05pF | GJM0225C1C4R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C4R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C4R5CB01# |  |
|        |               |         | 4.6pF | ±0.05pF | GJM0225C1C4R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C4R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C4R6CB01# |  |
|        |               |         | 4.7pF | ±0.05pF | GJM0225C1C4R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C4R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C4R7CB01# |  |
|        |               |         | 4.8pF | ±0.05pF | GJM0225C1C4R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C4R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C4R8CB01# |  |
|        |               |         | 4.9pF | ±0.05pF | GJM0225C1C4R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C4R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C4R9CB01# |  |
|        |               |         | 5.0pF | ±0.05pF | GJM0225C1C5R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C5R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C5R0CB01# |  |
|        |               |         | 5.1pF | ±0.05pF | GJM0225C1C5R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C5R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C5R1CB01# |  |
|        |               |         | 5.2pF | ±0.05pF | GJM0225C1C5R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C5R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C5R2CB01# |  |
|        |               |         | 5.3pF | ±0.05pF | GJM0225C1C5R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C5R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C5R3CB01# |  |
|        |               |         | 5.4pF | ±0.05pF | GJM0225C1C5R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C5R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C5R4CB01# |  |
|        |               |         | 5.5pF | ±0.05pF | GJM0225C1C5R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C5R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C5R5CB01# |  |
|        |               |         | 5.6pF | ±0.05pF | GJM0225C1C5R5DB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C5R5DB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | C0G     | 5.6pF | ±0.1pF  | GJM0225C1C5R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C5R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C5R6DB01# |  |
|        |               |         | 5.7pF | ±0.05pF | GJM0225C1C5R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C5R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C5R7CB01# |  |
|        |               |         | 5.8pF | ±0.05pF | GJM0225C1C5R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C5R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C5R8CB01# |  |
|        |               |         | 5.9pF | ±0.05pF | GJM0225C1C5R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C5R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C5R9CB01# |  |
|        |               |         | 6.0pF | ±0.05pF | GJM0225C1C6R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C6R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C6R0CB01# |  |
|        |               |         | 6.1pF | ±0.05pF | GJM0225C1C6R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C6R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C6R1CB01# |  |
|        |               |         | 6.2pF | ±0.05pF | GJM0225C1C6R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C6R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C6R2CB01# |  |
|        |               |         | 6.3pF | ±0.05pF | GJM0225C1C6R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C6R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C6R3CB01# |  |
|        |               |         | 6.4pF | ±0.05pF | GJM0225C1C6R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C6R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C6R4CB01# |  |
|        |               |         | 6.5pF | ±0.05pF | GJM0225C1C6R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C6R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C6R5CB01# |  |
|        |               |         | 6.6pF | ±0.05pF | GJM0225C1C6R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C6R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C6R6CB01# |  |
|        |               |         | 6.7pF | ±0.05pF | GJM0225C1C6R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C6R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C6R7CB01# |  |
|        |               |         | 6.8pF | ±0.05pF | GJM0225C1C6R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C6R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C6R8CB01# |  |
|        |               |         | 6.9pF | ±0.05pF | GJM0225C1C6R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C6R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C6R9CB01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LLI Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

# GJM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 0.4×0.2mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | C0G     | 6.9pF | ±0.5pF  | GJM0225C1C6R9DB01# |  |
|        |               |         | 7.0pF | ±0.05pF | GJM0225C1C7R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C7R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C7R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C7R0DB01# |  |
|        |               |         | 7.1pF | ±0.05pF | GJM0225C1C7R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C7R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C7R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C7R1DB01# |  |
|        |               |         | 7.2pF | ±0.05pF | GJM0225C1C7R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C7R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C7R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C7R2DB01# |  |
|        |               |         | 7.3pF | ±0.05pF | GJM0225C1C7R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C7R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C7R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C7R3DB01# |  |
|        |               |         | 7.4pF | ±0.05pF | GJM0225C1C7R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C7R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C7R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C7R4DB01# |  |
|        |               |         | 7.5pF | ±0.05pF | GJM0225C1C7R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C7R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C7R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C7R5DB01# |  |
|        |               |         | 7.6pF | ±0.05pF | GJM0225C1C7R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C7R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C7R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C7R6DB01# |  |
|        |               |         | 7.7pF | ±0.05pF | GJM0225C1C7R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C7R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C7R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C7R7DB01# |  |
|        |               |         | 7.8pF | ±0.05pF | GJM0225C1C7R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C7R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C7R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C7R8DB01# |  |
|        |               |         | 7.9pF | ±0.05pF | GJM0225C1C7R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C7R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C7R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C7R9DB01# |  |
|        |               |         | 8.0pF | ±0.05pF | GJM0225C1C8R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C8R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C8R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C8R0DB01# |  |
|        |               |         | 8.1pF | ±0.05pF | GJM0225C1C8R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C8R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C8R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C8R1DB01# |  |
|        |               |         | 8.2pF | ±0.05pF | GJM0225C1C8R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C8R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C8R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C8R2DB01# |  |
|        |               |         | 8.3pF | ±0.05pF | GJM0225C1C8R3WB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | C0G     | 8.3pF | ±0.1pF  | GJM0225C1C8R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C8R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C8R3DB01# |  |
|        |               |         | 8.4pF | ±0.05pF | GJM0225C1C8R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C8R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C8R4CB01# |  |
|        |               |         | 8.5pF | ±0.05pF | GJM0225C1C8R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C8R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C8R5CB01# |  |
|        |               |         | 8.6pF | ±0.05pF | GJM0225C1C8R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C8R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C8R6CB01# |  |
|        |               |         | 8.7pF | ±0.05pF | GJM0225C1C8R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C8R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C8R7CB01# |  |
|        |               |         | 8.8pF | ±0.05pF | GJM0225C1C8R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C8R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C8R8CB01# |  |
|        |               |         | 8.9pF | ±0.05pF | GJM0225C1C8R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C8R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C8R9CB01# |  |
|        |               |         | 9.0pF | ±0.05pF | GJM0225C1C9R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C9R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C9R0CB01# |  |
|        |               |         | 9.1pF | ±0.05pF | GJM0225C1C9R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C9R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C9R1CB01# |  |
|        |               |         | 9.2pF | ±0.05pF | GJM0225C1C9R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C9R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C9R2CB01# |  |
|        |               |         | 9.3pF | ±0.05pF | GJM0225C1C9R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C9R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C9R3CB01# |  |
|        |               |         | 9.4pF | ±0.05pF | GJM0225C1C9R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C9R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C9R4CB01# |  |
|        |               |         | 9.5pF | ±0.05pF | GJM0225C1C9R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C9R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C9R5CB01# |  |
|        |               |         | 9.6pF | ±0.05pF | GJM0225C1C9R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C9R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C9R6CB01# |  |

Part number # indicates the package specification code.

# GJM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 0.4×0.2mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | C0G     | 9.6pF | ±0.5pF  | GJM0225C1C9R6DB01# |  |
|        |               |         |       | ±0.05pF | GJM0225C1C9R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C9R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C9R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C9R7DB01# |  |
|        |               |         | 9.8pF | ±0.05pF | GJM0225C1C9R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C9R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C9R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C9R8DB01# |  |
|        |               |         | 9.9pF | ±0.05pF | GJM0225C1C9R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0225C1C9R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0225C1C9R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0225C1C9R9DB01# |  |
|        |               |         | 10pF  | ±2%     | GJM0225C1C100GB01# |  |
|        |               |         |       | ±5%     | GJM0225C1C100JB01# |  |
|        |               | CK      | 0.2pF | ±0.05pF | GJM0224C1CR20WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1CR20BB01# |  |
|        |               |         | 0.3pF | ±0.05pF | GJM0224C1CR30WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1CR30BB01# |  |
|        |               |         | 0.4pF | ±0.05pF | GJM0224C1CR40WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1CR40BB01# |  |
|        |               |         | 0.5pF | ±0.05pF | GJM0224C1CR50WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1CR50BB01# |  |
|        |               |         | 0.6pF | ±0.05pF | GJM0224C1CR60WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1CR60BB01# |  |
|        |               |         | 0.7pF | ±0.05pF | GJM0224C1CR70WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1CR70BB01# |  |
|        |               |         | 0.8pF | ±0.05pF | GJM0224C1CR80WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1CR80BB01# |  |
|        |               |         | 0.9pF | ±0.05pF | GJM0224C1CR90WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1CR90BB01# |  |
|        |               |         | 1.0pF | ±0.05pF | GJM0224C1C1R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1C1R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0224C1C1R0CB01# |  |
|        |               |         | 1.1pF | ±0.05pF | GJM0224C1C1R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1C1R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0224C1C1R1CB01# |  |
|        |               |         | 1.2pF | ±0.05pF | GJM0224C1C1R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1C1R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0224C1C1R2CB01# |  |
|        |               |         | 1.3pF | ±0.05pF | GJM0224C1C1R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1C1R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0224C1C1R3CB01# |  |
|        |               |         | 1.4pF | ±0.05pF | GJM0224C1C1R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1C1R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0224C1C1R4CB01# |  |
|        |               |         | 1.5pF | ±0.05pF | GJM0224C1C1R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1C1R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0224C1C1R5CB01# |  |
|        |               |         | 1.6pF | ±0.05pF | GJM0224C1C1R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1C1R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0224C1C1R6CB01# |  |
|        |               |         | 1.7pF | ±0.05pF | GJM0224C1C1R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1C1R7BB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | CK      | 1.7pF | ±0.25pF | GJM0224C1C1R7CB01# |  |
|        |               |         |       | ±0.05pF | GJM0224C1C1R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1C1R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0224C1C1R8CB01# |  |
|        |               |         | 1.9pF | ±0.05pF | GJM0224C1C1R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1C1R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0224C1C1R9CB01# |  |
|        |               |         | 2.0pF | ±0.05pF | GJM0224C1C2R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0224C1C2R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0224C1C2R0CB01# |  |
|        |               | CJ      | 2.1pF | ±0.05pF | GJM0223C1C2R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C2R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C2R1CB01# |  |
|        |               |         | 2.2pF | ±0.05pF | GJM0223C1C2R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C2R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C2R2CB01# |  |
|        |               |         | 2.3pF | ±0.05pF | GJM0223C1C2R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C2R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C2R3CB01# |  |
|        |               |         | 2.4pF | ±0.05pF | GJM0223C1C2R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C2R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C2R4CB01# |  |
|        |               |         | 2.5pF | ±0.05pF | GJM0223C1C2R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C2R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C2R5CB01# |  |
|        |               |         | 2.6pF | ±0.05pF | GJM0223C1C2R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C2R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C2R6CB01# |  |
|        |               |         | 2.7pF | ±0.05pF | GJM0223C1C2R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C2R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C2R7CB01# |  |
|        |               |         | 2.8pF | ±0.05pF | GJM0223C1C2R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C2R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C2R8CB01# |  |
|        |               |         | 2.9pF | ±0.05pF | GJM0223C1C2R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C2R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C2R9CB01# |  |
|        |               |         | 3.0pF | ±0.05pF | GJM0223C1C3R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C3R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C3R0CB01# |  |
|        |               |         | 3.1pF | ±0.05pF | GJM0223C1C3R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C3R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C3R1CB01# |  |
|        |               |         | 3.2pF | ±0.05pF | GJM0223C1C3R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C3R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C3R2CB01# |  |
|        |               |         | 3.3pF | ±0.05pF | GJM0223C1C3R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C3R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C3R3CB01# |  |
|        |               |         | 3.4pF | ±0.05pF | GJM0223C1C3R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C3R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C3R4CB01# |  |
|        |               |         | 3.5pF | ±0.05pF | GJM0223C1C3R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C3R5BB01# |  |

Part number # indicates the package specification code.

# GJM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 0.4×0.2mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | CJ      | 3.5pF | ±0.25pF | GJM0223C1C3R5CB01# |  |
|        |               |         |       | ±0.05pF | GJM0223C1C3R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C3R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C3R6CB01# |  |
|        |               |         | 3.7pF | ±0.05pF | GJM0223C1C3R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C3R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C3R7CB01# |  |
|        |               |         | 3.8pF | ±0.05pF | GJM0223C1C3R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C3R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C3R8CB01# |  |
|        |               |         | 3.9pF | ±0.05pF | GJM0223C1C3R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0223C1C3R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0223C1C3R9CB01# |  |
|        |               | CH      | 4.0pF | ±0.05pF | GJM0222C1C4R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C4R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C4R0CB01# |  |
|        |               |         | 4.1pF | ±0.05pF | GJM0222C1C4R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C4R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C4R1CB01# |  |
|        |               |         | 4.2pF | ±0.05pF | GJM0222C1C4R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C4R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C4R2CB01# |  |
|        |               |         | 4.3pF | ±0.05pF | GJM0222C1C4R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C4R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C4R3CB01# |  |
|        |               |         | 4.4pF | ±0.05pF | GJM0222C1C4R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C4R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C4R4CB01# |  |
|        |               |         | 4.5pF | ±0.05pF | GJM0222C1C4R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C4R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C4R5CB01# |  |
|        |               |         | 4.6pF | ±0.05pF | GJM0222C1C4R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C4R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C4R6CB01# |  |
|        |               |         | 4.7pF | ±0.05pF | GJM0222C1C4R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C4R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C4R7CB01# |  |
|        |               |         | 4.8pF | ±0.05pF | GJM0222C1C4R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C4R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C4R8CB01# |  |
|        |               |         | 4.9pF | ±0.05pF | GJM0222C1C4R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C4R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C4R9CB01# |  |
|        |               |         | 5.0pF | ±0.05pF | GJM0222C1C5R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C5R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C5R0CB01# |  |
|        |               |         | 5.1pF | ±0.05pF | GJM0222C1C5R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C5R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C5R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C5R1DB01# |  |
|        |               |         | 5.2pF | ±0.05pF | GJM0222C1C5R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C5R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C5R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C5R2DB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | CH      | 5.3pF | ±0.05pF | GJM0222C1C5R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C5R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C5R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C5R3DB01# |  |
|        |               |         | 5.4pF | ±0.05pF | GJM0222C1C5R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C5R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C5R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C5R4DB01# |  |
|        |               |         | 5.5pF | ±0.05pF | GJM0222C1C5R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C5R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C5R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C5R5DB01# |  |
|        |               |         | 5.6pF | ±0.05pF | GJM0222C1C5R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C5R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C5R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C5R6DB01# |  |
|        |               |         | 5.7pF | ±0.05pF | GJM0222C1C5R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C5R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C5R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C5R7DB01# |  |
|        |               |         | 5.8pF | ±0.05pF | GJM0222C1C5R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C5R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C5R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C5R8DB01# |  |
|        |               |         | 5.9pF | ±0.05pF | GJM0222C1C5R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C5R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C5R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C5R9DB01# |  |
|        |               |         | 6.0pF | ±0.05pF | GJM0222C1C6R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C6R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C6R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C6R0DB01# |  |
|        |               |         | 6.1pF | ±0.05pF | GJM0222C1C6R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C6R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C6R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C6R1DB01# |  |
|        |               |         | 6.2pF | ±0.05pF | GJM0222C1C6R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C6R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C6R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C6R2DB01# |  |
|        |               |         | 6.3pF | ±0.05pF | GJM0222C1C6R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C6R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C6R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C6R3DB01# |  |
|        |               |         | 6.4pF | ±0.05pF | GJM0222C1C6R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C6R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C6R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C6R4DB01# |  |
|        |               |         | 6.5pF | ±0.05pF | GJM0222C1C6R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C6R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C6R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C6R5DB01# |  |
|        |               |         | 6.6pF | ±0.05pF | GJM0222C1C6R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C6R6BB01# |  |

Part number # indicates the package specification code.

# GJM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 0.4×0.2mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | CH      | 6.6pF | ±0.25pF | GJM0222C1C6R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C6R6DB01# |  |
|        |               |         | 6.7pF | ±0.05pF | GJM0222C1C6R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C6R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C6R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C6R7DB01# |  |
|        |               |         | 6.8pF | ±0.05pF | GJM0222C1C6R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C6R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C6R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C6R8DB01# |  |
|        |               |         | 6.9pF | ±0.05pF | GJM0222C1C6R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C6R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C6R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C6R9DB01# |  |
|        |               |         | 7.0pF | ±0.05pF | GJM0222C1C7R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C7R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C7R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C7R0DB01# |  |
|        |               |         | 7.1pF | ±0.05pF | GJM0222C1C7R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C7R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C7R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C7R1DB01# |  |
|        |               |         | 7.2pF | ±0.05pF | GJM0222C1C7R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C7R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C7R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C7R2DB01# |  |
|        |               |         | 7.3pF | ±0.05pF | GJM0222C1C7R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C7R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C7R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C7R3DB01# |  |
|        |               |         | 7.4pF | ±0.05pF | GJM0222C1C7R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C7R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C7R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C7R4DB01# |  |
|        |               |         | 7.5pF | ±0.05pF | GJM0222C1C7R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C7R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C7R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C7R5DB01# |  |
|        |               |         | 7.6pF | ±0.05pF | GJM0222C1C7R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C7R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C7R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C7R6DB01# |  |
|        |               |         | 7.7pF | ±0.05pF | GJM0222C1C7R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C7R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C7R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C7R7DB01# |  |
|        |               |         | 7.8pF | ±0.05pF | GJM0222C1C7R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C7R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C7R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C7R8DB01# |  |
|        |               |         | 7.9pF | ±0.05pF | GJM0222C1C7R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C7R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C7R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C7R9DB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | CH      | 8.0pF | ±0.05pF | GJM0222C1C8R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C8R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C8R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C8R0DB01# |  |
|        |               |         | 8.1pF | ±0.05pF | GJM0222C1C8R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C8R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C8R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C8R1DB01# |  |
|        |               |         | 8.2pF | ±0.05pF | GJM0222C1C8R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C8R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C8R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C8R2DB01# |  |
|        |               |         | 8.3pF | ±0.05pF | GJM0222C1C8R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C8R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C8R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C8R3DB01# |  |
|        |               |         | 8.4pF | ±0.05pF | GJM0222C1C8R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C8R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C8R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C8R4DB01# |  |
|        |               |         | 8.5pF | ±0.05pF | GJM0222C1C8R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C8R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C8R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C8R5DB01# |  |
|        |               |         | 8.6pF | ±0.05pF | GJM0222C1C8R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C8R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C8R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C8R6DB01# |  |
|        |               |         | 8.7pF | ±0.05pF | GJM0222C1C8R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C8R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C8R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C8R7DB01# |  |
|        |               |         | 8.8pF | ±0.05pF | GJM0222C1C8R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C8R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C8R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C8R8DB01# |  |
|        |               |         | 8.9pF | ±0.05pF | GJM0222C1C8R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C8R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C8R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C8R9DB01# |  |
|        |               |         | 9.0pF | ±0.05pF | GJM0222C1C9R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C9R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C9R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C9R0DB01# |  |
|        |               |         | 9.1pF | ±0.05pF | GJM0222C1C9R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C9R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C9R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C9R1DB01# |  |
|        |               |         | 9.2pF | ±0.05pF | GJM0222C1C9R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C9R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C9R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C9R2DB01# |  |
|        |               |         | 9.3pF | ±0.05pF | GJM0222C1C9R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C9R3BB01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LLI Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

# GJM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 0.4×0.2mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.22mm | 16Vdc         | CH      | 9.3pF | ±0.25pF | GJM0222C1C9R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C9R3DB01# |  |
|        |               |         | 9.4pF | ±0.05pF | GJM0222C1C9R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C9R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C9R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C9R4DB01# |  |
|        |               |         | 9.5pF | ±0.05pF | GJM0222C1C9R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C9R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C9R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C9R5DB01# |  |
|        |               |         | 9.6pF | ±0.05pF | GJM0222C1C9R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C9R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C9R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C9R6DB01# |  |
|        |               |         | 9.7pF | ±0.05pF | GJM0222C1C9R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C9R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C9R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C9R7DB01# |  |
|        |               |         | 9.8pF | ±0.05pF | GJM0222C1C9R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C9R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C9R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C9R8DB01# |  |
|        |               |         | 9.9pF | ±0.05pF | GJM0222C1C9R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0222C1C9R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0222C1C9R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0222C1C9R9DB01# |  |
|        |               |         | 10pF  | ±2%     | GJM0222C1C100GB01# |  |
|        |               |         |       | ±5%     | GJM0222C1C100JB01# |  |

■ 0.6×0.3mm **Ultra-compact**

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | C0G     | 0.2pF | ±0.05pF | GJM0335C1E20WB01#  |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E20BB01#  |  |
|        |               |         | 0.3pF | ±0.05pF | GJM0335C1E30WB01#  |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E30BB01#  |  |
|        |               |         | 0.4pF | ±0.05pF | GJM0335C1E40WB01#  |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E40BB01#  |  |
|        |               |         | 0.5pF | ±0.05pF | GJM0335C1E50WB01#  |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E50BB01#  |  |
|        |               |         | 0.6pF | ±0.05pF | GJM0335C1E60WB01#  |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E60BB01#  |  |
|        |               |         | 0.7pF | ±0.05pF | GJM0335C1E70WB01#  |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E70BB01#  |  |
|        |               |         | 0.8pF | ±0.05pF | GJM0335C1E80WB01#  |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E80BB01#  |  |
|        |               |         | 0.9pF | ±0.05pF | GJM0335C1E90WB01#  |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E90BB01#  |  |
|        |               |         | 1.0pF | ±0.05pF | GJM0335C1E1R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E1R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E1R0CB01# |  |
|        |               |         | 1.1pF | ±0.05pF | GJM0335C1E1R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E1R1BB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | C0G     | 1.1pF | ±0.25pF | GJM0335C1E1R1CB01# |  |
|        |               |         |       | ±0.05pF | GJM0335C1E1R2WB01# |  |
|        |               |         | 1.2pF | ±0.05pF | GJM0335C1E1R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E1R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E1R2CB01# |  |
|        |               |         | 1.3pF | ±0.05pF | GJM0335C1E1R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E1R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E1R3CB01# |  |
|        |               |         | 1.4pF | ±0.05pF | GJM0335C1E1R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E1R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E1R4CB01# |  |
|        |               |         | 1.5pF | ±0.05pF | GJM0335C1E1R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E1R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E1R5CB01# |  |
|        |               |         | 1.6pF | ±0.05pF | GJM0335C1E1R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E1R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E1R6CB01# |  |
|        |               |         | 1.7pF | ±0.05pF | GJM0335C1E1R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E1R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E1R7CB01# |  |
|        |               |         | 1.8pF | ±0.05pF | GJM0335C1E1R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E1R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E1R8CB01# |  |
|        |               |         | 1.9pF | ±0.05pF | GJM0335C1E1R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E1R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E1R9CB01# |  |
|        |               |         | 2.0pF | ±0.05pF | GJM0335C1E2R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E2R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E2R0CB01# |  |
|        |               |         | 2.1pF | ±0.05pF | GJM0335C1E2R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E2R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E2R1CB01# |  |
|        |               |         | 2.2pF | ±0.05pF | GJM0335C1E2R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E2R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E2R2CB01# |  |
|        |               |         | 2.3pF | ±0.05pF | GJM0335C1E2R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E2R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E2R3CB01# |  |
|        |               |         | 2.4pF | ±0.05pF | GJM0335C1E2R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E2R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E2R4CB01# |  |
|        |               |         | 2.5pF | ±0.05pF | GJM0335C1E2R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E2R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E2R5CB01# |  |
|        |               |         | 2.6pF | ±0.05pF | GJM0335C1E2R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E2R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E2R6CB01# |  |
|        |               |         | 2.7pF | ±0.05pF | GJM0335C1E2R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E2R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E2R7CB01# |  |
|        |               |         | 2.8pF | ±0.05pF | GJM0335C1E2R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E2R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E2R8CB01# |  |
|        |               |         | 2.9pF | ±0.05pF | GJM0335C1E2R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E2R9BB01# |  |

Part number # indicates the package specification code.

# GJM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | C0G     | 2.9pF | ±0.25pF | GJM0335C1E2R9CB01# |  |
|        |               |         |       | ±0.05pF | GJM0335C1E3R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E3R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E3R0CB01# |  |
|        |               |         | 3.1pF | ±0.05pF | GJM0335C1E3R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E3R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E3R1CB01# |  |
|        |               |         | 3.2pF | ±0.05pF | GJM0335C1E3R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E3R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E3R2CB01# |  |
|        |               |         | 3.3pF | ±0.05pF | GJM0335C1E3R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E3R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E3R3CB01# |  |
|        |               |         | 3.4pF | ±0.05pF | GJM0335C1E3R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E3R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E3R4CB01# |  |
|        |               |         | 3.5pF | ±0.05pF | GJM0335C1E3R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E3R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E3R5CB01# |  |
|        |               |         | 3.6pF | ±0.05pF | GJM0335C1E3R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E3R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E3R6CB01# |  |
|        |               |         | 3.7pF | ±0.05pF | GJM0335C1E3R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E3R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E3R7CB01# |  |
|        |               |         | 3.8pF | ±0.05pF | GJM0335C1E3R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E3R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E3R8CB01# |  |
|        |               |         | 3.9pF | ±0.05pF | GJM0335C1E3R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E3R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E3R9CB01# |  |
|        |               |         | 4.0pF | ±0.05pF | GJM0335C1E4R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E4R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E4R0CB01# |  |
|        |               |         | 4.1pF | ±0.05pF | GJM0335C1E4R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E4R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E4R1CB01# |  |
|        |               |         | 4.2pF | ±0.05pF | GJM0335C1E4R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E4R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E4R2CB01# |  |
|        |               |         | 4.3pF | ±0.05pF | GJM0335C1E4R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E4R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E4R3CB01# |  |
|        |               |         | 4.4pF | ±0.05pF | GJM0335C1E4R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E4R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E4R4CB01# |  |
|        |               |         | 4.5pF | ±0.05pF | GJM0335C1E4R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E4R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E4R5CB01# |  |
|        |               |         | 4.6pF | ±0.05pF | GJM0335C1E4R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E4R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E4R6CB01# |  |
|        |               |         | 4.7pF | ±0.05pF | GJM0335C1E4R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E4R7BB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | C0G     | 4.7pF | ±0.25pF | GJM0335C1E4R7CB01# |  |
|        |               |         |       | ±0.05pF | GJM0335C1E4R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E4R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E4R8CB01# |  |
|        |               |         | 4.9pF | ±0.05pF | GJM0335C1E4R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E4R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E4R9CB01# |  |
|        |               |         | 5.0pF | ±0.05pF | GJM0335C1E5R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E5R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E5R0CB01# |  |
|        |               |         | 5.1pF | ±0.05pF | GJM0335C1E5R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E5R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E5R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E5R1DB01# |  |
|        |               |         | 5.2pF | ±0.05pF | GJM0335C1E5R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E5R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E5R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E5R2DB01# |  |
|        |               |         | 5.3pF | ±0.05pF | GJM0335C1E5R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E5R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E5R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E5R3DB01# |  |
|        |               |         | 5.4pF | ±0.05pF | GJM0335C1E5R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E5R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E5R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E5R4DB01# |  |
|        |               |         | 5.5pF | ±0.05pF | GJM0335C1E5R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E5R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E5R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E5R5DB01# |  |
|        |               |         | 5.6pF | ±0.05pF | GJM0335C1E5R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E5R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E5R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E5R6DB01# |  |
|        |               |         | 5.7pF | ±0.05pF | GJM0335C1E5R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E5R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E5R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E5R7DB01# |  |
|        |               |         | 5.8pF | ±0.05pF | GJM0335C1E5R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E5R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E5R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E5R8DB01# |  |
|        |               |         | 5.9pF | ±0.05pF | GJM0335C1E5R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E5R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E5R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E5R9DB01# |  |
|        |               |         | 6.0pF | ±0.05pF | GJM0335C1E6R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E6R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E6R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E6R0DB01# |  |
|        |               |         | 6.1pF | ±0.05pF | GJM0335C1E6R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E6R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E6R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E6R1DB01# |  |

Part number # indicates the package specification code.

# GJM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | C0G     | 6.2pF | ±0.05pF | GJM0335C1E6R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E6R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E6R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E6R2DB01# |  |
|        |               |         | 6.3pF | ±0.05pF | GJM0335C1E6R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E6R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E6R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E6R3DB01# |  |
|        |               |         | 6.4pF | ±0.05pF | GJM0335C1E6R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E6R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E6R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E6R4DB01# |  |
|        |               |         | 6.5pF | ±0.05pF | GJM0335C1E6R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E6R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E6R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E6R5DB01# |  |
|        |               |         | 6.6pF | ±0.05pF | GJM0335C1E6R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E6R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E6R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E6R6DB01# |  |
|        |               |         | 6.7pF | ±0.05pF | GJM0335C1E6R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E6R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E6R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E6R7DB01# |  |
|        |               |         | 6.8pF | ±0.05pF | GJM0335C1E6R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0335C1E6R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0335C1E6R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0335C1E6R8DB01# |  |
|        |               | C0H     | 6.9pF | ±0.05pF | GJM0336C1E6R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E6R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E6R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E6R9DB01# |  |
|        |               |         | 7.0pF | ±0.05pF | GJM0336C1E7R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E7R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E7R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E7R0DB01# |  |
|        |               |         | 7.1pF | ±0.05pF | GJM0336C1E7R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E7R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E7R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E7R1DB01# |  |
|        |               |         | 7.2pF | ±0.05pF | GJM0336C1E7R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E7R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E7R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E7R2DB01# |  |
|        |               |         | 7.3pF | ±0.05pF | GJM0336C1E7R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E7R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E7R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E7R3DB01# |  |
|        |               |         | 7.4pF | ±0.05pF | GJM0336C1E7R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E7R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E7R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E7R4DB01# |  |
|        |               |         | 7.5pF | ±0.05pF | GJM0336C1E7R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E7R5BB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | C0H     | 7.5pF | ±0.25pF | GJM0336C1E7R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E7R5DB01# |  |
|        |               |         | 7.6pF | ±0.05pF | GJM0336C1E7R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E7R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E7R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E7R6DB01# |  |
|        |               |         | 7.7pF | ±0.05pF | GJM0336C1E7R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E7R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E7R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E7R7DB01# |  |
|        |               |         | 7.8pF | ±0.05pF | GJM0336C1E7R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E7R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E7R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E7R8DB01# |  |
|        |               |         | 7.9pF | ±0.05pF | GJM0336C1E7R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E7R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E7R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E7R9DB01# |  |
|        |               |         | 8.0pF | ±0.05pF | GJM0336C1E8R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E8R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E8R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E8R0DB01# |  |
|        |               |         | 8.1pF | ±0.05pF | GJM0336C1E8R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E8R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E8R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E8R1DB01# |  |
|        |               |         | 8.2pF | ±0.05pF | GJM0336C1E8R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E8R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E8R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E8R2DB01# |  |
|        |               |         | 8.3pF | ±0.05pF | GJM0336C1E8R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E8R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E8R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E8R3DB01# |  |
|        |               |         | 8.4pF | ±0.05pF | GJM0336C1E8R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E8R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E8R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E8R4DB01# |  |
|        |               |         | 8.5pF | ±0.05pF | GJM0336C1E8R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E8R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E8R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E8R5DB01# |  |
|        |               |         | 8.6pF | ±0.05pF | GJM0336C1E8R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E8R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E8R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E8R6DB01# |  |
|        |               |         | 8.7pF | ±0.05pF | GJM0336C1E8R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E8R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E8R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E8R7DB01# |  |
|        |               |         | 8.8pF | ±0.05pF | GJM0336C1E8R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E8R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E8R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E8R8DB01# |  |

Part number # indicates the package specification code.

# GJM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | C0H     | 8.9pF | ±0.05pF | GJM0336C1E8R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E8R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E8R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E8R9DB01# |  |
|        |               |         | 9.0pF | ±0.05pF | GJM0336C1E9R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E9R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E9R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E9R0DB01# |  |
|        |               |         | 9.1pF | ±0.05pF | GJM0336C1E9R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E9R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E9R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E9R1DB01# |  |
|        |               |         | 9.2pF | ±0.05pF | GJM0336C1E9R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E9R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E9R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E9R2DB01# |  |
|        |               |         | 9.3pF | ±0.05pF | GJM0336C1E9R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E9R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E9R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E9R3DB01# |  |
|        |               |         | 9.4pF | ±0.05pF | GJM0336C1E9R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E9R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E9R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E9R4DB01# |  |
|        |               |         | 9.5pF | ±0.05pF | GJM0336C1E9R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E9R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E9R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E9R5DB01# |  |
|        |               |         | 9.6pF | ±0.05pF | GJM0336C1E9R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E9R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E9R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E9R6DB01# |  |
|        |               |         | 9.7pF | ±0.05pF | GJM0336C1E9R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E9R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E9R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E9R7DB01# |  |
|        |               |         | 9.8pF | ±0.05pF | GJM0336C1E9R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E9R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E9R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E9R8DB01# |  |
|        |               |         | 9.9pF | ±0.05pF | GJM0336C1E9R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0336C1E9R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0336C1E9R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0336C1E9R9DB01# |  |
|        |               |         | 10pF  | ±2%     | GJM0336C1E100GB01# |  |
|        |               |         |       | ±5%     | GJM0336C1E100JB01# |  |
|        |               |         | 11pF  | ±2%     | GJM0336C1E110GB01# |  |
|        |               |         |       | ±5%     | GJM0336C1E110JB01# |  |
|        |               |         | 12pF  | ±2%     | GJM0336C1E120GB01# |  |
|        |               |         |       | ±5%     | GJM0336C1E120JB01# |  |
|        |               |         | 13pF  | ±2%     | GJM0336C1E130GB01# |  |
|        |               |         |       | ±5%     | GJM0336C1E130JB01# |  |
|        |               |         | 15pF  | ±2%     | GJM0336C1E150GB01# |  |
|        |               |         |       | ±5%     | GJM0336C1E150JB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | C0H     | 16pF  | ±2%     | GJM0336C1E160GB01# |  |
|        |               |         |       | ±5%     | GJM0336C1E160JB01# |  |
|        |               |         | 18pF  | ±2%     | GJM0336C1E180GB01# |  |
|        |               |         |       | ±5%     | GJM0336C1E180JB01# |  |
|        |               |         | 20pF  | ±2%     | GJM0336C1E200GB01# |  |
|        |               |         |       | ±5%     | GJM0336C1E200JB01# |  |
|        |               | CK      | 0.2pF | ±0.05pF | GJM0334C1ER20WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1ER20BB01# |  |
|        |               |         | 0.3pF | ±0.05pF | GJM0334C1ER30WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1ER30BB01# |  |
|        |               |         | 0.4pF | ±0.05pF | GJM0334C1ER40WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1ER40BB01# |  |
|        |               |         | 0.5pF | ±0.05pF | GJM0334C1ER50WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1ER50BB01# |  |
|        |               |         | 0.6pF | ±0.05pF | GJM0334C1ER60WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1ER60BB01# |  |
|        |               |         | 0.7pF | ±0.05pF | GJM0334C1ER70WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1ER70BB01# |  |
|        |               |         | 0.8pF | ±0.05pF | GJM0334C1ER80WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1ER80BB01# |  |
|        |               |         | 0.9pF | ±0.05pF | GJM0334C1ER90WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1ER90BB01# |  |
|        |               |         | 1.0pF | ±0.05pF | GJM0334C1E1R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1E1R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0334C1E1R0CB01# |  |
|        |               |         | 1.1pF | ±0.05pF | GJM0334C1E1R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1E1R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0334C1E1R1CB01# |  |
|        |               |         | 1.2pF | ±0.05pF | GJM0334C1E1R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1E1R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0334C1E1R2CB01# |  |
|        |               |         | 1.3pF | ±0.05pF | GJM0334C1E1R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1E1R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0334C1E1R3CB01# |  |
|        |               |         | 1.4pF | ±0.05pF | GJM0334C1E1R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1E1R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0334C1E1R4CB01# |  |
|        |               |         | 1.5pF | ±0.05pF | GJM0334C1E1R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1E1R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0334C1E1R5CB01# |  |
|        |               |         | 1.6pF | ±0.05pF | GJM0334C1E1R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1E1R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0334C1E1R6CB01# |  |
|        |               |         | 1.7pF | ±0.05pF | GJM0334C1E1R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1E1R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0334C1E1R7CB01# |  |
|        |               |         | 1.8pF | ±0.05pF | GJM0334C1E1R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1E1R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0334C1E1R8CB01# |  |
|        |               |         | 1.9pF | ±0.05pF | GJM0334C1E1R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1E1R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0334C1E1R9CB01# |  |
|        |               |         | 2.0pF | ±0.05pF | GJM0334C1E2R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0334C1E2R0BB01# |  |

Part number # indicates the package specification code.

# GJM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.    | Tol.               | Part Number        |  |
|--------|---------------|---------|---------|--------------------|--------------------|--|
| 0.33mm | 25Vdc         | CK      | 2.0pF   | ±0.25pF            | GJM0334C1E2R0CB01# |  |
|        |               |         |         |                    |                    |  |
|        |               | CJ      | 2.1pF   | ±0.05pF            | GJM0333C1E2R1WB01# |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E2R1BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E2R1CB01# |  |
|        |               |         |         |                    |                    |  |
|        |               | 2.2pF   | ±0.05pF | GJM0333C1E2R2WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E2R2BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E2R2CB01# |  |
|        |               | 2.3pF   | ±0.05pF | GJM0333C1E2R3WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E2R3BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E2R3CB01# |  |
|        |               | 2.4pF   | ±0.05pF | GJM0333C1E2R4WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E2R4BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E2R4CB01# |  |
|        |               | 2.5pF   | ±0.05pF | GJM0333C1E2R5WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E2R5BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E2R5CB01# |  |
|        |               | 2.6pF   | ±0.05pF | GJM0333C1E2R6WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E2R6BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E2R6CB01# |  |
|        |               | 2.7pF   | ±0.05pF | GJM0333C1E2R7WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E2R7BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E2R7CB01# |  |
|        |               | 2.8pF   | ±0.05pF | GJM0333C1E2R8WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E2R8BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E2R8CB01# |  |
|        |               | 2.9pF   | ±0.05pF | GJM0333C1E2R9WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E2R9BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E2R9CB01# |  |
|        |               | 3.0pF   | ±0.05pF | GJM0333C1E3R0WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E3R0BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E3R0CB01# |  |
|        |               | 3.1pF   | ±0.05pF | GJM0333C1E3R1WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E3R1BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E3R1CB01# |  |
|        |               | 3.2pF   | ±0.05pF | GJM0333C1E3R2WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E3R2BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E3R2CB01# |  |
|        |               | 3.3pF   | ±0.05pF | GJM0333C1E3R3WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E3R3BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E3R3CB01# |  |
|        |               | 3.4pF   | ±0.05pF | GJM0333C1E3R4WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E3R4BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E3R4CB01# |  |
|        |               | 3.5pF   | ±0.05pF | GJM0333C1E3R5WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E3R5BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E3R5CB01# |  |
|        |               | 3.6pF   | ±0.05pF | GJM0333C1E3R6WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E3R6BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E3R6CB01# |  |
|        |               | 3.7pF   | ±0.05pF | GJM0333C1E3R7WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E3R7BB01# |  |
|        |               |         |         | ±0.25pF            | GJM0333C1E3R7CB01# |  |
|        |               | 3.8pF   | ±0.05pF | GJM0333C1E3R8WB01# |                    |  |
|        |               |         |         | ±0.1pF             | GJM0333C1E3R8BB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | CJ      | 3.8pF | ±0.25pF | GJM0333C1E3R8CB01# |  |
|        |               |         |       | ±0.05pF | GJM0333C1E3R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0333C1E3R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0333C1E3R9CB01# |  |
|        |               | CH      | 4.0pF | ±0.05pF | GJM0332C1E4R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E4R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E4R0CB01# |  |
|        |               |         | 4.1pF | ±0.05pF | GJM0332C1E4R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E4R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E4R1CB01# |  |
|        |               |         | 4.2pF | ±0.05pF | GJM0332C1E4R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E4R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E4R2CB01# |  |
|        |               |         | 4.3pF | ±0.05pF | GJM0332C1E4R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E4R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E4R3CB01# |  |
|        |               |         | 4.4pF | ±0.05pF | GJM0332C1E4R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E4R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E4R4CB01# |  |
|        |               |         | 4.5pF | ±0.05pF | GJM0332C1E4R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E4R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E4R5CB01# |  |
|        |               |         | 4.6pF | ±0.05pF | GJM0332C1E4R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E4R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E4R6CB01# |  |
|        |               |         | 4.7pF | ±0.05pF | GJM0332C1E4R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E4R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E4R7CB01# |  |
|        |               |         | 4.8pF | ±0.05pF | GJM0332C1E4R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E4R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E4R8CB01# |  |
|        |               |         | 4.9pF | ±0.05pF | GJM0332C1E4R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E4R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E4R9CB01# |  |
|        |               |         | 5.0pF | ±0.05pF | GJM0332C1E5R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E5R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E5R0CB01# |  |
|        |               |         | 5.1pF | ±0.05pF | GJM0332C1E5R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E5R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E5R1CB01# |  |
|        |               |         | 5.2pF | ±0.05pF | GJM0332C1E5R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E5R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E5R2CB01# |  |
|        |               |         | 5.3pF | ±0.05pF | GJM0332C1E5R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E5R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E5R3CB01# |  |
|        |               |         | 5.4pF | ±0.05pF | GJM0332C1E5R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E5R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E5R4CB01# |  |
|        |               |         | 5.5pF | ±0.05pF | GJM0332C1E5R4DB01# |  |
|        |               |         |       | ±0.05pF | GJM0332C1E5R5WB01# |  |

Part number # indicates the package specification code.

# GJM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | CH      | 5.5pF | ±0.1pF  | GJM0332C1E5R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E5R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E5R5DB01# |  |
|        |               |         | 5.6pF | ±0.05pF | GJM0332C1E5R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E5R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E5R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E5R6DB01# |  |
|        |               |         | 5.7pF | ±0.05pF | GJM0332C1E5R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E5R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E5R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E5R7DB01# |  |
|        |               |         | 5.8pF | ±0.05pF | GJM0332C1E5R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E5R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E5R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E5R8DB01# |  |
|        |               |         | 5.9pF | ±0.05pF | GJM0332C1E5R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E5R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E5R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E5R9DB01# |  |
|        |               |         | 6.0pF | ±0.05pF | GJM0332C1E6R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E6R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E6R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E6R0DB01# |  |
|        |               |         | 6.1pF | ±0.05pF | GJM0332C1E6R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E6R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E6R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E6R1DB01# |  |
|        |               |         | 6.2pF | ±0.05pF | GJM0332C1E6R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E6R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E6R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E6R2DB01# |  |
|        |               |         | 6.3pF | ±0.05pF | GJM0332C1E6R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E6R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E6R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E6R3DB01# |  |
|        |               |         | 6.4pF | ±0.05pF | GJM0332C1E6R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E6R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E6R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E6R4DB01# |  |
|        |               |         | 6.5pF | ±0.05pF | GJM0332C1E6R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E6R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E6R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E6R5DB01# |  |
|        |               |         | 6.6pF | ±0.05pF | GJM0332C1E6R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E6R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E6R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E6R6DB01# |  |
|        |               |         | 6.7pF | ±0.05pF | GJM0332C1E6R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E6R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E6R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E6R7DB01# |  |
|        |               |         | 6.8pF | ±0.05pF | GJM0332C1E6R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E6R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E6R8CB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | CH      | 6.8pF | ±0.5pF  | GJM0332C1E6R8DB01# |  |
|        |               |         |       | ±0.05pF | GJM0332C1E6R9WB01# |  |
|        |               |         | 6.9pF | ±0.1pF  | GJM0332C1E6R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E6R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E6R9DB01# |  |
|        |               |         | 7.0pF | ±0.05pF | GJM0332C1E7R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E7R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E7R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E7R0DB01# |  |
|        |               |         | 7.1pF | ±0.05pF | GJM0332C1E7R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E7R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E7R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E7R1DB01# |  |
|        |               |         | 7.2pF | ±0.05pF | GJM0332C1E7R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E7R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E7R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E7R2DB01# |  |
|        |               |         | 7.3pF | ±0.05pF | GJM0332C1E7R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E7R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E7R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E7R3DB01# |  |
|        |               |         | 7.4pF | ±0.05pF | GJM0332C1E7R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E7R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E7R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E7R4DB01# |  |
|        |               |         | 7.5pF | ±0.05pF | GJM0332C1E7R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E7R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E7R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E7R5DB01# |  |
|        |               |         | 7.6pF | ±0.05pF | GJM0332C1E7R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E7R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E7R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E7R6DB01# |  |
|        |               |         | 7.7pF | ±0.05pF | GJM0332C1E7R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E7R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E7R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E7R7DB01# |  |
|        |               |         | 7.8pF | ±0.05pF | GJM0332C1E7R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E7R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E7R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E7R8DB01# |  |
|        |               |         | 7.9pF | ±0.05pF | GJM0332C1E7R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E7R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E7R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E7R9DB01# |  |
|        |               |         | 8.0pF | ±0.05pF | GJM0332C1E8R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E8R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E8R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E8R0DB01# |  |
|        |               |         | 8.1pF | ±0.05pF | GJM0332C1E8R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E8R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E8R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E8R1DB01# |  |
|        |               |         | 8.2pF | ±0.05pF | GJM0332C1E8R2WB01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LLD Series

High-Q Type GMI Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

## GJM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 0.6×0.3mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | CH      | 8.2pF | ±0.1pF  | GJM0332C1E8R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E8R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E8R2DB01# |  |
|        |               |         | 8.3pF | ±0.05pF | GJM0332C1E8R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E8R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E8R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E8R3DB01# |  |
|        |               |         | 8.4pF | ±0.05pF | GJM0332C1E8R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E8R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E8R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E8R4DB01# |  |
|        |               |         | 8.5pF | ±0.05pF | GJM0332C1E8R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E8R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E8R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E8R5DB01# |  |
|        |               |         | 8.6pF | ±0.05pF | GJM0332C1E8R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E8R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E8R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E8R6DB01# |  |
|        |               |         | 8.7pF | ±0.05pF | GJM0332C1E8R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E8R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E8R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E8R7DB01# |  |
|        |               |         | 8.8pF | ±0.05pF | GJM0332C1E8R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E8R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E8R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E8R8DB01# |  |
|        |               |         | 8.9pF | ±0.05pF | GJM0332C1E8R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E8R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E8R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E8R9DB01# |  |
|        |               |         | 9.0pF | ±0.05pF | GJM0332C1E9R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E9R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E9R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E9R0DB01# |  |
|        |               |         | 9.1pF | ±0.05pF | GJM0332C1E9R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E9R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E9R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E9R1DB01# |  |
|        |               |         | 9.2pF | ±0.05pF | GJM0332C1E9R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E9R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E9R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E9R2DB01# |  |
|        |               |         | 9.3pF | ±0.05pF | GJM0332C1E9R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E9R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E9R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E9R3DB01# |  |
|        |               |         | 9.4pF | ±0.05pF | GJM0332C1E9R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E9R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E9R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E9R4DB01# |  |
|        |               |         | 9.5pF | ±0.05pF | GJM0332C1E9R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E9R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E9R5CB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.33mm | 25Vdc         | CH      | 9.5pF | ±0.5pF  | GJM0332C1E9R5DB01# |  |
|        |               |         |       | ±0.05pF | GJM0332C1E9R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E9R6BB01# |  |
|        |               |         | 9.6pF | ±0.05pF | GJM0332C1E9R6WB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E9R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM0332C1E9R6DB01# |  |
|        |               |         | 9.7pF | ±0.05pF | GJM0332C1E9R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E9R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E9R7CB01# |  |
|        |               |         | 9.8pF | ±0.05pF | GJM0332C1E9R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E9R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E9R8CB01# |  |
|        |               |         | 9.9pF | ±0.05pF | GJM0332C1E9R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM0332C1E9R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM0332C1E9R9CB01# |  |
|        |               |         | 10pF  | ±2%     | GJM0332C1E100GB01# |  |
|        |               |         |       | ±5%     | GJM0332C1E100JB01# |  |
|        |               |         | 11pF  | ±2%     | GJM0332C1E110GB01# |  |
|        |               |         |       | ±5%     | GJM0332C1E110JB01# |  |
|        |               |         | 12pF  | ±2%     | GJM0332C1E120GB01# |  |
|        |               |         |       | ±5%     | GJM0332C1E120JB01# |  |
|        |               |         | 13pF  | ±2%     | GJM0332C1E130GB01# |  |
|        |               |         |       | ±5%     | GJM0332C1E130JB01# |  |
|        |               |         | 15pF  | ±2%     | GJM0332C1E150GB01# |  |
|        |               |         |       | ±5%     | GJM0332C1E150JB01# |  |
|        |               |         | 16pF  | ±2%     | GJM0332C1E160GB01# |  |
|        |               |         |       | ±5%     | GJM0332C1E160JB01# |  |
|        |               |         | 18pF  | ±2%     | GJM0332C1E180GB01# |  |
|        |               |         |       | ±5%     | GJM0332C1E180JB01# |  |
|        |               |         | 20pF  | ±2%     | GJM0332C1E200GB01# |  |
|        |               |         |       | ±5%     | GJM0332C1E200JB01# |  |
|        | 6.3Vdc        | C0G     | 22pF  | ±2%     | GJM0335C0J220GB01# |  |
|        |               |         |       | ±5%     | GJM0335C0J220JB01# |  |
|        |               |         | 24pF  | ±2%     | GJM0335C0J240GB01# |  |
|        |               |         |       | ±5%     | GJM0335C0J240JB01# |  |
|        |               |         | 27pF  | ±2%     | GJM0335C0J270GB01# |  |
|        |               |         |       | ±5%     | GJM0335C0J270JB01# |  |
|        |               |         | 30pF  | ±2%     | GJM0335C0J300GB01# |  |
|        |               |         |       | ±5%     | GJM0335C0J300JB01# |  |
|        |               |         | 33pF  | ±2%     | GJM0335C0J330GB01# |  |
|        |               |         |       | ±5%     | GJM0335C0J330JB01# |  |
|        |               |         | 22pF  | ±2%     | GJM0332C0J220GB01# |  |
|        |               |         |       | ±5%     | GJM0332C0J220JB01# |  |
|        |               |         | 24pF  | ±2%     | GJM0332C0J240GB01# |  |
|        |               |         |       | ±5%     | GJM0332C0J240JB01# |  |
|        |               |         | 27pF  | ±2%     | GJM0332C0J270GB01# |  |
|        |               |         |       | ±5%     | GJM0332C0J270JB01# |  |
|        |               |         | 30pF  | ±2%     | GJM0332C0J300GB01# |  |
|        |               |         |       | ±5%     | GJM0332C0J300JB01# |  |
|        |               |         | 33pF  | ±2%     | GJM0332C0J330GB01# |  |
|        |               |         |       | ±5%     | GJM0332C0J330JB01# |  |

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL□ Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information

Part number # indicates the package specification code.

# GJM Series Temperature Compensating Type HiQ Part Number List

## ■ 1.0x0.5mm

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 0.1pF | ±0.05pF | GJM1555C1HR10WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1HR10BB01# |  |
|        |               |         | 0.2pF | ±0.05pF | GJM1555C1HR20WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1HR20BB01# |  |
|        |               |         | 0.3pF | ±0.05pF | GJM1555C1HR30WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1HR30BB01# |  |
|        |               |         | 0.4pF | ±0.05pF | GJM1555C1HR40WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1HR40BB01# |  |
|        |               |         | 0.5pF | ±0.05pF | GJM1555C1HR50WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1HR50BB01# |  |
|        |               |         | 0.6pF | ±0.05pF | GJM1555C1HR60WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1HR60BB01# |  |
|        |               |         | 0.7pF | ±0.05pF | GJM1555C1HR70WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1HR70BB01# |  |
|        |               |         | 0.8pF | ±0.05pF | GJM1555C1HR80WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1HR80BB01# |  |
|        |               |         | 0.9pF | ±0.05pF | GJM1555C1HR90WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1HR90BB01# |  |
|        |               |         | 1.0pF | ±0.05pF | GJM1555C1H1R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H1R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H1R0CB01# |  |
|        |               |         | 1.1pF | ±0.05pF | GJM1555C1H1R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H1R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H1R1CB01# |  |
|        |               |         | 1.2pF | ±0.05pF | GJM1555C1H1R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H1R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H1R2CB01# |  |
|        |               |         | 1.3pF | ±0.05pF | GJM1555C1H1R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H1R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H1R3CB01# |  |
|        |               |         | 1.4pF | ±0.05pF | GJM1555C1H1R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H1R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H1R4CB01# |  |
|        |               |         | 1.5pF | ±0.05pF | GJM1555C1H1R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H1R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H1R5CB01# |  |
|        |               |         | 1.6pF | ±0.05pF | GJM1555C1H1R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H1R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H1R6CB01# |  |
|        |               |         | 1.7pF | ±0.05pF | GJM1555C1H1R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H1R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H1R7CB01# |  |
|        |               |         | 1.8pF | ±0.05pF | GJM1555C1H1R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H1R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H1R8CB01# |  |
|        |               |         | 1.9pF | ±0.05pF | GJM1555C1H1R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H1R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H1R9CB01# |  |
|        |               |         | 2.0pF | ±0.05pF | GJM1555C1H2R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H2R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H2R0CB01# |  |
|        |               |         | 2.1pF | ±0.05pF | GJM1555C1H2R1WB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 2.1pF | ±0.1pF  | GJM1555C1H2R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H2R1CB01# |  |
|        |               |         | 2.2pF | ±0.05pF | GJM1555C1H2R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H2R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H2R2CB01# |  |
|        |               |         | 2.3pF | ±0.05pF | GJM1555C1H2R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H2R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H2R3CB01# |  |
|        |               |         | 2.4pF | ±0.05pF | GJM1555C1H2R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H2R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H2R4CB01# |  |
|        |               |         | 2.5pF | ±0.05pF | GJM1555C1H2R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H2R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H2R5CB01# |  |
|        |               |         | 2.6pF | ±0.05pF | GJM1555C1H2R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H2R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H2R6CB01# |  |
|        |               |         | 2.7pF | ±0.05pF | GJM1555C1H2R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H2R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H2R7CB01# |  |
|        |               |         | 2.8pF | ±0.05pF | GJM1555C1H2R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H2R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H2R8CB01# |  |
|        |               |         | 2.9pF | ±0.05pF | GJM1555C1H2R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H2R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H2R9CB01# |  |
|        |               |         | 3.0pF | ±0.05pF | GJM1555C1H3R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H3R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H3R0CB01# |  |
|        |               |         | 3.1pF | ±0.05pF | GJM1555C1H3R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H3R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H3R1CB01# |  |
|        |               |         | 3.2pF | ±0.05pF | GJM1555C1H3R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H3R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H3R2CB01# |  |
|        |               |         | 3.3pF | ±0.05pF | GJM1555C1H3R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H3R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H3R3CB01# |  |
|        |               |         | 3.4pF | ±0.05pF | GJM1555C1H3R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H3R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H3R4CB01# |  |
|        |               |         | 3.5pF | ±0.05pF | GJM1555C1H3R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H3R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H3R5CB01# |  |
|        |               |         | 3.6pF | ±0.05pF | GJM1555C1H3R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H3R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H3R6CB01# |  |
|        |               |         | 3.7pF | ±0.05pF | GJM1555C1H3R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H3R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H3R7CB01# |  |
|        |               |         | 3.8pF | ±0.05pF | GJM1555C1H3R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H3R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H3R8CB01# |  |
|        |               |         | 3.9pF | ±0.05pF | GJM1555C1H3R9WB01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LLI Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

# GJM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 3.9pF | ±0.1pF  | GJM1555C1H3R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H3R9CB01# |  |
|        |               |         | 4.0pF | ±0.05pF | GJM1555C1H4R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H4R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H4R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H4R0DB01# |  |
|        |               |         | 4.1pF | ±0.05pF | GJM1555C1H4R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H4R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H4R1CB01# |  |
|        |               |         | 4.2pF | ±0.05pF | GJM1555C1H4R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H4R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H4R2CB01# |  |
|        |               |         | 4.3pF | ±0.05pF | GJM1555C1H4R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H4R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H4R3CB01# |  |
|        |               |         | 4.4pF | ±0.05pF | GJM1555C1H4R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H4R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H4R4CB01# |  |
|        |               |         | 4.5pF | ±0.05pF | GJM1555C1H4R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H4R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H4R5CB01# |  |
|        |               |         | 4.6pF | ±0.05pF | GJM1555C1H4R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H4R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H4R6CB01# |  |
|        |               |         | 4.7pF | ±0.05pF | GJM1555C1H4R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H4R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H4R7CB01# |  |
|        |               |         | 4.8pF | ±0.05pF | GJM1555C1H4R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H4R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H4R8CB01# |  |
|        |               |         | 4.9pF | ±0.05pF | GJM1555C1H4R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H4R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H4R9CB01# |  |
|        |               |         | 5.0pF | ±0.05pF | GJM1555C1H5R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H5R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H5R0CB01# |  |
|        |               |         | 5.1pF | ±0.05pF | GJM1555C1H5R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H5R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H5R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H5R1DB01# |  |
|        |               |         | 5.2pF | ±0.05pF | GJM1555C1H5R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H5R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H5R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H5R2DB01# |  |
|        |               |         | 5.3pF | ±0.05pF | GJM1555C1H5R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H5R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H5R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H5R3DB01# |  |
|        |               |         | 5.4pF | ±0.05pF | GJM1555C1H5R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H5R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H5R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H5R4DB01# |  |
|        |               |         | 5.5pF | ±0.05pF | GJM1555C1H5R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H5R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H5R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H5R5DB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 5.5pF | ±0.5pF  | GJM1555C1H5R5DB01# |  |
|        |               |         |       | ±0.05pF | GJM1555C1H5R6WB01# |  |
|        |               |         | 5.6pF | ±0.05pF | GJM1555C1H5R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H5R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H5R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H5R6DB01# |  |
|        |               |         | 5.7pF | ±0.05pF | GJM1555C1H5R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H5R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H5R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H5R7DB01# |  |
|        |               |         | 5.8pF | ±0.05pF | GJM1555C1H5R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H5R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H5R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H5R8DB01# |  |
|        |               |         | 5.9pF | ±0.05pF | GJM1555C1H5R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H5R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H5R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H5R9DB01# |  |
|        |               |         | 6.0pF | ±0.05pF | GJM1555C1H6R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H6R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H6R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H6R0DB01# |  |
|        |               |         | 6.1pF | ±0.05pF | GJM1555C1H6R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H6R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H6R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H6R1DB01# |  |
|        |               |         | 6.2pF | ±0.05pF | GJM1555C1H6R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H6R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H6R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H6R2DB01# |  |
|        |               |         | 6.3pF | ±0.05pF | GJM1555C1H6R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H6R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H6R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H6R3DB01# |  |
|        |               |         | 6.4pF | ±0.05pF | GJM1555C1H6R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H6R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H6R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H6R4DB01# |  |
|        |               |         | 6.5pF | ±0.05pF | GJM1555C1H6R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H6R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H6R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H6R5DB01# |  |
|        |               |         | 6.6pF | ±0.05pF | GJM1555C1H6R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H6R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H6R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H6R6DB01# |  |
|        |               |         | 6.7pF | ±0.05pF | GJM1555C1H6R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H6R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H6R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H6R7DB01# |  |
|        |               |         | 6.8pF | ±0.05pF | GJM1555C1H6R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H6R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H6R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H6R8DB01# |  |
|        |               |         | 6.9pF | ±0.05pF | GJM1555C1H6R9WB01# |  |
|        |               |         |       | ±0.05pF | GJM1555C1H6R9WB01# |  |

Part number # indicates the package specification code.

# GJM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 6.9pF | ±0.1pF  | GJM1555C1H6R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H6R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H6R9DB01# |  |
|        |               |         | 7.0pF | ±0.05pF | GJM1555C1H7R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H7R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H7R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H7R0DB01# |  |
|        |               |         | 7.1pF | ±0.05pF | GJM1555C1H7R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H7R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H7R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H7R1DB01# |  |
|        |               |         | 7.2pF | ±0.05pF | GJM1555C1H7R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H7R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H7R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H7R2DB01# |  |
|        |               |         | 7.3pF | ±0.05pF | GJM1555C1H7R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H7R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H7R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H7R3DB01# |  |
|        |               |         | 7.4pF | ±0.05pF | GJM1555C1H7R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H7R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H7R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H7R4DB01# |  |
|        |               |         | 7.5pF | ±0.05pF | GJM1555C1H7R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H7R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H7R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H7R5DB01# |  |
|        |               |         | 7.6pF | ±0.05pF | GJM1555C1H7R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H7R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H7R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H7R6DB01# |  |
|        |               |         | 7.7pF | ±0.05pF | GJM1555C1H7R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H7R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H7R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H7R7DB01# |  |
|        |               |         | 7.8pF | ±0.05pF | GJM1555C1H7R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H7R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H7R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H7R8DB01# |  |
|        |               |         | 7.9pF | ±0.05pF | GJM1555C1H7R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H7R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H7R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H7R9DB01# |  |
|        |               |         | 8.0pF | ±0.05pF | GJM1555C1H8R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H8R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H8R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H8R0DB01# |  |
|        |               |         | 8.1pF | ±0.05pF | GJM1555C1H8R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H8R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H8R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H8R1DB01# |  |
|        |               |         | 8.2pF | ±0.05pF | GJM1555C1H8R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H8R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H8R2CB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 8.2pF | ±0.5pF  | GJM1555C1H8R2DB01# |  |
|        |               |         |       | ±0.05pF | GJM1555C1H8R3WB01# |  |
|        |               |         | 8.3pF | ±0.05pF | GJM1555C1H8R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H8R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H8R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H8R3DB01# |  |
|        |               |         | 8.4pF | ±0.05pF | GJM1555C1H8R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H8R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H8R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H8R4DB01# |  |
|        |               |         | 8.5pF | ±0.05pF | GJM1555C1H8R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H8R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H8R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H8R5DB01# |  |
|        |               |         | 8.6pF | ±0.05pF | GJM1555C1H8R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H8R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H8R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H8R6DB01# |  |
|        |               |         | 8.7pF | ±0.05pF | GJM1555C1H8R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H8R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H8R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H8R7DB01# |  |
|        |               |         | 8.8pF | ±0.05pF | GJM1555C1H8R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H8R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H8R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H8R8DB01# |  |
|        |               |         | 8.9pF | ±0.05pF | GJM1555C1H8R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H8R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H8R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H8R9DB01# |  |
|        |               |         | 9.0pF | ±0.05pF | GJM1555C1H9R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H9R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H9R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H9R0DB01# |  |
|        |               |         | 9.1pF | ±0.05pF | GJM1555C1H9R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H9R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H9R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H9R1DB01# |  |
|        |               |         | 9.2pF | ±0.05pF | GJM1555C1H9R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H9R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H9R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H9R2DB01# |  |
|        |               |         | 9.3pF | ±0.05pF | GJM1555C1H9R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H9R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H9R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H9R3DB01# |  |
|        |               |         | 9.4pF | ±0.05pF | GJM1555C1H9R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H9R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H9R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H9R4DB01# |  |
|        |               |         | 9.5pF | ±0.05pF | GJM1555C1H9R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H9R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H9R5CB01# |  |
|        |               |         | 9.6pF | ±0.05pF | GJM1555C1H9R5DB01# |  |
|        |               |         |       | ±0.05pF | GJM1555C1H9R6WB01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LLD Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

# GJM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 9.6pF | ±0.1pF  | GJM1555C1H9R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H9R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H9R6DB01# |  |
|        |               |         | 9.7pF | ±0.05pF | GJM1555C1H9R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H9R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H9R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H9R7DB01# |  |
|        |               |         | 9.8pF | ±0.05pF | GJM1555C1H9R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H9R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H9R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H9R8DB01# |  |
|        |               |         | 9.9pF | ±0.05pF | GJM1555C1H9R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1555C1H9R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1555C1H9R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1555C1H9R9DB01# |  |
|        |               |         | 10pF  | ±2%     | GJM1555C1H100GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H100JB01# |  |
|        |               |         | 11pF  | ±2%     | GJM1555C1H110GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H110JB01# |  |
|        |               |         | 12pF  | ±2%     | GJM1555C1H120GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H120JB01# |  |
|        |               |         | 13pF  | ±2%     | GJM1555C1H130GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H130JB01# |  |
|        |               |         | 15pF  | ±2%     | GJM1555C1H150GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H150JB01# |  |
|        |               |         | 16pF  | ±2%     | GJM1555C1H160GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H160JB01# |  |
|        |               |         | 18pF  | ±2%     | GJM1555C1H180GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H180JB01# |  |
|        |               |         | 20pF  | ±2%     | GJM1555C1H200GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H200JB01# |  |
|        |               |         | 22pF  | ±1%     | GJM1555C1H220FB01# |  |
|        |               |         |       | ±2%     | GJM1555C1H220GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H220JB01# |  |
|        |               |         | 24pF  | ±1%     | GJM1555C1H240FB01# |  |
|        |               |         |       | ±2%     | GJM1555C1H240GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H240JB01# |  |
|        |               |         | 27pF  | ±1%     | GJM1555C1H270FB01# |  |
|        |               |         |       | ±2%     | GJM1555C1H270GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H270JB01# |  |
|        |               |         | 30pF  | ±1%     | GJM1555C1H300FB01# |  |
|        |               |         |       | ±2%     | GJM1555C1H300GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H300JB01# |  |
|        |               |         | 33pF  | ±1%     | GJM1555C1H330FB01# |  |
|        |               |         |       | ±2%     | GJM1555C1H330GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H330JB01# |  |
|        |               |         | 36pF  | ±1%     | GJM1555C1H360FB01# |  |
|        |               |         |       | ±2%     | GJM1555C1H360GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H360JB01# |  |
|        |               |         | 39pF  | ±1%     | GJM1555C1H390FB01# |  |
|        |               |         |       | ±2%     | GJM1555C1H390GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H390JB01# |  |
|        |               |         | 43pF  | ±1%     | GJM1555C1H430FB01# |  |
|        |               |         |       | ±2%     | GJM1555C1H430GB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | C0G     | 43pF  | ±5%     | GJM1555C1H430JB01# |  |
|        |               |         |       | ±1%     | GJM1555C1H470FB01# |  |
|        |               |         | 47pF  | ±2%     | GJM1555C1H470GB01# |  |
|        |               |         |       | ±5%     | GJM1555C1H470JB01# |  |
|        |               | CK      | 0.1pF | ±0.05pF | GJM1554C1HR10WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1HR10BB01# |  |
|        |               |         | 0.2pF | ±0.05pF | GJM1554C1HR20WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1HR20BB01# |  |
|        |               |         | 0.3pF | ±0.05pF | GJM1554C1HR30WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1HR30BB01# |  |
|        |               |         | 0.4pF | ±0.05pF | GJM1554C1HR40WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1HR40BB01# |  |
|        |               |         | 0.5pF | ±0.05pF | GJM1554C1HR50WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1HR50BB01# |  |
|        |               |         | 0.6pF | ±0.05pF | GJM1554C1HR60WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1HR60BB01# |  |
|        |               |         | 0.7pF | ±0.05pF | GJM1554C1HR70WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1HR70BB01# |  |
|        |               |         | 0.8pF | ±0.05pF | GJM1554C1HR80WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1HR80BB01# |  |
|        |               |         | 0.9pF | ±0.05pF | GJM1554C1HR90WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1HR90BB01# |  |
|        |               |         | 1.0pF | ±0.05pF | GJM1554C1H1R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1H1R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1554C1H1R0CB01# |  |
|        |               |         | 1.1pF | ±0.05pF | GJM1554C1H1R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1H1R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1554C1H1R1CB01# |  |
|        |               |         | 1.2pF | ±0.05pF | GJM1554C1H1R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1H1R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1554C1H1R2CB01# |  |
|        |               |         | 1.3pF | ±0.05pF | GJM1554C1H1R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1H1R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1554C1H1R3CB01# |  |
|        |               |         | 1.4pF | ±0.05pF | GJM1554C1H1R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1H1R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1554C1H1R4CB01# |  |
|        |               |         | 1.5pF | ±0.05pF | GJM1554C1H1R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1H1R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1554C1H1R5CB01# |  |
|        |               |         | 1.6pF | ±0.05pF | GJM1554C1H1R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1H1R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1554C1H1R6CB01# |  |
|        |               |         | 1.7pF | ±0.05pF | GJM1554C1H1R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1H1R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1554C1H1R7CB01# |  |
|        |               |         | 1.8pF | ±0.05pF | GJM1554C1H1R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1H1R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1554C1H1R8CB01# |  |
|        |               |         | 1.9pF | ±0.05pF | GJM1554C1H1R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1H1R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1554C1H1R9CB01# |  |
|        |               |         | 2.0pF | ±0.05pF | GJM1554C1H2R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1554C1H2R0BB01# |  |

Part number # indicates the package specification code.

# GJM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | CK      | 2.0pF | ±0.25pF | GJM1554C1H2R0CB01# |  |
|        |               |         |       |         |                    |  |
|        |               | CJ      | 2.1pF | ±0.05pF | GJM1553C1H2R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H2R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H2R1CB01# |  |
|        |               |         | 2.2pF | ±0.05pF | GJM1553C1H2R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H2R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H2R2CB01# |  |
|        |               |         | 2.3pF | ±0.05pF | GJM1553C1H2R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H2R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H2R3CB01# |  |
|        |               |         | 2.4pF | ±0.05pF | GJM1553C1H2R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H2R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H2R4CB01# |  |
|        |               |         | 2.5pF | ±0.05pF | GJM1553C1H2R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H2R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H2R5CB01# |  |
|        |               |         | 2.6pF | ±0.05pF | GJM1553C1H2R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H2R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H2R6CB01# |  |
|        |               |         | 2.7pF | ±0.05pF | GJM1553C1H2R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H2R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H2R7CB01# |  |
|        |               |         | 2.8pF | ±0.05pF | GJM1553C1H2R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H2R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H2R8CB01# |  |
|        |               |         | 2.9pF | ±0.05pF | GJM1553C1H2R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H2R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H2R9CB01# |  |
|        |               |         | 3.0pF | ±0.05pF | GJM1553C1H3R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H3R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H3R0CB01# |  |
|        |               |         | 3.1pF | ±0.05pF | GJM1553C1H3R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H3R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H3R1CB01# |  |
|        |               |         | 3.2pF | ±0.05pF | GJM1553C1H3R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H3R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H3R2CB01# |  |
|        |               |         | 3.3pF | ±0.05pF | GJM1553C1H3R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H3R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H3R3CB01# |  |
|        |               |         | 3.4pF | ±0.05pF | GJM1553C1H3R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H3R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H3R4CB01# |  |
|        |               |         | 3.5pF | ±0.05pF | GJM1553C1H3R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H3R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H3R5CB01# |  |
|        |               |         | 3.6pF | ±0.05pF | GJM1553C1H3R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H3R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H3R6CB01# |  |
|        |               |         | 3.7pF | ±0.05pF | GJM1553C1H3R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H3R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H3R7CB01# |  |
|        |               |         | 3.8pF | ±0.05pF | GJM1553C1H3R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H3R8BB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | CJ      | 3.8pF | ±0.25pF | GJM1553C1H3R8CB01# |  |
|        |               |         | 3.9pF | ±0.05pF | GJM1553C1H3R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1553C1H3R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1553C1H3R9CB01# |  |
|        |               | CH      | 4.0pF | ±0.05pF | GJM1552C1H4R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H4R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H4R0CB01# |  |
|        |               |         | 4.1pF | ±0.05pF | GJM1552C1H4R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H4R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H4R1CB01# |  |
|        |               |         | 4.2pF | ±0.05pF | GJM1552C1H4R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H4R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H4R2CB01# |  |
|        |               |         | 4.3pF | ±0.05pF | GJM1552C1H4R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H4R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H4R3CB01# |  |
|        |               |         | 4.4pF | ±0.05pF | GJM1552C1H4R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H4R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H4R4CB01# |  |
|        |               |         | 4.5pF | ±0.05pF | GJM1552C1H4R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H4R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H4R5CB01# |  |
|        |               |         | 4.6pF | ±0.05pF | GJM1552C1H4R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H4R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H4R6CB01# |  |
|        |               |         | 4.7pF | ±0.05pF | GJM1552C1H4R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H4R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H4R7CB01# |  |
|        |               |         | 4.8pF | ±0.05pF | GJM1552C1H4R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H4R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H4R8CB01# |  |
|        |               |         | 4.9pF | ±0.05pF | GJM1552C1H4R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H4R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H4R9CB01# |  |
|        |               |         | 5.0pF | ±0.05pF | GJM1552C1H5R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H5R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H5R0CB01# |  |
|        |               |         | 5.1pF | ±0.05pF | GJM1552C1H5R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H5R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H5R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H5R1DB01# |  |
|        |               |         | 5.2pF | ±0.05pF | GJM1552C1H5R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H5R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H5R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H5R2DB01# |  |
|        |               |         | 5.3pF | ±0.05pF | GJM1552C1H5R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H5R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H5R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H5R3DB01# |  |
|        |               |         | 5.4pF | ±0.05pF | GJM1552C1H5R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H5R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H5R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H5R4DB01# |  |
|        |               |         | 5.5pF | ±0.05pF | GJM1552C1H5R5WB01# |  |

Part number # indicates the package specification code.

For General Purpose GRM Series

Capacitor Array GNM Series

Low ESL LLI Series

High-Q Type GJM Series

High Frequency GQM Series

Monolithic Microchip GMA Series

For Bonding GMD Series

Product Information

# GJM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | CH      | 5.5pF | ±0.1pF  | GJM1552C1H5R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H5R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H5R5DB01# |  |
|        |               |         | 5.6pF | ±0.05pF | GJM1552C1H5R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H5R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H5R6CB01# |  |
|        |               |         | 5.7pF | ±0.05pF | GJM1552C1H5R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H5R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H5R7CB01# |  |
|        |               |         | 5.8pF | ±0.05pF | GJM1552C1H5R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H5R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H5R8CB01# |  |
|        |               |         | 5.9pF | ±0.05pF | GJM1552C1H5R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H5R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H5R9CB01# |  |
|        |               |         | 6.0pF | ±0.05pF | GJM1552C1H6R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H6R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H6R0CB01# |  |
|        |               |         | 6.1pF | ±0.05pF | GJM1552C1H6R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H6R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H6R1CB01# |  |
|        |               |         | 6.2pF | ±0.05pF | GJM1552C1H6R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H6R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H6R2CB01# |  |
|        |               |         | 6.3pF | ±0.05pF | GJM1552C1H6R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H6R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H6R3CB01# |  |
|        |               |         | 6.4pF | ±0.05pF | GJM1552C1H6R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H6R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H6R4CB01# |  |
|        |               |         | 6.5pF | ±0.05pF | GJM1552C1H6R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H6R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H6R5CB01# |  |
|        |               |         | 6.6pF | ±0.05pF | GJM1552C1H6R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H6R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H6R6CB01# |  |
|        |               |         | 6.7pF | ±0.05pF | GJM1552C1H6R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H6R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H6R7CB01# |  |
|        |               |         | 6.8pF | ±0.05pF | GJM1552C1H6R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H6R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H6R8CB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | CH      | 6.8pF | ±0.5pF  | GJM1552C1H6R8DB01# |  |
|        |               |         |       | ±0.05pF | GJM1552C1H6R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H6R9BB01# |  |
|        |               |         | 7.0pF | ±0.25pF | GJM1552C1H6R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H6R9DB01# |  |
|        |               |         | 7.1pF | ±0.05pF | GJM1552C1H7R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H7R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H7R0CB01# |  |
|        |               |         | 7.2pF | ±0.05pF | GJM1552C1H7R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H7R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H7R1CB01# |  |
|        |               |         | 7.3pF | ±0.05pF | GJM1552C1H7R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H7R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H7R2CB01# |  |
|        |               |         | 7.4pF | ±0.05pF | GJM1552C1H7R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H7R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H7R3CB01# |  |
|        |               |         | 7.5pF | ±0.05pF | GJM1552C1H7R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H7R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H7R4CB01# |  |
|        |               |         | 7.6pF | ±0.05pF | GJM1552C1H7R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H7R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H7R5CB01# |  |
|        |               |         | 7.7pF | ±0.05pF | GJM1552C1H7R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H7R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H7R6CB01# |  |
|        |               |         | 7.8pF | ±0.05pF | GJM1552C1H7R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H7R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H7R7CB01# |  |
|        |               |         | 7.9pF | ±0.05pF | GJM1552C1H7R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H7R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H7R8CB01# |  |
|        |               |         | 8.0pF | ±0.05pF | GJM1552C1H7R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H7R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H7R9CB01# |  |
|        |               |         | 8.1pF | ±0.05pF | GJM1552C1H8R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H8R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H8R0CB01# |  |
|        |               |         | 8.2pF | ±0.05pF | GJM1552C1H8R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H8R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H8R1CB01# |  |

Part number # indicates the package specification code.

# GJM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | CH      | 8.2pF | ±0.1pF  | GJM1552C1H8R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H8R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H8R2DB01# |  |
|        |               |         | 8.3pF | ±0.05pF | GJM1552C1H8R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H8R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H8R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H8R3DB01# |  |
|        |               |         | 8.4pF | ±0.05pF | GJM1552C1H8R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H8R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H8R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H8R4DB01# |  |
|        |               |         | 8.5pF | ±0.05pF | GJM1552C1H8R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H8R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H8R5CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H8R5DB01# |  |
|        |               |         | 8.6pF | ±0.05pF | GJM1552C1H8R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H8R6BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H8R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H8R6DB01# |  |
|        |               |         | 8.7pF | ±0.05pF | GJM1552C1H8R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H8R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H8R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H8R7DB01# |  |
|        |               |         | 8.8pF | ±0.05pF | GJM1552C1H8R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H8R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H8R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H8R8DB01# |  |
|        |               |         | 8.9pF | ±0.05pF | GJM1552C1H8R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H8R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H8R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H8R9DB01# |  |
|        |               |         | 9.0pF | ±0.05pF | GJM1552C1H9R0WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H9R0BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H9R0CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H9R0DB01# |  |
|        |               |         | 9.1pF | ±0.05pF | GJM1552C1H9R1WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H9R1BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H9R1CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H9R1DB01# |  |
|        |               |         | 9.2pF | ±0.05pF | GJM1552C1H9R2WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H9R2BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H9R2CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H9R2DB01# |  |
|        |               |         | 9.3pF | ±0.05pF | GJM1552C1H9R3WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H9R3BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H9R3CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H9R3DB01# |  |
|        |               |         | 9.4pF | ±0.05pF | GJM1552C1H9R4WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H9R4BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H9R4CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H9R4DB01# |  |
|        |               |         | 9.5pF | ±0.05pF | GJM1552C1H9R5WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H9R5BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H9R5CB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.55mm | 50Vdc         | CH      | 9.5pF | ±0.5pF  | GJM1552C1H9R5DB01# |  |
|        |               |         |       | ±0.05pF | GJM1552C1H9R6WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H9R6BB01# |  |
|        |               |         | 9.6pF | ±0.25pF | GJM1552C1H9R6CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H9R6DB01# |  |
|        |               |         | 9.7pF | ±0.05pF | GJM1552C1H9R7WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H9R7BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H9R7CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H9R7DB01# |  |
|        |               |         | 9.8pF | ±0.05pF | GJM1552C1H9R8WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H9R8BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H9R8CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H9R8DB01# |  |
|        |               |         | 9.9pF | ±0.05pF | GJM1552C1H9R9WB01# |  |
|        |               |         |       | ±0.1pF  | GJM1552C1H9R9BB01# |  |
|        |               |         |       | ±0.25pF | GJM1552C1H9R9CB01# |  |
|        |               |         |       | ±0.5pF  | GJM1552C1H9R9DB01# |  |
|        |               |         | 10pF  | ±2%     | GJM1552C1H100GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H100JB01# |  |
|        |               |         | 11pF  | ±2%     | GJM1552C1H110GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H110JB01# |  |
|        |               |         | 12pF  | ±2%     | GJM1552C1H120GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H120JB01# |  |
|        |               |         | 13pF  | ±2%     | GJM1552C1H130GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H130JB01# |  |
|        |               |         | 15pF  | ±2%     | GJM1552C1H150GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H150JB01# |  |
|        |               |         | 16pF  | ±2%     | GJM1552C1H160GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H160JB01# |  |
|        |               |         | 18pF  | ±2%     | GJM1552C1H180GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H180JB01# |  |
|        |               |         | 20pF  | ±2%     | GJM1552C1H200GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H200JB01# |  |
|        |               |         | 22pF  | ±1%     | GJM1552C1H220FB01# |  |
|        |               |         |       | ±2%     | GJM1552C1H220GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H220JB01# |  |
|        |               |         | 24pF  | ±1%     | GJM1552C1H240FB01# |  |
|        |               |         |       | ±2%     | GJM1552C1H240GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H240JB01# |  |
|        |               |         | 27pF  | ±1%     | GJM1552C1H270FB01# |  |
|        |               |         |       | ±2%     | GJM1552C1H270GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H270JB01# |  |
|        |               |         | 30pF  | ±1%     | GJM1552C1H300FB01# |  |
|        |               |         |       | ±2%     | GJM1552C1H300GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H300JB01# |  |
|        |               |         | 33pF  | ±1%     | GJM1552C1H330FB01# |  |
|        |               |         |       | ±2%     | GJM1552C1H330GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H330JB01# |  |
|        |               |         | 36pF  | ±1%     | GJM1552C1H360FB01# |  |
|        |               |         |       | ±2%     | GJM1552C1H360GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H360JB01# |  |
|        |               |         | 39pF  | ±1%     | GJM1552C1H390FB01# |  |
|        |               |         |       | ±2%     | GJM1552C1H390GB01# |  |
|        |               |         |       | ±5%     | GJM1552C1H390JB01# |  |

Part number # indicates the package specification code.

**GJM Series Temperature Compensating Type HiQ Part Number List**

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap. | Tol. | Part Number        |  |
|--------|---------------|---------|------|------|--------------------|--|
| 0.55mm | 50Vdc         | CH      | 43pF | ±1%  | GJM1552C1H430FB01# |  |
|        |               |         |      | ±2%  | GJM1552C1H430GB01# |  |
|        |               |         |      | ±5%  | GJM1552C1H430JB01# |  |
|        |               |         | 47pF | ±1%  | GJM1552C1H470FB01# |  |
|        |               |         |      | ±2%  | GJM1552C1H470GB01# |  |
|        |               |         |      | ±5%  | GJM1552C1H470JB01# |  |

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL□ Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information

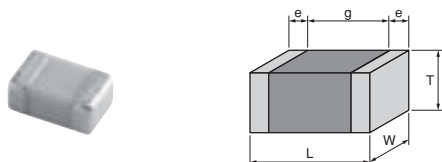
Part number # indicates the package specification code.

## Chip Monolithic Ceramic Capacitors

# High Frequency GQM Series

**HiQ**

Capacitor for high frequency suitable for PA designs.



- 1 HiQ and low ESR in UHF and microwave frequency bands.
- 2 Highly conductive copper was adopted for the internal electrodes.
- 3 Product compatible to tight tolerances.
- 4 Achieved high withstand voltages.
- 5 Ideal for improving the characteristics and reducing power consumption in RF equipment.

For General Purpose  
GRM Series

Capacitor Array  
GMM Series

Low ESL  
LLQ Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information

# GQM Series Temperature Compensating Type **HiQ** Part Number List

## ■ 1.6×0.8mm

| T max. | Rated Voltage | TC Code | Cap.   | Tol.    | Part Number        |  |
|--------|---------------|---------|--------|---------|--------------------|--|
| 0.8mm  | 250Vdc        | C0G     | 0.1pF  | ±0.1pF  | GQM1875C2ER10BB12# |  |
|        |               |         |        |         |                    |  |
|        |               |         | 0.2pF  | ±0.1pF  | GQM1875C2ER20BB12# |  |
|        |               |         |        |         |                    |  |
|        |               |         | 0.3pF  | ±0.1pF  | GQM1875C2ER30BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2ER30CB12# |  |
|        |               |         | 0.4pF  | ±0.1pF  | GQM1875C2ER40BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2ER40CB12# |  |
|        |               |         | 0.5pF  | ±0.1pF  | GQM1875C2ER50BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2ER50CB12# |  |
|        |               |         | 0.75pF | ±0.1pF  | GQM1875C2ER75BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2ER75CB12# |  |
|        |               |         | 1.0pF  | ±0.1pF  | GQM1875C2E1R0BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E1R0CB12# |  |
|        |               |         | 1.1pF  | ±0.1pF  | GQM1875C2E1R1BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E1R1CB12# |  |
|        |               |         | 1.2pF  | ±0.1pF  | GQM1875C2E1R2BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E1R2CB12# |  |
|        |               |         | 1.3pF  | ±0.1pF  | GQM1875C2E1R3BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E1R3CB12# |  |
|        |               |         | 1.5pF  | ±0.1pF  | GQM1875C2E1R5BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E1R5CB12# |  |
|        |               |         | 1.6pF  | ±0.1pF  | GQM1875C2E1R6BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E1R6CB12# |  |
|        |               |         | 1.8pF  | ±0.1pF  | GQM1875C2E1R8BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E1R8CB12# |  |
|        |               |         | 2.0pF  | ±0.1pF  | GQM1875C2E2R0BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E2R0CB12# |  |
|        |               |         | 2.2pF  | ±0.1pF  | GQM1875C2E2R2BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E2R2CB12# |  |
|        |               |         | 2.4pF  | ±0.1pF  | GQM1875C2E2R4BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E2R4CB12# |  |
|        |               |         | 2.7pF  | ±0.1pF  | GQM1875C2E2R7BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E2R7CB12# |  |
|        |               |         | 3.0pF  | ±0.1pF  | GQM1875C2E3R0BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E3R0CB12# |  |
|        |               |         | 3.3pF  | ±0.1pF  | GQM1875C2E3R3BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E3R3CB12# |  |
|        |               |         | 3.6pF  | ±0.1pF  | GQM1875C2E3R6BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E3R6CB12# |  |
|        |               |         | 3.9pF  | ±0.1pF  | GQM1875C2E3R9BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E3R9CB12# |  |
|        |               |         | 4.0pF  | ±0.1pF  | GQM1875C2E4R0BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E4R0CB12# |  |
|        |               |         | 4.3pF  | ±0.1pF  | GQM1875C2E4R3BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E4R3CB12# |  |
|        |               |         | 4.7pF  | ±0.1pF  | GQM1875C2E4R7BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E4R7CB12# |  |
|        |               |         | 5.0pF  | ±0.1pF  | GQM1875C2E5R0BB12# |  |
|        |               |         |        | ±0.25pF | GQM1875C2E5R0CB12# |  |
|        |               |         | 5.1pF  | ±0.25pF | GQM1875C2E5R1CB12# |  |
|        |               |         |        | ±0.5pF  | GQM1875C2E5R1DB12# |  |
|        |               |         | 5.6pF  | ±0.25pF | GQM1875C2E5R6CB12# |  |
|        |               |         |        | ±0.5pF  | GQM1875C2E5R6DB12# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.8mm  | 250Vdc        | C0G     | 6.0pF | ±0.25pF | GQM1875C2E6R0CB12# |  |
|        |               |         |       | ±0.5pF  | GQM1875C2E6R0DB12# |  |
|        |               |         | 6.2pF | ±0.25pF | GQM1875C2E6R2CB12# |  |
|        |               |         |       | ±0.5pF  | GQM1875C2E6R2DB12# |  |
|        |               |         | 6.8pF | ±0.25pF | GQM1875C2E6R8CB12# |  |
|        |               |         |       | ±0.5pF  | GQM1875C2E6R8DB12# |  |
|        |               |         | 7.0pF | ±0.25pF | GQM1875C2E7R0CB12# |  |
|        |               |         |       | ±0.5pF  | GQM1875C2E7R0DB12# |  |
|        |               |         | 7.5pF | ±0.25pF | GQM1875C2E7R5CB12# |  |
|        |               |         |       | ±0.5pF  | GQM1875C2E7R5DB12# |  |
|        |               |         | 8.0pF | ±0.25pF | GQM1875C2E8R0CB12# |  |
|        |               |         |       | ±0.5pF  | GQM1875C2E8R0DB12# |  |
|        |               |         | 8.2pF | ±0.25pF | GQM1875C2E8R2CB12# |  |
|        |               |         |       | ±0.5pF  | GQM1875C2E8R2DB12# |  |
|        |               |         | 9.0pF | ±0.25pF | GQM1875C2E9R0CB12# |  |
|        |               |         |       | ±0.5pF  | GQM1875C2E9R0DB12# |  |
|        |               |         | 9.1pF | ±0.25pF | GQM1875C2E9R1CB12# |  |
|        |               |         |       | ±0.5pF  | GQM1875C2E9R1DB12# |  |
|        |               |         | 10pF  | ±2%     | GQM1875C2E100GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E100JB12# |  |
|        |               |         | 11pF  | ±2%     | GQM1875C2E110GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E110JB12# |  |
|        |               |         | 12pF  | ±2%     | GQM1875C2E120GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E120JB12# |  |
|        |               |         | 13pF  | ±2%     | GQM1875C2E130GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E130JB12# |  |
|        |               |         | 15pF  | ±2%     | GQM1875C2E150GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E150JB12# |  |
|        |               |         | 16pF  | ±2%     | GQM1875C2E160GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E160JB12# |  |
|        |               |         | 18pF  | ±2%     | GQM1875C2E180GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E180JB12# |  |
|        |               |         | 20pF  | ±2%     | GQM1875C2E200GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E200JB12# |  |
|        |               |         | 22pF  | ±2%     | GQM1875C2E220GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E220JB12# |  |
|        |               |         | 24pF  | ±2%     | GQM1875C2E240GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E240JB12# |  |
|        |               |         | 27pF  | ±2%     | GQM1875C2E270GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E270JB12# |  |
|        |               |         | 30pF  | ±2%     | GQM1875C2E300GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E300JB12# |  |
|        |               |         | 33pF  | ±2%     | GQM1875C2E330GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E330JB12# |  |
|        |               |         | 36pF  | ±2%     | GQM1875C2E360GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E360JB12# |  |
|        |               |         | 39pF  | ±2%     | GQM1875C2E390GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E390JB12# |  |
|        |               |         | 43pF  | ±2%     | GQM1875C2E430GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E430JB12# |  |
|        |               |         | 47pF  | ±2%     | GQM1875C2E470GB12# |  |
|        |               |         |       | ±5%     | GQM1875C2E470JB12# |  |
| 0.9mm  | 100Vdc        | C0G     | 0.5pF | ±0.1pF  | GQM1885C2AR50BB01# |  |
|        |               |         |       | ±0.25pF | GQM1885C2AR50CB01# |  |

Part number # indicates the package specification code.

# GQM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.   | Tol.    | Part Number        |  |
|--------|---------------|---------|--------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | C0G     | 0.75pF | ±0.1pF  | GQM1885C2AR75BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2AR75CB01# |  |
|        |               |         | 1.0pF  | ±0.1pF  | GQM1885C2A1R0BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A1R0CB01# |  |
|        |               |         | 1.1pF  | ±0.1pF  | GQM1885C2A1R1BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A1R1CB01# |  |
|        |               |         | 1.2pF  | ±0.1pF  | GQM1885C2A1R2BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A1R2CB01# |  |
|        |               |         | 1.3pF  | ±0.1pF  | GQM1885C2A1R3BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A1R3CB01# |  |
|        |               |         | 1.5pF  | ±0.1pF  | GQM1885C2A1R5BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A1R5CB01# |  |
|        |               |         | 1.6pF  | ±0.1pF  | GQM1885C2A1R6BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A1R6CB01# |  |
|        |               |         | 1.8pF  | ±0.1pF  | GQM1885C2A1R8BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A1R8CB01# |  |
|        |               |         | 2.0pF  | ±0.1pF  | GQM1885C2A2R0BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A2R0CB01# |  |
|        |               |         | 2.2pF  | ±0.1pF  | GQM1885C2A2R2BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A2R2CB01# |  |
|        |               |         | 2.4pF  | ±0.1pF  | GQM1885C2A2R4BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A2R4CB01# |  |
|        |               |         | 2.7pF  | ±0.1pF  | GQM1885C2A2R7BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A2R7CB01# |  |
|        |               |         | 3.0pF  | ±0.1pF  | GQM1885C2A3R0BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A3R0CB01# |  |
|        |               |         | 3.3pF  | ±0.1pF  | GQM1885C2A3R3BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A3R3CB01# |  |
|        |               |         | 3.6pF  | ±0.1pF  | GQM1885C2A3R6BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A3R6CB01# |  |
|        |               |         | 3.9pF  | ±0.1pF  | GQM1885C2A3R9BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A3R9CB01# |  |
|        |               |         | 4.0pF  | ±0.1pF  | GQM1885C2A4R0BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A4R0CB01# |  |
|        |               |         | 4.3pF  | ±0.1pF  | GQM1885C2A4R3BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A4R3CB01# |  |
|        |               |         | 4.7pF  | ±0.1pF  | GQM1885C2A4R7BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A4R7CB01# |  |
|        |               |         | 5.0pF  | ±0.1pF  | GQM1885C2A5R0BB01# |  |
|        |               |         |        | ±0.25pF | GQM1885C2A5R0CB01# |  |
|        |               |         | 5.1pF  | ±0.25pF | GQM1885C2A5R1CB01# |  |
|        |               |         |        | ±0.5pF  | GQM1885C2A5R1DB01# |  |
|        |               |         | 5.6pF  | ±0.25pF | GQM1885C2A5R6CB01# |  |
|        |               |         |        | ±0.5pF  | GQM1885C2A5R6DB01# |  |
|        |               |         | 6.0pF  | ±0.25pF | GQM1885C2A6R0CB01# |  |
|        |               |         |        | ±0.5pF  | GQM1885C2A6R0DB01# |  |
|        |               |         | 6.2pF  | ±0.25pF | GQM1885C2A6R2CB01# |  |
|        |               |         |        | ±0.5pF  | GQM1885C2A6R2DB01# |  |
|        |               |         | 6.8pF  | ±0.25pF | GQM1885C2A6R8CB01# |  |
|        |               |         |        | ±0.5pF  | GQM1885C2A6R8DB01# |  |
|        |               | CK      | 0.5pF  | ±0.1pF  | GQM1884C2AR50BB01# |  |
|        |               |         |        | ±0.25pF | GQM1884C2AR50CB01# |  |
|        |               |         | 0.75pF | ±0.1pF  | GQM1884C2AR75BB01# |  |
|        |               |         |        | ±0.25pF | GQM1884C2AR75CB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 100Vdc        | CK      | 1.0pF | ±0.1pF  | GQM1884C2A1R0BB01# |  |
|        |               |         |       | ±0.25pF | GQM1884C2A1R0CB01# |  |
|        |               |         | 1.1pF | ±0.1pF  | GQM1884C2A1R1BB01# |  |
|        |               |         |       | ±0.25pF | GQM1884C2A1R1CB01# |  |
|        |               |         | 1.2pF | ±0.1pF  | GQM1884C2A1R2BB01# |  |
|        |               |         |       | ±0.25pF | GQM1884C2A1R2CB01# |  |
|        |               |         | 1.3pF | ±0.1pF  | GQM1884C2A1R3BB01# |  |
|        |               |         |       | ±0.25pF | GQM1884C2A1R3CB01# |  |
|        |               |         | 1.5pF | ±0.1pF  | GQM1884C2A1R5BB01# |  |
|        |               |         |       | ±0.25pF | GQM1884C2A1R5CB01# |  |
|        |               |         | 1.6pF | ±0.1pF  | GQM1884C2A1R6BB01# |  |
|        |               |         |       | ±0.25pF | GQM1884C2A1R6CB01# |  |
|        |               |         | 1.8pF | ±0.1pF  | GQM1884C2A1R8BB01# |  |
|        |               |         |       | ±0.25pF | GQM1884C2A1R8CB01# |  |
|        |               |         | 2.0pF | ±0.1pF  | GQM1884C2A2R0BB01# |  |
|        |               |         |       | ±0.25pF | GQM1884C2A2R0CB01# |  |
|        |               | CJ      | 2.2pF | ±0.1pF  | GQM1883C2A2R2BB01# |  |
|        |               |         |       | ±0.25pF | GQM1883C2A2R2CB01# |  |
|        |               |         | 2.4pF | ±0.1pF  | GQM1883C2A2R4BB01# |  |
|        |               |         |       | ±0.25pF | GQM1883C2A2R4CB01# |  |
|        |               |         | 2.7pF | ±0.1pF  | GQM1883C2A2R7BB01# |  |
|        |               |         |       | ±0.25pF | GQM1883C2A2R7CB01# |  |
|        |               |         | 3.0pF | ±0.1pF  | GQM1883C2A3R0BB01# |  |
|        |               |         |       | ±0.25pF | GQM1883C2A3R0CB01# |  |
|        |               |         | 3.3pF | ±0.1pF  | GQM1883C2A3R3BB01# |  |
|        |               |         |       | ±0.25pF | GQM1883C2A3R3CB01# |  |
|        |               |         | 3.6pF | ±0.1pF  | GQM1883C2A3R6BB01# |  |
|        |               |         |       | ±0.25pF | GQM1883C2A3R6CB01# |  |
|        |               |         | 3.9pF | ±0.1pF  | GQM1883C2A3R9BB01# |  |
|        |               |         |       | ±0.25pF | GQM1883C2A3R9CB01# |  |
|        |               | CH      | 4.0pF | ±0.1pF  | GQM1882C2A4R0BB01# |  |
|        |               |         |       | ±0.25pF | GQM1882C2A4R0CB01# |  |
|        |               |         | 4.3pF | ±0.1pF  | GQM1882C2A4R3BB01# |  |
|        |               |         |       | ±0.25pF | GQM1882C2A4R3CB01# |  |
|        |               |         | 4.7pF | ±0.1pF  | GQM1882C2A4R7BB01# |  |
|        |               |         |       | ±0.25pF | GQM1882C2A4R7CB01# |  |
|        |               |         | 5.0pF | ±0.1pF  | GQM1882C2A5R0BB01# |  |
|        |               |         |       | ±0.25pF | GQM1882C2A5R0CB01# |  |
|        |               |         | 5.1pF | ±0.25pF | GQM1882C2A5R1CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1882C2A5R1DB01# |  |
|        |               |         | 5.6pF | ±0.25pF | GQM1882C2A5R6CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1882C2A5R6DB01# |  |
|        |               |         | 6.0pF | ±0.25pF | GQM1882C2A6R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1882C2A6R0DB01# |  |
|        |               |         | 6.2pF | ±0.25pF | GQM1882C2A6R2CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1882C2A6R2DB01# |  |
|        |               |         | 6.8pF | ±0.25pF | GQM1882C2A6R8CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1882C2A6R8DB01# |  |
|        | 50Vdc         | C0G     | 7.0pF | ±0.25pF | GQM1885C1H7R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1885C1H7R0DB01# |  |
|        |               |         | 7.5pF | ±0.25pF | GQM1885C1H7R5CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1885C1H7R5DB01# |  |
|        |               |         | 8.0pF | ±0.25pF | GQM1885C1H8R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1885C1H8R0DB01# |  |

Part number # indicates the package specification code.

## GQM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 50Vdc         | C0G     | 8.2pF | ±0.25pF | GQM1885C1H8R2CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1885C1H8R2DB01# |  |
|        |               |         | 9.0pF | ±0.25pF | GQM1885C1H9R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1885C1H9R0DB01# |  |
|        |               |         | 9.1pF | ±0.25pF | GQM1885C1H9R1CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1885C1H9R1DB01# |  |
|        |               |         | 10pF  | ±2%     | GQM1885C1H100GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H100JB01# |  |
|        |               |         | 11pF  | ±2%     | GQM1885C1H110GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H110JB01# |  |
|        |               |         | 12pF  | ±2%     | GQM1885C1H120GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H120JB01# |  |
|        |               |         | 13pF  | ±2%     | GQM1885C1H130GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H130JB01# |  |
|        |               |         | 15pF  | ±2%     | GQM1885C1H150GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H150JB01# |  |
|        |               |         | 16pF  | ±2%     | GQM1885C1H160GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H160JB01# |  |
|        |               |         | 18pF  | ±2%     | GQM1885C1H180GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H180JB01# |  |
|        |               |         | 20pF  | ±2%     | GQM1885C1H200GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H200JB01# |  |
|        |               |         | 22pF  | ±2%     | GQM1885C1H220GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H220JB01# |  |
|        |               |         | 24pF  | ±2%     | GQM1885C1H240GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H240JB01# |  |
|        |               |         | 27pF  | ±2%     | GQM1885C1H270GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H270JB01# |  |
|        |               |         | 30pF  | ±2%     | GQM1885C1H300GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H300JB01# |  |
|        |               |         | 33pF  | ±2%     | GQM1885C1H330GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H330JB01# |  |
|        |               |         | 36pF  | ±2%     | GQM1885C1H360GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H360JB01# |  |
|        |               |         | 39pF  | ±2%     | GQM1885C1H390GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H390JB01# |  |
|        |               |         | 43pF  | ±2%     | GQM1885C1H430GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H430JB01# |  |
|        |               |         | 47pF  | ±2%     | GQM1885C1H470GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H470JB01# |  |
|        |               |         | 51pF  | ±2%     | GQM1885C1H510GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H510JB01# |  |
|        |               |         | 56pF  | ±2%     | GQM1885C1H560GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H560JB01# |  |
|        |               |         | 62pF  | ±2%     | GQM1885C1H620GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H620JB01# |  |
|        |               |         | 68pF  | ±2%     | GQM1885C1H680GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H680JB01# |  |
|        |               |         | 75pF  | ±2%     | GQM1885C1H750GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H750JB01# |  |
|        |               |         | 82pF  | ±2%     | GQM1885C1H820GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H820JB01# |  |
|        |               |         | 91pF  | ±2%     | GQM1885C1H910GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H910JB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.9mm  | 50Vdc         | C0G     | 100pF | ±2%     | GQM1885C1H101GB01# |  |
|        |               |         |       | ±5%     | GQM1885C1H101JB01# |  |
|        |               |         | 7.0pF | ±0.25pF | GQM1882C1H7R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1882C1H7R0DB01# |  |
|        |               |         | 7.5pF | ±0.25pF | GQM1882C1H7R5CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1882C1H7R5DB01# |  |
|        |               | CH      | 8.0pF | ±0.25pF | GQM1882C1H8R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1882C1H8R0DB01# |  |
|        |               |         | 8.2pF | ±0.25pF | GQM1882C1H8R2CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1882C1H8R2DB01# |  |
|        |               |         | 9.0pF | ±0.25pF | GQM1882C1H9R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1882C1H9R0DB01# |  |
|        |               |         | 9.1pF | ±0.25pF | GQM1882C1H9R1CB01# |  |
|        |               |         |       | ±0.5pF  | GQM1882C1H9R1DB01# |  |
|        |               |         | 10pF  | ±2%     | GQM1882C1H100GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H100JB01# |  |
|        |               |         | 11pF  | ±2%     | GQM1882C1H110GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H110JB01# |  |
|        |               |         | 12pF  | ±2%     | GQM1882C1H120GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H120JB01# |  |
|        |               |         | 13pF  | ±2%     | GQM1882C1H130GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H130JB01# |  |
|        |               |         | 15pF  | ±2%     | GQM1882C1H150GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H150JB01# |  |
|        |               |         | 16pF  | ±2%     | GQM1882C1H160GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H160JB01# |  |
|        |               |         | 18pF  | ±2%     | GQM1882C1H180GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H180JB01# |  |
|        |               |         | 20pF  | ±2%     | GQM1882C1H200GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H200JB01# |  |
|        |               |         | 22pF  | ±2%     | GQM1882C1H220GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H220JB01# |  |
|        |               |         | 24pF  | ±2%     | GQM1882C1H240GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H240JB01# |  |
|        |               |         | 27pF  | ±2%     | GQM1882C1H270GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H270JB01# |  |
|        |               |         | 30pF  | ±2%     | GQM1882C1H300GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H300JB01# |  |
|        |               |         | 33pF  | ±2%     | GQM1882C1H330GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H330JB01# |  |
|        |               |         | 36pF  | ±2%     | GQM1882C1H360GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H360JB01# |  |
|        |               |         | 39pF  | ±2%     | GQM1882C1H390GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H390JB01# |  |
|        |               |         | 43pF  | ±2%     | GQM1882C1H430GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H430JB01# |  |
|        |               |         | 47pF  | ±2%     | GQM1882C1H470GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H470JB01# |  |
|        |               |         | 51pF  | ±2%     | GQM1882C1H510GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H510JB01# |  |
|        |               |         | 56pF  | ±2%     | GQM1882C1H560GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H560JB01# |  |
|        |               |         | 62pF  | ±2%     | GQM1882C1H620GB01# |  |
|        |               |         |       | ±5%     | GQM1882C1H620JB01# |  |

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL□ Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information

Part number # indicates the package specification code.

## GQM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 1.6×0.8mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol. | Part Number        |  |
|--------|---------------|---------|-------|------|--------------------|--|
| 0.9mm  | 50Vdc         | CH      | 68pF  | ±2%  | GQM1882C1H680GB01# |  |
|        |               |         |       | ±5%  | GQM1882C1H680JB01# |  |
|        |               |         | 75pF  | ±2%  | GQM1882C1H750GB01# |  |
|        |               |         |       | ±5%  | GQM1882C1H750JB01# |  |
|        |               |         | 82pF  | ±2%  | GQM1882C1H820GB01# |  |
|        |               |         |       | ±5%  | GQM1882C1H820JB01# |  |
|        |               |         | 91pF  | ±2%  | GQM1882C1H910GB01# |  |
|        |               |         |       | ±5%  | GQM1882C1H910JB01# |  |
|        |               |         | 100pF | ±2%  | GQM1882C1H101GB01# |  |
|        |               |         |       | ±5%  | GQM1882C1H101JB01# |  |

■ 2.0×1.25mm

| T max. | Rated Voltage | TC Code | Cap.   | Tol.    | Part Number        |  |
|--------|---------------|---------|--------|---------|--------------------|--|
| 0.95mm | 100Vdc        | C0G     | 0.5pF  | ±0.1pF  | GQM2195C2AR50BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2AR50CB01# |  |
|        |               |         | 0.75pF | ±0.1pF  | GQM2195C2AR75BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2AR75CB01# |  |
|        |               |         | 1.0pF  | ±0.1pF  | GQM2195C2A1R0BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A1R0CB01# |  |
|        |               |         | 1.1pF  | ±0.1pF  | GQM2195C2A1R1BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A1R1CB01# |  |
|        |               |         | 1.2pF  | ±0.1pF  | GQM2195C2A1R2BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A1R2CB01# |  |
|        |               |         | 1.3pF  | ±0.1pF  | GQM2195C2A1R3BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A1R3CB01# |  |
|        |               |         | 1.5pF  | ±0.1pF  | GQM2195C2A1R5BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A1R5CB01# |  |
|        |               |         | 1.6pF  | ±0.1pF  | GQM2195C2A1R6BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A1R6CB01# |  |
|        |               |         | 1.8pF  | ±0.1pF  | GQM2195C2A1R8BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A1R8CB01# |  |
|        |               |         | 2.0pF  | ±0.1pF  | GQM2195C2A2R0BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A2R0CB01# |  |
|        |               |         | 2.2pF  | ±0.1pF  | GQM2195C2A2R2BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A2R2CB01# |  |
|        |               |         | 2.4pF  | ±0.1pF  | GQM2195C2A2R4BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A2R4CB01# |  |
|        |               |         | 2.7pF  | ±0.1pF  | GQM2195C2A2R7BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A2R7CB01# |  |
|        |               |         | 3.0pF  | ±0.1pF  | GQM2195C2A3R0BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A3R0CB01# |  |
|        |               |         | 3.3pF  | ±0.1pF  | GQM2195C2A3R3BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A3R3CB01# |  |
|        |               |         | 3.6pF  | ±0.1pF  | GQM2195C2A3R6BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A3R6CB01# |  |
|        |               |         | 3.9pF  | ±0.1pF  | GQM2195C2A3R9BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A3R9CB01# |  |
|        |               |         | 4.0pF  | ±0.1pF  | GQM2195C2A4R0BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A4R0CB01# |  |
|        |               |         | 4.3pF  | ±0.1pF  | GQM2195C2A4R3BB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A4R3CB01# |  |
|        |               |         | 4.7pF  | ±0.1pF  | GQM2195C2A4R7BB01# |  |
|        |               |         |        |         |                    |  |

| T max. | Rated Voltage | TC Code | Cap.   | Tol.    | Part Number        |  |
|--------|---------------|---------|--------|---------|--------------------|--|
| 0.95mm | 100Vdc        | C0G     | 4.7pF  | ±0.25pF | GQM2195C2A4R7CB01# |  |
|        |               |         |        | ±0.1pF  | GQM2195C2A5R0BB01# |  |
|        |               |         | 5.0pF  | ±0.25pF | GQM2195C2A5R0CB01# |  |
|        |               |         |        | ±0.25pF | GQM2195C2A5R1CB01# |  |
|        |               |         | 5.1pF  | ±0.25pF | GQM2195C2A5R1CB01# |  |
|        |               |         |        | ±0.5pF  | GQM2195C2A5R1DB01# |  |
|        |               |         | 5.6pF  | ±0.25pF | GQM2195C2A5R6CB01# |  |
|        |               |         |        | ±0.5pF  | GQM2195C2A5R6DB01# |  |
|        |               |         | 6.0pF  | ±0.25pF | GQM2195C2A6R0CB01# |  |
|        |               |         |        | ±0.5pF  | GQM2195C2A6R0DB01# |  |
|        |               |         | 6.2pF  | ±0.25pF | GQM2195C2A6R2CB01# |  |
|        |               |         |        | ±0.5pF  | GQM2195C2A6R2DB01# |  |
|        |               |         | 6.8pF  | ±0.25pF | GQM2195C2A6R8CB01# |  |
|        |               |         |        | ±0.5pF  | GQM2195C2A6R8DB01# |  |
|        |               |         | 7.0pF  | ±0.25pF | GQM2195C2A7R0CB01# |  |
|        |               |         |        | ±0.5pF  | GQM2195C2A7R0DB01# |  |
|        |               |         | 7.5pF  | ±0.25pF | GQM2195C2A7R5CB01# |  |
|        |               |         |        | ±0.5pF  | GQM2195C2A7R5DB01# |  |
|        |               |         | 8.0pF  | ±0.25pF | GQM2195C2A8R0CB01# |  |
|        |               |         |        | ±0.5pF  | GQM2195C2A8R0DB01# |  |
|        |               |         | 8.2pF  | ±0.25pF | GQM2195C2A8R2CB01# |  |
|        |               |         |        | ±0.5pF  | GQM2195C2A8R2DB01# |  |
|        |               |         | 9.0pF  | ±0.25pF | GQM2195C2A9R0CB01# |  |
|        |               |         |        | ±0.5pF  | GQM2195C2A9R0DB01# |  |
|        |               |         | 9.1pF  | ±0.25pF | GQM2195C2A9R1CB01# |  |
|        |               |         |        | ±0.5pF  | GQM2195C2A9R1DB01# |  |
|        |               |         | 10pF   | ±2%     | GQM2195C2A100GB01# |  |
|        |               |         |        | ±5%     | GQM2195C2A100JB01# |  |
|        |               |         | 11pF   | ±2%     | GQM2195C2A110GB01# |  |
|        |               |         |        | ±5%     | GQM2195C2A110JB01# |  |
|        |               |         | 12pF   | ±2%     | GQM2195C2A120GB01# |  |
|        |               |         |        | ±5%     | GQM2195C2A120JB01# |  |
|        |               |         | 13pF   | ±2%     | GQM2195C2A130GB01# |  |
|        |               |         |        | ±5%     | GQM2195C2A130JB01# |  |
|        |               |         | 15pF   | ±2%     | GQM2195C2A150GB01# |  |
|        |               |         |        | ±5%     | GQM2195C2A150JB01# |  |
|        |               |         | 16pF   | ±2%     | GQM2195C2A160GB01# |  |
|        |               |         |        | ±5%     | GQM2195C2A160JB01# |  |
|        |               |         | 18pF   | ±2%     | GQM2195C2A180GB01# |  |
|        |               |         |        | ±5%     | GQM2195C2A180JB01# |  |
|        |               | CK      | 0.5pF  | ±0.1pF  | GQM2194C2AR50BB01# |  |
|        |               |         |        | ±0.25pF | GQM2194C2AR50CB01# |  |
|        |               |         | 0.75pF | ±0.1pF  | GQM2194C2AR75BB01# |  |
|        |               |         |        | ±0.25pF | GQM2194C2AR75CB01# |  |
|        |               |         | 1.0pF  | ±0.1pF  | GQM2194C2A1R0BB01# |  |
|        |               |         |        | ±0.25pF | GQM2194C2A1R0CB01# |  |
|        |               |         | 1.1pF  | ±0.1pF  | GQM2194C2A1R1BB01# |  |
|        |               |         |        | ±0.25pF | GQM2194C2A1R1CB01# |  |
|        |               |         | 1.2pF  | ±0.1pF  | GQM2194C2A1R2BB01# |  |
|        |               |         |        | ±0.25pF | GQM2194C2A1R2CB01# |  |
|        |               |         | 1.3pF  | ±0.1pF  | GQM2194C2A1R3BB01# |  |
|        |               |         |        | ±0.25pF | GQM2194C2A1R3CB01# |  |
|        |               |         | 1.5pF  | ±0.1pF  | GQM2194C2A1R5BB01# |  |
|        |               |         |        | ±0.25pF | GQM2194C2A1R5CB01# |  |
|        |               |         | 1.6pF  | ±0.1pF  | GQM2194C2A1R6BB01# |  |
|        |               |         |        |         |                    |  |

Part number # indicates the package specification code.

## GQM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 2.0×1.25mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 0.95mm | 100Vdc        | CK      | 1.6pF | ±0.25pF | GQM2194C2A1R6CB01# |  |
|        |               |         |       | ±0.1pF  | GQM2194C2A1R8BB01# |  |
|        |               |         |       | ±0.25pF | GQM2194C2A1R8CB01# |  |
|        |               |         | 2.0pF | ±0.1pF  | GQM2194C2A2R0BB01# |  |
|        |               |         |       | ±0.25pF | GQM2194C2A2R0CB01# |  |
|        |               | CJ      | 2.2pF | ±0.1pF  | GQM2193C2A2R2BB01# |  |
|        |               |         |       | ±0.25pF | GQM2193C2A2R2CB01# |  |
|        |               |         | 2.4pF | ±0.1pF  | GQM2193C2A2R4BB01# |  |
|        |               |         |       | ±0.25pF | GQM2193C2A2R4CB01# |  |
|        |               |         | 2.7pF | ±0.1pF  | GQM2193C2A2R7BB01# |  |
|        |               |         |       | ±0.25pF | GQM2193C2A2R7CB01# |  |
|        |               |         | 3.0pF | ±0.1pF  | GQM2193C2A3R0BB01# |  |
|        |               |         |       | ±0.25pF | GQM2193C2A3R0CB01# |  |
|        |               |         | 3.3pF | ±0.1pF  | GQM2193C2A3R3BB01# |  |
|        |               |         |       | ±0.25pF | GQM2193C2A3R3CB01# |  |
|        |               |         | 3.6pF | ±0.1pF  | GQM2193C2A3R6BB01# |  |
|        |               |         |       | ±0.25pF | GQM2193C2A3R6CB01# |  |
|        |               |         | 3.9pF | ±0.1pF  | GQM2193C2A3R9BB01# |  |
|        |               |         |       | ±0.25pF | GQM2193C2A3R9CB01# |  |
|        |               | CH      | 4.0pF | ±0.1pF  | GQM2192C2A4R0BB01# |  |
|        |               |         |       | ±0.25pF | GQM2192C2A4R0CB01# |  |
|        |               |         | 4.3pF | ±0.1pF  | GQM2192C2A4R3BB01# |  |
|        |               |         |       | ±0.25pF | GQM2192C2A4R3CB01# |  |
|        |               |         | 4.7pF | ±0.1pF  | GQM2192C2A4R7BB01# |  |
|        |               |         |       | ±0.25pF | GQM2192C2A4R7CB01# |  |
|        |               |         | 5.0pF | ±0.1pF  | GQM2192C2A5R0BB01# |  |
|        |               |         |       | ±0.25pF | GQM2192C2A5R0CB01# |  |
|        |               |         | 5.1pF | ±0.25pF | GQM2192C2A5R1CB01# |  |
|        |               |         |       | ±0.5pF  | GQM2192C2A5R1DB01# |  |
|        |               |         | 5.6pF | ±0.25pF | GQM2192C2A5R6CB01# |  |
|        |               |         |       | ±0.5pF  | GQM2192C2A5R6DB01# |  |
|        |               |         | 6.0pF | ±0.25pF | GQM2192C2A6R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM2192C2A6R0DB01# |  |
|        |               |         | 6.2pF | ±0.25pF | GQM2192C2A6R2CB01# |  |
|        |               |         |       | ±0.5pF  | GQM2192C2A6R2DB01# |  |
|        |               |         | 6.8pF | ±0.25pF | GQM2192C2A6R8CB01# |  |
|        |               |         |       | ±0.5pF  | GQM2192C2A6R8DB01# |  |
|        |               |         | 7.0pF | ±0.25pF | GQM2192C2A7R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM2192C2A7R0DB01# |  |
|        |               |         | 7.5pF | ±0.25pF | GQM2192C2A7R5CB01# |  |
|        |               |         |       | ±0.5pF  | GQM2192C2A7R5DB01# |  |
|        |               |         | 8.0pF | ±0.25pF | GQM2192C2A8R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM2192C2A8R0DB01# |  |
|        |               |         | 8.2pF | ±0.25pF | GQM2192C2A8R2CB01# |  |
|        |               |         |       | ±0.5pF  | GQM2192C2A8R2DB01# |  |
|        |               |         | 9.0pF | ±0.25pF | GQM2192C2A9R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM2192C2A9R0DB01# |  |
|        |               |         | 9.1pF | ±0.25pF | GQM2192C2A9R1CB01# |  |
|        |               |         |       | ±0.5pF  | GQM2192C2A9R1DB01# |  |
|        |               |         | 10pF  | ±2%     | GQM2192C2A100GB01# |  |
|        |               |         |       | ±5%     | GQM2192C2A100JB01# |  |
|        |               |         | 11pF  | ±2%     | GQM2192C2A110GB01# |  |
|        |               |         |       | ±5%     | GQM2192C2A110JB01# |  |
|        |               |         | 12pF  | ±2%     | GQM2192C2A120GB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol. | Part Number        |  |
|--------|---------------|---------|-------|------|--------------------|--|
| 0.95mm | 100Vdc        | CH      | 12pF  | ±5%  | GQM2192C2A120JB01# |  |
|        |               |         |       | ±2%  | GQM2192C2A130GB01# |  |
|        |               |         |       | ±5%  | GQM2192C2A130JB01# |  |
|        |               |         | 15pF  | ±2%  | GQM2192C2A150GB01# |  |
|        |               |         |       | ±5%  | GQM2192C2A150JB01# |  |
|        |               |         | 16pF  | ±2%  | GQM2192C2A160GB01# |  |
|        |               |         |       | ±5%  | GQM2192C2A160JB01# |  |
|        |               |         | 18pF  | ±2%  | GQM2192C2A180GB01# |  |
|        |               |         |       | ±5%  | GQM2192C2A180JB01# |  |
|        | 50Vdc         | C0G     | 20pF  | ±2%  | GQM2195C1H200GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H200JB01# |  |
|        |               |         | 22pF  | ±2%  | GQM2195C1H220GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H220JB01# |  |
|        |               |         | 24pF  | ±2%  | GQM2195C1H240GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H240JB01# |  |
|        |               |         | 27pF  | ±2%  | GQM2195C1H270GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H270JB01# |  |
|        |               |         | 30pF  | ±2%  | GQM2195C1H300GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H300JB01# |  |
|        |               |         | 33pF  | ±2%  | GQM2195C1H330GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H330JB01# |  |
|        |               |         | 36pF  | ±2%  | GQM2195C1H360GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H360JB01# |  |
|        |               |         | 39pF  | ±2%  | GQM2195C1H390GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H390JB01# |  |
|        |               |         | 43pF  | ±2%  | GQM2195C1H430GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H430JB01# |  |
|        |               |         | 47pF  | ±2%  | GQM2195C1H470GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H470JB01# |  |
|        |               |         | 51pF  | ±2%  | GQM2195C1H510GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H510JB01# |  |
|        |               |         | 56pF  | ±2%  | GQM2195C1H560GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H560JB01# |  |
|        |               |         | 62pF  | ±2%  | GQM2195C1H620GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H620JB01# |  |
|        |               |         | 68pF  | ±2%  | GQM2195C1H680GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H680JB01# |  |
|        |               |         | 75pF  | ±2%  | GQM2195C1H750GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H750JB01# |  |
|        |               |         | 82pF  | ±2%  | GQM2195C1H820GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H820JB01# |  |
|        |               |         | 91pF  | ±2%  | GQM2195C1H910GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H910JB01# |  |
|        |               |         | 100pF | ±2%  | GQM2195C1H101GB01# |  |
|        |               |         |       | ±5%  | GQM2195C1H101JB01# |  |
|        |               | CH      | 20pF  | ±2%  | GQM2192C1H200GB01# |  |
|        |               |         |       | ±5%  | GQM2192C1H200JB01# |  |
|        |               |         | 22pF  | ±2%  | GQM2192C1H220GB01# |  |
|        |               |         |       | ±5%  | GQM2192C1H220JB01# |  |
|        |               |         | 24pF  | ±2%  | GQM2192C1H240GB01# |  |
|        |               |         |       | ±5%  | GQM2192C1H240JB01# |  |
|        |               |         | 27pF  | ±2%  | GQM2192C1H270GB01# |  |
|        |               |         |       | ±5%  | GQM2192C1H270JB01# |  |
|        |               |         | 30pF  | ±2%  | GQM2192C1H300GB01# |  |

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL□ Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information

Part number # indicates the package specification code.

## GQM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 2.0×1.25mm)

| T max. | Rated Voltage | TC Code | Cap.   | Tol.    | Part Number        |  |
|--------|---------------|---------|--------|---------|--------------------|--|
| 0.95mm | 50Vdc         | CH      | 30pF   | ±5%     | GQM2192C1H300JB01# |  |
|        |               |         |        | ±2%     | GQM2192C1H330GB01# |  |
|        |               |         |        | ±5%     | GQM2192C1H330JB01# |  |
|        |               |         | 36pF   | ±2%     | GQM2192C1H360GB01# |  |
|        |               |         |        | ±5%     | GQM2192C1H360JB01# |  |
|        |               |         | 39pF   | ±2%     | GQM2192C1H390GB01# |  |
|        |               |         |        | ±5%     | GQM2192C1H390JB01# |  |
|        |               |         | 43pF   | ±2%     | GQM2192C1H430GB01# |  |
|        |               |         |        | ±5%     | GQM2192C1H430JB01# |  |
|        |               |         | 47pF   | ±2%     | GQM2192C1H470GB01# |  |
|        |               |         |        | ±5%     | GQM2192C1H470JB01# |  |
|        |               |         | 51pF   | ±2%     | GQM2192C1H510GB01# |  |
|        |               |         |        | ±5%     | GQM2192C1H510JB01# |  |
|        |               |         | 56pF   | ±2%     | GQM2192C1H560GB01# |  |
|        |               |         |        | ±5%     | GQM2192C1H560JB01# |  |
|        |               |         | 62pF   | ±2%     | GQM2192C1H620GB01# |  |
|        |               |         |        | ±5%     | GQM2192C1H620JB01# |  |
|        |               |         | 68pF   | ±2%     | GQM2192C1H680GB01# |  |
|        |               |         |        | ±5%     | GQM2192C1H680JB01# |  |
|        |               |         | 75pF   | ±2%     | GQM2192C1H750GB01# |  |
|        |               |         |        | ±5%     | GQM2192C1H750JB01# |  |
|        |               |         | 82pF   | ±2%     | GQM2192C1H820GB01# |  |
|        |               |         |        | ±5%     | GQM2192C1H820JB01# |  |
|        |               |         | 91pF   | ±2%     | GQM2192C1H910GB01# |  |
|        |               |         |        | ±5%     | GQM2192C1H910JB01# |  |
|        |               |         | 100pF  | ±2%     | GQM2192C1H101GB01# |  |
|        |               |         |        | ±5%     | GQM2192C1H101JB01# |  |
| 1mm    | 250Vdc        | C0G     | 0.5pF  | ±0.1pF  | GQM2195C2ER50BB12# |  |
|        |               |         |        | ±0.25pF | GQM2195C2ER50CB12# |  |
|        |               |         | 0.75pF | ±0.1pF  | GQM2195C2ER75BB12# |  |
|        |               |         |        | ±0.25pF | GQM2195C2ER75CB12# |  |
|        |               |         | 1.0pF  | ±0.1pF  | GQM2195C2E1R0BB12# |  |
|        |               |         |        | ±0.25pF | GQM2195C2E1R0CB12# |  |
|        |               |         | 1.1pF  | ±0.1pF  | GQM2195C2E1R1BB12# |  |
|        |               |         |        | ±0.25pF | GQM2195C2E1R1CB12# |  |
|        |               |         | 1.2pF  | ±0.1pF  | GQM2195C2E1R2BB12# |  |
|        |               |         |        | ±0.25pF | GQM2195C2E1R2CB12# |  |
|        |               |         | 1.3pF  | ±0.1pF  | GQM2195C2E1R3BB12# |  |
|        |               |         |        | ±0.25pF | GQM2195C2E1R3CB12# |  |
|        |               |         | 1.5pF  | ±0.1pF  | GQM2195C2E1R5BB12# |  |
|        |               |         |        | ±0.25pF | GQM2195C2E1R5CB12# |  |
|        |               |         | 1.6pF  | ±0.1pF  | GQM2195C2E1R6BB12# |  |
|        |               |         |        | ±0.25pF | GQM2195C2E1R6CB12# |  |
|        |               |         | 1.8pF  | ±0.1pF  | GQM2195C2E1R8BB12# |  |
|        |               |         |        | ±0.25pF | GQM2195C2E1R8CB12# |  |
|        |               |         | 2.0pF  | ±0.1pF  | GQM2195C2E2R0BB12# |  |
|        |               |         |        | ±0.25pF | GQM2195C2E2R0CB12# |  |
|        |               |         | 2.2pF  | ±0.1pF  | GQM2195C2E2R2BB12# |  |
|        |               |         |        | ±0.25pF | GQM2195C2E2R2CB12# |  |
|        |               |         | 2.4pF  | ±0.1pF  | GQM2195C2E2R4BB12# |  |
|        |               |         |        | ±0.25pF | GQM2195C2E2R4CB12# |  |
|        |               |         | 2.7pF  | ±0.1pF  | GQM2195C2E2R7BB12# |  |
|        |               |         |        | ±0.25pF | GQM2195C2E2R7CB12# |  |
|        |               |         | 3.0pF  | ±0.1pF  | GQM2195C2E3R0BB12# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 1mm    | 250Vdc        | C0G     | 3.0pF | ±0.25pF | GQM2195C2E3R0CB12# |  |
|        |               |         |       | ±0.1pF  | GQM2195C2E3R3BB12# |  |
|        |               |         |       | ±0.25pF | GQM2195C2E3R3CB12# |  |
|        |               |         | 3.6pF | ±0.1pF  | GQM2195C2E3R6BB12# |  |
|        |               |         |       | ±0.25pF | GQM2195C2E3R6CB12# |  |
|        |               |         | 3.9pF | ±0.1pF  | GQM2195C2E3R9BB12# |  |
|        |               |         |       | ±0.25pF | GQM2195C2E3R9CB12# |  |
|        |               |         | 4.0pF | ±0.1pF  | GQM2195C2E4R0BB12# |  |
|        |               |         |       | ±0.25pF | GQM2195C2E4R0CB12# |  |
|        |               |         | 4.3pF | ±0.1pF  | GQM2195C2E4R3BB12# |  |
|        |               |         |       | ±0.25pF | GQM2195C2E4R3CB12# |  |
|        |               |         | 4.7pF | ±0.1pF  | GQM2195C2E4R7BB12# |  |
|        |               |         |       | ±0.25pF | GQM2195C2E4R7CB12# |  |
|        |               |         | 5.0pF | ±0.1pF  | GQM2195C2E5R0BB12# |  |
|        |               |         |       | ±0.25pF | GQM2195C2E5R0CB12# |  |
|        |               |         | 5.1pF | ±0.25pF | GQM2195C2E5R1CB12# |  |
|        |               |         |       | ±0.5pF  | GQM2195C2E5R1DB12# |  |
|        |               |         | 5.6pF | ±0.25pF | GQM2195C2E5R6CB12# |  |
|        |               |         |       | ±0.5pF  | GQM2195C2E5R6DB12# |  |
|        |               |         | 6.0pF | ±0.25pF | GQM2195C2E6R0CB12# |  |
|        |               |         |       | ±0.5pF  | GQM2195C2E6R0DB12# |  |
|        |               |         | 6.2pF | ±0.25pF | GQM2195C2E6R2CB12# |  |
|        |               |         |       | ±0.5pF  | GQM2195C2E6R2DB12# |  |
|        |               |         | 6.8pF | ±0.25pF | GQM2195C2E6R8CB12# |  |
|        |               |         |       | ±0.5pF  | GQM2195C2E6R8DB12# |  |
|        |               |         | 7.0pF | ±0.25pF | GQM2195C2E7R0CB12# |  |
|        |               |         |       | ±0.5pF  | GQM2195C2E7R0DB12# |  |
|        |               |         | 7.5pF | ±0.25pF | GQM2195C2E7R5CB12# |  |
|        |               |         |       | ±0.5pF  | GQM2195C2E7R5DB12# |  |
|        |               |         | 8.0pF | ±0.25pF | GQM2195C2E8R0CB12# |  |
|        |               |         |       | ±0.5pF  | GQM2195C2E8R0DB12# |  |
|        |               |         | 8.2pF | ±0.25pF | GQM2195C2E8R2CB12# |  |
|        |               |         |       | ±0.5pF  | GQM2195C2E8R2DB12# |  |
|        |               |         | 9.0pF | ±0.25pF | GQM2195C2E9R0CB12# |  |
|        |               |         |       | ±0.5pF  | GQM2195C2E9R0DB12# |  |
|        |               |         | 9.1pF | ±0.25pF | GQM2195C2E9R1CB12# |  |
|        |               |         |       | ±0.5pF  | GQM2195C2E9R1DB12# |  |
|        |               |         | 10pF  | ±2%     | GQM2195C2E100GB12# |  |
|        |               |         |       | ±5%     | GQM2195C2E100JB12# |  |
|        |               |         | 11pF  | ±2%     | GQM2195C2E110GB12# |  |
|        |               |         |       | ±5%     | GQM2195C2E110JB12# |  |
|        |               |         | 12pF  | ±2%     | GQM2195C2E120GB12# |  |
|        |               |         |       | ±5%     | GQM2195C2E120JB12# |  |
|        |               |         | 13pF  | ±2%     | GQM2195C2E130GB12# |  |
|        |               |         |       | ±5%     | GQM2195C2E130JB12# |  |
|        |               |         | 15pF  | ±2%     | GQM2195C2E150GB12# |  |
|        |               |         |       | ±5%     | GQM2195C2E150JB12# |  |
|        |               |         | 16pF  | ±2%     | GQM2195C2E160GB12# |  |
|        |               |         |       | ±5%     | GQM2195C2E160JB12# |  |
|        |               |         | 18pF  | ±2%     | GQM2195C2E180GB12# |  |
|        |               |         |       | ±5%     | GQM2195C2E180JB12# |  |
|        |               |         | 20pF  | ±2%     | GQM2195C2E200GB12# |  |
|        |               |         |       | ±5%     | GQM2195C2E200JB12# |  |
|        |               |         | 22pF  | ±2%     | GQM2195C2E220GB12# |  |

Part number # indicates the package specification code.

## GQM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 2.0×1.25mm)

| T max. | Rated Voltage | TC Code | Cap.  | Tol. | Part Number        |  |
|--------|---------------|---------|-------|------|--------------------|--|
| 1mm    | 250Vdc        | C0G     | 22pF  | ±5%  | GQM2195C2E220JB12# |  |
|        |               |         |       | ±2%  | GQM2195C2E240GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E240JB12# |  |
|        |               |         | 27pF  | ±2%  | GQM2195C2E270GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E270JB12# |  |
|        |               |         | 30pF  | ±2%  | GQM2195C2E300GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E300JB12# |  |
|        |               |         | 33pF  | ±2%  | GQM2195C2E330GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E330JB12# |  |
|        |               |         | 36pF  | ±2%  | GQM2195C2E360GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E360JB12# |  |
|        |               |         | 39pF  | ±2%  | GQM2195C2E390GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E390JB12# |  |
|        |               |         | 43pF  | ±2%  | GQM2195C2E430GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E430JB12# |  |
|        |               |         | 47pF  | ±2%  | GQM2195C2E470GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E470JB12# |  |
|        |               |         | 51pF  | ±2%  | GQM2195C2E510GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E510JB12# |  |
|        |               |         | 56pF  | ±2%  | GQM2195C2E560GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E560JB12# |  |
|        |               |         | 62pF  | ±2%  | GQM2195C2E620GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E620JB12# |  |
|        |               |         | 68pF  | ±2%  | GQM2195C2E680GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E680JB12# |  |
|        |               |         | 75pF  | ±2%  | GQM2195C2E750GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E750JB12# |  |
|        |               |         | 82pF  | ±2%  | GQM2195C2E820GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E820JB12# |  |
|        |               |         | 91pF  | ±2%  | GQM2195C2E910GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E910JB12# |  |
|        |               |         | 100pF | ±2%  | GQM2195C2E101GB12# |  |
|        |               |         |       | ±5%  | GQM2195C2E101JB12# |  |

■ 2.8×2.8mm

| T max. | Rated Voltage | TC Code | Cap.   | Tol.    | Part Number        |  |
|--------|---------------|---------|--------|---------|--------------------|--|
| 1.35mm | 500Vdc        | C0G     | 0.5pF  | ±0.1pF  | GQM22M5C2HR50BB01# |  |
|        |               |         |        | ±0.25pF | GQM22M5C2HR50CB01# |  |
|        |               |         | 0.75pF | ±0.1pF  | GQM22M5C2HR75BB01# |  |
|        |               |         |        | ±0.25pF | GQM22M5C2HR75CB01# |  |
|        |               |         | 1.0pF  | ±0.1pF  | GQM22M5C2H1R0BB01# |  |
|        |               |         |        | ±0.25pF | GQM22M5C2H1R0CB01# |  |
|        |               |         | 1.1pF  | ±0.1pF  | GQM22M5C2H1R1BB01# |  |
|        |               |         |        | ±0.25pF | GQM22M5C2H1R1CB01# |  |
|        |               |         | 1.2pF  | ±0.1pF  | GQM22M5C2H1R2BB01# |  |
|        |               |         |        | ±0.25pF | GQM22M5C2H1R2CB01# |  |
|        |               |         | 1.3pF  | ±0.1pF  | GQM22M5C2H1R3BB01# |  |
|        |               |         |        | ±0.25pF | GQM22M5C2H1R3CB01# |  |
|        |               |         | 1.5pF  | ±0.1pF  | GQM22M5C2H1R5BB01# |  |
|        |               |         |        | ±0.25pF | GQM22M5C2H1R5CB01# |  |
|        |               |         | 1.6pF  | ±0.1pF  | GQM22M5C2H1R6BB01# |  |
|        |               |         |        | ±0.25pF | GQM22M5C2H1R6CB01# |  |

| T max. | Rated Voltage | TC Code | Cap.  | Tol.    | Part Number        |  |
|--------|---------------|---------|-------|---------|--------------------|--|
| 1.35mm | 500Vdc        | C0G     | 1.8pF | ±0.1pF  | GQM22M5C2H1R8BB01# |  |
|        |               |         |       | ±0.25pF | GQM22M5C2H1R8CB01# |  |
|        |               |         | 2.0pF | ±0.1pF  | GQM22M5C2H2R0BB01# |  |
|        |               |         |       | ±0.25pF | GQM22M5C2H2R0CB01# |  |
|        |               |         | 2.2pF | ±0.1pF  | GQM22M5C2H2R2BB01# |  |
|        |               |         |       | ±0.25pF | GQM22M5C2H2R2CB01# |  |
|        |               |         | 2.4pF | ±0.1pF  | GQM22M5C2H2R4BB01# |  |
|        |               |         |       | ±0.25pF | GQM22M5C2H2R4CB01# |  |
|        |               |         | 2.7pF | ±0.1pF  | GQM22M5C2H2R7BB01# |  |
|        |               |         |       | ±0.25pF | GQM22M5C2H2R7CB01# |  |
|        |               |         | 3.0pF | ±0.1pF  | GQM22M5C2H3R0BB01# |  |
|        |               |         |       | ±0.25pF | GQM22M5C2H3R0CB01# |  |
|        |               |         | 3.3pF | ±0.1pF  | GQM22M5C2H3R3BB01# |  |
|        |               |         |       | ±0.25pF | GQM22M5C2H3R3CB01# |  |
|        |               |         | 3.6pF | ±0.1pF  | GQM22M5C2H3R6BB01# |  |
|        |               |         |       | ±0.25pF | GQM22M5C2H3R6CB01# |  |
|        |               |         | 3.9pF | ±0.1pF  | GQM22M5C2H3R9BB01# |  |
|        |               |         |       | ±0.25pF | GQM22M5C2H3R9CB01# |  |
|        |               |         | 4.0pF | ±0.1pF  | GQM22M5C2H4R0BB01# |  |
|        |               |         |       | ±0.25pF | GQM22M5C2H4R0CB01# |  |
|        |               |         | 4.3pF | ±0.1pF  | GQM22M5C2H4R3BB01# |  |
|        |               |         |       | ±0.25pF | GQM22M5C2H4R3CB01# |  |
|        |               |         | 4.7pF | ±0.1pF  | GQM22M5C2H4R7BB01# |  |
|        |               |         |       | ±0.25pF | GQM22M5C2H4R7CB01# |  |
|        |               |         | 5.0pF | ±0.1pF  | GQM22M5C2H5R0BB01# |  |
|        |               |         |       | ±0.25pF | GQM22M5C2H5R0CB01# |  |
|        |               |         | 5.1pF | ±0.25pF | GQM22M5C2H5R1CB01# |  |
|        |               |         |       | ±0.5pF  | GQM22M5C2H5R1DB01# |  |
|        |               |         | 5.6pF | ±0.25pF | GQM22M5C2H5R6CB01# |  |
|        |               |         |       | ±0.5pF  | GQM22M5C2H5R6DB01# |  |
|        |               |         | 6.0pF | ±0.25pF | GQM22M5C2H6R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM22M5C2H6R0DB01# |  |
|        |               |         | 6.2pF | ±0.25pF | GQM22M5C2H6R2CB01# |  |
|        |               |         |       | ±0.5pF  | GQM22M5C2H6R2DB01# |  |
|        |               |         | 6.8pF | ±0.25pF | GQM22M5C2H6R8CB01# |  |
|        |               |         |       | ±0.5pF  | GQM22M5C2H6R8DB01# |  |
|        |               |         | 7.0pF | ±0.25pF | GQM22M5C2H7R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM22M5C2H7R0DB01# |  |
|        |               |         | 7.5pF | ±0.25pF | GQM22M5C2H7R5CB01# |  |
|        |               |         |       | ±0.5pF  | GQM22M5C2H7R5DB01# |  |
|        |               |         | 8.0pF | ±0.25pF | GQM22M5C2H8R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM22M5C2H8R0DB01# |  |
|        |               |         | 8.2pF | ±0.25pF | GQM22M5C2H8R2CB01# |  |
|        |               |         |       | ±0.5pF  | GQM22M5C2H8R2DB01# |  |
|        |               |         | 9.0pF | ±0.25pF | GQM22M5C2H9R0CB01# |  |
|        |               |         |       | ±0.5pF  | GQM22M5C2H9R0DB01# |  |
|        |               |         | 9.1pF | ±0.25pF | GQM22M5C2H9R1CB01# |  |
|        |               |         |       | ±0.5pF  | GQM22M5C2H9R1DB01# |  |
|        |               |         | 10pF  | ±2%     | GQM22M5C2H100GB01# |  |
|        |               |         |       | ±5%     | GQM22M5C2H100JB01# |  |
|        |               |         | 11pF  | ±2%     | GQM22M5C2H110GB01# |  |
|        |               |         |       | ±5%     | GQM22M5C2H110JB01# |  |
|        |               |         | 12pF  | ±2%     | GQM22M5C2H120GB01# |  |
|        |               |         |       | ±5%     | GQM22M5C2H120JB01# |  |

Part number # indicates the package specification code.

## GQM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 2.8×2.8mm)

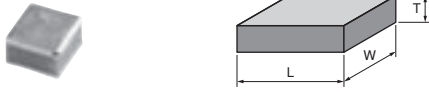
| T max. | Rated Voltage | TC Code | Cap.  | Tol. | Part Number        |  |
|--------|---------------|---------|-------|------|--------------------|--|
| 1.35mm | 500Vdc        | C0G     | 13pF  | ±2%  | GQM22M5C2H130GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H130JB01# |  |
|        |               |         | 15pF  | ±2%  | GQM22M5C2H150GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H150JB01# |  |
|        |               |         | 16pF  | ±2%  | GQM22M5C2H160GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H160JB01# |  |
|        |               |         | 18pF  | ±2%  | GQM22M5C2H180GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H180JB01# |  |
|        |               |         | 20pF  | ±2%  | GQM22M5C2H200GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H200JB01# |  |
|        |               |         | 22pF  | ±2%  | GQM22M5C2H220GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H220JB01# |  |
|        |               |         | 24pF  | ±2%  | GQM22M5C2H240GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H240JB01# |  |
|        |               |         | 27pF  | ±2%  | GQM22M5C2H270GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H270JB01# |  |
|        |               |         | 30pF  | ±2%  | GQM22M5C2H300GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H300JB01# |  |
|        |               |         | 33pF  | ±2%  | GQM22M5C2H330GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H330JB01# |  |
|        |               |         | 36pF  | ±2%  | GQM22M5C2H360GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H360JB01# |  |
|        |               |         | 39pF  | ±2%  | GQM22M5C2H390GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H390JB01# |  |
|        |               |         | 43pF  | ±2%  | GQM22M5C2H430GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H430JB01# |  |
|        |               |         | 47pF  | ±2%  | GQM22M5C2H470GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H470JB01# |  |
|        |               |         | 51pF  | ±2%  | GQM22M5C2H510GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H510JB01# |  |
|        |               |         | 56pF  | ±2%  | GQM22M5C2H560GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H560JB01# |  |
|        |               |         | 62pF  | ±2%  | GQM22M5C2H620GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H620JB01# |  |
|        |               |         | 68pF  | ±2%  | GQM22M5C2H680GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H680JB01# |  |
|        |               |         | 75pF  | ±2%  | GQM22M5C2H750GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H750JB01# |  |
|        |               |         | 82pF  | ±2%  | GQM22M5C2H820GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H820JB01# |  |
|        |               |         | 91pF  | ±2%  | GQM22M5C2H910GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H910JB01# |  |
|        |               |         | 100pF | ±2%  | GQM22M5C2H101GB01# |  |
|        |               |         |       | ±5%  | GQM22M5C2H101JB01# |  |

Part number # indicates the package specification code.

## Chip Monolithic Ceramic Capacitors

# Monolithic Microchip GMA Series

Capacitor for wire bonding. Can also be mounted directly to a frame!!



- 1 Excellent high frequency characteristics.
- 2 Ideal for bypass applications.
- 3 High density mounting is possible.

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL□ Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information

## GMA Series High Dielectric Constant Type Part Number List

### ■ 0.38×0.38mm Ultra-compact

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.35mm | 10Vdc         | X7R     | 10000pF | ±20% | GMA0D3R71A103MA01# |  |
|        |               | R       | 10000pF | ±20% | GMA0D3R11A103MA01# |  |

### ■ 0.5×0.5mm Ultra-compact

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.4mm  | 100Vdc        | X7R     | 100pF   | ±20% | GMA05XR72A101MA01# |  |
|        |               |         | 150pF   | ±20% | GMA05XR72A151MA01# |  |
|        |               |         | 220pF   | ±20% | GMA05XR72A221MA01# |  |
|        |               |         | 330pF   | ±20% | GMA05XR72A331MA01# |  |
|        |               |         | 470pF   | ±20% | GMA05XR72A471MA01# |  |
|        |               |         | 680pF   | ±20% | GMA05XR72A681MA01# |  |
|        |               |         | 1000pF  | ±20% | GMA05XR72A102MA01# |  |
|        |               |         |         |      |                    |  |
|        |               | X7R     | 1500pF  | ±20% | GMA05XR71E152MA11# |  |
|        |               |         | 2200pF  | ±20% | GMA05XR71E222MA11# |  |
|        |               |         | 3300pF  | ±20% | GMA05XR71E332MA11# |  |
|        |               |         | 4700pF  | ±20% | GMA05XR71E472MA11# |  |
|        |               | B       | 1500pF  | ±20% | GMA05XB31E152MA11# |  |
|        |               |         | 2200pF  | ±20% | GMA05XB31E222MA11# |  |
|        |               |         | 3300pF  | ±20% | GMA05XB31E332MA11# |  |
|        |               |         | 4700pF  | ±20% | GMA05XB31E472MA11# |  |
|        | 25Vdc         | X7R     | 6800pF  | ±20% | GMA05XR71A682MA01# |  |
|        |               |         | 10000pF | ±20% | GMA05XR71A103MA01# |  |
|        |               |         | 15000pF | ±20% | GMA05XR71A153MA01# |  |
|        |               |         | 22000pF | ±20% | GMA05XR71A223MA01# |  |
|        |               | R       | 6800pF  | ±20% | GMA05XR11A682MA01# |  |
|        |               |         | 10000pF | ±20% | GMA05XR11A103MA01# |  |
|        |               |         | 15000pF | ±20% | GMA05XR11A153MA01# |  |
|        |               |         | 22000pF | ±20% | GMA05XR11A223MA01# |  |
|        |               | B       | 6800pF  | ±20% | GMA05XB11A682MA01# |  |
|        |               |         | 10000pF | ±20% | GMA05XB11A103MA01# |  |
|        |               |         | 15000pF | ±20% | GMA05XB11A153MA01# |  |
|        |               |         | 22000pF | ±20% | GMA05XB11A223MA01# |  |
|        | 10Vdc         | X7R     | 6800pF  | ±20% | GMA05XR71A682MA01# |  |
|        |               |         | 10000pF | ±20% | GMA05XR71A103MA01# |  |
|        |               |         | 15000pF | ±20% | GMA05XR71A153MA01# |  |
|        |               |         | 22000pF | ±20% | GMA05XR71A223MA01# |  |
|        | 6.3Vdc        | X5R     | 0.1μF   | ±20% | GMA05XR60J104ME12# |  |
|        |               |         | 0.1μF   | ±20% | GMA05XB30J104ME12# |  |

### ■ 0.8×0.8mm

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.6mm  | 100Vdc        | X7R     | 1500pF  | ±20% | GMA085R72A152MA01# |  |
|        |               |         | 2200pF  | ±20% | GMA085R72A222MA01# |  |
|        |               |         | 3300pF  | ±20% | GMA085R72A332MA01# |  |
|        |               |         | 4700pF  | ±20% | GMA085R72A472MA01# |  |
|        |               |         | 6800pF  | ±20% | GMA085R72A682MA01# |  |
|        |               |         |         |      |                    |  |
|        | 25Vdc         | X7R     | 10000pF | ±20% | GMA085R71E103MA11# |  |
|        |               |         | 15000pF | ±20% | GMA085R71E153MA11# |  |
|        |               |         | 22000pF | ±20% | GMA085R71E223MA11# |  |
|        |               |         |         |      |                    |  |
|        |               | B       | 10000pF | ±20% | GMA085B31E103MA11# |  |
|        |               |         | 15000pF | ±20% | GMA085B31E153MA11# |  |
|        |               |         | 22000pF | ±20% | GMA085B31E223MA11# |  |
|        |               |         |         |      |                    |  |

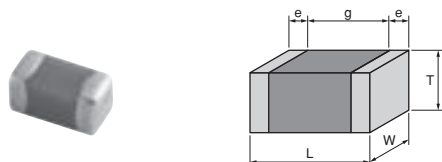
| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.6mm  | 10Vdc         | X7R     | 33000pF | ±20% | GMA085R71A333MA01# |  |
|        |               |         | 47000pF | ±20% | GMA085R71A473MA01# |  |
|        |               |         | 68000pF | ±20% | GMA085R71A683MA01# |  |
|        |               |         | 0.1μF   | ±20% | GMA085R71A104MA01# |  |
|        |               | R       | 33000pF | ±20% | GMA085R11A333MA01# |  |
|        |               |         | 47000pF | ±20% | GMA085R11A473MA01# |  |
|        |               |         | 68000pF | ±20% | GMA085R11A683MA01# |  |
|        |               |         | 0.1μF   | ±20% | GMA085R11A104MA01# |  |
|        | 6.3Vdc        | B       | 33000pF | ±20% | GMA085B11A333MA01# |  |
|        |               |         | 47000pF | ±20% | GMA085B11A473MA01# |  |
|        |               |         | 68000pF | ±20% | GMA085B11A683MA01# |  |
|        |               |         | 0.1μF   | ±20% | GMA085B11A104MA01# |  |
|        |               | X5R     | 0.47μF  | ±20% | GMA085R60J474ME12# |  |
|        |               |         | 0.47μF  | ±20% | GMA085B30J474ME12# |  |

Part number # indicates the package specification code.

## Chip Monolithic Ceramic Capacitors

# For Bonding GMD Series

Capacitor for wire bonding. Compatible up to 0.6x0.3mm size!!



- 1 Compact product sizes of 0.6x0.3x0.3mm, 1.0x0.5x0.5mm
- 2 Can be mounted by wire bonding and AuSn soldering.
- 3 Ideal for mounting in optical communication related devices and IC packages.

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL□ Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information

## GMD Series High Dielectric Constant Type Part Number List

### ■ 0.6×0.3mm Ultra-compact

| T max. | Rated Voltage | TC Code | Cap.   | Tol. | Part Number        |  |
|--------|---------------|---------|--------|------|--------------------|--|
| 0.33mm | 25Vdc         | X7R     | 100pF  | ±10% | GMD033R71E101KA01# |  |
|        |               |         | 120pF  | ±10% | GMD033R71E121KA01# |  |
|        |               |         | 150pF  | ±10% | GMD033R71E151KA01# |  |
|        |               |         | 180pF  | ±10% | GMD033R71E181KA01# |  |
|        |               |         | 220pF  | ±10% | GMD033R71E221KA01# |  |
|        |               |         | 270pF  | ±10% | GMD033R71E271KA01# |  |
|        |               |         | 330pF  | ±10% | GMD033R71E331KA01# |  |
|        |               |         | 390pF  | ±10% | GMD033R71E391KA01# |  |
|        |               |         | 470pF  | ±10% | GMD033R71E471KA01# |  |
|        |               |         | 560pF  | ±10% | GMD033R71E561KA01# |  |
|        |               |         | 680pF  | ±10% | GMD033R71E681KA01# |  |
|        |               |         | 820pF  | ±10% | GMD033R71E821KA01# |  |
|        |               |         | 1000pF | ±10% | GMD033R71E102KA01# |  |
|        |               |         | 1200pF | ±10% | GMD033R71E122KA01# |  |
|        |               |         | 1500pF | ±10% | GMD033R71E152KA01# |  |
|        |               | R       | 100pF  | ±10% | GMD033R11E101KA01# |  |
|        |               |         | 120pF  | ±10% | GMD033R11E121KA01# |  |
|        |               |         | 150pF  | ±10% | GMD033R11E151KA01# |  |
|        |               |         | 180pF  | ±10% | GMD033R11E181KA01# |  |
|        |               |         | 220pF  | ±10% | GMD033R11E221KA01# |  |
|        |               |         | 270pF  | ±10% | GMD033R11E271KA01# |  |
|        |               |         | 330pF  | ±10% | GMD033R11E331KA01# |  |
|        |               |         | 390pF  | ±10% | GMD033R11E391KA01# |  |
|        |               |         | 470pF  | ±10% | GMD033R11E471KA01# |  |
|        |               |         | 560pF  | ±10% | GMD033R11E561KA01# |  |
|        |               |         | 680pF  | ±10% | GMD033R11E681KA01# |  |
|        |               |         | 820pF  | ±10% | GMD033R11E821KA01# |  |
|        |               |         | 1000pF | ±10% | GMD033R11E102KA01# |  |
|        |               |         | 1200pF | ±10% | GMD033R11E122KA01# |  |
|        |               |         | 1500pF | ±10% | GMD033R11E152KA01# |  |
|        |               | B       | 100pF  | ±10% | GMD033B11E101KA01# |  |
|        |               |         | 120pF  | ±10% | GMD033B11E121KA01# |  |
|        |               |         | 150pF  | ±10% | GMD033B11E151KA01# |  |
|        |               |         | 180pF  | ±10% | GMD033B11E181KA01# |  |
|        |               |         | 220pF  | ±10% | GMD033B11E221KA01# |  |
|        |               |         | 270pF  | ±10% | GMD033B11E271KA01# |  |
|        |               |         | 330pF  | ±10% | GMD033B11E331KA01# |  |
|        |               |         | 390pF  | ±10% | GMD033B11E391KA01# |  |
|        |               |         | 470pF  | ±10% | GMD033B11E471KA01# |  |
|        |               |         | 560pF  | ±10% | GMD033B11E561KA01# |  |
|        |               |         | 680pF  | ±10% | GMD033B11E681KA01# |  |
|        |               |         | 820pF  | ±10% | GMD033B11E821KA01# |  |
|        |               |         | 1000pF | ±10% | GMD033B11E102KA01# |  |
|        |               |         | 1200pF | ±10% | GMD033B11E122KA01# |  |
|        |               |         | 1500pF | ±10% | GMD033B11E152KA01# |  |
|        | 16Vdc         | X7R     | 1800pF | ±10% | GMD033R71C182KA11# |  |
|        |               |         | 2200pF | ±10% | GMD033R71C222KA11# |  |
|        |               |         | 2700pF | ±10% | GMD033R71C272KA11# |  |
|        |               |         | 3300pF | ±10% | GMD033R71C332KA11# |  |
|        |               |         |        |      |                    |  |
|        |               | R       | 1800pF | ±10% | GMD033R11C182KA11# |  |
|        |               |         | 2200pF | ±10% | GMD033R11C222KA11# |  |
|        |               |         | 2700pF | ±10% | GMD033R11C272KA11# |  |
|        |               |         |        |      |                    |  |
|        |               |         |        |      |                    |  |
|        |               |         |        |      |                    |  |
|        |               |         |        |      |                    |  |

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.33mm | 16Vdc         | R       | 3300pF  | ±10% | GMD033R11C332KA11# |  |
|        |               |         | 1800pF  | ±10% | GMD033B31C182KA11# |  |
|        |               |         | 2200pF  | ±10% | GMD033B31C222KA11# |  |
|        |               |         | 2700pF  | ±10% | GMD033B31C272KA11# |  |
|        |               | X7R     | 3300pF  | ±10% | GMD033B31C332KA11# |  |
|        |               |         | 3900pF  | ±10% | GMD033R71A392KA01# |  |
|        |               |         | 4700pF  | ±10% | GMD033R71A472KA01# |  |
|        |               |         | 5600pF  | ±10% | GMD033R71A562KA01# |  |
|        |               |         | 6800pF  | ±10% | GMD033R71A682KA01# |  |
|        |               |         | 8200pF  | ±10% | GMD033R71A822KA01# |  |
|        |               |         | 10000pF | ±10% | GMD033R71A103KA01# |  |
|        |               | R       | 3900pF  | ±10% | GMD033R11A392KA01# |  |
|        |               |         | 4700pF  | ±10% | GMD033R11A472KA01# |  |
|        |               |         | 5600pF  | ±10% | GMD033R11A562KA01# |  |
|        |               |         | 6800pF  | ±10% | GMD033R11A682KA01# |  |
|        |               |         | 8200pF  | ±10% | GMD033R11A822KA01# |  |
|        |               |         | 10000pF | ±10% | GMD033R11A103KA01# |  |
|        |               | B       | 3900pF  | ±10% | GMD033B11A392KA01# |  |
|        |               |         | 4700pF  | ±10% | GMD033B11A472KA01# |  |
|        |               |         | 5600pF  | ±10% | GMD033B11A562KA01# |  |
|        |               |         | 6800pF  | ±10% | GMD033B11A682KA01# |  |
|        |               |         | 8200pF  | ±10% | GMD033B11A822KA01# |  |
|        |               |         | 10000pF | ±10% | GMD033B11A103KA01# |  |
|        | 6.3Vdc        | X5R     | 56000pF | ±10% | GMD033R60J563KE11# |  |
|        |               |         | 68000pF | ±10% | GMD033R60J683KE11# |  |
|        |               |         | 82000pF | ±10% | GMD033R60J823KE11# |  |
|        |               |         | 0.1μF   | ±10% | GMD033R60J104KE11# |  |
|        |               | B       | 56000pF | ±10% | GMD033B30J563KE11# |  |
|        |               |         | 68000pF | ±10% | GMD033B30J683KE11# |  |
|        |               |         | 82000pF | ±10% | GMD033B30J823KE11# |  |
|        |               |         | 0.1μF   | ±10% | GMD033B30J104KE11# |  |
|        |               |         |         |      |                    |  |
|        |               |         |         |      |                    |  |
|        |               |         |         |      |                    |  |
|        |               |         |         |      |                    |  |

### ■ 1.0×0.5mm

| T max. | Rated Voltage | TC Code | Cap.   | Tol. | Part Number        |  |
|--------|---------------|---------|--------|------|--------------------|--|
| 0.55mm | 50Vdc         | X7R     | 220pF  | ±10% | GMD155R71H221KA01# |  |
|        |               |         | 270pF  | ±10% | GMD155R71H271KA01# |  |
|        |               |         | 330pF  | ±10% | GMD155R71H331KA01# |  |
|        |               |         | 390pF  | ±10% | GMD155R71H391KA01# |  |
|        |               |         | 470pF  | ±10% | GMD155R71H471KA01# |  |
|        |               |         | 560pF  | ±10% | GMD155R71H561KA01# |  |
|        |               |         | 680pF  | ±10% | GMD155R71H681KA01# |  |
|        |               |         | 820pF  | ±10% | GMD155R71H821KA01# |  |
|        |               |         | 1000pF | ±10% | GMD155R71H102KA01# |  |
|        |               |         | 1200pF | ±10% | GMD155R71H122KA01# |  |
|        |               |         | 1500pF | ±10% | GMD155R71H152KA01# |  |
|        |               |         | 1800pF | ±10% | GMD155R71H182KA01# |  |
|        |               |         | 2200pF | ±10% | GMD155R71H222KA01# |  |
|        |               |         | 2700pF | ±10% | GMD155R71H272KA01# |  |
|        |               |         | 3300pF | ±10% | GMD155R71H332KA01# |  |
|        |               |         | 3900pF | ±10% | GMD155R71H392KA01# |  |
|        |               |         | 4700pF | ±10% | GMD155R71H472KA01# |  |
|        |               | R       | 220pF  | ±10% | GMD155R11H221KA01# |  |
|        |               |         |        |      |                    |  |
|        |               |         |        |      |                    |  |
|        |               |         |        |      |                    |  |
|        |               |         |        |      |                    |  |
|        |               |         |        |      |                    |  |

Part number # indicates the package specification code.

## GMD Series High Dielectric Constant Type Part Number List

(→ ■ 1.0×0.5mm)

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.55mm | 50Vdc         | R       | 270pF   | ±10% | GMD155R11H271KA01# |  |
|        |               |         | 330pF   | ±10% | GMD155R11H331KA01# |  |
|        |               |         | 390pF   | ±10% | GMD155R11H391KA01# |  |
|        |               |         | 470pF   | ±10% | GMD155R11H471KA01# |  |
|        |               |         | 560pF   | ±10% | GMD155R11H561KA01# |  |
|        |               |         | 680pF   | ±10% | GMD155R11H681KA01# |  |
|        |               |         | 820pF   | ±10% | GMD155R11H821KA01# |  |
|        |               |         | 1000pF  | ±10% | GMD155R11H102KA01# |  |
|        |               |         | 1200pF  | ±10% | GMD155R11H122KA01# |  |
|        |               |         | 1500pF  | ±10% | GMD155R11H152KA01# |  |
|        |               |         | 1800pF  | ±10% | GMD155R11H182KA01# |  |
|        |               |         | 2200pF  | ±10% | GMD155R11H222KA01# |  |
|        |               |         | 2700pF  | ±10% | GMD155R11H272KA01# |  |
|        |               |         | 3300pF  | ±10% | GMD155R11H332KA01# |  |
|        |               |         | 3900pF  | ±10% | GMD155R11H392KA01# |  |
|        |               |         | 4700pF  | ±10% | GMD155R11H472KA01# |  |
|        |               | B       | 220pF   | ±10% | GMD155B11H221KA01# |  |
|        |               |         | 270pF   | ±10% | GMD155B11H271KA01# |  |
|        |               |         | 330pF   | ±10% | GMD155B11H331KA01# |  |
|        |               |         | 390pF   | ±10% | GMD155B11H391KA01# |  |
|        |               |         | 470pF   | ±10% | GMD155B11H471KA01# |  |
|        |               |         | 560pF   | ±10% | GMD155B11H561KA01# |  |
|        |               |         | 680pF   | ±10% | GMD155B11H681KA01# |  |
|        |               |         | 820pF   | ±10% | GMD155B11H821KA01# |  |
|        |               |         | 1000pF  | ±10% | GMD155B11H102KA01# |  |
|        |               |         | 1200pF  | ±10% | GMD155B11H122KA01# |  |
|        |               |         | 1500pF  | ±10% | GMD155B11H152KA01# |  |
|        |               |         | 1800pF  | ±10% | GMD155B11H182KA01# |  |
|        |               |         | 2200pF  | ±10% | GMD155B11H222KA01# |  |
|        |               |         | 2700pF  | ±10% | GMD155B11H272KA01# |  |
|        |               |         | 3300pF  | ±10% | GMD155B11H332KA01# |  |
|        |               |         | 3900pF  | ±10% | GMD155B11H392KA01# |  |
|        |               |         | 4700pF  | ±10% | GMD155B11H472KA01# |  |
|        | 25Vdc         | X7R     | 5600pF  | ±10% | GMD155R71E562KA01# |  |
|        |               |         | 6800pF  | ±10% | GMD155R71E682KA01# |  |
|        |               |         | 8200pF  | ±10% | GMD155R71E822KA01# |  |
|        |               |         | 10000pF | ±10% | GMD155R71E103KA01# |  |
|        |               |         | 12000pF | ±10% | GMD155R71E123KA01# |  |
|        |               |         | 15000pF | ±10% | GMD155R71E153KA01# |  |
|        |               |         | 18000pF | ±10% | GMD155R71E183KA01# |  |
|        |               |         | 22000pF | ±10% | GMD155R71E223KA01# |  |
|        |               |         | 27000pF | ±10% | GMD155R71E273KA11# |  |
|        |               |         | 33000pF | ±10% | GMD155R71E333KA11# |  |
|        |               | R       | 5600pF  | ±10% | GMD155R11E562KA01# |  |
|        |               |         | 6800pF  | ±10% | GMD155R11E682KA01# |  |
|        |               |         | 8200pF  | ±10% | GMD155R11E822KA01# |  |
|        |               |         | 10000pF | ±10% | GMD155R11E103KA01# |  |
|        |               |         | 12000pF | ±10% | GMD155R11E123KA01# |  |
|        |               |         | 15000pF | ±10% | GMD155R11E153KA01# |  |
|        |               |         | 18000pF | ±10% | GMD155R11E183KA01# |  |
|        |               |         | 22000pF | ±10% | GMD155R11E223KA01# |  |
|        |               |         | 27000pF | ±10% | GMD155R11E273KA11# |  |

| T max. | Rated Voltage | TC Code | Cap.    | Tol. | Part Number        |  |
|--------|---------------|---------|---------|------|--------------------|--|
| 0.55mm | 25Vdc         | R       | 33000pF | ±10% | GMD155R11E333KA11# |  |
|        |               |         | 39000pF | ±10% | GMD155R11E393KA11# |  |
|        |               |         | 47000pF | ±10% | GMD155R11E473KA11# |  |
|        |               | B       | 5600pF  | ±10% | GMD155B11E562KA01# |  |
|        |               |         | 6800pF  | ±10% | GMD155B11E682KA01# |  |
|        |               |         | 8200pF  | ±10% | GMD155B11E822KA01# |  |
|        |               |         | 10000pF | ±10% | GMD155B11E103KA01# |  |
|        |               |         | 12000pF | ±10% | GMD155B11E123KA01# |  |
|        |               |         | 15000pF | ±10% | GMD155B11E153KA01# |  |
|        |               |         | 18000pF | ±10% | GMD155B11E183KA01# |  |
|        |               |         | 22000pF | ±10% | GMD155B11E223KA01# |  |
|        |               |         | 27000pF | ±10% | GMD155B31E273KA11# |  |
|        |               |         | 33000pF | ±10% | GMD155B31E333KA11# |  |
|        |               |         | 39000pF | ±10% | GMD155B31E393KA11# |  |
|        |               |         | 47000pF | ±10% | GMD155B31E473KA11# |  |
|        | 16Vdc         | X7R     | 56000pF | ±10% | GMD155R71C563KA11# |  |
|        |               |         | 68000pF | ±10% | GMD155R71C683KA11# |  |
|        |               |         | 82000pF | ±10% | GMD155R71C823KA11# |  |
|        |               |         | 0.1μF   | ±10% | GMD155R71C104KA11# |  |
|        |               | R       | 56000pF | ±10% | GMD155R11C563KA11# |  |
|        |               |         | 68000pF | ±10% | GMD155R11C683KA11# |  |
|        |               |         | 82000pF | ±10% | GMD155R11C823KA11# |  |
|        |               | B       | 0.1μF   | ±10% | GMD155R11C104KA11# |  |
|        |               |         | 56000pF | ±10% | GMD155B31C563KA11# |  |
|        |               |         | 68000pF | ±10% | GMD155B31C683KA11# |  |
|        |               |         | 82000pF | ±10% | GMD155B31C823KA11# |  |
|        | 10Vdc         | X5R     | 0.12μF  | ±10% | GMD155R61A124KE12# |  |
|        |               |         | 0.15μF  | ±10% | GMD155R61A154KE12# |  |
|        |               |         | 0.18μF  | ±10% | GMD155R61A184KE12# |  |
|        |               |         | 0.22μF  | ±10% | GMD155R61A224KE12# |  |
|        |               |         | 0.27μF  | ±10% | GMD155R61A274KE11# |  |
|        |               |         | 0.33μF  | ±10% | GMD155R61A334KE11# |  |
|        |               |         | 0.39μF  | ±10% | GMD155R61A394KE11# |  |
|        |               |         | 0.47μF  | ±10% | GMD155R61A474KE11# |  |
|        |               | B       | 0.12μF  | ±10% | GMD155B31A124KE12# |  |
|        |               |         | 0.15μF  | ±10% | GMD155B31A154KE12# |  |
|        |               | R       | 0.18μF  | ±10% | GMD155B31A184KE12# |  |
|        |               |         | 0.22μF  | ±10% | GMD155B31A224KE12# |  |
|        |               |         | 0.27μF  | ±10% | GMD155B31A274KE11# |  |
|        |               |         | 0.33μF  | ±10% | GMD155B31A334KE11# |  |
|        |               |         | 0.39μF  | ±10% | GMD155B31A394KE11# |  |
|        |               |         | 0.47μF  | ±10% | GMD155B31A474KE11# |  |

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL□ Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information

Part number # indicates the package specification code.

## For General

## ⚠Caution/Notice

### ⚠Caution

|                                                               |     |
|---------------------------------------------------------------|-----|
| ■ Storage and Operation Conditions .....                      | 119 |
| ■ Rating .....                                                | 119 |
| 1. Temperature Dependent Characteristics .....                | 119 |
| 2. Measurement of Capacitance .....                           | 120 |
| 3. Applied Voltage .....                                      | 120 |
| 4. Applied Voltage and Self-heating Temperature .....         | 120 |
| 5. DC Voltage and AC Voltage Characteristic .....             | 121 |
| 6. Capacitance Aging .....                                    | 121 |
| 7. Vibration and Shock .....                                  | 122 |
| ■ Soldering and Mounting .....                                | 122 |
| 1. Mounting Position .....                                    | 122 |
| 2. Information before Mounting .....                          | 123 |
| 3. Maintenance of the Mounting (pick and place) Machine ..... | 123 |
| 4-1. Reflow Soldering .....                                   | 124 |
| 4-2. Flow Soldering .....                                     | 125 |
| 4-3. Correction with a Soldering Iron .....                   | 126 |
| 4-4. Leadless Component Insertion .....                       | 126 |
| 5. Washing .....                                              | 126 |
| 6. Electrical Test on Printed Circuit Board .....             | 127 |
| 7. Printed Circuit Board Cropping .....                       | 127 |
| ■ Others .....                                                | 128 |
| 1. Under Operation of Equipment .....                         | 128 |
| 2. Others .....                                               | 128 |

### Notice

|                                                       |     |
|-------------------------------------------------------|-----|
| ■ Rating .....                                        | 129 |
| 1. Operating Temperature .....                        | 129 |
| 2. Atmosphere Surroundings .....                      | 129 |
| 3. Piezo-electric Phenomenon .....                    | 129 |
| ■ Soldering and Mounting .....                        | 129 |
| 1. PCB Design .....                                   | 129 |
| 1. Notice for Pattern Forms .....                     | 129 |
| 2. Land Dimensions .....                              | 130 |
| 2. Adhesive Application .....                         | 131 |
| 3. Adhesive Curing .....                              | 132 |
| 4. Flux Application .....                             | 132 |
| 5. Flow Soldering .....                               | 132 |
| 6. Washing .....                                      | 132 |
| 7. Coating .....                                      | 133 |
| 8. Die Bonding/Wire Bonding (GMA or GMD Series) ..... | 133 |
| ■ Others .....                                        | 133 |
| 1. Transportation .....                               | 133 |

## ⚠Caution

### ■ Storage and Operation Conditions

1. The performance of chip monolithic ceramic capacitors may be affected by the storage conditions.

1-1. Store capacitors in the following conditions:

Temperature of +5°C to +40°C and a Relative Humidity of 20% to 70%.

(1) Sunlight, dust, rapid temperature changes, corrosive gas atmosphere or high temperature and humidity conditions during storage may affect solderability and packaging performance. Please use product within six months of receipt.

(2) Please confirm solderability before using after six months. Store the capacitors without opening the original bag. Even if the storage period is short, do not exceed the specified atmospheric conditions.

1-2. Corrosive gas can react with the termination (external) electrodes or lead wires of capacitors, and result in poor solderability. Do not store the capacitors in an atmosphere consisting of corrosive gas (e.g., hydrogen sulfide, sulfur dioxide, chlorine, ammonia gas, etc.).

1-3. Due to moisture condensation caused by rapid humidity changes, or the photochemical change caused by direct sunlight on the terminal electrodes and/or the resin/epoxy coatings, the solderability and electrical performance may deteriorate. Do not store capacitors under direct sunlight or in high humidity conditions.

### ■ Rating

#### 1. Temperature Dependent Characteristics

1. The electrical characteristics of the capacitor can change with temperature.

1-1. For capacitors having larger temperature dependency, the capacitance may change with temperature changes.

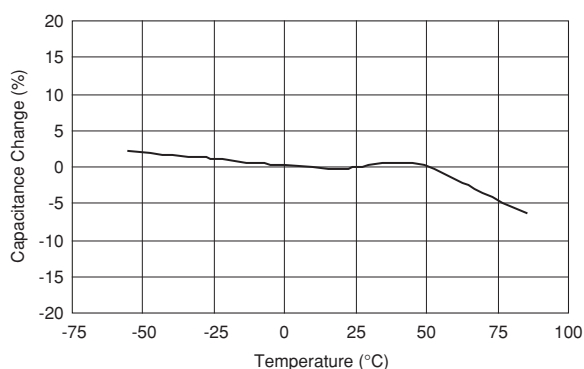
The following actions are recommended in order to ensure suitable capacitance values.

(1) Select a suitable capacitance for the operating temperature range.

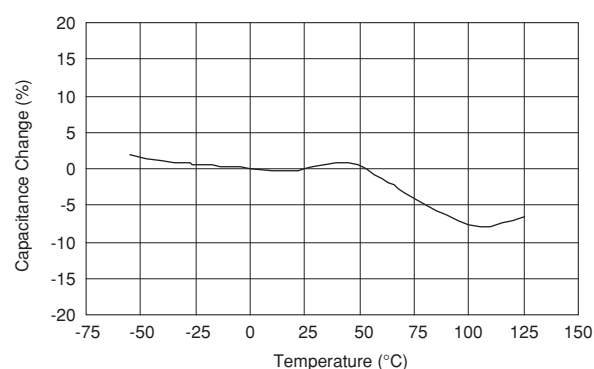
(2) The capacitance may change within the rated temperature.

When you use a high dielectric constant type capacitor in a circuit that needs a tight (narrow) capacitance tolerance (e.g., a time-constant circuit), please carefully consider the characteristics of these capacitors, such as their aging, voltage, and temperature characteristics. In addition, check capacitors using your actual appliances at the intended environment and operating conditions.

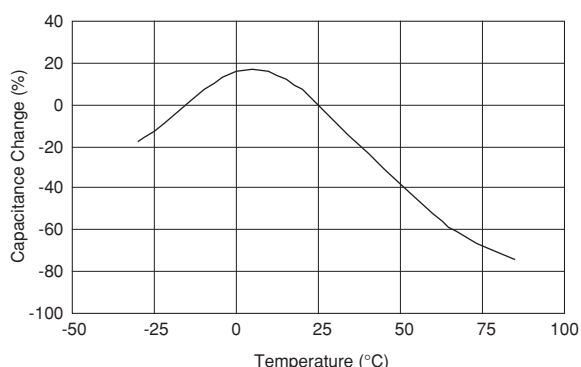
Typical Temperature Characteristics R6(X5R)



Typical Temperature Characteristics R7(X7R)



Typical Temperature Characteristics F5(Y5V)



## ⚠Caution

Continued from the preceding page.

### 2. Measurement of Capacitance

1. Measure capacitance with the voltage and the frequency specified in the product specifications.

- 1-1. The output voltage of the measuring equipment may decrease occasionally when capacitance is high. Please confirm whether a prescribed measured voltage is impressed to the capacitor.

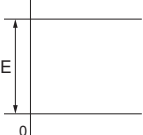
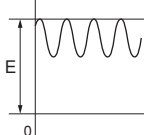
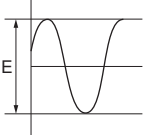
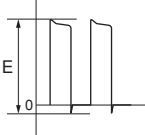
- 1-2. The capacitance values of high dielectric constant type capacitors change depending on the AC voltage applied. Please consider the AC voltage characteristics when selecting a capacitor to be used in an AC circuit.

### 3. Applied Voltage

1. Do not apply a voltage to the capacitor that exceeds the rated voltage as called out in the specifications.

- 1-1. Applied voltage between the terminals of a capacitor shall be less than or equal to the rated voltage.  
(1) When AC voltage is superimposed on DC voltage, the zero-to-peak voltage shall not exceed the rated DC voltage.  
When AC voltage or pulse voltage is applied, the peak-to-peak voltage shall not exceed the rated DC voltage.  
(2) Abnormal voltages (surge voltage, static electricity, pulse voltage, etc.) shall not exceed the rated DC voltage.

Typical Voltage Applied to the DC Capacitor

| DC Voltage                                                                          | DC Voltage+AC                                                                       | AC Voltage                                                                           | Pulse Voltage                                                                         |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |

(E: Maximum possible applied voltage.)

1-2. Influence of overvoltage

Overvoltage that is applied to the capacitor may result in an electrical short circuit caused by the breakdown of the internal dielectric layers. The time duration until breakdown depends on the applied voltage and the ambient temperature.

### 4. Applied Voltage and Self-heating Temperature

1. When the capacitor is used in a high-frequency voltage, pulse voltage, application, be sure to take into account self-heating may be caused by resistant factors of the capacitor.

- 1-1. The load should be contained to the level such that when measuring at atmospheric temperature of 25°C, the product's self-heating remains below 20°C and surface temperature of the capacitor in the actual circuit remains within the maximum operating temperature.

Continued on the following page. ➤

## ⚠Caution

Continued from the preceding page.

### 5. DC Voltage and AC Voltage Characteristics

1. The capacitance value of a high dielectric constant type capacitor changes depending on the DC voltage applied. Please consider the DC voltage characteristics when a capacitor is selected for use in a DC circuit.

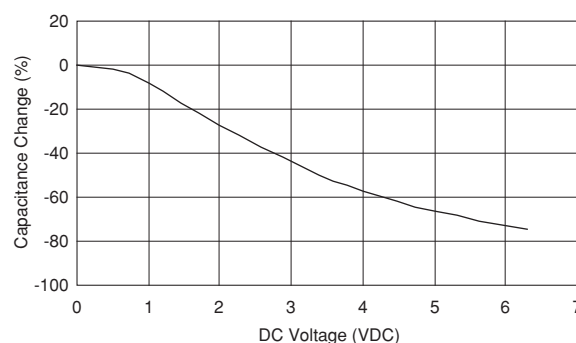
1-1. The capacitance of ceramic capacitors may change sharply depending on the applied voltage (see figure).

Please confirm the following in order to secure the capacitance.

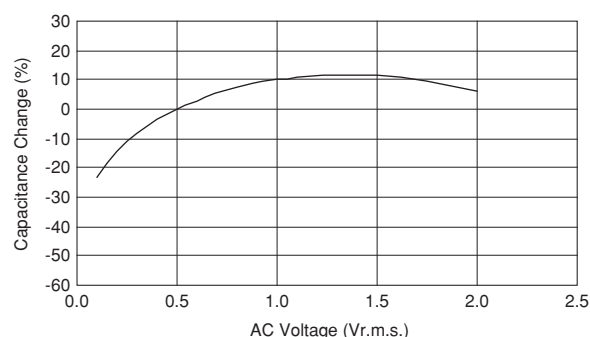
- (1) Determine whether the capacitance change caused by the applied voltage is within the allowed range.
- (2) In the DC voltage characteristics, the rate of capacitance change becomes larger as voltage increases, even if the applied voltage is below the rated voltage. When a high dielectric constant type capacitor is in a circuit that needs a tight (narrow) capacitance tolerance (e.g., a time-constant circuit), please carefully consider the characteristics of these capacitors, such as their aging, voltage, and temperature characteristics. In addition, check capacitors using your actual appliances at the intended environment and operating conditions.

2. The capacitance values of high dielectric constant type capacitors change depending on the AC voltage applied. Please consider the AC voltage characteristics when selecting a capacitor to be used in an AC circuit.

[DC Voltage Characteristics]



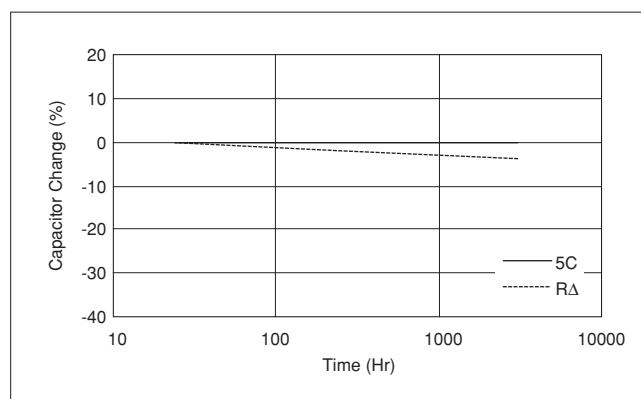
[AC Voltage Characteristics]



### 6. Capacitance Aging

1. The high dielectric constant type capacitors have the characteristic in which the capacitance value decreases with the passage of time.

When you use a high dielectric constant type capacitors in a circuit that needs a tight (narrow) capacitance tolerance (e.g., a time-constant circuit), please carefully consider the characteristics of these capacitors, such as their aging, voltage, and temperature characteristics. In addition, check capacitors using your actual appliances at the intended environment and operating conditions.



Continued on the following page. ➤

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

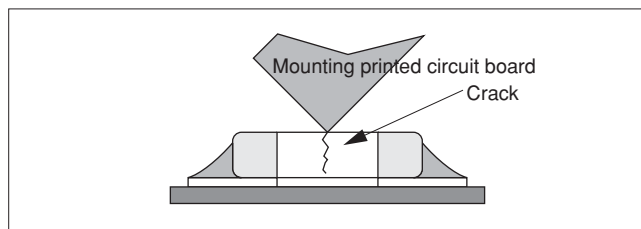
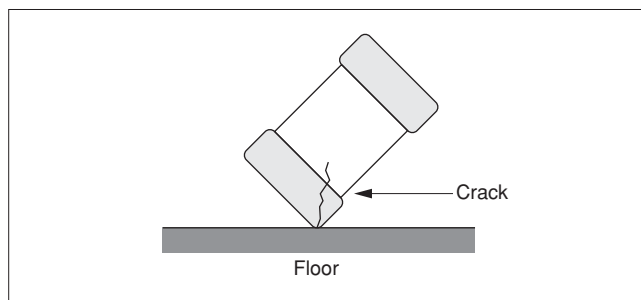
Product Information  
⚠Caution

## ⚠Caution

Continued from the preceding page.

### 7. Vibration and Shock

1. Please confirm the kind of vibration and/or shock, its condition, and any generation of resonance.  
Please mount the capacitor so as not to generate resonance, and do not allow any impact on the terminals.
2. Mechanical shock due to being dropped may cause damage or a crack in the dielectric material of the capacitor.  
Do not use a dropped capacitor because the quality and reliability may be deteriorated.
3. When printed circuit boards are piled up or handled, the corner of another printed circuit board should not be allowed to hit the capacitor, in order to avoid a crack or other damage to the capacitor.

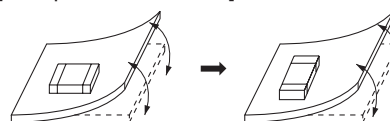


## ■ Soldering and Mounting

### 1. Mounting Position

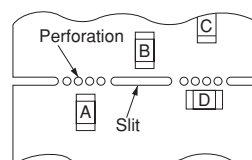
1. Confirm the best mounting position and direction that minimizes the stress imposed on the capacitor during flexing or bending the printed circuit board.
- 1-1. Choose a mounting position that minimizes the stress imposed on the chip during flexing or bending of the board.

#### [Component Direction]



Locate chip horizontal to the direction in which stress acts.

#### [Chip Mounting Close to Board Separation Point]



Chip arrangement  
Worst A-C-(B~D) Best

Continued on the following page. ➤

## ⚠Caution

☐ Continued from the preceding page.

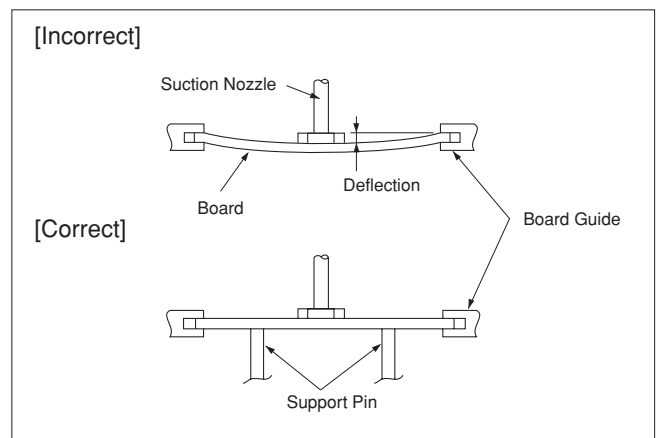
### 2. Information before Mounting

1. Do not reuse capacitors that were removed from the equipment.
2. Confirm capacitance characteristics under actual applied voltage.
3. Confirm the mechanical stress under actual process and equipment use.
4. Confirm the rated capacitance, rated voltage and other electrical characteristics before assembly.
5. Prior to use, confirm the solderability of capacitors that were in long-term storage.
6. Prior to measuring capacitance, carry out a heat treatment for capacitors that were in long-term storage.
7. The use of Sn-Zn based solder will deteriorate the reliability of the MLCC.

Please contact our sales representative or product engineers on the use of Sn-Zn based solder in advance.

### 3. Maintenance of the Mounting (pick and place) Machine

1. Make sure that the following excessive forces are not applied to the capacitors.
  - 1-1. In mounting the capacitors on the printed circuit board, any bending force against them shall be kept to a minimum to prevent them from any bending damage or cracking. Please take into account the following precautions and recommendations for use in your process.
    - (1) Adjust the lowest position of the pickup nozzle so as not to bend the printed circuit board.
    - (2) Adjust the nozzle pressure within a static load of 1N to 3N during mounting.
2. Dirt particles and dust accumulated between the suction nozzle and the cylinder inner wall prevent the nozzle from moving smoothly. This imposes greater force upon the chip during mounting, causing cracked chips. Also, the locating claw, when worn out, imposes uneven forces on the chip when positioning, causing cracked chips. The suction nozzle and the locating claw must be maintained, checked and replaced periodically.



Continued on the following page. ☐

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information  
⚠Caution

## ⚠Caution

Continued from the preceding page.

### 4-1. Reflow Soldering

- When sudden heat is applied to the components, the mechanical strength of the components will decrease because a sudden temperature change causes deformation inside the components. In order to prevent mechanical damage to the components, preheating is required for both the components and the PCB board. Preheating conditions are shown in table 1. It is required to keep the temperature differential between the solder and the component's surface ( $\Delta T$ ) as small as possible.
- Solderability of tin plating termination chips might be deteriorated when a low temperature soldering profile where the peak solder temperature is below the melting point of tin is used. Please confirm the solderability of tin plated termination chips before use.
- When components are immersed in solvent after mounting, be sure to maintain the temperature difference ( $\Delta T$ ) between the component and the solvent within the range shown in the table 1.

Table 1

| Part Number                                                                | Temperature Differential          |
|----------------------------------------------------------------------------|-----------------------------------|
| GRM02/03/15/18/21/31<br>GJM02/03/15<br>LLL15/18/21/31<br>LLR18<br>GQM18/21 | $\Delta T \leq 190^\circ\text{C}$ |
| GRM32/43/55<br>LLA18/21/31<br>LLM21/31<br>GNM<br>GQM22                     | $\Delta T \leq 130^\circ\text{C}$ |

#### Recommended Conditions

|                  | Pb-Sn Solder    |              | Lead Free Solder      |
|------------------|-----------------|--------------|-----------------------|
|                  | Infrared Reflow | Vapor Reflow |                       |
| Peak Temperature | 230 to 250°C    | 230 to 240°C | 240 to 260°C          |
| Atmosphere       | Air             | Air          | Air or N <sub>2</sub> |

Pb-Sn Solder: Sn-37Pb

Lead Free Solder: Sn-3.0Ag-0.5Cu

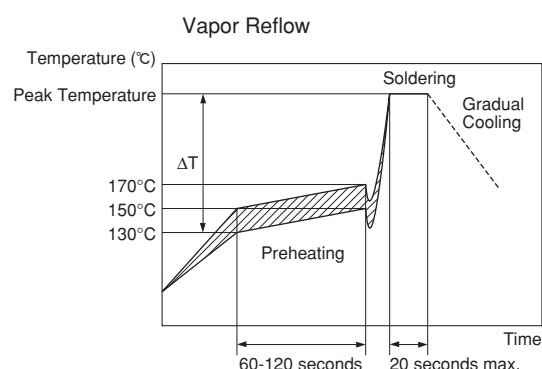
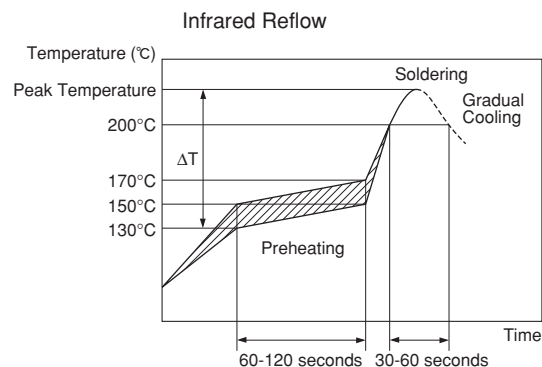
### 4. Optimum Solder Amount for Reflow Soldering

- Overly thick application of solder paste results in a excessive solder fillet height.  
This makes the chip more susceptible to mechanical and thermal stress on the board and may cause the chips to crack.
- Too little solder paste results in a lack of adhesive strength on the outer electrode, which may result in chips breaking loose from the PCB.
- Make sure the solder has been applied smoothly to the end surface to a height of 0.2mm\* min.

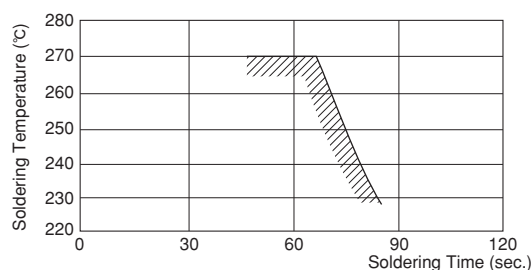
#### Inverting the PCB

Make sure not to impose any abnormal mechanical shocks to the PCB.

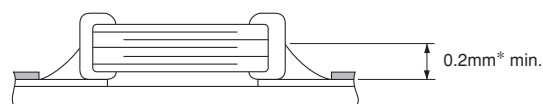
#### [Standard Conditions for Reflow Soldering]



#### [Allowable Reflow Soldering Temperature and Time]



In the case of repeated soldering, the accumulated soldering time must be within the range shown above.



\* GRM02/03: 1/3 of Chip Thickness min.

in section

## ⚠Caution

Continued from the preceding page.

### 4-2. Flow Soldering

- When sudden heat is applied to the components, the mechanical strength of the components will decrease because a sudden temperature change causes deformation inside the components. In order to prevent mechanical damage in the components, preheating should be required for both of the components and the PCB board.  
Preheating conditions are shown in table 2. It is required to keep the temperature differential between the solder and the component's surface ( $\Delta T$ ) as small as possible.
- Excessively long soldering time or high soldering temperature can result in leaching of the outer electrodes, causing poor adhesion or a reduction in capacitance value due to loss of contact between electrodes and end termination.
- When components are immersed in solvent after mounting, be sure to maintain the temperature difference ( $\Delta T$ ) between the component and solvent within the range shown in the table 2.
- Do not apply flow soldering to chips not listed in table 2.

Table 2

| Part Number | Temperature Differential          |
|-------------|-----------------------------------|
| GRM18/21/31 | $\Delta T \leq 150^\circ\text{C}$ |
| LLL21/31    |                                   |
| GQM18/21    |                                   |

#### Recommended Conditions

|                             | Pb-Sn Solder | Lead Free Solder |
|-----------------------------|--------------|------------------|
| Preheating Peak Temperature | 90 to 110°C  | 100 to 120°C     |
| Soldering Peak Temperature  | 240 to 250°C | 250 to 260°C     |
| Atmosphere                  | Air          | N <sub>2</sub>   |

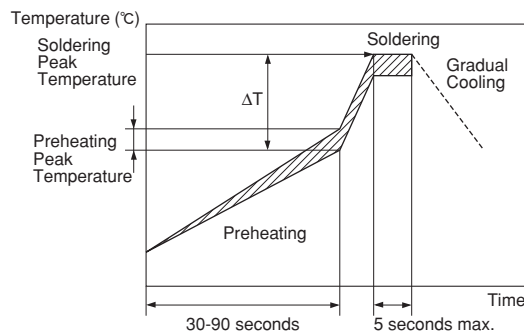
Pb-Sn Solder: Sn-37Pb

Lead Free Solder: Sn-3.0Ag-0.5Cu

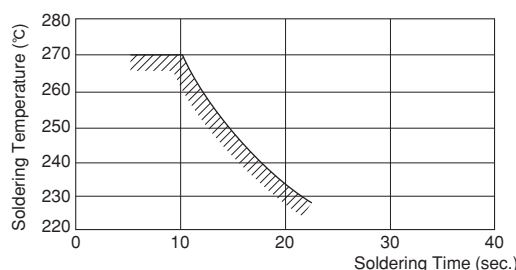
#### 5. Optimum Solder Amount for Flow Soldering

- The top of the solder fillet should be lower than the thickness of components. If the solder amount is excessive, the risk of cracking is higher during board bending or any other stressful condition.

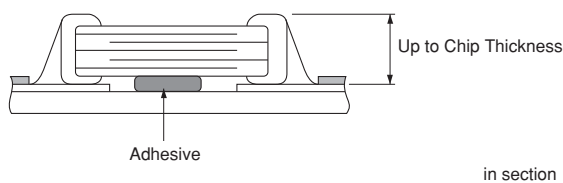
#### [Standard Conditions for Flow Soldering]



#### [Allowable Flow Soldering Temperature and Time]



In the case of repeated soldering, the accumulated soldering time must be within the range shown above.



Continued on the following page. ➤

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL□ Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information  
⚠Caution

## ⚠Caution

Continued from the preceding page.

### 4-3. Correction with a Soldering Iron

- When sudden heat is applied to the components when using a soldering iron, the mechanical strength of the components will decrease because the extreme temperature change can cause deformations inside the components. In order to prevent mechanical damage to the components, preheating is required for both the components and the PCB board. Preheating conditions (The "Temperature of the Soldering Iron Tip", "Preheating Temperature," "Temperature Differential" between the iron tip and the components and the PCB), should be within the conditions of table 3. It is required to keep the temperature differential between the soldering iron and the component surfaces ( $\Delta T$ ) as small as possible.
- After soldering, do not allow the component/PCB to cool down rapidly.
- The operating time for the re-working should be as short as possible. When re-working time is too long, it may cause solder leaching, in turn causing a reduction in the adhesive strength of the terminations.
- Optimum solder amount when re-working with a soldering iron
  - For sizes smaller than 0603, (GRM03/15/18, GJM03/15, GQM18), the top of the solder fillet should be lower than  $\frac{2}{3}$  of the thickness of the component or 0.5mm whichever is smaller. For 0805 and larger sizes, (GRM21/31/32/43/55, GQM21/22), the top of the solder fillet should be lower than  $\frac{2}{3}$  of the thickness of the component. If the solder amount is excessive, the risk of cracking is higher during board bending or under any other stressful condition.
  - A soldering iron with a tip of  $\phi 3\text{mm}$  or smaller should be used. It is also necessary to keep the soldering iron from touching the components during the re-work.
  - Solder wire with  $\phi 0.5\text{mm}$  or smaller is required for soldering.

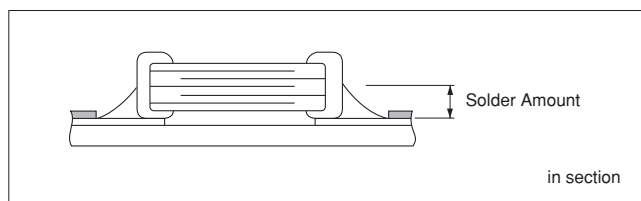
Table 3

| Part Number                               | Temperature of Soldering Iron Tip | Preheating Temperature | Temperature Differential ( $\Delta T$ ) | Atmosphere |
|-------------------------------------------|-----------------------------------|------------------------|-----------------------------------------|------------|
| GRM03/15/18/21/31<br>GJM03/15<br>GQM18/21 | 350°C max.                        | 150°C min.             | $\Delta T \leq 190^\circ\text{C}$       | Air        |
| GRM32/43/55<br>GQM22                      | 280°C max.                        | 150°C min.             | $\Delta T \leq 130^\circ\text{C}$       | Air        |

\*Applicable for both Pb-Sn and Lead Free Solder.

Pb-Sn Solder: Sn-37Pb

Lead Free Solder: Sn-3.0Ag-0.5Cu



### 4-4. Leaded Component Insertion

- If the PCB is flexed when leaded components (such as transformers and ICs) are being mounted, chips may crack and solder joints may break. Before mounting leaded components, support the PCB using backup pins or special jigs to prevent warping.

### 5. Washing

Excessive ultrasonic oscillation during cleaning can cause the PCBs to resonate, resulting in cracked chips or broken solder joints. Take note not to vibrate PCBs.

Continued on the following page. ➤

## ⚠Caution

Continued from the preceding page.

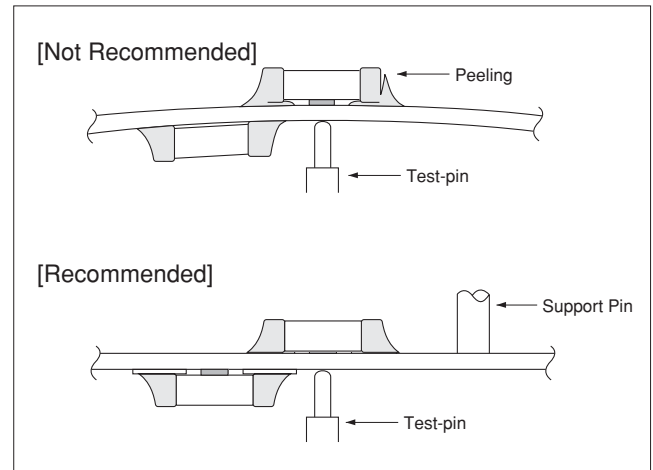
### 6. Electrical Test on Printed Circuit Board

1. Confirm position of the support pin or specific jig, when inspecting the electrical performance of a capacitor after mounting on the printed circuit board.

1-1. Avoid bending the printed circuit board by the pressure of a test pin, etc.

The thrusting force of the test probe can flex the PCB, resulting in cracked chips or open solder joints. Provide support pins on the back side of the PCB to prevent warping or flexing.

1-2. Avoid vibration of the board by shock when a test pin contacts a printed circuit board.

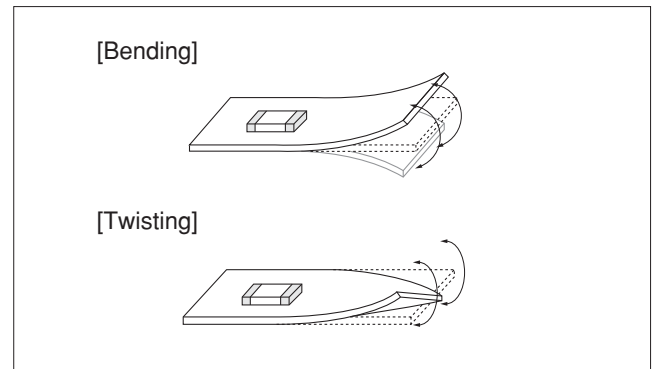


### 7. Printed Circuit Board Cropping

1. After mounting a capacitor on a printed circuit board, do not apply any stress to the capacitor that is caused by bending or twisting the board.

1-1. In cropping the board, the stress as shown at right may cause the capacitor to crack.

Try not to apply this type of stress to a capacitor.



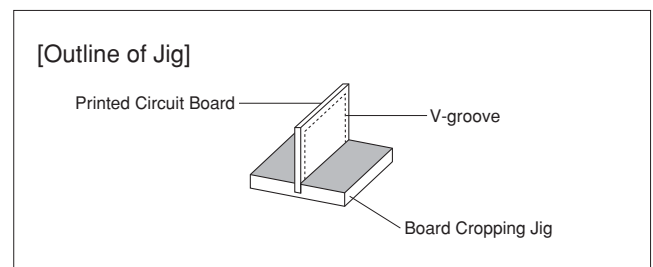
2. Ascertain of the cropping method for the printed circuit board in advance.

2-1. Printed circuit board cropping shall be carried out by using a jig or an apparatus to prevent the mechanical stress that can occur to the board.

(1) Example of a suitable jig

Recommended example: the board should be pushed as close to the cropping jig as possible and from the back side of board in order to minimize the compressive stress applied to the capacitor.

Not recommended example: when the board is pushed at a point far from the cropping jig and from the front side of board as below, the capacitor may form a crack caused by the tensile stress applied to capacitor.



| Recommended | Not recommended |
|-------------|-----------------|
|             |                 |

Continued on the following page. ➤

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information  
⚠Caution

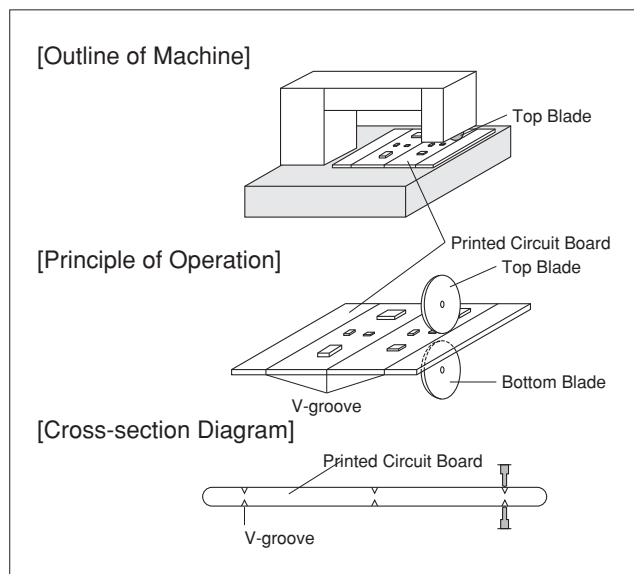
## ⚠Caution

Continued from the preceding page.

### (2) Example of a suitable machine

An outline of a printed circuit board cropping machine is shown as follows. Along the lines with the V-grooves on the printed circuit board, the top and bottom blades are aligned to one another when cropping the board.

The misalignment of the position between top and bottom blades may cause the capacitor to crack.



| Recommended                          | Not Recommended                      |                                      |                                      |
|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
|                                      | Top-bottom Misalignment              | Left-right Misalignment              | Front-rear Misalignment              |
| <p>Top Blade</p> <p>Bottom Blade</p> | <p>Top Blade</p> <p>Bottom Blade</p> | <p>Top Blade</p> <p>Bottom Blade</p> | <p>Top Blade</p> <p>Bottom Blade</p> |

## ■ Others

### 1. Under Operation of Equipment

- 1-1. Do not touch a capacitor directly with bare hands during operation in order to avoid the danger of an electric shock.
- 1-2. Do not allow the terminals of a capacitor to come in contact with any conductive objects (short-circuit). Do not expose a capacitor to a conductive liquid, including any acid or alkali solutions.
- 1-3. Confirm the environment in which the equipment will operate is under the specified conditions. Do not use the equipment under the following environments.
  - (1) Being spattered with water or oil.
  - (2) Being exposed to direct sunlight.
  - (3) Being exposed to Ozone, ultraviolet rays or radiation.
  - (4) Being exposed to toxic gas (e.g., hydrogen sulfide, sulfur dioxide, chlorine, ammonia gas, etc.)
  - (5) Any vibrations or mechanical shocks exceeding the specified limits.
  - (6) Moisture condensing environments.

- 1-4. Use damp proof countermeasures if using under any conditions that can cause condensation.

### 2. Others

#### 2-1. In an Emergency

- (1) If the equipment should generate smoke, fire or smell, immediately turn off or unplug the equipment.

If the equipment is not turned off or unplugged, the hazards may be worsened by supplying continuous power.

- (2) In this type of situation, do not allow face and hands to come in contact with the capacitor or burns may be caused by the capacitor's high temperature.

#### 2-2. Disposal of Waste

When capacitors are disposed, they must be burned or buried by an industrial waste vendor with the appropriate licenses.

#### 2-3. Circuit Design

GRM, GCM, GMA/D, LLL/A/M, GQM, GJM, GNM Series capacitors in this catalog are not safety certified products.

#### 2-4. Remarks

Failure to follow the cautions may result, worst case, in a short circuit and smoking when the product is used.

The above notices are for standard applications and conditions. Contact us when the products are used in special mounting conditions.

Select optimum conditions for operation as they determine the reliability of the product after assembly. The data herein are given in typical values, not guaranteed ratings.

## Notice

### ■ Rating

#### 1. Operating Temperature

1. The operating temperature limit depends on the capacitor.

- 1-1. Do not apply temperatures exceeding the upper operating temperature.

It is necessary to select a capacitor with a suitable rated temperature that will cover the operating temperature range.

It is also necessary to consider the temperature distribution in equipment and the seasonal temperature variable factor.

- 1-2. Consider the self-heating factor of the capacitor.

The surface temperature of the capacitor shall be the upper operating temperature or less when including the self-heating factors.

#### 2. Atmosphere Surroundings (gaseous and liquid)

1. Restriction on the operating environment of capacitors.

- 1-1. Capacitors, when used in the above, unsuitable,

operating environments may deteriorate due to the corrosion of the terminations and the penetration of moisture into the capacitor.

- 1-2. The same phenomenon as the above may occur when the electrodes or terminals of the capacitor are subject to moisture condensation.

- 1-3. The deterioration of characteristics and insulation resistance due to the oxidization or corrosion of terminal electrodes may result in breakdown when the capacitor is exposed to corrosive or volatile gases or solvents for long periods of time.

#### 3. Piezo-electric Phenomenon

1. When using high dielectric constant type capacitors in AC or pulse circuits, the capacitor itself vibrates at specific frequencies and noise may be generated. Moreover, when the mechanical vibration or shock is added to the capacitor, noise may occur.

### ■ Soldering and Mounting

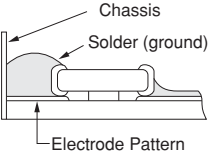
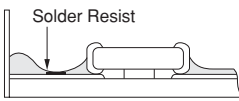
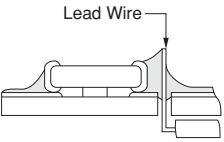
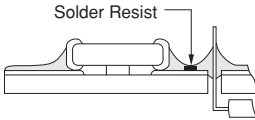
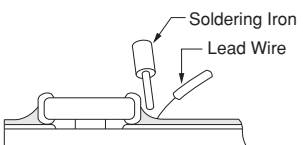
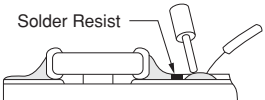
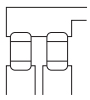
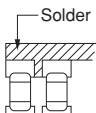
#### 1. PCB Design

##### 1. Notice for Pattern Forms

- 1-1. Unlike leaded components, chip components are susceptible to flexing stresses since they are mounted directly on the substrate. They are also more sensitive to mechanical and thermal stresses than leaded components. Excess solder fillet height can multiply these stresses and cause chip cracking. When designing substrates, take land patterns and dimensions into consideration to eliminate the possibility of excess solder fillet height.

- 1-2. There is a possibility of chip crack caused by PCB expansion/contraction with heat. Because stress for chip is different depend on PCB material and structure. Especially metal PCB such as alumina has a greater risk of chip crack because of large difference of thermal expansion coefficient. In case of chip below 0402 size, there is also the same possibility of crack with a single-layered glass epoxy board.

#### Pattern Forms

|                                                   | Prohibited                                                                          | Correct                                                                               |
|---------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Placing Close to Chassis                          |  |  |
| Placing of Chip Components and Leaded Components  |  |  |
| Placing of Leaded Components after Chip Component |  |  |
| Lateral Mounting                                  |  |  |

Continued on the following page. ➤

## Notice

Continued from the preceding page.

### 2. Land Dimensions

- 2-1. A chip capacitor can be cracked due to the stress of PCB bending, etc. if the land area is larger than needed and has an excess amount of solder. Please refer to the land dimensions in table 1 for flow soldering, table 2 for reflow soldering, table 3 for GNM & LLA, and table 4 for LLM. Please confirm the suitable land dimension by evaluating the actual SET / PCB.

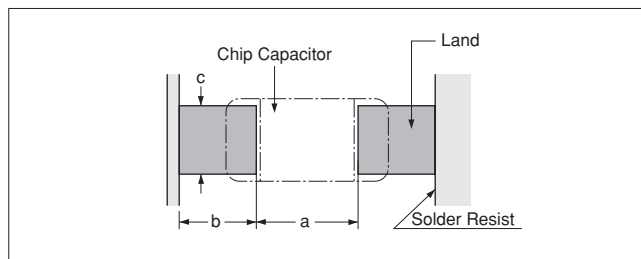


Table 1 Flow Soldering Method

| Part Number    | Dimensions | Chip (L×W) | a          | b          | c          |
|----------------|------------|------------|------------|------------|------------|
| GRM18<br>GQM18 |            | 1.6×0.8    | 0.6 to 1.0 | 0.8 to 0.9 | 0.6 to 0.8 |
| GRM21<br>GQM21 |            | 2.0×1.25   | 1.0 to 1.2 | 0.9 to 1.0 | 0.8 to 1.1 |
| GRM31          |            | 3.2×1.6    | 2.2 to 2.6 | 1.0 to 1.1 | 1.0 to 1.4 |
| LLL21          |            | 1.25×2.0   | 0.4 to 0.7 | 0.5 to 0.7 | 1.4 to 1.8 |
| LLL31          |            | 1.6×3.2    | 0.6 to 1.0 | 0.8 to 0.9 | 2.6 to 2.8 |

(in mm)

Table 2 Reflow Soldering Method

| Part Number    | Dimensions             | Chip (L×W) | a           | b            | c           |
|----------------|------------------------|------------|-------------|--------------|-------------|
| GRM02<br>GJM02 |                        | 0.4×0.2    | 0.16 to 0.2 | 0.12 to 0.18 | 0.2 to 0.23 |
| GRM03<br>GJM03 |                        | 0.6×0.3    | 0.2 to 0.3  | 0.2 to 0.35  | 0.2 to 0.4  |
| GRM15<br>GJM15 | 1.0×0.5 (within ±0.10) |            | 0.3 to 0.5  | 0.35 to 0.45 | 0.4 to 0.6  |
|                | 1.0×0.5 (±0.15/±0.20)  |            | 0.4 to 0.6  | 0.40 to 0.50 | 0.5 to 0.7  |
| GRM18<br>GQM18 | 1.6×0.8 (within ±0.10) |            | 0.6 to 0.8  | 0.6 to 0.7   | 0.6 to 0.8  |
|                | 1.6×0.8 (±0.15/±0.20)  |            | 0.7 to 0.9  | 0.7 to 0.8   | 0.8 to 1.0  |
| GQM21          |                        | 2.0×1.25   | 1.0 to 1.2  | 0.6 to 0.7   | 0.8 to 1.1  |
| GRM21          | 2.0×1.25 (within ±1.0) |            | 1.2         | 0.6          | 1.25        |
|                | 2.0×1.25 (±0.15)       |            | 1.2         | 0.6 to 0.8   | 1.2 to 1.4  |
|                | 2.0×1.25 (±0.20)       |            | 1.0 to 1.4  | 0.6 to 0.8   | 1.2 to 1.4  |
| GRM31          | 3.2×1.6 (within ±0.20) |            | 1.8 to 2.0  | 0.9 to 1.2   | 1.5 to 1.7  |
|                | 3.2×1.6 (±0.30)        |            | 1.9 to 2.1  | 1.0 to 1.3   | 1.7 to 1.9  |
| GRM32          |                        | 3.2×2.5    | 2.0 to 2.4  | 1.0 to 1.2   | 1.8 to 2.3  |
| GRM43          |                        | 4.5×3.2    | 3.0 to 3.5  | 1.2 to 1.4   | 2.3 to 3.0  |
| GRM55          |                        | 5.7×5.0    | 4.0 to 4.6  | 1.4 to 1.6   | 3.5 to 4.8  |
| LLL15          |                        | 0.5×1.0    | 0.15 to 0.2 | 0.2 to 0.25  | 0.7 to 1.0  |
| LLL18<br>LLR18 |                        | 0.8×1.6    | 0.2 to 0.3  | 0.3 to 0.4   | 1.4 to 1.6  |
| LLL21          |                        | 1.25×2.0   | 0.4 to 0.6  | 0.4 to 0.5   | 1.4 to 1.8  |
| LLL31          |                        | 1.6×3.2    | 0.6 to 0.8  | 0.6 to 0.7   | 2.6 to 2.8  |
| GQM22          |                        | 2.8×2.8    | 2.2 to 2.5  | 0.8 to 1.0   | 1.9 to 2.3  |

(in mm)

Continued on the following page. ↗

## Notice

Continued from the preceding page.

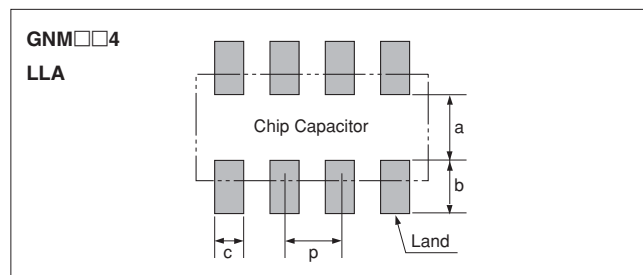
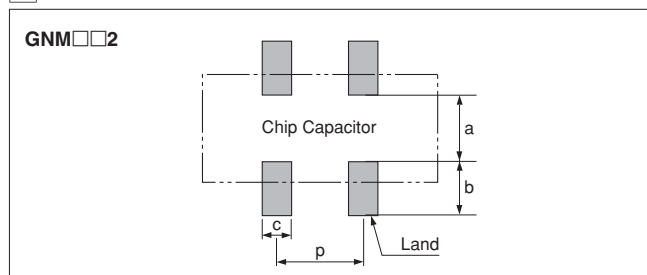


Table 3 GNM, LLA Series for Reflow Soldering Land Dimensions

| Part Number   | Dimensions (mm) |      |               |               |              |      |
|---------------|-----------------|------|---------------|---------------|--------------|------|
|               | L               | W    | a             | b             | c            | p    |
| <b>GNM0M2</b> | 0.9             | 0.6  | 0.12 to 0.20* | 0.35 to 0.40* | 0.3          | 0.45 |
| <b>GNM1M2</b> | 1.37            | 1.0  | 0.4 to 0.5    | 0.35 to 0.45  | 0.3 to 0.35  | 0.64 |
| <b>GNM212</b> | 2.0             | 1.25 | 0.6 to 0.7    | 0.5 to 0.7    | 0.4 to 0.5   | 1.0  |
| <b>GNM214</b> | 2.0             | 1.25 | 0.6 to 0.7    | 0.5 to 0.7    | 0.25 to 0.35 | 0.5  |
| <b>GNM314</b> | 3.2             | 1.6  | 0.8 to 1.0    | 0.7 to 0.9    | 0.3 to 0.4   | 0.8  |
| <b>LLA18</b>  | 1.6             | 0.8  | 0.3 to 0.4    | 0.25 to 0.35  | 0.15 to 0.25 | 0.4  |
| <b>LLA21</b>  | 2.0             | 1.25 | 0.5 to 0.7    | 0.35 to 0.6   | 0.2 to 0.3   | 0.5  |
| <b>LLA31</b>  | 3.2             | 1.6  | 0.7 to 0.9    | 0.4 to 0.7    | 0.3 to 0.4   | 0.8  |

\*  $0.82 \leq a+2b \leq 1.00$

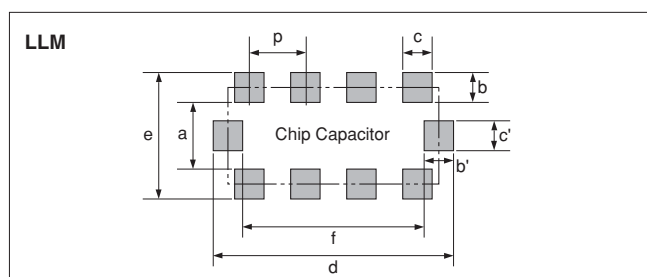


Table 4 LLM Series for Reflow Soldering Land Dimensions

| Part Number  | Dimensions (mm) |              |       |            |            |            |     |
|--------------|-----------------|--------------|-------|------------|------------|------------|-----|
|              | a               | b, b'        | c, c' | d          | e          | f          | p   |
| <b>LLM21</b> | 0.6 to 0.8      | (0.3 to 0.5) | 0.3   | 2.0 to 2.6 | 1.3 to 1.8 | 1.4 to 1.6 | 0.5 |
| <b>LLM31</b> | 1.0             | (0.3 to 0.5) | 0.4   | 3.2 to 3.6 | 1.6 to 2.0 | 2.6        | 0.8 |

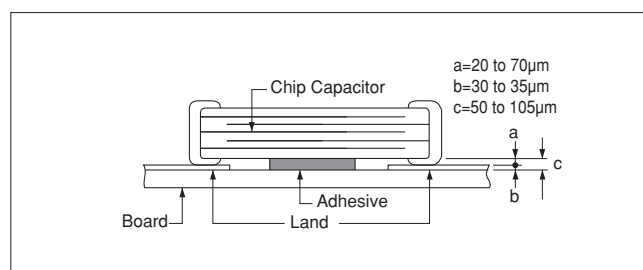
$b=(c-e)/2$ ,  $b'=(d-f)/2$

## 2. Adhesive Application

- Thin or insufficient adhesive can cause the chips to loosen or become disconnected during flow soldering. The amount of adhesive must be more than dimension c, shown in the drawing at right, to obtain the correct bonding strength. The chip's electrode thickness and land thickness must also be taken into consideration.
- Low viscosity adhesive can cause chips to slip after mounting. The adhesive must have a viscosity of  $5000\text{Pa} \cdot \text{s}$  (500ps) min. (at  $25^\circ\text{C}$ ).
- Adhesive Coverage

| Part Number                | Adhesive Coverage* |
|----------------------------|--------------------|
| <b>GRM18, GQM18</b>        | 0.05mg min.        |
| <b>GRM21, LLL21, GQM21</b> | 0.1mg min.         |
| <b>GRM31, LLL31</b>        | 0.15mg min.        |

\*Nominal Value



Continued on the following page. ➤

## Notice

Continued from the preceding page.

### 3. Adhesive Curing

1. Insufficient curing of the adhesive can cause chips to disconnect during flow soldering and deterioration in the insulation resistance between the outer electrodes due to moisture absorption.  
Control curing temperature and time in order to prevent insufficient hardening.

### 4. Flux Application

1. An excessive amount of flux generates a large quantity of flux gas, which can cause a deterioration of solderability, so apply flux thinly and evenly throughout. (A foaming system is generally used for flow soldering.)
2. Flux containing too high a percentage of halide may cause corrosion of the outer electrodes unless there is sufficient cleaning. Use flux with a halide content of 0.2% max.

3. Do not use strong acidic flux.

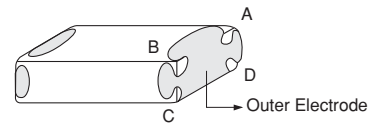
4. Do not use water-soluble \*flux.

(\*Water-soluble flux can be defined as non-rosin type flux including wash-type flux and non-wash-type flux.)

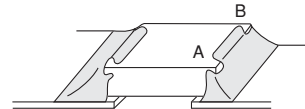
### 5. Flow Soldering

- Set temperature and time to ensure that leaching of the outer electrode does not exceed 25% of the chip end area as a single chip (full length of the edge A-B-C-D shown at right) and 25% of the length A-B shown as mounted on substrate.

[As a Single Chip]



[As Mounted on Substrate]



### 6. Washing

1. Please evaluate a capacitor using actual cleaning equipment and conditions to confirm the quality and select the applicable solvent.
2. Unsuitable cleaning solvent may leave residual flux or other foreign substances, causing deterioration of electrical characteristics and the reliability of the capacitors.

3. Select the proper cleaning conditions.

3-1. Improper cleaning conditions (excessive or insufficient) may result in the deterioration of the performance of the capacitors.

Continued on the following page. ➤

## Notice

Continued from the preceding page.

### 7. Coating

1. A crack may be caused in the capacitor due to the stress of the thermal contraction of the resin during curing process.

The stress is affected by the amount of resin and curing contraction.

Select a resin with low curing contraction.

The difference in the thermal expansion coefficient between a coating resin or a molding resin and the capacitor may cause the destruction and deterioration of the capacitor such as a crack or peeling, and lead to the deterioration of insulation resistance or dielectric breakdown.

Select a resin for which the thermal expansion coefficient is as close to that of the capacitor as possible.

A silicone resin can be used as an under-coating to buffer against the stress.

2. Select a resin that is less hygroscopic.

Using hygroscopic resins under high humidity conditions may cause the deterioration of the insulation resistance of a capacitor.

An epoxy resin can be used as a less hygroscopic resin.

### 8. Die Bonding/Wire Bonding (GMA or GMD Series)

1. Die Bonding of Capacitors

- Use the following materials for the Brazing alloys:

Au-Sn (80/20) 300 to 320 °C in N<sub>2</sub> atmosphere

- Mounting

- (1) Control the temperature of the substrate so it matches the temperature of the brazing alloy.
- (2) Place the brazing alloy on the substrate and place the capacitor on the alloy. Hold the capacitor and gently apply the load. Be sure to complete the operation within 1 minute.

2. Wire Bonding

- Wire

Gold wire: 25 micro m (0.001 inch) diameter

- Bonding

- (1) Thermo compression, ultrasonic ball bonding.
- (2) Required stage temperature: 150 to 200 °C
- (3) Required wedge or capillary weight: 0.2N to 0.5N
- (4) Bond the capacitor and base substrate or other devices with gold wire.

### ■ Others

1. Transportation

1. The performance of a capacitor may be affected by the conditions during transportation.

- 1-1. The capacitors shall be protected against excessive temperature, humidity and mechanical force during transportation.

- (1) Climatic condition

- low air temperature: -40°C
- change of temperature air/air: -25°C/+25°C
- low air pressure: 30 kPa
- change of air pressure: 6 kPa/min.

- (2) Mechanical condition

Transportation shall be done in such a way that the boxes are not deformed and forces are not directly passed on to the inner packaging.

- 1-2. Do not apply excessive vibration, shock, and pressure to the capacitor.

- (1) When excessive mechanical shock or pressure is applied to a capacitor, chipping or cracking may occur in the ceramic body of the capacitor.
- (2) When the sharp edge of an air driver, a soldering iron, tweezers, a chassis, etc. impacts strongly on the surface of the capacitor, the capacitor may crack and short-circuit.

- 1-3. Do not use a capacitor to which excessive shock was applied by dropping, etc.

A capacitor dropped accidentally during processing may be damaged.

For General Purpose  
GRM Series

Capacitor Array  
GNM Series

Low ESL  
LL□ Series

High-Q Type  
GJM Series

High Frequency  
GQM Series

Monolithic Microchip  
GMA Series

For Bonding  
GMD Series

Product Information  
Notice

## MEMO

# Contents

## Chip Monolithic Ceramic Capacitors (Medium Voltage)

### For General Purpose

#### GRM (250Vdc min.)/GRJ/GR3 Series

|                                      |      |
|--------------------------------------|------|
| Temperature Compensating Type        |      |
| GRM Series (250Vdc min.)             | p136 |
| Specifications and Test Methods      | p141 |
| High Dielectric Constant Type        |      |
| GRM Series (250Vdc min.)             | p143 |
| Specifications and Test Methods      | p145 |
| Soft Termination Type GRJ Series     | p148 |
| Specifications and Test Methods      | p150 |
| Large Capacitance and High Allowable |      |
| Ripple Current GR3 Series            | p153 |
| Specifications and Test Methods      | p155 |

### Only for Applications

|                                     |      |
|-------------------------------------|------|
| For LCD Backlight Inverter Circuit  |      |
| GRM/DC3.15kV Series                 | p158 |
| Specifications and Test Methods     | p159 |
| For Information Devices GR4 Series  | p161 |
| Specifications and Test Methods     | p162 |
| For Camera Flash Circuit GR7 Series | p165 |
| Specifications and Test Methods     | p166 |

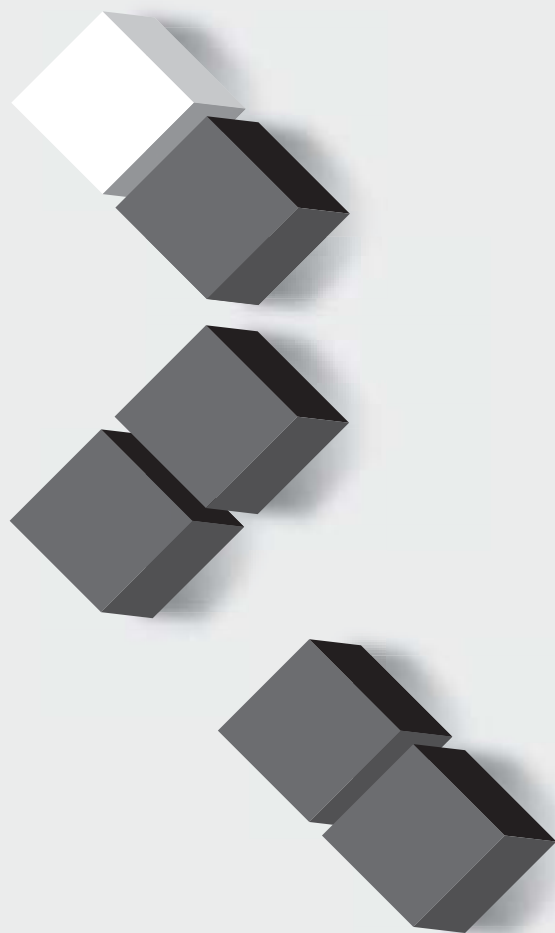
### AC250V Type (Which Meet Japanese Law)

|                                 |      |
|---------------------------------|------|
| GA2 Series                      | p169 |
| Specifications and Test Methods | p170 |

### Safety Standard Certified GA3 Series

|                                     |      |
|-------------------------------------|------|
| UL, IEC60384-14 Class X1/Y2 Type GC | p173 |
| IEC60384-14 Class Y2, X1/Y2 Type GF | p174 |
| IEC60384-14 Class Y3 Type GD        | p176 |
| IEC60384-14 Class X2 Type GB        | p177 |
| Specifications and Test Methods     | p178 |

|                                  |      |
|----------------------------------|------|
| Reference Data (Typical Example) | p182 |
| Package                          | p185 |
| ⚠Caution/Notice                  | p188 |



For General Purpose  
GRM/GRJ/GR3 Series

Only for Applications

AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

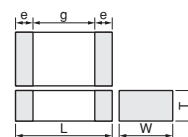
Product Information

## Chip Monolithic Ceramic Capacitors (Medium Voltage)

# Temperature Compensating Type GRM Series (250Vdc min.)

### ■ Features

1. Low-loss and suitable for high frequency circuits
2. Murata's original internal electrode structure provides high flash-over voltage.
3. A new monolithic structure for small, surface-mountable devices capable of operating at high voltage levels
4. Sn-plated external electrodes provides good solderability.
5. Use the GRM21/31 type with flow or reflow soldering, and other types with reflow soldering only.



| Part Number | Dimensions (mm) |           |                 |        |        |
|-------------|-----------------|-----------|-----------------|--------|--------|
|             | L               | W         | T               | e min. | g min. |
| GRM21A      | 2.0 ±0.2        | 1.25 ±0.2 | 1.0 +0.0, -0.3  | 0.3    | 0.7    |
| GRM21B      |                 |           | 1.25 ±0.2       |        |        |
| GRM31A      |                 |           | 1.0 +0.0, -0.3  |        |        |
| GRM31B      | 3.2 ±0.2        | 1.6 ±0.2  | 1.25 +0.0, -0.3 |        | 1.5*   |
| GRM31C      |                 |           | 1.6 ±0.2        |        |        |
| GRM32A      |                 |           | 1.0 +0.0, -0.3  |        |        |
| GRM32B      | 3.2 ±0.2        | 2.5 ±0.2  | 1.25 +0.0, -0.3 |        |        |
| GRM32Q      |                 |           | 1.5 +0.0, -0.3  |        |        |
| GRM32D      |                 |           | 2.0 +0.0, -0.3  |        |        |
| GRM42A      | 4.5 ±0.3        | 2.0 ±0.2  | 1.0 +0.0, -0.3  |        | 2.9    |
| GRM43Q      | 4.5 ±0.4        | 3.2 ±0.3  | 1.5 +0.0, -0.3  |        | 2.2    |
| GRM43D      |                 |           | 2.0 +0.0, -0.3  |        |        |
| GRM55Q      | 5.7 ±0.4        | 5.0 ±0.4  | 1.5 +0.0, -0.3  |        | 3.2    |
| GRM55D      |                 |           | 2.0 +0.0, -0.3  |        |        |

\* GRM31A7U3D, GRM32A7U3D, GRM32B7U3D: 1.8mm min.

### ■ Applications

Ideal for use on high frequency pulse circuits such as snubber circuits for switching power supplies, DC-DC converters, ballasts (inverter fluorescent lamps), etc.

Do not use these products in any Automotive Power train or Safety equipment including Battery chargers for Electric Vehicles and Plug-in Hybrids. Only Murata products clearly stipulated as "for Automotive use" can be used for automobile applications such as Power train and Safety equipment.

## C0G Characteristics

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GRM21A5C2E100JW01D | 250Vdc        | C0G (EIA)          | 10pF±5%     | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E120JW01D | 250Vdc        | C0G (EIA)          | 12pF±5%     | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E150JW01D | 250Vdc        | C0G (EIA)          | 15pF±5%     | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E180JW01D | 250Vdc        | C0G (EIA)          | 18pF±5%     | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E220JW01D | 250Vdc        | C0G (EIA)          | 22pF±5%     | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E270JW01D | 250Vdc        | C0G (EIA)          | 27pF±5%     | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E330JW01D | 250Vdc        | C0G (EIA)          | 33pF±5%     | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E390JW01D | 250Vdc        | C0G (EIA)          | 39pF±5%     | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E470JW01D | 250Vdc        | C0G (EIA)          | 47pF±5%     | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E560JW01D | 250Vdc        | C0G (EIA)          | 56pF±5%     | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E680JW01D | 250Vdc        | C0G (EIA)          | 68pF±5%     | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E820JW01D | 250Vdc        | C0G (EIA)          | 82pF±5%     | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E101JW01D | 250Vdc        | C0G (EIA)          | 100pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E121JW01D | 250Vdc        | C0G (EIA)          | 120pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E151JW01D | 250Vdc        | C0G (EIA)          | 150pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E181JW01D | 250Vdc        | C0G (EIA)          | 180pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E221JW01D | 250Vdc        | C0G (EIA)          | 220pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E271JW01D | 250Vdc        | C0G (EIA)          | 270pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A5C2E331JW01D | 250Vdc        | C0G (EIA)          | 330pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM31A5C2J100JW01D | 630Vdc        | C0G (EIA)          | 10pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J120JW01D | 630Vdc        | C0G (EIA)          | 12pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J150JW01D | 630Vdc        | C0G (EIA)          | 15pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J180JW01D | 630Vdc        | C0G (EIA)          | 18pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |

Continued on the following page. ➤

Continued from the preceding page.

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GRM31A5C2J220JW01D | 630Vdc        | C0G (EIA)          | 22pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J270JW01D | 630Vdc        | C0G (EIA)          | 27pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J330JW01D | 630Vdc        | C0G (EIA)          | 33pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J390JW01D | 630Vdc        | C0G (EIA)          | 39pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J470JW01D | 630Vdc        | C0G (EIA)          | 47pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J560JW01D | 630Vdc        | C0G (EIA)          | 56pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J680JW01D | 630Vdc        | C0G (EIA)          | 68pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J820JW01D | 630Vdc        | C0G (EIA)          | 82pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J101JW01D | 630Vdc        | C0G (EIA)          | 100pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J121JW01D | 630Vdc        | C0G (EIA)          | 120pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J151JW01D | 630Vdc        | C0G (EIA)          | 150pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J181JW01D | 630Vdc        | C0G (EIA)          | 180pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J221JW01D | 630Vdc        | C0G (EIA)          | 220pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J271JW01D | 630Vdc        | C0G (EIA)          | 270pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J331JW01D | 630Vdc        | C0G (EIA)          | 330pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J391JW01D | 630Vdc        | C0G (EIA)          | 390pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J471JW01D | 630Vdc        | C0G (EIA)          | 470pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C2J561JW01D | 630Vdc        | C0G (EIA)          | 560pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31B5C2J681JW01L | 630Vdc        | C0G (EIA)          | 680pF±5%    | 3.2           | 1.6          | 1.25                  | 1.5mm            | 0.3mm min.  |
| GRM31B5C2J821JW01L | 630Vdc        | C0G (EIA)          | 820pF±5%    | 3.2           | 1.6          | 1.25                  | 1.5mm            | 0.3mm min.  |
| GRM31B5C2J102JW01L | 630Vdc        | C0G (EIA)          | 1000pF±5%   | 3.2           | 1.6          | 1.25                  | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A100JW01D | 1000Vdc       | C0G (EIA)          | 10pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A120JW01D | 1000Vdc       | C0G (EIA)          | 12pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A150JW01D | 1000Vdc       | C0G (EIA)          | 15pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A180JW01D | 1000Vdc       | C0G (EIA)          | 18pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A220JW01D | 1000Vdc       | C0G (EIA)          | 22pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A270JW01D | 1000Vdc       | C0G (EIA)          | 27pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A330JW01D | 1000Vdc       | C0G (EIA)          | 33pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A390JW01D | 1000Vdc       | C0G (EIA)          | 39pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A470JW01D | 1000Vdc       | C0G (EIA)          | 47pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A560JW01D | 1000Vdc       | C0G (EIA)          | 56pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A680JW01D | 1000Vdc       | C0G (EIA)          | 68pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A820JW01D | 1000Vdc       | C0G (EIA)          | 82pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A101JW01D | 1000Vdc       | C0G (EIA)          | 100pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A121JW01D | 1000Vdc       | C0G (EIA)          | 120pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A151JW01D | 1000Vdc       | C0G (EIA)          | 150pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A181JW01D | 1000Vdc       | C0G (EIA)          | 180pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A5C3A221JW01D | 1000Vdc       | C0G (EIA)          | 220pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |

## U2J Characteristics

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GRM21A7U2E101JW31D | 250Vdc        | U2J (EIA)          | 100pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E121JW31D | 250Vdc        | U2J (EIA)          | 120pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E151JW31D | 250Vdc        | U2J (EIA)          | 150pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E181JW31D | 250Vdc        | U2J (EIA)          | 180pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E221JW31D | 250Vdc        | U2J (EIA)          | 220pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E271JW31D | 250Vdc        | U2J (EIA)          | 270pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E331JW31D | 250Vdc        | U2J (EIA)          | 330pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E391JW31D | 250Vdc        | U2J (EIA)          | 390pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E471JW31D | 250Vdc        | U2J (EIA)          | 470pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E561JW31D | 250Vdc        | U2J (EIA)          | 560pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E681JW31D | 250Vdc        | U2J (EIA)          | 680pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E821JW31D | 250Vdc        | U2J (EIA)          | 820pF±5%    | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E102JW31D | 250Vdc        | U2J (EIA)          | 1000pF±5%   | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |

Continued on the following page. ➡

Continued from the preceding page.

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GRM21A7U2E122JW31D | 250Vdc        | U2J (EIA)          | 1200pF±5%   | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E152JW31D | 250Vdc        | U2J (EIA)          | 1500pF±5%   | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E182JW31D | 250Vdc        | U2J (EIA)          | 1800pF±5%   | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21A7U2E222JW31D | 250Vdc        | U2J (EIA)          | 2200pF±5%   | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRM21B7U2E272JW32L | 250Vdc        | U2J (EIA)          | 2700pF±5%   | 2             | 1.25         | 1.45                  | 0.7mm            | 0.3mm min.  |
| GRM31A7U2E272JW31D | 250Vdc        | U2J (EIA)          | 2700pF±5%   | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM21B7U2E332JW32L | 250Vdc        | U2J (EIA)          | 3300pF±5%   | 2             | 1.25         | 1.45                  | 0.7mm            | 0.3mm min.  |
| GRM31A7U2E332JW31D | 250Vdc        | U2J (EIA)          | 3300pF±5%   | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM21B7U2E392JW32L | 250Vdc        | U2J (EIA)          | 3900pF±5%   | 2             | 1.25         | 1.45                  | 0.7mm            | 0.3mm min.  |
| GRM31A7U2E392JW31D | 250Vdc        | U2J (EIA)          | 3900pF±5%   | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM21B7U2E472JW32L | 250Vdc        | U2J (EIA)          | 4700pF±5%   | 2             | 1.25         | 1.45                  | 0.7mm            | 0.3mm min.  |
| GRM31A7U2E472JW31D | 250Vdc        | U2J (EIA)          | 4700pF±5%   | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM21B7U2E562JW32L | 250Vdc        | U2J (EIA)          | 5600pF±5%   | 2             | 1.25         | 1.45                  | 0.7mm            | 0.3mm min.  |
| GRM31A7U2E562JW31D | 250Vdc        | U2J (EIA)          | 5600pF±5%   | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31B7U2E682JW31L | 250Vdc        | U2J (EIA)          | 6800pF±5%   | 3.2           | 1.6          | 1.25                  | 1.5mm            | 0.3mm min.  |
| GRM31B7U2E822JW31L | 250Vdc        | U2J (EIA)          | 8200pF±5%   | 3.2           | 1.6          | 1.25                  | 1.5mm            | 0.3mm min.  |
| GRM31B7U2E103JW31L | 250Vdc        | U2J (EIA)          | 10000pF±5%  | 3.2           | 1.6          | 1.25                  | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J100JW31D | 630Vdc        | U2J (EIA)          | 10pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J120JW31D | 630Vdc        | U2J (EIA)          | 12pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J150JW31D | 630Vdc        | U2J (EIA)          | 15pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J180JW31D | 630Vdc        | U2J (EIA)          | 18pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J220JW31D | 630Vdc        | U2J (EIA)          | 22pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J270JW31D | 630Vdc        | U2J (EIA)          | 27pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J330JW31D | 630Vdc        | U2J (EIA)          | 33pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J390JW31D | 630Vdc        | U2J (EIA)          | 39pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J470JW31D | 630Vdc        | U2J (EIA)          | 47pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J560JW31D | 630Vdc        | U2J (EIA)          | 56pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J680JW31D | 630Vdc        | U2J (EIA)          | 68pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J820JW31D | 630Vdc        | U2J (EIA)          | 82pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J101JW31D | 630Vdc        | U2J (EIA)          | 100pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J121JW31D | 630Vdc        | U2J (EIA)          | 120pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J151JW31D | 630Vdc        | U2J (EIA)          | 150pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J181JW31D | 630Vdc        | U2J (EIA)          | 180pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J221JW31D | 630Vdc        | U2J (EIA)          | 220pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J271JW31D | 630Vdc        | U2J (EIA)          | 270pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J331JW31D | 630Vdc        | U2J (EIA)          | 330pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J391JW31D | 630Vdc        | U2J (EIA)          | 390pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J471JW31D | 630Vdc        | U2J (EIA)          | 470pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J561JW31D | 630Vdc        | U2J (EIA)          | 560pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J681JW31D | 630Vdc        | U2J (EIA)          | 680pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J821JW31D | 630Vdc        | U2J (EIA)          | 820pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J102JW31D | 630Vdc        | U2J (EIA)          | 1000pF±5%   | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J122JW31D | 630Vdc        | U2J (EIA)          | 1200pF±5%   | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM32A7U2J122JW31D | 630Vdc        | U2J (EIA)          | 1200pF±5%   | 3.2           | 2.5          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J152JW31D | 630Vdc        | U2J (EIA)          | 1500pF±5%   | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM32A7U2J152JW31D | 630Vdc        | U2J (EIA)          | 1500pF±5%   | 3.2           | 2.5          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J182JW31D | 630Vdc        | U2J (EIA)          | 1800pF±5%   | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM32A7U2J182JW31D | 630Vdc        | U2J (EIA)          | 1800pF±5%   | 3.2           | 2.5          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U2J222JW31D | 630Vdc        | U2J (EIA)          | 2200pF±5%   | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM32A7U2J222JW31D | 630Vdc        | U2J (EIA)          | 2200pF±5%   | 3.2           | 2.5          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31B7U2J272JW31L | 630Vdc        | U2J (EIA)          | 2700pF±5%   | 3.2           | 1.6          | 1.25                  | 1.5mm            | 0.3mm min.  |
| GRM31B7U2J332JW31L | 630Vdc        | U2J (EIA)          | 3300pF±5%   | 3.2           | 1.6          | 1.25                  | 1.5mm            | 0.3mm min.  |
| GRM31C7U2J392JW32L | 630Vdc        | U2J (EIA)          | 3900pF±5%   | 3.2           | 1.6          | 1.8                   | 1.5mm            | 0.3mm min.  |
| GRM31C7U2J472JW32L | 630Vdc        | U2J (EIA)          | 4700pF±5%   | 3.2           | 1.6          | 1.8                   | 1.5mm            | 0.3mm min.  |
| GRM32B7U2J562JW31L | 630Vdc        | U2J (EIA)          | 5600pF±5%   | 3.2           | 2.5          | 1.25                  | 1.5mm            | 0.3mm min.  |
| GRM32Q7U2J682JW31L | 630Vdc        | U2J (EIA)          | 6800pF±5%   | 3.2           | 2.5          | 1.5                   | 1.5mm            | 0.3mm min.  |
| GRM32D7U2J822JW31L | 630Vdc        | U2J (EIA)          | 8200pF±5%   | 3.2           | 2.5          | 2                     | 1.5mm            | 0.3mm min.  |

Continued on the following page. ↗

Continued from the preceding page.

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GRM32D7U2J103JW31L | 630Vdc        | U2J (EIA)          | 10000pF±5%  | 3.2           | 2.5          | 2                     | 1.5mm            | 0.3mm min.  |
| GRM43Q7U2J123JW31L | 630Vdc        | U2J (EIA)          | 12000pF±5%  | 4.5           | 3.2          | 1.5                   | 2.2mm            | 0.3mm min.  |
| GRM43D7U2J153JW31L | 630Vdc        | U2J (EIA)          | 15000pF±5%  | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRM43D7U2J183JW31L | 630Vdc        | U2J (EIA)          | 18000pF±5%  | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRM43D7U2J223JW31L | 630Vdc        | U2J (EIA)          | 22000pF±5%  | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRM55Q7U2J273JW31L | 630Vdc        | U2J (EIA)          | 27000pF±5%  | 5.7           | 5.0          | 1.5                   | 3.2mm            | 0.3mm min.  |
| GRM55D7U2J333JW31L | 630Vdc        | U2J (EIA)          | 33000pF±5%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GRM55D7U2J393JW31L | 630Vdc        | U2J (EIA)          | 39000pF±5%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GRM55D7U2J473JW31L | 630Vdc        | U2J (EIA)          | 47000pF±5%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GRM31A7U3A100JW31D | 1000Vdc       | U2J (EIA)          | 10pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A120JW31D | 1000Vdc       | U2J (EIA)          | 12pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A150JW31D | 1000Vdc       | U2J (EIA)          | 15pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A180JW31D | 1000Vdc       | U2J (EIA)          | 18pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A220JW31D | 1000Vdc       | U2J (EIA)          | 22pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A270JW31D | 1000Vdc       | U2J (EIA)          | 27pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A330JW31D | 1000Vdc       | U2J (EIA)          | 33pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A390JW31D | 1000Vdc       | U2J (EIA)          | 39pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A470JW31D | 1000Vdc       | U2J (EIA)          | 47pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A560JW31D | 1000Vdc       | U2J (EIA)          | 56pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A680JW31D | 1000Vdc       | U2J (EIA)          | 68pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A820JW31D | 1000Vdc       | U2J (EIA)          | 82pF±5%     | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A101JW31D | 1000Vdc       | U2J (EIA)          | 100pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A121JW31D | 1000Vdc       | U2J (EIA)          | 120pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A151JW31D | 1000Vdc       | U2J (EIA)          | 150pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A181JW31D | 1000Vdc       | U2J (EIA)          | 180pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A221JW31D | 1000Vdc       | U2J (EIA)          | 220pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A271JW31D | 1000Vdc       | U2J (EIA)          | 270pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31A7U3A331JW31D | 1000Vdc       | U2J (EIA)          | 330pF±5%    | 3.2           | 1.6          | 1                     | 1.5mm            | 0.3mm min.  |
| GRM31B7U3A391JW31L | 1000Vdc       | U2J (EIA)          | 390pF±5%    | 3.2           | 1.6          | 1.25                  | 1.5mm            | 0.3mm min.  |
| GRM31B7U3A471JW31L | 1000Vdc       | U2J (EIA)          | 470pF±5%    | 3.2           | 1.6          | 1.25                  | 1.5mm            | 0.3mm min.  |
| GRM31B7U3A561JW31L | 1000Vdc       | U2J (EIA)          | 560pF±5%    | 3.2           | 1.6          | 1.25                  | 1.5mm            | 0.3mm min.  |
| GRM31B7U3A681JW31L | 1000Vdc       | U2J (EIA)          | 680pF±5%    | 3.2           | 1.6          | 1.25                  | 1.5mm            | 0.3mm min.  |
| GRM31C7U3A821JW32L | 1000Vdc       | U2J (EIA)          | 820pF±5%    | 3.2           | 1.6          | 1.8                   | 1.5mm            | 0.3mm min.  |
| GRM31C7U3A102JW32L | 1000Vdc       | U2J (EIA)          | 1000pF±5%   | 3.2           | 1.6          | 1.8                   | 1.5mm            | 0.3mm min.  |
| GRM32B7U3A122JW31L | 1000Vdc       | U2J (EIA)          | 1200pF±5%   | 3.2           | 2.5          | 1.25                  | 1.5mm            | 0.3mm min.  |
| GRM32Q7U3A152JW31L | 1000Vdc       | U2J (EIA)          | 1500pF±5%   | 3.2           | 2.5          | 1.5                   | 1.5mm            | 0.3mm min.  |
| GRM32D7U3A182JW31L | 1000Vdc       | U2J (EIA)          | 1800pF±5%   | 3.2           | 2.5          | 2                     | 1.5mm            | 0.3mm min.  |
| GRM32D7U3A222JW31L | 1000Vdc       | U2J (EIA)          | 2200pF±5%   | 3.2           | 2.5          | 2                     | 1.5mm            | 0.3mm min.  |
| GRM43Q7U3A272JW31L | 1000Vdc       | U2J (EIA)          | 2700pF±5%   | 4.5           | 3.2          | 1.5                   | 2.2mm            | 0.3mm min.  |
| GRM43Q7U3A332JW31L | 1000Vdc       | U2J (EIA)          | 3300pF±5%   | 4.5           | 3.2          | 1.5                   | 2.2mm            | 0.3mm min.  |
| GRM43D7U3A392JW31L | 1000Vdc       | U2J (EIA)          | 3900pF±5%   | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRM43D7U3A472JW31L | 1000Vdc       | U2J (EIA)          | 4700pF±5%   | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRM55Q7U3A562JW31L | 1000Vdc       | U2J (EIA)          | 5600pF±5%   | 5.7           | 5.0          | 1.5                   | 3.2mm            | 0.3mm min.  |
| GRM55Q7U3A682JW31L | 1000Vdc       | U2J (EIA)          | 6800pF±5%   | 5.7           | 5.0          | 1.5                   | 3.2mm            | 0.3mm min.  |
| GRM55D7U3A822JW31L | 1000Vdc       | U2J (EIA)          | 8200pF±5%   | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GRM55D7U3A103JW31L | 1000Vdc       | U2J (EIA)          | 10000pF±5%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GRM31A7U3D100JW31D | 2000Vdc       | U2J (EIA)          | 10pF±5%     | 3.2           | 1.6          | 1                     | 1.8mm            | 0.3mm min.  |
| GRM31A7U3D120JW31D | 2000Vdc       | U2J (EIA)          | 12pF±5%     | 3.2           | 1.6          | 1                     | 1.8mm            | 0.3mm min.  |
| GRM31A7U3D150JW31D | 2000Vdc       | U2J (EIA)          | 15pF±5%     | 3.2           | 1.6          | 1                     | 1.8mm            | 0.3mm min.  |
| GRM31A7U3D180JW31D | 2000Vdc       | U2J (EIA)          | 18pF±5%     | 3.2           | 1.6          | 1                     | 1.8mm            | 0.3mm min.  |
| GRM31A7U3D220JW31D | 2000Vdc       | U2J (EIA)          | 22pF±5%     | 3.2           | 1.6          | 1                     | 1.8mm            | 0.3mm min.  |
| GRM31A7U3D270JW31D | 2000Vdc       | U2J (EIA)          | 27pF±5%     | 3.2           | 1.6          | 1                     | 1.8mm            | 0.3mm min.  |
| GRM31A7U3D330JW31D | 2000Vdc       | U2J (EIA)          | 33pF±5%     | 3.2           | 1.6          | 1                     | 1.8mm            | 0.3mm min.  |
| GRM31A7U3D390JW31D | 2000Vdc       | U2J (EIA)          | 39pF±5%     | 3.2           | 1.6          | 1                     | 1.8mm            | 0.3mm min.  |
| GRM31A7U3D470JW31D | 2000Vdc       | U2J (EIA)          | 47pF±5%     | 3.2           | 1.6          | 1                     | 1.8mm            | 0.3mm min.  |
| GRM31A7U3D560JW31D | 2000Vdc       | U2J (EIA)          | 56pF±5%     | 3.2           | 1.6          | 1                     | 1.8mm            | 0.3mm min.  |
| GRM31A7U3D680JW31D | 2000Vdc       | U2J (EIA)          | 68pF±5%     | 3.2           | 1.6          | 1                     | 1.8mm            | 0.3mm min.  |

Continued on the following page. ➡

Continued from the preceding page.

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GRM32A7U3D820JW31D | 2000Vdc       | U2J (EIA)          | 82pF±5%     | 3.2           | 2.5          | 1                     | 1.8mm            | 0.3mm min.  |
| GRM32A7U3D101JW31D | 2000Vdc       | U2J (EIA)          | 100pF±5%    | 3.2           | 2.5          | 1                     | 1.8mm            | 0.3mm min.  |
| GRM32A7U3D121JW31D | 2000Vdc       | U2J (EIA)          | 120pF±5%    | 3.2           | 2.5          | 1                     | 1.8mm            | 0.3mm min.  |
| GRM32A7U3D151JW31D | 2000Vdc       | U2J (EIA)          | 150pF±5%    | 3.2           | 2.5          | 1                     | 1.8mm            | 0.3mm min.  |
| GRM32B7U3D181JW31L | 2000Vdc       | U2J (EIA)          | 180pF±5%    | 3.2           | 2.5          | 1.25                  | 1.8mm            | 0.3mm min.  |
| GRM32B7U3D221JW31L | 2000Vdc       | U2J (EIA)          | 220pF±5%    | 3.2           | 2.5          | 1.25                  | 1.8mm            | 0.3mm min.  |
| GRM42A7U3F270JW31L | 3150Vdc       | U2J (EIA)          | 27pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A7U3F330JW31L | 3150Vdc       | U2J (EIA)          | 33pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A7U3F390JW31L | 3150Vdc       | U2J (EIA)          | 39pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A7U3F470JW31L | 3150Vdc       | U2J (EIA)          | 47pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A7U3F560JW31L | 3150Vdc       | U2J (EIA)          | 56pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A7U3F680JW31L | 3150Vdc       | U2J (EIA)          | 68pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A7U3F820JW31L | 3150Vdc       | U2J (EIA)          | 82pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A7U3F101JW31L | 3150Vdc       | U2J (EIA)          | 100pF±5%    | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |

For General Purpose  
 GRM/GRU/GR3 Series

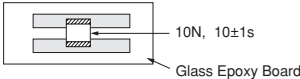
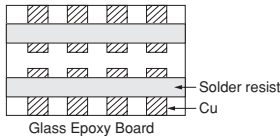
Only for Applications

AC250V Type  
 GA2 Series

Safety Standard  
 Certified GA3 Series

Product Information

## GRM Series Specifications and Test Methods

| No.                    | Item                                    | Specifications                                                                                                                                                                                                                                   | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                             |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
|------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------|---------|---------------------------|----------|---------------------------|------------------------|---------------------------|------------------|------------------------|---|------|
| 1                      | Operating Temperature Range             | −55 to +125°C                                                                                                                                                                                                                                    | —                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| 2                      | Appearance                              | No defects or abnormalities                                                                                                                                                                                                                      | Visual inspection                                                                                                                                                                                                                                                                                                                                                                                                                       |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| 3                      | Dimensions                              | Within the specified dimension                                                                                                                                                                                                                   | Using calipers and micrometers                                                                                                                                                                                                                                                                                                                                                                                                          |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| 4                      | Dielectric Strength                     | No defects or abnormalities                                                                                                                                                                                                                      | No failure should be observed when voltage in the Table is applied between the terminations for 1 to 5 sec., provided the charge/discharge current is less than 50mA. <table><tr><th>Rated Voltage</th><th>Test Voltage</th></tr><tr><td>DC250V</td><td>200% of the rated voltage</td></tr><tr><td>DC630V</td><td>150% of the rated voltage</td></tr><tr><td>DC1kV, DC2kV, DC3.15kV</td><td>130% of the rated voltage</td></tr></table> | Rated Voltage | Test Voltage     | DC250V  | 200% of the rated voltage | DC630V   | 150% of the rated voltage | DC1kV, DC2kV, DC3.15kV | 130% of the rated voltage |                  |                        |   |      |
| Rated Voltage          | Test Voltage                            |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| DC250V                 | 200% of the rated voltage               |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| DC630V                 | 150% of the rated voltage               |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| DC1kV, DC2kV, DC3.15kV | 130% of the rated voltage               |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| 5                      | Insulation Resistance (I.R.)            | More than 10,000MΩ                                                                                                                                                                                                                               | The insulation resistance should be measured with DC500±50V (DC250±25V in case of rated voltage: DC250V) and within 60±5 sec. of charging.                                                                                                                                                                                                                                                                                              |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| 6                      | Capacitance                             | Within the specified tolerance                                                                                                                                                                                                                   | The capacitance/Q should be measured at the frequency and voltage shown as follows.                                                                                                                                                                                                                                                                                                                                                     |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| 7                      | Q                                       | 1,000 min.                                                                                                                                                                                                                                       | <table><tr><th>Capacitance</th><th>Frequency</th><th>Voltage</th></tr><tr><td>C&lt;1,000pF</td><td>1±0.2MHz</td><td>AC0.5 to 5V(r.m.s.)</td></tr><tr><td>C≥1,000pF</td><td>1±0.2kHz</td><td>AC1±0.2V(r.m.s.)</td></tr></table>                                                                                                                                                                                                          | Capacitance   | Frequency        | Voltage | C<1,000pF                 | 1±0.2MHz | AC0.5 to 5V(r.m.s.)       | C≥1,000pF              | 1±0.2kHz                  | AC1±0.2V(r.m.s.) |                        |   |      |
| Capacitance            | Frequency                               | Voltage                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| C<1,000pF              | 1±0.2MHz                                | AC0.5 to 5V(r.m.s.)                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| C≥1,000pF              | 1±0.2kHz                                | AC1±0.2V(r.m.s.)                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| 8                      | Capacitance Temperature Characteristics | Temp. Coefficient<br>C0G char. :<br>0±30ppm/°C (Temp. Range : +25 to +125°C)<br>0+30, −72ppm/°C (Temp. Range : −55 to +25°C)<br>U2J char. :<br>−750±120ppm/°C (Temp. Range : +25 to +125°C)<br>−750+120, −347ppm/°C (Temp. Range : −55 to +25°C) | The capacitance measurement should be made at each step specified in the Table. <table><tr><th>Step</th><th>Temperature (°C)</th></tr><tr><td>1</td><td>25±2</td></tr><tr><td>2</td><td>Min. Operating Temp.±3</td></tr><tr><td>3</td><td>25±2</td></tr><tr><td>4</td><td>Max. Operating Temp.±2</td></tr><tr><td>5</td><td>25±2</td></tr></table>                                                                                      | Step          | Temperature (°C) | 1       | 25±2                      | 2        | Min. Operating Temp.±3    | 3                      | 25±2                      | 4                | Max. Operating Temp.±2 | 5 | 25±2 |
| Step                   | Temperature (°C)                        |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| 1                      | 25±2                                    |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| 2                      | Min. Operating Temp.±3                  |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| 3                      | 25±2                                    |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| 4                      | Max. Operating Temp.±2                  |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| 5                      | 25±2                                    |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| 9                      | Adhesive Strength of Termination        | No removal of the terminations or other defect should occur.                                                                                                                                                                                     | Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 1.<br>Then apply 10N force in the direction of the arrow.<br>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock. <div></div> <p>Fig. 1</p>                   |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
| 10                     | Vibration Resistance                    | Appearance                                                                                                                                                                                                                                       | Solder the capacitor to the test jig (glass epoxy board).                                                                                                                                                                                                                                                                                                                                                                               |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
|                        |                                         | Capacitance                                                                                                                                                                                                                                      | The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55Hz. The frequency range, from 10 to 55Hz and return to 10Hz, should be traversed in approximately 1 min. This motion should be applied for a period of 2 hrs. in each of 3 mutually perpendicular directions (total of 6 hrs.).                        |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |
|                        |                                         | Q                                                                                                                                                                                                                                                | 1,000 min. <div></div>                                                                                                                                                                                                                                                                                                                             |               |                  |         |                           |          |                           |                        |                           |                  |                        |   |      |

Continued on the following page. ➤

For General Purpose  
GRM/GRJ/GR3 Series

Only for Applications

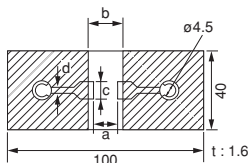
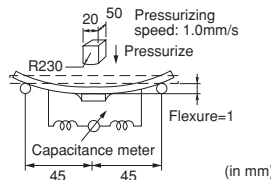
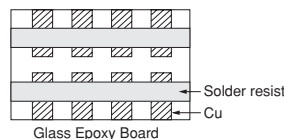
AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information

## GRM Series Specifications and Test Methods

Continued from the preceding page.

| No.                 | Item                         | Specifications                                                      | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|---------------------|------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|-------------|---------------------------|--------------------------------|---------------------------|---|--------------|--------|----------|------------------------|------|------|------------|---------|-----|-----|-----|---------|-----|-----|-----|---------|-----|-----|-----|---------|-----|-----|-----|---------|-----|-----|-----|--------------------------------------------------------------------------------------------------------------|
| 11                  | Deflection                   | No marking defects                                                  | <p>Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 2.</p> <p>Then apply a force in the direction shown in Fig. 3.</p> <p>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock.</p> <div></div> <p>Fig. 2</p> <table><tr><th>LXW (mm)</th><th colspan="4">Dimension (mm)</th></tr><tr><th></th><th>a</th><th>b</th><th>c</th><th>d</th></tr><tr><td>2.0X1.25</td><td>1.2</td><td>4.0</td><td>1.65</td><td rowspan="6">1.0</td></tr><tr><td>3.2X1.6</td><td>2.2</td><td>5.0</td><td>2.0</td></tr><tr><td>3.2X2.5</td><td>2.2</td><td>5.0</td><td>2.9</td></tr><tr><td>4.5X2.0</td><td>3.5</td><td>7.0</td><td>2.4</td></tr><tr><td>4.5X3.2</td><td>3.5</td><td>7.0</td><td>3.7</td></tr><tr><td>5.7X5.0</td><td>4.5</td><td>8.0</td><td>5.6</td></tr></table> | LXW (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Dimension (mm) |                  |             |                           |                                | a                         | b | c            | d      | 2.0X1.25 | 1.2                    | 4.0  | 1.65 | 1.0        | 3.2X1.6 | 2.2 | 5.0 | 2.0 | 3.2X2.5 | 2.2 | 5.0 | 2.9 | 4.5X2.0 | 3.5 | 7.0 | 2.4 | 4.5X3.2 | 3.5 | 7.0 | 3.7 | 5.7X5.0 | 4.5 | 8.0 | 5.6 | <div></div> <p>Fig. 3</p> |
|                     |                              | LXW (mm)                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Dimension (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     | a                            | b                                                                   | c                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | d                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| 2.0X1.25            | 1.2                          | 4.0                                                                 | 1.65                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| 3.2X1.6             | 2.2                          | 5.0                                                                 | 2.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| 3.2X2.5             | 2.2                          | 5.0                                                                 | 2.9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| 4.5X2.0             | 3.5                          | 7.0                                                                 | 2.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| 4.5X3.2             | 3.5                          | 7.0                                                                 | 3.7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| 5.7X5.0             | 4.5                          | 8.0                                                                 | 5.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| 12                  | Solderability of Termination | 75% of the terminations are to be soldered evenly and continuously. | <p>Immerse the capacitor in a solution of ethanol (JIS-K-8101) and rosin (JIS-K-5902) (25% rosin in weight proportion). Immerse in solder solution for 2±0.5 sec.</p> <p>Immersing speed: 25±2.5mm/s</p> <p>Temp. of solder: 245±5°C Lead Free Solder (Sn-3.0Ag-0.5Cu) 235±5°C H60A or H63A Eutectic Solder</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| 13                  | Resistance to Soldering Heat | Appearance                                                          | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Preheat the capacitor at 120 to 150°C* for 1 min.</p> <p>Immerse the capacitor in solder solution at 260±5°C for 10±1 sec.</p> <p>Let sit at room condition* for 24±2 hrs., then measure.</p> <p>•Immersing speed: 25±2.5mm/s</p> <p>*Preheating for more than 3.2X2.5mm</p> <table><tr><th>Step</th><th>Temperature</th><th>Time</th></tr><tr><td>1</td><td>100 to 120°C</td><td>1 min.</td></tr><tr><td>2</td><td>170 to 200°C</td><td>1 min.</td></tr></table>                                                                                                                                                                                                                       | Step           | Temperature      | Time        | 1                         | 100 to 120°C                   | 1 min.                    | 2 | 170 to 200°C | 1 min. |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | Step                                                                | Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Time           |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | 1                                                                   | 100 to 120°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1 min.         |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | 2                                                                   | 170 to 200°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1 min.         |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | Capacitance Change                                                  | Within ±2.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| Q                   | 1,000 min.                   |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| I.R.                | More than 10,000MΩ           |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| Dielectric Strength | In accordance with item No.4 |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| 14                  | Temperature Cycle            | Appearance                                                          | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Fix the capacitor to the supporting jig (glass epoxy board) shown in Fig. 4.</p> <p>Perform the 5 cycles according to the 4 heat treatments listed in the following table.</p> <p>Let sit for 24±2 hrs. at room condition,* then measure.</p> <table><tr><th>Step</th><th>Temperature (°C)</th><th>Time (min.)</th></tr><tr><td>1</td><td>Min. Operating Temp.±3</td><td>30±3</td></tr><tr><td>2</td><td>Room Temp.</td><td>2 to 3</td></tr><tr><td>3</td><td>Max. Operating Temp.±2</td><td>30±3</td></tr><tr><td>4</td><td>Room Temp.</td><td>2 to 3</td></tr></table> <div></div> <p>Fig. 4</p> | Step           | Temperature (°C) | Time (min.) | 1                         | Min. Operating Temp.±3         | 30±3                      | 2 | Room Temp.   | 2 to 3 | 3        | Max. Operating Temp.±2 | 30±3 | 4    | Room Temp. | 2 to 3  |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | Step                                                                | Temperature (°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Time (min.)    |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | 1                                                                   | Min. Operating Temp.±3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 30±3           |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | 2                                                                   | Room Temp.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2 to 3         |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | 3                                                                   | Max. Operating Temp.±2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 30±3           |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| 4                   | Room Temp.                   | 2 to 3                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| Capacitance Change  | Within ±2.5%                 |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| Q                   | 500 min.                     |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| I.R.                | More than 10,000MΩ           |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| Dielectric Strength | In accordance with item No.4 |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| 15                  | Humidity (Steady State)      | Appearance                                                          | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Let the capacitor sit at 40±2°C and relative humidity of 90 to 95% for 500<sup>±24</sup> hrs.</p> <p>Remove and let sit for 24±2 hrs. at room condition,* then measure.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | Capacitance Change                                                  | Within ±5.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | Q                                                                   | 350 min.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | I.R.                                                                | More than 1,000MΩ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | Dielectric Strength                                                 | In accordance with item No.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| 16                  | Life                         | Appearance                                                          | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Apply voltage as in Table for 1,000<sup>±48</sup> hrs. at maximum operating temperature ±3°C.</p> <p>Remove and let sit for 24±2 hrs. at room condition,* then measure.</p> <table><tr><th>Rated Voltage</th><th>Applied Voltage</th></tr><tr><td>DC250V</td><td>150% of the rated voltage</td></tr><tr><td>DC630V, DC1kV, DC2kV, DC3.15kV</td><td>120% of the rated voltage</td></tr></table> <p>The charge/discharge current is less than 50mA.</p>                                                                                                                                                                                                                                   | Rated Voltage  | Applied Voltage  | DC250V      | 150% of the rated voltage | DC630V, DC1kV, DC2kV, DC3.15kV | 120% of the rated voltage |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | Rated Voltage                                                       | Applied Voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | DC250V                                                              | 150% of the rated voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | DC630V, DC1kV, DC2kV, DC3.15kV                                      | 120% of the rated voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
|                     |                              | Capacitance Change                                                  | Within ±3.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| Q                   | 350 min.                     |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| I.R.                | More than 1,000MΩ            |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |
| Dielectric Strength | In accordance with item No.4 |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |                           |                                |                           |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |                                                                                                              |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

## Chip Monolithic Ceramic Capacitors (Medium Voltage)

# High Dielectric Constant Type GRM Series (250Vdc min.)

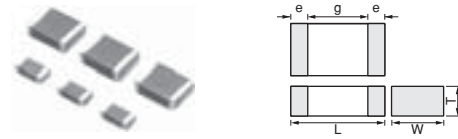
### ■ Features

1. A new monolithic structure for small, high capacitance capable of operating at high voltage levels.
2. Sn-plated external electrodes provide good solderability.
3. Use the GRM18/21/31 types with flow or reflow soldering, and other types with reflow soldering only.

### ■ Applications

1. Ideal for use on clamp-snubber circuits for switching power supplies.
2. Ideal for use as primary-secondary coupling for DC-DC converters.
3. Ideal for use on line filters and ringer detectors for telephones, facsimiles and modems.

Do not use these products in any Automotive Power train or Safety equipment including Battery chargers for Electric Vehicles and Plug-in Hybrids. Only Murata products clearly stipulated as "for Automotive use" can be used for automobile applications such as Power train and Safety equipment.



| Part Number | Dimensions (mm) |           |              |            |        |     |
|-------------|-----------------|-----------|--------------|------------|--------|-----|
|             | L               | W         | T            | e          | g min. |     |
| GRM188      | 1.6 ±0.1        | 0.8 ±0.1  | 0.8 ±0.1     | 0.2 to 0.5 | 0.4    |     |
| GRM21A      | 2.0 ±0.2        | 1.25 ±0.2 | 1.0 +0,-0.3  | 0.3 min.   | 0.7    |     |
| GRM21B      |                 |           | 1.25 ±0.2    |            |        |     |
| GRM31B      | 3.2 ±0.2        | 1.6 ±0.2  | 1.25 +0,-0.3 |            | 1.2    |     |
| GRM31C      |                 |           | 1.6 ±0.2     |            |        |     |
| GRM32Q      | 3.2 ±0.3        | 2.5 ±0.2  | 1.5 +0,-0.3  |            |        | 2.2 |
| GRM32D      |                 |           | 2.0 +0,-0.3  |            |        |     |
| GRM43Q      | 4.5 ±0.4        | 3.2 ±0.3  | 1.5 +0,-0.3  |            | 3.2    |     |
| GRM43D      |                 |           | 2.0 +0,-0.3  |            |        |     |
| GRM55D      | 5.7 ±0.4        | 5.0 ±0.4  | 2.0 +0,-0.3  |            |        |     |

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e  |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|--------------|
| GRM188R72E221KW07D | 250Vdc        | X7R (EIA)          | 220pF±10%   | 1.6           | 0.8          | 0.9                   | 0.4mm            | 0.2 to 0.5mm |
| GRM188R72E331KW07D | 250Vdc        | X7R (EIA)          | 330pF±10%   | 1.6           | 0.8          | 0.9                   | 0.4mm            | 0.2 to 0.5mm |
| GRM188R72E471KW07D | 250Vdc        | X7R (EIA)          | 470pF±10%   | 1.6           | 0.8          | 0.9                   | 0.4mm            | 0.2 to 0.5mm |
| GRM188R72E681KW07D | 250Vdc        | X7R (EIA)          | 680pF±10%   | 1.6           | 0.8          | 0.9                   | 0.4mm            | 0.2 to 0.5mm |
| GRM188R72E102KW07D | 250Vdc        | X7R (EIA)          | 1000pF±10%  | 1.6           | 0.8          | 0.9                   | 0.4mm            | 0.2 to 0.5mm |
| GRM21AR72E102KW01D | 250Vdc        | X7R (EIA)          | 1000pF±10%  | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.   |
| GRM188R72E152KW07D | 250Vdc        | X7R (EIA)          | 1500pF±10%  | 1.6           | 0.8          | 0.9                   | 0.4mm            | 0.2 to 0.5mm |
| GRM21AR72E152KW01D | 250Vdc        | X7R (EIA)          | 1500pF±10%  | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.   |
| GRM188R72E222KW07D | 250Vdc        | X7R (EIA)          | 2200pF±10%  | 1.6           | 0.8          | 0.9                   | 0.4mm            | 0.2 to 0.5mm |
| GRM21AR72E222KW01D | 250Vdc        | X7R (EIA)          | 2200pF±10%  | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.   |
| GRM21AR72E332KW01D | 250Vdc        | X7R (EIA)          | 3300pF±10%  | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.   |
| GRM21AR72E472KW01D | 250Vdc        | X7R (EIA)          | 4700pF±10%  | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.   |
| GRM21AR72E682KW01D | 250Vdc        | X7R (EIA)          | 6800pF±10%  | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.   |
| GRM21BR72E103KW03L | 250Vdc        | X7R (EIA)          | 10000pF±10% | 2             | 1.25         | 1.45                  | 0.7mm            | 0.3mm min.   |
| GRM31BR72E153KW01L | 250Vdc        | X7R (EIA)          | 15000pF±10% | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.   |
| GRM31BR72E223KW01L | 250Vdc        | X7R (EIA)          | 22000pF±10% | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.   |
| GRM31CR72E333KW03L | 250Vdc        | X7R (EIA)          | 33000pF±10% | 3.2           | 1.6          | 1.8                   | 1.2mm            | 0.3mm min.   |
| GRM31CR72E473KW03L | 250Vdc        | X7R (EIA)          | 47000pF±10% | 3.2           | 1.6          | 1.8                   | 1.2mm            | 0.3mm min.   |
| GRM31BR72E683KW01L | 250Vdc        | X7R (EIA)          | 68000pF±10% | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.   |
| GRM32QR72E683KW01L | 250Vdc        | X7R (EIA)          | 68000pF±10% | 3.2           | 2.5          | 1.5                   | 1.2mm            | 0.3mm min.   |
| GRM31CR72E104KW03L | 250Vdc        | X7R (EIA)          | 0.10μF±10%  | 3.2           | 1.6          | 1.8                   | 1.2mm            | 0.3mm min.   |
| GRM32DR72E104KW01L | 250Vdc        | X7R (EIA)          | 0.10μF±10%  | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.   |
| GRM32QR72E154KW01L | 250Vdc        | X7R (EIA)          | 0.15μF±10%  | 3.2           | 2.5          | 1.5                   | 1.2mm            | 0.3mm min.   |
| GRM43QR72E154KW01L | 250Vdc        | X7R (EIA)          | 0.15μF±10%  | 4.5           | 3.2          | 1.5                   | 2.2mm            | 0.3mm min.   |
| GRM32DR72E224KW01L | 250Vdc        | X7R (EIA)          | 0.22μF±10%  | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.   |

Continued on the following page.

Continued from the preceding page.

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GRM43DR72E224KW01L | 250Vdc        | X7R (EIA)          | 0.22μF±10%  | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRM43DR72E334KW01L | 250Vdc        | X7R (EIA)          | 0.33μF±10%  | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRM55DR72E334KW01L | 250Vdc        | X7R (EIA)          | 0.33μF±10%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GRM43DR72E474KW01L | 250Vdc        | X7R (EIA)          | 0.47μF±10%  | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRM55DR72E474KW01L | 250Vdc        | X7R (EIA)          | 0.47μF±10%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GRM55DR72E684KW01L | 250Vdc        | X7R (EIA)          | 0.68μF±10%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GRM55DR72E105KW01L | 250Vdc        | X7R (EIA)          | 1.0μF±10%   | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GRM31BR72J102KW01L | 630Vdc        | X7R (EIA)          | 1000pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRM31BR72J152KW01L | 630Vdc        | X7R (EIA)          | 1500pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRM31BR72J222KW01L | 630Vdc        | X7R (EIA)          | 2200pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRM31BR72J332KW01L | 630Vdc        | X7R (EIA)          | 3300pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRM31BR72J472KW01L | 630Vdc        | X7R (EIA)          | 4700pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRM31BR72J682KW01L | 630Vdc        | X7R (EIA)          | 6800pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRM31BR72J103KW01L | 630Vdc        | X7R (EIA)          | 10000pF±10% | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRM31CR72J153KW03L | 630Vdc        | X7R (EIA)          | 15000pF±10% | 3.2           | 1.6          | 1.8                   | 1.2mm            | 0.3mm min.  |
| GRM32QR72J223KW01L | 630Vdc        | X7R (EIA)          | 22000pF±10% | 3.2           | 2.5          | 1.5                   | 1.2mm            | 0.3mm min.  |
| GRM32DR72J333KW01L | 630Vdc        | X7R (EIA)          | 33000pF±10% | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.  |
| GRM32DR72J473KW01L | 630Vdc        | X7R (EIA)          | 47000pF±10% | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.  |
| GRM43QR72J683KW01L | 630Vdc        | X7R (EIA)          | 68000pF±10% | 4.5           | 3.2          | 1.5                   | 2.2mm            | 0.3mm min.  |
| GRM43DR72J104KW01L | 630Vdc        | X7R (EIA)          | 0.10μF±10%  | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRM55DR72J154KW01L | 630Vdc        | X7R (EIA)          | 0.15μF±10%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GRM55DR72J224KW01L | 630Vdc        | X7R (EIA)          | 0.22μF±10%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GRM31BR73A471KW01L | 1000Vdc       | X7R (EIA)          | 470pF±10%   | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRM31BR73A681KW01L | 1000Vdc       | X7R (EIA)          | 680pF±10%   | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRM31BR73A102KW01L | 1000Vdc       | X7R (EIA)          | 1000pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRM31BR73A152KW01L | 1000Vdc       | X7R (EIA)          | 1500pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRM31BR73A222KW01L | 1000Vdc       | X7R (EIA)          | 2200pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRM31BR73A332KW01L | 1000Vdc       | X7R (EIA)          | 3300pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRM31BR73A472KW01L | 1000Vdc       | X7R (EIA)          | 4700pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRM32QR73A682KW01L | 1000Vdc       | X7R (EIA)          | 6800pF±10%  | 3.2           | 2.5          | 1.5                   | 1.2mm            | 0.3mm min.  |
| GRM32QR73A103KW01L | 1000Vdc       | X7R (EIA)          | 10000pF±10% | 3.2           | 2.5          | 1.5                   | 1.2mm            | 0.3mm min.  |
| GRM32DR73A153KW01L | 1000Vdc       | X7R (EIA)          | 15000pF±10% | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.  |
| GRM32DR73A223KW01L | 1000Vdc       | X7R (EIA)          | 22000pF±10% | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.  |
| GRM43DR73A333KW01L | 1000Vdc       | X7R (EIA)          | 33000pF±10% | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRM43DR73A473KW01L | 1000Vdc       | X7R (EIA)          | 47000pF±10% | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRM55DR73A683KW01L | 1000Vdc       | X7R (EIA)          | 68000pF±10% | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GRM55DR73A104KW01L | 1000Vdc       | X7R (EIA)          | 0.10μF±10%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |

For General Purpose  
GRM/GRJ/GR3 Series

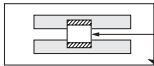
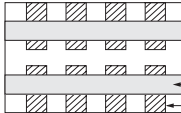
Only for Applications

AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information

## GRM Series Specifications and Test Methods

| No.  | Item                                    |             | Specifications                                                 | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |                  |   |      |   |                        |   |      |   |                        |   |      |
|------|-----------------------------------------|-------------|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------|---|------|---|------------------------|---|------|---|------------------------|---|------|
| 1    | Operating Temperature Range             |             | −55 to +125°C                                                  | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 2    | Appearance                              |             | No defects or abnormalities                                    | Visual inspection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 3    | Dimensions                              |             | Within the specified dimensions                                | Using calipers and micrometers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 4    | Dielectric Strength                     |             | No defects or abnormalities                                    | No failure should be observed when 150% of the rated voltage (200% of the rated voltage in case of rated voltage: DC250V, 120% of the rated voltage in case of rated voltage: DC1kV) is applied between the terminations for 1 to 5 sec., provided the charge/discharge current is less than 50mA.                                                                                                                                                                                                                                                                                                                                          |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 5    | Insulation Resistance (I.R.)            |             | C≥0.01μF: More than 100MΩ • μF<br>C<0.01μF: More than 10,000MΩ | The insulation resistance should be measured with DC500±50V (DC250±25V in case of rated voltage: DC250V) and within 60±5 sec. of charging.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 6    | Capacitance                             |             | Within the specified tolerance                                 | The capacitance/D.F. should be measured at a frequency of 1±0.2kHz and a voltage of AC1±0.2V(r.m.s.).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 7    | Dissipation Factor (D.F.)               |             | 0.025 max.                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 8    | Capacitance Temperature Characteristics |             | Cap. Change Within ±15% (Temp. Range: −55 to +125°C)           | <p>The capacitance measurement should be made at each step specified in the Table.</p> <table><tr><th>Step</th><th>Temperature (°C)</th></tr><tr><td>1</td><td>25±2</td></tr><tr><td>2</td><td>Min. Operating Temp.±3</td></tr><tr><td>3</td><td>25±2</td></tr><tr><td>4</td><td>Max. Operating Temp.±2</td></tr><tr><td>5</td><td>25±2</td></tr></table> <p>•Pretreatment<br/>Perform a heat treatment at 150±9°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p>                                                                                                                                                     | Step | Temperature (°C) | 1 | 25±2 | 2 | Min. Operating Temp.±3 | 3 | 25±2 | 4 | Max. Operating Temp.±2 | 5 | 25±2 |
| Step | Temperature (°C)                        |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 1    | 25±2                                    |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 2    | Min. Operating Temp.±3                  |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 3    | 25±2                                    |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 4    | Max. Operating Temp.±2                  |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 5    | 25±2                                    |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 9    | Adhesive Strength of Termination        |             | No removal of the terminations or other defect should occur.   | <p>Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 1.<br/>Then apply 10N force in the direction of the arrow.<br/>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock.</p> <div><p>10N (5N : Size 1.6×0.8mm only), 10±1s</p><p>Glass Epoxy Board</p></div> <p>Fig. 1</p>                                                                                                                                           |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 10   | Vibration Resistance                    | Appearance  | No defects or abnormalities                                    | <p>Solder the capacitor to the test jig (glass epoxy board).<br/>The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55Hz. The frequency range, from 10 to 55Hz and return to 10Hz, should be traversed in approximately 1 min. This motion should be applied for a period of 2 hrs. in each of 3 mutually perpendicular directions (total of 6 hrs.).</p> <div><p>Solder resist</p><p>Cu</p><p>Glass Epoxy Board</p></div> |      |                  |   |      |   |                        |   |      |   |                        |   |      |
|      |                                         | Capacitance | Within the specified tolerance                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |      |   |                        |   |      |   |                        |   |      |
|      |                                         | D.F.        | 0.025 max.                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |      |   |                        |   |      |   |                        |   |      |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page. 

For General Purpose  
GRM/GRJ/GR3 Series

Only for Applications

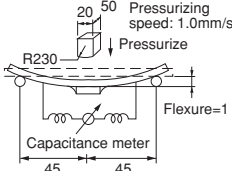
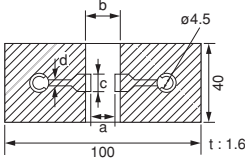
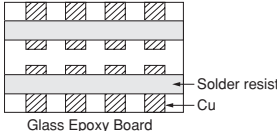
AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information

## GRM Series Specifications and Test Methods

Continued from the preceding page.

| No.                 | Item                                                           | Specifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Test Method                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|---------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|-------------|---|------------------------|--------|---|--------------|---------|-----|------------------------|------|-----|------------|--------|-----|------|---------|-----|-----|-----|---------|-----|-----|-----|---------|-----|-----|-----|---------|
| 11                  | Deflection                                                     | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 2.</p> <p>Then apply a force in the direction shown in Fig. 3.</p> <p>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock.</p>  <p>(in mm)</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|                     |                                                                |  <p>Fig. 2</p> <table border="1"><thead><tr><th rowspan="2">L×W<br/>(mm)</th><th colspan="4">Dimension (mm)</th></tr><tr><th>a</th><th>b</th><th>c</th><th>d</th></tr></thead><tbody><tr><td>1.6×0.8</td><td>1.0</td><td>3.0</td><td>1.2</td><td rowspan="6">1.0</td></tr><tr><td>2.0×1.25</td><td>1.2</td><td>4.0</td><td>1.65</td></tr><tr><td>3.2×1.6</td><td>2.2</td><td>5.0</td><td>2.0</td></tr><tr><td>3.2×2.5</td><td>2.2</td><td>5.0</td><td>2.9</td></tr><tr><td>4.5×3.2</td><td>3.5</td><td>7.0</td><td>3.7</td></tr><tr><td>5.7×5.0</td><td>4.5</td><td>8.0</td><td>5.6</td></tr></tbody></table> |                                                                                                                                                                                                                                                                                                                                                                                                                           | L×W<br>(mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Dimension (mm) |                  |             |   | a                      | b      | c | d            | 1.6×0.8 | 1.0 | 3.0                    | 1.2  | 1.0 | 2.0×1.25   | 1.2    | 4.0 | 1.65 | 3.2×1.6 | 2.2 | 5.0 | 2.0 | 3.2×2.5 | 2.2 | 5.0 | 2.9 | 4.5×3.2 | 3.5 | 7.0 | 3.7 | 5.7×5.0 |
| L×W<br>(mm)         | Dimension (mm)                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|                     | a                                                              | b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | c                                                                                                                                                                                                                                                                                                                                                                                                                         | d                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| 1.6×0.8             | 1.0                                                            | 3.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1.2                                                                                                                                                                                                                                                                                                                                                                                                                       | 1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| 2.0×1.25            | 1.2                                                            | 4.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1.65                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| 3.2×1.6             | 2.2                                                            | 5.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2.0                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| 3.2×2.5             | 2.2                                                            | 5.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2.9                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| 4.5×3.2             | 3.5                                                            | 7.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3.7                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| 5.7×5.0             | 4.5                                                            | 8.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5.6                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| 12                  | Solderability of Termination                                   | 75% of the terminations are to be soldered evenly and continuously.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>Immerse the capacitor in a solution of ethanol (JIS-K-8101) and rosin (JIS-K-5902) (25% rosin in weight proportion). Immerse in solder solution for 2±0.5 sec.</p> <p>Immersing speed: 25±2.5mm/s</p> <p>Temp. of solder: 245±5°C Lead Free Solder (Sn-3.0Ag-0.5Cu) 235±5°C H60A or H63A Eutectic Solder</p>                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| 13                  | Resistance to Soldering Heat                                   | Appearance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                        | <p>Preheat the capacitor at 120 to 150°C* for 1 min.</p> <p>Immerse the capacitor in solder solution at 260±5°C for 10±1 sec. Let sit at room condition* for 24±2 hrs., then measure.</p> <p>•Immersing speed: 25±2.5mm/s</p> <p>•Pretreatment</p> <p>Perform a heat treatment at 150±18°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p> <p>*Preheating for more than 3.2×2.5mm</p> <table border="1"><thead><tr><th>Step</th><th>Temperature</th><th>Time</th></tr></thead><tbody><tr><td>1</td><td>100 to 120°C</td><td>1 min.</td></tr><tr><td>2</td><td>170 to 200°C</td><td>1 min.</td></tr></tbody></table>                                                                                                                                                                                                                   | Step           | Temperature      | Time        | 1 | 100 to 120°C           | 1 min. | 2 | 170 to 200°C | 1 min.  |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|                     |                                                                | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Temperature                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Time           |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|                     |                                                                | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 100 to 120°C                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1 min.         |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|                     |                                                                | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 170 to 200°C                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1 min.         |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|                     |                                                                | Capacitance Change                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Within ±10%                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| D.F.                | 0.025 max.                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| I.R.                | C≥0.01μF: More than 100MΩ • μF<br>C<0.01μF: More than 10,000MΩ |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| Dielectric Strength | In accordance with item No.4                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| 14                  | Temperature Cycle                                              | Appearance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                        | <p>Fix the capacitor to the supporting jig (glass epoxy board) shown in Fig. 4.</p> <p>Perform the 5 cycles according to the 4 heat treatments listed in the following table.</p> <p>Let sit for 24±2 hrs. at room condition,* then measure.</p> <table border="1"><thead><tr><th>Step</th><th>Temperature (°C)</th><th>Time (min.)</th></tr></thead><tbody><tr><td>1</td><td>Min. Operating Temp.±3</td><td>30±3</td></tr><tr><td>2</td><td>Room Temp.</td><td>2 to 3</td></tr><tr><td>3</td><td>Max. Operating Temp.±2</td><td>30±3</td></tr><tr><td>4</td><td>Room Temp.</td><td>2 to 3</td></tr></tbody></table> <p>•Pretreatment</p> <p>Perform a heat treatment at 150±18°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p>  <p>Fig. 4</p> | Step           | Temperature (°C) | Time (min.) | 1 | Min. Operating Temp.±3 | 30±3   | 2 | Room Temp.   | 2 to 3  | 3   | Max. Operating Temp.±2 | 30±3 | 4   | Room Temp. | 2 to 3 |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|                     |                                                                | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Temperature (°C)                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Time (min.)    |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|                     |                                                                | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Min. Operating Temp.±3                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 30±3           |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|                     |                                                                | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Room Temp.                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2 to 3         |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|                     |                                                                | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Max. Operating Temp.±2                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 30±3           |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| 4                   | Room Temp.                                                     | 2 to 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| Capacitance Change  | Within ±7.5%                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| D.F.                | 0.025 max.                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| I.R.                | C≥0.01μF: More than 100MΩ • μF<br>C<0.01μF: More than 10,000MΩ |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| Dielectric Strength | In accordance with item No.4                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
| 15                  | Humidity (Steady State)                                        | Appearance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                        | <p>Let the capacitor sit at 40±2°C and relative humidity of 90 to 95% for 500±24hrs.</p> <p>Remove and let sit for 24±2 hrs. at room condition,* then measure.</p> <p>•Pretreatment</p> <p>Perform a heat treatment at 150±18°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|                     |                                                                | Capacitance Change                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Within ±15%                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|                     |                                                                | D.F.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.05 max.                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|                     |                                                                | I.R.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | C≥0.01μF: More than 10MΩ • μF<br>C<0.01μF: More than 1,000MΩ                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |
|                     |                                                                | Dielectric Strength                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | In accordance with item No.4                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |      |         |     |     |     |         |     |     |     |         |     |     |     |         |

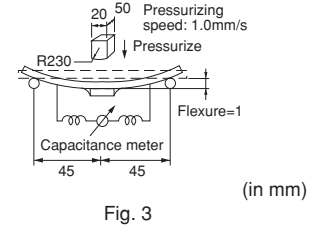


Fig. 3

\*Preheating for more than 3.2×2.5mm

| Step | Temperature  | Time   |
|------|--------------|--------|
| 1    | 100 to 120°C | 1 min. |
| 2    | 170 to 200°C | 1 min. |

Let sit for 24±2 hrs. at room condition,\* then measure.

| Step | Temperature (°C)       | Time (min.) |
|------|------------------------|-------------|
| 1    | Min. Operating Temp.±3 | 30±3        |
| 2    | Room Temp.             | 2 to 3      |
| 3    | Max. Operating Temp.±2 | 30±3        |
| 4    | Room Temp.             | 2 to 3      |

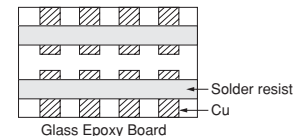


Fig. 4

Continued on the following page. ➤

## GRM Series Specifications and Test Methods

Continued from the preceding page.

| No. | Item                                                   |                     | Specifications                                                                                             | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----|--------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16  | Life                                                   | Appearance          | No marking defects                                                                                         | <p>Apply 120% of the rated voltage (150% of the rated voltage in case of rated voltage: DC250V, 110% of the rated voltage in case of rated voltage: DC1kV) for 1,000<math>\pm</math>48hrs. at maximum operating temperature <math>\pm</math>3°C. Remove and let sit for 24<math>\pm</math>2hrs. at room condition,* then measure.</p> <p>The charge/discharge current is less than 50mA.</p> <p>•Pretreatment<br/>Apply test voltage for 60<math>\pm</math>5 min. at test temperature. Remove and let sit for 24<math>\pm</math>2 hrs. at room condition.*</p> |
|     |                                                        | Capacitance Change  | Within $\pm$ 15% (rated voltage: DC250V, DC630V)<br>Within $\pm$ 20% (rated voltage: DC1kV)                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|     |                                                        | D.F.                | 0.05 max.                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|     |                                                        | I.R.                | C $\geq$ 0.01 $\mu$ F: More than 10M $\Omega$ $\cdot$ $\mu$ F<br>C<0.01 $\mu$ F: More than 1,000M $\Omega$ |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|     |                                                        | Dielectric Strength | In accordance with item No.4                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 17  | Humidity Loading<br>(Application: DC250V, DC630V item) | Appearance          | No marking defects                                                                                         | <p>Apply the rated voltage at 40<math>\pm</math>2°C and relative humidity of 90 to 95% for 500<math>\pm</math>24hrs.</p> <p>Remove and let sit for 24<math>\pm</math>2 hrs. at room condition,* then measure.</p> <p>•Pretreatment<br/>Apply test voltage for 60<math>\pm</math>5 min. at test temperature. Remove and let sit for 24<math>\pm</math>2 hrs. at room condition.*</p>                                                                                                                                                                            |
|     |                                                        | Capacitance Change  | Within $\pm$ 15%                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|     |                                                        | D.F.                | 0.05 max.                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|     |                                                        | I.R.                | C $\geq$ 0.01 $\mu$ F: More than 10M $\Omega$ $\cdot$ $\mu$ F<br>C<0.01 $\mu$ F: More than 1,000M $\Omega$ |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|     |                                                        | Dielectric Strength | In accordance with item No.4                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

For General Purpose  
GRM/GRJ/GR3 Series

Only for Applications

AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information

## Chip Monolithic Ceramic Capacitors (Medium Voltage)

# Soft Termination Type GRJ Series

Deflecting crack

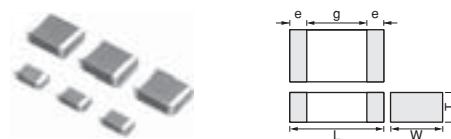
### ■ Features

1. Improves endurance against Board Bending Stress.
2. Reduces the board bending stress by the conductive polymer termination.
3. Use the GRJ21/31 types with flow or reflow soldering, and other types with reflow soldering only.

### ■ Applications

1. Ideal for use on clamp-snubber circuits for switching power supplies.
2. Ideal for use as primary-secondary coupling for DC-DC converters.
3. Ideal for use on line filters and ringer detectors for telephones, facsimiles and modems.

Do not use these products in any Automotive Power train or Safety equipment including Battery chargers for Electric Vehicles and Plug-in Hybrids.  
Only Murata products clearly stipulated as "for Automotive use" can be used for automobile applications such as Power train and Safety equipment.



| Part Number | Dimensions (mm) |           |              |          |        |
|-------------|-----------------|-----------|--------------|----------|--------|
|             | L               | W         | T            | e        | g min. |
| GRJ21A      | 2.0 ±0.2        | 1.25 ±0.2 | 1.0 +0,-0.3  | 0.3 min. | 0.7    |
| GRJ21B      |                 |           | 1.25 ±0.2    |          |        |
| GRJ31B      | 3.2 ±0.2        | 1.6 ±0.2  | 1.25 +0,-0.3 |          | 1.2    |
| GRJ31C      |                 |           | 1.6 ±0.2     |          |        |
| GRJ32Q      | 3.2 ±0.3        | 2.5 ±0.2  | 1.5 +0,-0.3  |          |        |
| GRJ32D      |                 |           | 2.0 +0,-0.3  |          |        |
| GRJ43Q      | 4.5 ±0.4        | 3.2 ±0.3  | 1.5 +0,-0.3  |          | 2.2    |
| GRJ43D      |                 |           | 2.0 +0,-0.3  |          |        |
| GRJ55D      | 5.7 ±0.4        | 5.0 ±0.4  | 2.0 +0,-0.3  |          | 3.2    |

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GRJ21AR72E102KWJ1D | 250Vdc        | X7R (EIA)          | 1000pF±10%  | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRJ21AR72E152KWJ1D | 250Vdc        | X7R (EIA)          | 1500pF±10%  | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRJ21AR72E222KWJ1D | 250Vdc        | X7R (EIA)          | 2200pF±10%  | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRJ21AR72E332KWJ1D | 250Vdc        | X7R (EIA)          | 3300pF±10%  | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRJ21AR72E472KWJ1D | 250Vdc        | X7R (EIA)          | 4700pF±10%  | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRJ21AR72E682KWJ1D | 250Vdc        | X7R (EIA)          | 6800pF±10%  | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GRJ21BR72E103KWJ3L | 250Vdc        | X7R (EIA)          | 10000pF±10% | 2             | 1.25         | 1.45                  | 0.7mm            | 0.3mm min.  |
| GRJ21BR72E153KWJ3L | 250Vdc        | X7R (EIA)          | 15000pF±10% | 2             | 1.25         | 1.45                  | 0.7mm            | 0.3mm min.  |
| GRJ31BR72E153KWJ1L | 250Vdc        | X7R (EIA)          | 15000pF±10% | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ21BR72E223KWJ3L | 250Vdc        | X7R (EIA)          | 22000pF±10% | 2             | 1.25         | 1.45                  | 0.7mm            | 0.3mm min.  |
| GRJ31BR72E223KWJ1L | 250Vdc        | X7R (EIA)          | 22000pF±10% | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31CR72E333KWJ3L | 250Vdc        | X7R (EIA)          | 33000pF±10% | 3.2           | 1.6          | 1.8                   | 1.2mm            | 0.3mm min.  |
| GRJ31CR72E473KWJ3L | 250Vdc        | X7R (EIA)          | 47000pF±10% | 3.2           | 1.6          | 1.8                   | 1.2mm            | 0.3mm min.  |
| GRJ31BR72E683KWJ1L | 250Vdc        | X7R (EIA)          | 68000pF±10% | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ32QR72E683KWJ1L | 250Vdc        | X7R (EIA)          | 68000pF±10% | 3.2           | 2.5          | 1.5                   | 1.2mm            | 0.3mm min.  |
| GRJ31CR72E104KWJ3L | 250Vdc        | X7R (EIA)          | 0.10μF±10%  | 3.2           | 1.6          | 1.8                   | 1.2mm            | 0.3mm min.  |
| GRJ32DR72E104KWJ1L | 250Vdc        | X7R (EIA)          | 0.10μF±10%  | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.  |
| GRJ32QR72E154KWJ1L | 250Vdc        | X7R (EIA)          | 0.15μF±10%  | 3.2           | 2.5          | 1.5                   | 1.2mm            | 0.3mm min.  |
| GRJ43QR72E154KWJ1L | 250Vdc        | X7R (EIA)          | 0.15μF±10%  | 4.5           | 3.2          | 1.5                   | 2.2mm            | 0.3mm min.  |
| GRJ32DR72E224KWJ1L | 250Vdc        | X7R (EIA)          | 0.22μF±10%  | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.  |
| GRJ43DR72E224KWJ1L | 250Vdc        | X7R (EIA)          | 0.22μF±10%  | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRJ43DR72E334KWJ1L | 250Vdc        | X7R (EIA)          | 0.33μF±10%  | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRJ55DR72E334KWJ1L | 250Vdc        | X7R (EIA)          | 0.33μF±10%  | 5.7           | 5            | 2                     | 3.2mm            | 0.3mm min.  |
| GRJ43DR72E474KWJ1L | 250Vdc        | X7R (EIA)          | 0.47μF±10%  | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRJ55DR72E474KWJ1L | 250Vdc        | X7R (EIA)          | 0.47μF±10%  | 5.7           | 5            | 2                     | 3.2mm            | 0.3mm min.  |
| GRJ55DR72E684KWJ1L | 250Vdc        | X7R (EIA)          | 0.68μF±10%  | 5.7           | 5            | 2                     | 3.2mm            | 0.3mm min.  |
| GRJ55DR72E105KWJ1L | 250Vdc        | X7R (EIA)          | 1.0μF±10%   | 5.7           | 5            | 2                     | 3.2mm            | 0.3mm min.  |

Continued on the following page. ↗

Continued from the preceding page.

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GRJ31BR72J102KWJ1L | 630Vdc        | X7R (EIA)          | 1000pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31BR72J152KWJ1L | 630Vdc        | X7R (EIA)          | 1500pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31BR72J222KWJ1L | 630Vdc        | X7R (EIA)          | 2200pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31BR72J332KWJ1L | 630Vdc        | X7R (EIA)          | 3300pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31BR72J472KWJ1L | 630Vdc        | X7R (EIA)          | 4700pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31BR72J682KWJ1L | 630Vdc        | X7R (EIA)          | 6800pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31BR72J103KWJ1L | 630Vdc        | X7R (EIA)          | 10000pF±10% | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31CR72J153KWJ3L | 630Vdc        | X7R (EIA)          | 15000pF±10% | 3.2           | 1.6          | 1.8                   | 1.2mm            | 0.3mm min.  |
| GRJ31CR72J223KWJ3L | 630Vdc        | X7R (EIA)          | 22000pF±10% | 3.2           | 1.6          | 1.8                   | 1.2mm            | 0.3mm min.  |
| GRJ32QR72J223KWJ1L | 630Vdc        | X7R (EIA)          | 22000pF±10% | 3.2           | 2.5          | 1.5                   | 1.2mm            | 0.3mm min.  |
| GRJ32DR72J333KWJ1L | 630Vdc        | X7R (EIA)          | 33000pF±10% | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.  |
| GRJ32DR72J473KWJ1L | 630Vdc        | X7R (EIA)          | 47000pF±10% | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.  |
| GRJ43QR72J683KWJ1L | 630Vdc        | X7R (EIA)          | 68000pF±10% | 4.5           | 3.2          | 1.5                   | 2.2mm            | 0.3mm min.  |
| GRJ43DR72J104KWJ1L | 630Vdc        | X7R (EIA)          | 0.10μF±10%  | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRJ55DR72J154KWJ1L | 630Vdc        | X7R (EIA)          | 0.15μF±10%  | 5.7           | 5            | 2                     | 3.2mm            | 0.3mm min.  |
| GRJ55DR72J224KWJ1L | 630Vdc        | X7R (EIA)          | 0.22μF±10%  | 5.7           | 5            | 2                     | 3.2mm            | 0.3mm min.  |
| GRJ31BR73A471KWJ1L | 1000Vdc       | X7R (EIA)          | 470pF±10%   | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31BR73A681KWJ1L | 1000Vdc       | X7R (EIA)          | 680pF±10%   | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31BR73A102KWJ1L | 1000Vdc       | X7R (EIA)          | 1000pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31BR73A152KWJ1L | 1000Vdc       | X7R (EIA)          | 1500pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31BR73A222KWJ1L | 1000Vdc       | X7R (EIA)          | 2200pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31BR73A332KWJ1L | 1000Vdc       | X7R (EIA)          | 3300pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31BR73A472KWJ1L | 1000Vdc       | X7R (EIA)          | 4700pF±10%  | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GRJ31CR73A682KWJ3L | 1000Vdc       | X7R (EIA)          | 6800pF±10%  | 3.2           | 1.6          | 1.8                   | 1.2mm            | 0.3mm min.  |
| GRJ32QR73A682KWJ1L | 1000Vdc       | X7R (EIA)          | 6800pF±10%  | 3.2           | 2.5          | 1.5                   | 1.2mm            | 0.3mm min.  |
| GRJ31CR73A103KWJ3L | 1000Vdc       | X7R (EIA)          | 10000pF±10% | 3.2           | 1.6          | 1.8                   | 1.2mm            | 0.3mm min.  |
| GRJ32QR73A103KWJ1L | 1000Vdc       | X7R (EIA)          | 10000pF±10% | 3.2           | 2.5          | 1.5                   | 1.2mm            | 0.3mm min.  |
| GRJ32DR73A153KWJ1L | 1000Vdc       | X7R (EIA)          | 15000pF±10% | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.  |
| GRJ32DR73A223KWJ1L | 1000Vdc       | X7R (EIA)          | 22000pF±10% | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.  |
| GRJ43DR73A333KWJ1L | 1000Vdc       | X7R (EIA)          | 33000pF±10% | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRJ43DR73A473KWJ1L | 1000Vdc       | X7R (EIA)          | 47000pF±10% | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GRJ55DR73A683KWJ1L | 1000Vdc       | X7R (EIA)          | 68000pF±10% | 5.7           | 5            | 2                     | 3.2mm            | 0.3mm min.  |
| GRJ55DR73A104KWJ1L | 1000Vdc       | X7R (EIA)          | 0.10μF±10%  | 5.7           | 5            | 2                     | 3.2mm            | 0.3mm min.  |

For General Purpose  
GRM/GRJ/GR3 Series

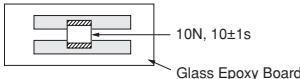
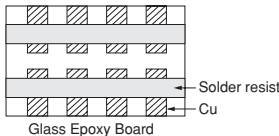
Only for Applications

AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information

## GRJ Series Specifications and Test Methods

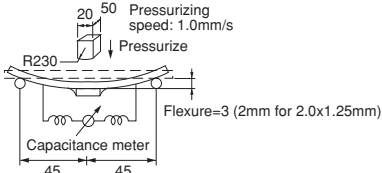
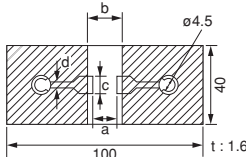
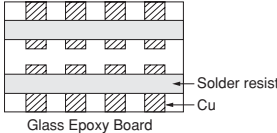
| No.           | Item                                    |             | Specifications                                                 | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
|---------------|-----------------------------------------|-------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------|--------|---------------------------|--------|---------------------------|-------|---------------------------|---|------------------------|---|------|
| 1             | Operating Temperature Range             |             | −55 to +125°C                                                  | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| 2             | Appearance                              |             | No defects or abnormalities                                    | Visual inspection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| 3             | Dimensions                              |             | Within the specified dimensions                                | Using calipers and micrometers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| 4             | Dielectric Strength                     |             | No defects or abnormalities                                    | No failure should be observed when voltage in the Table is applied between the terminations for 1 to 5 sec., provided the charge/discharge current is less than 50mA. <table><tr><th>Rated Voltage</th><th>Test Voltage</th></tr><tr><td>DC250V</td><td>200% of the rated voltage</td></tr><tr><td>DC630V</td><td>150% of the rated voltage</td></tr><tr><td>DC1kV</td><td>120% of the rated voltage</td></tr></table>                                                                                                                                                         | Rated Voltage | Test Voltage     | DC250V | 200% of the rated voltage | DC630V | 150% of the rated voltage | DC1kV | 120% of the rated voltage |   |                        |   |      |
| Rated Voltage | Test Voltage                            |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| DC250V        | 200% of the rated voltage               |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| DC630V        | 150% of the rated voltage               |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| DC1kV         | 120% of the rated voltage               |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| 5             | Insulation Resistance (I.R.)            |             | C≥0.01μF: More than 100MΩ • μF<br>C<0.01μF: More than 10,000MΩ | The insulation resistance should be measured with DC500±50V (DC250±25V in case of rated voltage: DC250V) and within 60±5 sec. of charging.                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| 6             | Capacitance                             |             | Within the specified tolerance                                 | The capacitance/D.F. should be measured at a frequency of 1±0.2kHz and a voltage of AC1±0.2V(r.m.s.).                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| 7             | Dissipation Factor (D.F.)               |             | 0.025 max.                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| 8             | Capacitance Temperature Characteristics |             | Cap. Change Within ±15% (Temp. Range: −55 to +125°C)           | The capacitance measurement should be made at each step specified in the Table. <table><tr><th>Step</th><th>Temperature (°C)</th></tr><tr><td>1</td><td>25±2</td></tr><tr><td>2</td><td>Min. Operating Temp.±3</td></tr><tr><td>3</td><td>25±2</td></tr><tr><td>4</td><td>Max. Operating Temp.±2</td></tr><tr><td>5</td><td>25±2</td></tr></table> •Pretreatment<br>Perform a heat treatment at 150±9°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*                                                                                                       | Step          | Temperature (°C) | 1      | 25±2                      | 2      | Min. Operating Temp.±3    | 3     | 25±2                      | 4 | Max. Operating Temp.±2 | 5 | 25±2 |
| Step          | Temperature (°C)                        |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| 1             | 25±2                                    |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| 2             | Min. Operating Temp.±3                  |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| 3             | 25±2                                    |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| 4             | Max. Operating Temp.±2                  |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| 5             | 25±2                                    |             |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| 9             | Adhesive Strength of Termination        |             | No removal of the terminations or other defect should occur.   | Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 1.<br>Then apply 10N force in the direction of the arrow.<br>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock. <div><p>Fig. 1</p></div>                                                                                                                                                            |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
| 10            | Vibration Resistance                    | Appearance  | No defects or abnormalities                                    | Solder the capacitor to the test jig (glass epoxy board).<br>The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55Hz. The frequency range, from 10 to 55Hz and return to 10Hz, should be traversed in approximately 1 min. This motion should be applied for a period of 2 hrs. in each of 3 mutually perpendicular directions (total of 6 hrs.). <div></div> |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
|               |                                         | Capacitance | Within the specified tolerance                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |
|               |                                         | D.F.        | 0.025 max.                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |                  |        |                           |        |                           |       |                           |   |                        |   |      |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page. 

## GRJ Series Specifications and Test Methods

Continued from the preceding page.

| No.                 | Item                                                           | Specifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|---------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------|-------------|---|------------------------|--------|---|--------------|--------|----------|------------------------|------|------|------------|---------|-----|-----|-----|---------|-----|-----|-----|---------|-----|-----|-----|---------|-----|-----|-----|
| 11                  | Appearance                                                     | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 2.</p> <p>Then apply a force in the direction shown in Fig. 3.</p> <p>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock.</p>  <p>(in mm)</p> <p>Fig. 3</p>                                                                                                                                                                                                                                                                                                                                                                                                         |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     | Capacitance Change                                             | Within $\pm 12.5\%$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     | Deflection                                                     |  <p>Fig. 2</p> <table><thead><tr><th rowspan="2">L×W (mm)</th><th colspan="4">Dimension (mm)</th></tr><tr><th>a</th><th>b</th><th>c</th><th>d</th></tr></thead><tbody><tr><td>2.0×1.25</td><td>1.2</td><td>4.0</td><td>1.65</td><td rowspan="5">1.0</td></tr><tr><td>3.2×1.6</td><td>2.2</td><td>5.0</td><td>2.0</td></tr><tr><td>3.2×2.5</td><td>2.2</td><td>5.0</td><td>2.9</td></tr><tr><td>4.5×3.2</td><td>3.5</td><td>7.0</td><td>3.7</td></tr><tr><td>5.7×5.0</td><td>4.5</td><td>8.0</td><td>5.6</td></tr></tbody></table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | L×W (mm)    | Dimension (mm)   |             |   |                        | a      | b | c            | d      | 2.0×1.25 | 1.2                    | 4.0  | 1.65 | 1.0        | 3.2×1.6 | 2.2 | 5.0 | 2.0 | 3.2×2.5 | 2.2 | 5.0 | 2.9 | 4.5×3.2 | 3.5 | 7.0 | 3.7 | 5.7×5.0 | 4.5 | 8.0 | 5.6 |
|                     | L×W (mm)                                                       | Dimension (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     |                                                                | a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | b           | c                | d           |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 2.0×1.25            | 1.2                                                            | 4.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.65                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1.0         |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 3.2×1.6             | 2.2                                                            | 5.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 3.2×2.5             | 2.2                                                            | 5.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2.9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 4.5×3.2             | 3.5                                                            | 7.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 5.7×5.0             | 4.5                                                            | 8.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 12                  | Solderability of Termination                                   | 75% of the terminations are to be soldered evenly and continuously.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>Immerse the capacitor in a solution of ethanol (JIS-K-8101) and rosin (JIS-K-5902) (25% rosin in weight proportion). Immerse in solder solution for 2±0.5 sec. Immersing speed: 25±2.5mm/s</p> <p>Temp. of solder: 245±5°C Lead Free Solder (Sn-3.0Ag-0.5Cu) 235±5°C H60A or H63A Eutectic Solder</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 13                  | Appearance                                                     | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Preheat the capacitor at 120 to 150°C* for 1 min.</p> <p>Immerse the capacitor in solder solution at 260±5°C for 10±1 sec. Let sit at room condition* for 24±2 hrs., then measure.</p> <p>•Immersing speed: 25±2.5mm/s</p> <p>•Pretreatment</p> <p>Perform a heat treatment at 150±18°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p> <p>*Preheating for more than 3.2×2.5mm</p> <table><thead><tr><th>Step</th><th>Temperature</th><th>Time</th></tr></thead><tbody><tr><td>1</td><td>100 to 120°C</td><td>1 min.</td></tr><tr><td>2</td><td>170 to 200°C</td><td>1 min.</td></tr></tbody></table>                                                                                                                                                                                                                   | Step        | Temperature      | Time        | 1 | 100 to 120°C           | 1 min. | 2 | 170 to 200°C | 1 min. |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     | Step                                                           | Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Time        |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     | 1                                                              | 100 to 120°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1 min.      |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     | 2                                                              | 170 to 200°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1 min.      |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     | Resistance to Soldering Heat                                   | Within $\pm 10\%$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| D.F.                | 0.025 max.                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| I.R.                | C≥0.01μF: More than 100MΩ • μF<br>C<0.01μF: More than 10,000MΩ |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| Dielectric Strength | In accordance with item No.4                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 14                  | Appearance                                                     | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Fix the capacitor to the supporting jig (glass epoxy board) shown in Fig. 4.</p> <p>Perform the 5 cycles according to the 4 heat treatments listed in the following table.</p> <p>Let sit for 24±2 hrs. at room condition,* then measure.</p> <table><thead><tr><th>Step</th><th>Temperature (°C)</th><th>Time (min.)</th></tr></thead><tbody><tr><td>1</td><td>Min. Operating Temp.±3</td><td>30±3</td></tr><tr><td>2</td><td>Room Temp.</td><td>2 to 3</td></tr><tr><td>3</td><td>Max. Operating Temp.±2</td><td>30±3</td></tr><tr><td>4</td><td>Room Temp.</td><td>2 to 3</td></tr></tbody></table> <p>•Pretreatment</p> <p>Perform a heat treatment at 150±18°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p>  <p>Fig. 4</p> | Step        | Temperature (°C) | Time (min.) | 1 | Min. Operating Temp.±3 | 30±3   | 2 | Room Temp.   | 2 to 3 | 3        | Max. Operating Temp.±2 | 30±3 | 4    | Room Temp. | 2 to 3  |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     | Step                                                           | Temperature (°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Time (min.) |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     | 1                                                              | Min. Operating Temp.±3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 30±3        |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     | 2                                                              | Room Temp.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2 to 3      |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     | 3                                                              | Max. Operating Temp.±2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 30±3        |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 4                   | Room Temp.                                                     | 2 to 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| Capacitance Change  | Within $\pm 7.5\%$                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| D.F.                | 0.025 max.                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| I.R.                | C≥0.01μF: More than 100MΩ • μF<br>C<0.01μF: More than 10,000MΩ |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| Dielectric Strength | In accordance with item No.4                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 15                  | Appearance                                                     | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Let the capacitor sit at 40±2°C and relative humidity of 90 to 95% for 500±24hrs.</p> <p>Remove and let sit for 24±2 hrs. at room condition,* then measure.</p> <p>•Pretreatment</p> <p>Perform a heat treatment at 150±18°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     | Capacitance Change                                             | Within $\pm 15\%$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     | D.F.                                                           | 0.05 max.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     | I.R.                                                           | C≥0.01μF: More than 10MΩ • μF<br>C<0.01μF: More than 1,000MΩ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                     | Dielectric Strength                                            | In accordance with item No.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |                  |             |   |                        |        |   |              |        |          |                        |      |      |            |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page. ➤

## GRJ Series Specifications and Test Methods

Continued from the preceding page.

| No.                 | Item                                                         |                                                                                                                                                                                   | Specifications                                                                    | Test Method                                                                                                                                                                                                                                         |               |                 |        |                           |        |                           |       |                           |
|---------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|--------|---------------------------|--------|---------------------------|-------|---------------------------|
| 16                  | Life                                                         | Appearance                                                                                                                                                                        | No marking defects                                                                | Apply voltage as in Table for 1,000±48hrs. at maximum operating temperature ±3°C. Remove and let sit for 24±2 hrs. at room condition,* then measure.                                                                                                |               |                 |        |                           |        |                           |       |                           |
|                     |                                                              | Capacitance Change                                                                                                                                                                | Within ±15% (rated voltage: DC250V, DC630V)<br>Within ±20% (rated voltage: DC1kV) |                                                                                                                                                                                                                                                     |               |                 |        |                           |        |                           |       |                           |
|                     |                                                              | D.F.                                                                                                                                                                              | 0.05 max.                                                                         | <table><tr><th>Rated Voltage</th><th>Applied Voltage</th></tr><tr><td>DC250V</td><td>150% of the rated voltage</td></tr><tr><td>DC630V</td><td>120% of the rated voltage</td></tr><tr><td>DC1kV</td><td>110% of the rated voltage</td></tr></table> | Rated Voltage | Applied Voltage | DC250V | 150% of the rated voltage | DC630V | 120% of the rated voltage | DC1kV | 110% of the rated voltage |
|                     |                                                              | Rated Voltage                                                                                                                                                                     | Applied Voltage                                                                   |                                                                                                                                                                                                                                                     |               |                 |        |                           |        |                           |       |                           |
|                     |                                                              | DC250V                                                                                                                                                                            | 150% of the rated voltage                                                         |                                                                                                                                                                                                                                                     |               |                 |        |                           |        |                           |       |                           |
| DC630V              | 120% of the rated voltage                                    |                                                                                                                                                                                   |                                                                                   |                                                                                                                                                                                                                                                     |               |                 |        |                           |        |                           |       |                           |
| DC1kV               | 110% of the rated voltage                                    |                                                                                                                                                                                   |                                                                                   |                                                                                                                                                                                                                                                     |               |                 |        |                           |        |                           |       |                           |
| I.R.                | C≥0.01μF: More than 10MΩ • μF<br>C<0.01μF: More than 1,000MΩ |                                                                                                                                                                                   |                                                                                   |                                                                                                                                                                                                                                                     |               |                 |        |                           |        |                           |       |                           |
| Dielectric Strength | In accordance with item No.4                                 | The charge/discharge current is less than 50mA.<br>•Pretreatment<br>Apply test voltage for 60±5 min. at test temperature.<br>Remove and let sit for 24±2 hrs. at room condition.* |                                                                                   |                                                                                                                                                                                                                                                     |               |                 |        |                           |        |                           |       |                           |
| 17                  | Humidity Loading<br>(Application: DC250V, DC630V item)       | Appearance                                                                                                                                                                        | No marking defects                                                                | Apply the rated voltage at 40±2°C and relative humidity of 90 to 95% for 500±24hrs.<br>Remove and let sit for 24±2 hrs. at room condition,* then measure.                                                                                           |               |                 |        |                           |        |                           |       |                           |
|                     |                                                              | Capacitance Change                                                                                                                                                                | Within ±15%                                                                       |                                                                                                                                                                                                                                                     |               |                 |        |                           |        |                           |       |                           |
|                     |                                                              | D.F.                                                                                                                                                                              | 0.05 max.                                                                         | •Pretreatment<br>Apply test voltage for 60±5 min. at test temperature.<br>Remove and let sit for 24±2 hrs. at room condition.*                                                                                                                      |               |                 |        |                           |        |                           |       |                           |
|                     |                                                              | I.R.                                                                                                                                                                              | C≥0.01μF: More than 10MΩ • μF<br>C<0.01μF: More than 1,000MΩ                      |                                                                                                                                                                                                                                                     |               |                 |        |                           |        |                           |       |                           |
|                     |                                                              | Dielectric Strength                                                                                                                                                               | In accordance with item No.4                                                      |                                                                                                                                                                                                                                                     |               |                 |        |                           |        |                           |       |                           |

\* "Room condition" Temperature: 15 to  $35^{\circ}\text{C}$ , Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

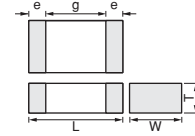
## Chip Monolithic Ceramic Capacitors (Medium Voltage)

# Large Capacitance and High Allowable Ripple Current GR3 Series

**Anti-noise**

### ■ Features

1. This series can provide higher capacitance value under DC-Bias condition, compare with previous X7R char.
2. Improve the performance of ripple-resistance compared with X7R char.
3. Reduce acoustic noise.
4. High reliability for board bending stress
5. Sn-plated external electrodes provide good soldering, and other types with reflow soldering only.
6. Use the GR321/331 types with flow or reflow soldering, and other types with reflow soldering only.



| Part Number | Dimensions (mm) |          |             |          |        |
|-------------|-----------------|----------|-------------|----------|--------|
|             | L               | W        | T           | e        | g min. |
| GR321A      | 2.0±0.2         | 1.25±0.2 | 1.0+0,-0.3  | 0.3 min. | 0.7    |
| GR321B      |                 |          | 1.25±0.2    |          |        |
| GR331A      | 3.2±0.2         | 1.6±0.2  | 1.0+0,-0.3  |          | 1.2    |
| GR331B      |                 |          | 1.25+0,-0.3 |          |        |
| GR331C      |                 |          | 1.6±0.2     |          |        |
| GR332Q      | 3.2±0.3         | 2.5±0.2  | 1.5+0,-0.3  |          | 2.2    |
| GR332D      |                 |          | 2.0+0,-0.3  |          |        |
| GR343Q      |                 |          | 1.5+0,-0.3  |          |        |
| GR343D      | 4.5±0.4         | 3.2±0.3  | 2.0+0,-0.3  |          | 3.2    |
| GR355D      |                 |          | 2.0+0,-0.3  |          |        |
| GR355X      | 5.7±0.4         | 5.0±0.4  | 2.7+0,-0.3  |          |        |

### ■ Applications

1. DC smoothing & EMI filter for LED Lighting.
2. For PFC circuit in the switching power supplies, AC adaptor.
3. DC-DC converter for general electronic equipment.

Do not use these products in any Automotive Power train or Safety equipment including Battery chargers for Electric Vehicles and Plug-in Hybrids.  
Only Murata products clearly stipulated as "for Automotive use" can be used for automobile applications such as Power train and Safety equipment.

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GR321AD72E103KW01D | 250Vdc        | X7T (EIA)          | 10000pF±10% | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GR321AD72E153KW01D | 250Vdc        | X7T (EIA)          | 15000pF±10% | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GR321BD72E223KW03L | 250Vdc        | X7T (EIA)          | 22000pF±10% | 2             | 1.25         | 1.45                  | 0.7mm            | 0.3mm min.  |
| GR331AD72E333KW01D | 250Vdc        | X7T (EIA)          | 33000pF±10% | 3.2           | 1.6          | 1                     | 1.2mm            | 0.3mm min.  |
| GR331BD72E473KW01L | 250Vdc        | X7T (EIA)          | 47000pF±10% | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GR331CD72E683KW03L | 250Vdc        | X7T (EIA)          | 68000pF±10% | 3.2           | 1.6          | 1.8                   | 1.2mm            | 0.3mm min.  |
| GR332QD72E104KW01L | 250Vdc        | X7T (EIA)          | 0.10μF±10%  | 3.2           | 2.5          | 1.5                   | 1.2mm            | 0.3mm min.  |
| GR332DD72E154KW01L | 250Vdc        | X7T (EIA)          | 0.15μF±10%  | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.  |
| GR343QD72E224KW01L | 250Vdc        | X7T (EIA)          | 0.22μF±10%  | 4.5           | 3.2          | 1.5                   | 2.2mm            | 0.3mm min.  |
| GR343DD72E334KW01L | 250Vdc        | X7T (EIA)          | 0.33μF±10%  | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GR355DD72E474KW01L | 250Vdc        | X7T (EIA)          | 0.47μF±10%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GR355DD72E684KW01L | 250Vdc        | X7T (EIA)          | 0.68μF±10%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GR355XD72E105KW05L | 250Vdc        | X7T (EIA)          | 1.0μF±10%   | 5.7           | 5.0          | 2.7                   | 3.2mm            | 0.3mm min.  |
| GR331AD72W103KW01D | 450Vdc        | X7T (EIA)          | 10000pF±10% | 3.2           | 1.6          | 1                     | 1.2mm            | 0.3mm min.  |
| GR331AD72W153KW01D | 450Vdc        | X7T (EIA)          | 15000pF±10% | 3.2           | 1.6          | 1                     | 1.2mm            | 0.3mm min.  |
| GR331BD72W223KW01L | 450Vdc        | X7T (EIA)          | 22000pF±10% | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GR331BD72W333KW01L | 450Vdc        | X7T (EIA)          | 33000pF±10% | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GR331CD72W473KW03L | 450Vdc        | X7T (EIA)          | 47000pF±10% | 3.2           | 1.6          | 1.8                   | 1.2mm            | 0.3mm min.  |
| GR332DD72W683KW01L | 450Vdc        | X7T (EIA)          | 68000pF±10% | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.  |
| GR332DD72W104KW01L | 450Vdc        | X7T (EIA)          | 0.10μF±10%  | 3.2           | 2.5          | 2                     | 1.2mm            | 0.3mm min.  |
| GR343DD72W154KW01L | 450Vdc        | X7T (EIA)          | 0.15μF±10%  | 4.5           | 3.2          | 2                     | 2.2mm            | 0.3mm min.  |
| GR355DD72W224KW01L | 450Vdc        | X7T (EIA)          | 0.22μF±10%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GR355DD72W334KW01L | 450Vdc        | X7T (EIA)          | 0.33μF±10%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GR355DD72W474KW01L | 450Vdc        | X7T (EIA)          | 0.47μF±10%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |
| GR355XD72W564KW05L | 450Vdc        | X7T (EIA)          | 0.56μF±10%  | 5.7           | 5.0          | 2.7                   | 3.2mm            | 0.3mm min.  |

Continued on the following page.

Continued from the preceding page.

| Part Number        | Rated Voltage | TC Code<br>(Standard) | Capacitance | Length L<br>(mm) | Width W<br>(mm) | Thickness T<br>max.<br>(mm) | Electrode g<br>min. | Electrode e |
|--------------------|---------------|-----------------------|-------------|------------------|-----------------|-----------------------------|---------------------|-------------|
| GR331BD72J103KW01L | 630Vdc        | X7T (EIA)             | 10000pF±10% | 3.2              | 1.6             | 1.25                        | 1.2mm               | 0.3mm min.  |
| GR331CD72J153KW03L | 630Vdc        | X7T (EIA)             | 15000pF±10% | 3.2              | 1.6             | 1.8                         | 1.2mm               | 0.3mm min.  |
| GR332QD72J223KW01L | 630Vdc        | X7T (EIA)             | 22000pF±10% | 3.2              | 2.5             | 1.5                         | 1.2mm               | 0.3mm min.  |
| GR332DD72J333KW01L | 630Vdc        | X7T (EIA)             | 33000pF±10% | 3.2              | 2.5             | 2                           | 1.2mm               | 0.3mm min.  |
| GR332DD72J473KW01L | 630Vdc        | X7T (EIA)             | 47000pF±10% | 3.2              | 2.5             | 2                           | 1.2mm               | 0.3mm min.  |
| GR343DD72J683KW01L | 630Vdc        | X7T (EIA)             | 68000pF±10% | 4.5              | 3.2             | 2                           | 2.2mm               | 0.3mm min.  |
| GR355DD72J104KW01L | 630Vdc        | X7T (EIA)             | 0.1μF±10%   | 5.7              | 5.0             | 2                           | 3.2mm               | 0.3mm min.  |
| GR355DD72J154KW01L | 630Vdc        | X7T (EIA)             | 0.15μF±10%  | 5.7              | 5.0             | 2                           | 3.2mm               | 0.3mm min.  |
| GR355XD72J224KW05L | 630Vdc        | X7T (EIA)             | 0.22μF±10%  | 5.7              | 5.0             | 2.7                         | 3.2mm               | 0.3mm min.  |
| GR355XD72J274KW05L | 630Vdc        | X7T (EIA)             | 0.27μF±10%  | 5.7              | 5.0             | 2.7                         | 3.2mm               | 0.3mm min.  |

For General Purpose  
 GRM/GRU/GR3 Series

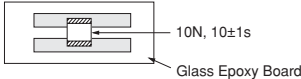
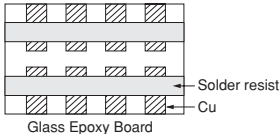
Only for Applications

AC250V Type  
 GA2 Series

Safety Standard  
 Certified GA3 Series

Product Information

## GR3 Series Specifications and Test Methods

| No.           | Item                                    |             | Specifications                                               | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
|---------------|-----------------------------------------|-------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------|--------|---------------------------|--------|---------------------------|--------|---------------------------|---|------------------------|---|------|
| 1             | Operating Temperature Range             |             | −55 to +125°C                                                | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| 2             | Appearance                              |             | No defects or abnormalities                                  | Visual inspection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| 3             | Dimensions                              |             | Within the specified dimensions                              | Using calipers and micrometers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| 4             | Dielectric Strength                     |             | No defects or abnormalities                                  | No failure should be observed when voltage in Table is applied between the terminations for 1 to 5 sec., provided the charge/discharge current is less than 50mA. <table><tr><th>Rated Voltage</th><th>Test Voltage</th></tr><tr><td>DC250V</td><td>200% of the rated voltage</td></tr><tr><td>DC450V</td><td>150% of the rated voltage</td></tr><tr><td>DC630V</td><td>120% of the rated voltage</td></tr></table>                                                                                                                                                                                                             | Rated Voltage | Test Voltage     | DC250V | 200% of the rated voltage | DC450V | 150% of the rated voltage | DC630V | 120% of the rated voltage |   |                        |   |      |
| Rated Voltage | Test Voltage                            |             |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| DC250V        | 200% of the rated voltage               |             |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| DC450V        | 150% of the rated voltage               |             |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| DC630V        | 120% of the rated voltage               |             |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| 5             | Insulation Resistance (I.R.)            |             | More than 10,000MΩ or 100MΩ • μF (Whichever is smaller)      | The insulation resistance should be measured with DC500±50V (DC250±25V in case of rated voltage: DC250V, DC450V) and within 60±5 sec. of charging.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| 6             | Capacitance                             |             | Within the specified tolerance                               | The capacitance/D.F. should be measured at a frequency of 1±0.2kHz and a voltage of AC1±0.2V(r.m.s.).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| 7             | Dissipation Factor (D.F.)               |             | 0.01 max.                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| 8             | Capacitance Temperature Characteristics |             | Cap. Change Within ±23% (Temp. Range: −55 to +125°C)         | The capacitance measurement should be made at each step specified in the Table. <table><tr><th>Step</th><th>Temperature (°C)</th></tr><tr><td>1</td><td>25±2</td></tr><tr><td>2</td><td>Min. Operating Temp.±3</td></tr><tr><td>3</td><td>25±2</td></tr><tr><td>4</td><td>Max. Operating Temp.±2</td></tr><tr><td>5</td><td>25±2</td></tr></table> •Pretreatment<br>Perform a heat treatment at 150±9°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*                                                                                                                                                        | Step          | Temperature (°C) | 1      | 25±2                      | 2      | Min. Operating Temp.±3    | 3      | 25±2                      | 4 | Max. Operating Temp.±2 | 5 | 25±2 |
| Step          | Temperature (°C)                        |             |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| 1             | 25±2                                    |             |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| 2             | Min. Operating Temp.±3                  |             |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| 3             | 25±2                                    |             |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| 4             | Max. Operating Temp.±2                  |             |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| 5             | 25±2                                    |             |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| 9             | Adhesive Strength of Termination        |             | No removal of the terminations or other defect should occur. | Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 1.<br>Then apply 10N force in the direction of the arrow.<br>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock. <div><p>10N, 10±1s<br/>Glass Epoxy Board</p></div> <p>Fig. 1</p>                                                                                                                                                                     |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
| 10            | Vibration Resistance                    | Appearance  | No defects or abnormalities                                  | Solder the capacitor to the test jig (glass epoxy board).<br>The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55Hz. The frequency range, from 10 to 55Hz and return to 10Hz, should be traversed in approximately 1 min. This motion should be applied for a period of 2 hrs. in each of 3 mutually perpendicular directions (total of 6 hrs.). <div><p>Solder resist<br/>Cu<br/>Glass Epoxy Board</p></div> |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
|               |                                         | Capacitance | Within the specified tolerance                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |
|               |                                         | D.F.        | 0.01 max.                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |        |                           |        |                           |        |                           |   |                        |   |      |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page. 

For General Purpose  
GRM/GRJ/GR3 Series

Only for Applications

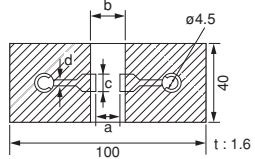
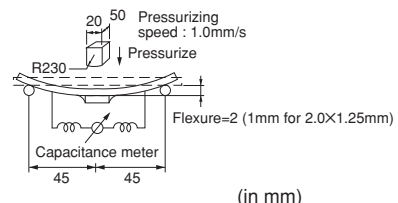
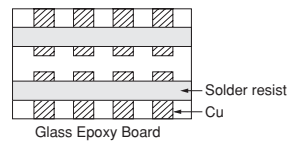
AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information

## GR3 Series Specifications and Test Methods

Continued from the preceding page.

| No.                                                                                                                        | Item                                                    |                     | Specifications                                                      | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|---------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|-------------|---|--------------------------|--------|---|--------------|--------|---|--------------------------|------|-----|------------|--------|---------|-----|-----|-----|---------|-----|-----|-----|---------|-----|-----|-----|---------|-----|-----|-----|
| 11                                                                                                                         | Deflection                                              |                     | No marking defects                                                  | <p>Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 2.</p> <p>Then apply a force in the direction shown in Fig. 3.</p> <p>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock.</p> <div><p>Fig. 2</p><table><tr><th>L×W (mm)</th><th colspan="4">Dimension (mm)</th></tr><tr><th></th><th>a</th><th>b</th><th>c</th><th>d</th></tr><tr><td>2.0×1.25</td><td>1.2</td><td>4.0</td><td>1.65</td><td rowspan="5">1.0</td></tr><tr><td>3.2×1.6</td><td>2.2</td><td>5.0</td><td>2.0</td></tr><tr><td>3.2×2.5</td><td>2.2</td><td>5.0</td><td>2.9</td></tr><tr><td>4.5×3.2</td><td>3.5</td><td>7.0</td><td>3.7</td></tr><tr><td>5.7×5.0</td><td>4.5</td><td>8.0</td><td>5.6</td></tr></table></div> | L×W (mm)       | Dimension (mm)   |             |   |                          |        | a | b            | c      | d | 2.0×1.25                 | 1.2  | 4.0 | 1.65       | 1.0    | 3.2×1.6 | 2.2 | 5.0 | 2.0 | 3.2×2.5 | 2.2 | 5.0 | 2.9 | 4.5×3.2 | 3.5 | 7.0 | 3.7 | 5.7×5.0 | 4.5 | 8.0 | 5.6 |
|                                                                                                                            |                                                         |                     | L×W (mm)                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Dimension (mm) |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                                                                            | a                                                       | b                   | c                                                                   | d                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 2.0×1.25                                                                                                                   | 1.2                                                     | 4.0                 | 1.65                                                                | 1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 3.2×1.6                                                                                                                    | 2.2                                                     | 5.0                 | 2.0                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 3.2×2.5                                                                                                                    | 2.2                                                     | 5.0                 | 2.9                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 4.5×3.2                                                                                                                    | 3.5                                                     | 7.0                 | 3.7                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 5.7×5.0                                                                                                                    | 4.5                                                     | 8.0                 | 5.6                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| <div><p>Fig. 3</p></div> <p>(in mm)</p> |                                                         |                     |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 12                                                                                                                         | Solderability of Termination                            |                     | 75% of the terminations are to be soldered evenly and continuously. | <p>Immerse the capacitor in a solution of ethanol (JIS-K-8101) and rosin (JIS-K-5902) (25% rosin in weight proportion). Immerse in solder solution for 2±0.5 sec. Immersing speed: 25±2.5mm/s</p> <p>Temp. of solder: 245±5°C Lead Free Solder (Sn-3.0Ag-0.5Cu) 235±5°C H60A or H63A Eutectic Solder</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 13                                                                                                                         | Resistance to Soldering Heat                            | Appearance          | No marking defects                                                  | <p>Preheat the capacitor at 120 to 150°C* for 1 min. Immerse the capacitor in solder solution at 260±5°C for 10±1 sec. Let sit at room condition* for 24±2 hrs., then measure.</p> <p>•Immersing speed: 25±2.5mm/s</p> <p>•Pretreatment</p> <p>Perform a heat treatment at 150±18°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p> <p>*Preheating for more than 3.2×2.5mm</p> <table><tr><th>Step</th><th>Temperature</th><th>Time</th></tr><tr><td>1</td><td>100 to 120°C</td><td>1 min.</td></tr><tr><td>2</td><td>170 to 200°C</td><td>1 min.</td></tr></table>                                                                                                                                                                                                                                                                                                                          | Step           | Temperature      | Time        | 1 | 100 to 120°C             | 1 min. | 2 | 170 to 200°C | 1 min. |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                                                                            |                                                         | Step                | Temperature                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Time           |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                                                                            |                                                         | 1                   | 100 to 120°C                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1 min.         |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                                                                            |                                                         | 2                   | 170 to 200°C                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1 min.         |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                                                                            |                                                         | Capacitance Change  | Within ±10%                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| D.F.                                                                                                                       | 0.01 max.                                               |                     |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| I.R.                                                                                                                       | More than 10,000MΩ or 100MΩ • μF (Whichever is smaller) |                     |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| Dielectric Strength                                                                                                        | In accordance with item No.4                            |                     |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 14                                                                                                                         | Temperature Cycle                                       | Appearance          | No marking defects                                                  | <p>Fix the capacitor to the supporting jig (glass epoxy board) shown in Fig. 4.</p> <p>Perform the 5 cycles according to the 4 heat treatments listed in the following table.</p> <p>Let sit for 24±2 hrs. at room condition,* then measure.</p> <table><tr><th>Step</th><th>Temperature (°C)</th><th>Time (min.)</th></tr><tr><td>1</td><td>Min. Operating Temp. +30</td><td>30±3</td></tr><tr><td>2</td><td>Room Temp.</td><td>2 to 3</td></tr><tr><td>3</td><td>Max. Operating Temp. +20</td><td>30±3</td></tr><tr><td>4</td><td>Room Temp.</td><td>2 to 3</td></tr></table> <p>•Pretreatment</p> <p>Perform a heat treatment at 150±18°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p> <div><p>Fig. 4</p></div>                                                                                   | Step           | Temperature (°C) | Time (min.) | 1 | Min. Operating Temp. +30 | 30±3   | 2 | Room Temp.   | 2 to 3 | 3 | Max. Operating Temp. +20 | 30±3 | 4   | Room Temp. | 2 to 3 |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                                                                            |                                                         | Step                | Temperature (°C)                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Time (min.)    |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                                                                            |                                                         | 1                   | Min. Operating Temp. +30                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 30±3           |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                                                                            |                                                         | 2                   | Room Temp.                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2 to 3         |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                                                                            |                                                         | 3                   | Max. Operating Temp. +20                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 30±3           |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 4                                                                                                                          | Room Temp.                                              | 2 to 3              |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| Capacitance Change                                                                                                         | Within ±7.5%                                            |                     |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| D.F.                                                                                                                       | 0.01 max.                                               |                     |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| I.R.                                                                                                                       | More than 10,000MΩ or 100MΩ • μF (Whichever is smaller) |                     |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| Dielectric Strength                                                                                                        | In accordance with item No.4                            |                     |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 15                                                                                                                         | Humidity (Steady State)                                 | Appearance          | No marking defects                                                  | <p>Let the capacitor sit at 40±2°C and relative humidity of 90 to 95% for 500±24hrs.</p> <p>Remove and let sit for 24±2 hrs. at room condition,* then measure.</p> <p>•Pretreatment</p> <p>Perform a heat treatment at 150±18°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                                                                            |                                                         | Capacitance Change  | Within ±12.5%                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                                                                            |                                                         | D.F.                | 0.02 max.                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                                                                            |                                                         | I.R.                | More than 1,000MΩ or 10MΩ • μF (Whichever is smaller)               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                                                                            |                                                         | Dielectric Strength | In accordance with item No.4                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |             |   |                          |        |   |              |        |   |                          |      |     |            |        |         |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page. ➤

## GR3 Series Specifications and Test Methods

Continued from the preceding page.

| No.                 | Item                                                  |                     | Specifications                                        | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |                 |        |                           |        |                           |        |                           |
|---------------------|-------------------------------------------------------|---------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|--------|---------------------------|--------|---------------------------|--------|---------------------------|
| 16                  | Life                                                  | Appearance          | No marking defects                                    | <div>Apply voltage as Table for 1,000±48hrs. at maximum operating temperature ±3°C. Remove and let sit for 24±2hrs. at room condition,* then measure.</div> <table><thead><tr><th>Rated Voltage</th><th>Applied Voltage</th></tr></thead><tbody><tr><td>DC250V</td><td>150% of the rated voltage</td></tr><tr><td>DC450V</td><td>130% of the rated voltage</td></tr><tr><td>DC630V</td><td>120% of the rated voltage</td></tr></tbody></table> <div>The charge/discharge current is less than 50mA.<br/>•Pretreatment<br/>Apply test voltage for 60±5 min. at test temperature. Remove and let sit for 24±2 hrs. at room condition.*</div> | Rated Voltage | Applied Voltage | DC250V | 150% of the rated voltage | DC450V | 130% of the rated voltage | DC630V | 120% of the rated voltage |
|                     |                                                       | Rated Voltage       | Applied Voltage                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |                 |        |                           |        |                           |        |                           |
|                     |                                                       | DC250V              | 150% of the rated voltage                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |                 |        |                           |        |                           |        |                           |
|                     |                                                       | DC450V              | 130% of the rated voltage                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |                 |        |                           |        |                           |        |                           |
|                     |                                                       | DC630V              | 120% of the rated voltage                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |                 |        |                           |        |                           |        |                           |
| Capacitance Change  | Within ±12.5%                                         |                     |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |                 |        |                           |        |                           |        |                           |
| D.F.                | 0.02 max.                                             |                     |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |                 |        |                           |        |                           |        |                           |
| I.R.                | More than 1,000MΩ or 10MΩ • μF (Whichever is smaller) |                     |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |                 |        |                           |        |                           |        |                           |
| Dielectric Strength | In accordance with item No.4                          |                     |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |                 |        |                           |        |                           |        |                           |
| 17                  | Humidity Loading                                      | Appearance          | No marking defects                                    | <div>Apply the rated voltage at 40±2°C and relative humidity of 90 to 95% for 500±24hrs.</div> <div>Remove and let sit for 24±2 hrs. at room condition,* then measure.</div> <div>•Pretreatment<br/>Apply test voltage for 60±5 min. at test temperature. Remove and let sit for 24±2 hrs. at room condition.*</div>                                                                                                                                                                                                                                                                                                                       |               |                 |        |                           |        |                           |        |                           |
|                     |                                                       | Capacitance Change  | Within ±12.5%                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |                 |        |                           |        |                           |        |                           |
|                     |                                                       | D.F.                | 0.02 max.                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |                 |        |                           |        |                           |        |                           |
|                     |                                                       | I.R.                | More than 1,000MΩ or 10MΩ • μF (Whichever is smaller) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |                 |        |                           |        |                           |        |                           |
|                     |                                                       | Dielectric Strength | In accordance with item No.4                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |                 |        |                           |        |                           |        |                           |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

For General Purpose  
 GRM/GRJ/GR3 Series

Only for Applications

AC250V Type  
 GA2 Series

Safety Standard  
 Certified GA3 Series

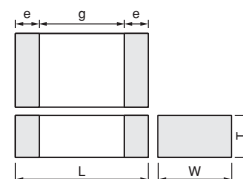
Product Information

## Chip Monolithic Ceramic Capacitors (Medium Voltage)

# For LCD Backlight Inverter Circuit GRM/DC3.15kV Series

### ■ Features

1. Low-loss and suitable for high frequency circuits
2. Murata's original internal electrode structure realizes high flash-over voltage.
3. A new monolithic structure for small, surface-mountable devices capable of operating at high voltage levels.
4. Sn-plated external electrodes realize good solderability.
5. Only for reflow soldering
6. Capacitance values less than 22pF can be used in LCD backlight inverter circuits as long as the applied voltage, peak to peak, is less than 4.0kV at 100kHz or less.



| Part Number | Dimensions (mm) |          |              |        |        |
|-------------|-----------------|----------|--------------|--------|--------|
|             | L               | W        | T            | e min. | g min. |
| GRM42A      | 4.5 ±0.3        | 2.0 ±0.2 | 1.0 +0, -0.3 | 0.3    | 2.9    |

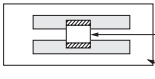
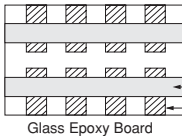
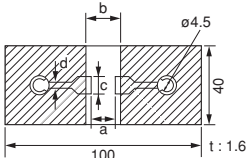
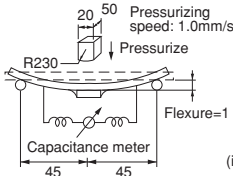
### ■ Applications

Ideal for use as the ballast in LCD backlight inverter.

Do not use these products in any Automotive Power train or Safety equipment including Battery chargers for Electric Vehicles and Plug-in Hybrids. Only Murata products clearly stipulated as "for Automotive use" can be used for automobile applications such as Power train and Safety equipment.

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GRM42A5C3F050DW01L | 3150Vdc       | C0G (EIA)          | 5.0pF±0.5pF | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A5C3F100JW01L | 3150Vdc       | C0G (EIA)          | 10pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A5C3F120JW01L | 3150Vdc       | C0G (EIA)          | 12pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A5C3F150JW01L | 3150Vdc       | C0G (EIA)          | 15pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A5C3F180JW01L | 3150Vdc       | C0G (EIA)          | 18pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A5C3F220JW01L | 3150Vdc       | C0G (EIA)          | 22pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A5C3F270JW01L | 3150Vdc       | C0G (EIA)          | 27pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A5C3F330JW01L | 3150Vdc       | C0G (EIA)          | 33pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A5C3F390JW01L | 3150Vdc       | C0G (EIA)          | 39pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |
| GRM42A5C3F470JW01L | 3150Vdc       | C0G (EIA)          | 47pF±5%     | 4.5           | 2.0          | 1                     | 2.9mm            | 0.3mm min.  |

## GRM/DC3.15kV Series Specifications and Test Methods

| No.     | Item                                    | Specifications                                                                                              | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
|---------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|---|------|---|------------------------|---|------|---|------------------------|---------|------|-----|-----|-----|
| 1       | Operating Temperature Range             | -55 to +125°C                                                                                               | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 2       | Appearance                              | No defects or abnormalities                                                                                 | Visual inspection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 3       | Dimensions                              | Within the specified dimension                                                                              | Using calipers and micrometers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 4       | Dielectric Strength                     | No defects or abnormalities                                                                                 | No failure should be observed when DC4095V is applied between the terminations for 1 to 5 sec., provided the charge/discharge current is less than 50mA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 5       | Insulation Resistance (I.R.)            | More than 10,000MΩ                                                                                          | The insulation resistance should be measured with DC500±50V and within 60±5 sec. of charging.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 6       | Capacitance                             | Within the specified tolerance                                                                              | The capacitance/Q should be measured at a frequency of 1±0.2MHz and a voltage of AC0.5 to 5V(r.m.s.).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 7       | Q                                       | 1,000 min.                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 8       | Capacitance Temperature Characteristics | Temp. Coefficient<br>0±30ppm/°C (Temp. Range: +25 to +125°C)<br>0+30, -72ppm/°C (Temp. Range: -55 to +25°C) | The capacitance measurement should be made at each step specified in the Table. <table><tr><th>Step</th><th>Temperature (°C)</th></tr><tr><td>1</td><td>25±2</td></tr><tr><td>2</td><td>Min. Operating Temp.±3</td></tr><tr><td>3</td><td>25±2</td></tr><tr><td>4</td><td>Max. Operating Temp.±2</td></tr><tr><td>5</td><td>25±2</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                               | Step           | Temperature (°C) | 1 | 25±2 | 2 | Min. Operating Temp.±3 | 3 | 25±2 | 4 | Max. Operating Temp.±2 | 5       | 25±2 |     |     |     |
| Step    | Temperature (°C)                        |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 1       | 25±2                                    |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 2       | Min. Operating Temp.±3                  |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 3       | 25±2                                    |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 4       | Max. Operating Temp.±2                  |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 5       | 25±2                                    |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 9       | Adhesive Strength of Termination        | No removal of the terminations or other defect should occur.                                                | Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 1.<br>Then apply 10N force in the direction of the arrow.<br>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock. <div><p>10N, 10±1s<br/>Glass Epoxy Board</p></div> <p>Fig. 1</p>                                                                                                                                                                                                                                                                                     |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 10      | Appearance                              | No defects or abnormalities                                                                                 | Solder the capacitor to the test jig (glass epoxy board).<br>The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55Hz. The frequency range, from 10 to 55Hz and return to 10Hz, should be traversed in approximately 1 min. This motion should be applied for a period of 2 hrs. in each of 3 mutually perpendicular directions (total of 6 hrs.). <div><p>Solder resist<br/>Cu<br/>Glass Epoxy Board</p></div>                                                                                                                  |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
|         | Capacitance                             | Within the specified tolerance                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
|         | Q                                       | 1,000 min.                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 11      | Deflection                              | No marking defects                                                                                          | Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 2.<br>Then apply a force in the direction shown in Fig. 3.<br>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock. <div><p>Fig. 2</p><table><tr><th>L×W (mm)</th><th colspan="4">Dimension (mm)</th></tr><tr><th></th><th>a</th><th>b</th><th>c</th><th>d</th></tr><tr><td>4.5×2.0</td><td>3.5</td><td>7.0</td><td>2.4</td><td>1.0</td></tr></table></div> <div><p>Fig. 3</p></div> | L×W (mm)       | Dimension (mm)   |   |      |   |                        | a | b    | c | d                      | 4.5×2.0 | 3.5  | 7.0 | 2.4 | 1.0 |
|         |                                         | L×W (mm)                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Dimension (mm) |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
|         | a                                       | b                                                                                                           | c                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | d              |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |
| 4.5×2.0 | 3.5                                     | 7.0                                                                                                         | 2.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1.0            |                  |   |      |   |                        |   |      |   |                        |         |      |     |     |     |

Continued on the following page. ➤

For General Purpose  
GRM/GRJ Series

Only for Applications  
GRM/DC3.15kV Series

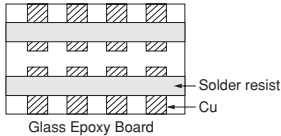
AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information

## GRM/DC3.15kV Series Specifications and Test Methods

Continued from the preceding page.

| No.                | Item                         |                              | Specifications                                                      | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|--------------------|------------------------------|------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------|-------------|---|------------------------|--------|---|--------------|--------|---|------------------------|------|---|------------|--------|
| 12                 | Solderability of Termination |                              | 75% of the terminations are to be soldered evenly and continuously. | Immerse the capacitor in a solution of ethanol (JIS-K-8101) and rosin (JIS-K-5902) (25% rosin in weight proportion). Immerse in solder solution for 2±0.5 sec.<br>Immersing speed: 25±2.5mm/s<br>Temp. of solder: 245±5°C Lead Free Solder (Sn-3.0Ag-0.5Cu)<br>235±5°C H60A or H63A Eutectic Solder                                                                                                                                                                                                                                                                                                                                                                       |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
| 13                 | Resistance to Soldering Heat | Appearance                   | No marking defects                                                  | Preheat the capacitor as in table.<br>Immerse the capacitor in solder solution at 260±5°C for 10±1 sec.<br>Let sit at room condition* for 24±2 hrs., then measure.<br>•Immersing speed: 25±2.5mm/s<br><br>*Preheating <table><tr><th>Step</th><th>Temperature</th><th>Time</th></tr><tr><td>1</td><td>100 to 120°C</td><td>1 min.</td></tr><tr><td>2</td><td>170 to 200°C</td><td>1 min.</td></tr></table>                                                                                                                                                                                                                                                                | Step        | Temperature      | Time        | 1 | 100 to 120°C           | 1 min. | 2 | 170 to 200°C | 1 min. |   |                        |      |   |            |        |
|                    |                              | Step                         | Temperature                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Time        |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    |                              | 1                            | 100 to 120°C                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1 min.      |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    |                              | 2                            | 170 to 200°C                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1 min.      |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    |                              | Capacitance Change           | Within ±2.5%                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
| Q                  | 1,000 min.                   |                              |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
| I.R.               | More than 10,000MΩ           |                              |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    | Dielectric Strength          | In accordance with item No.4 |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
| 14                 | Temperature Cycle            | Appearance                   | No marking defects                                                  | Fix the capacitor to the supporting jig (glass epoxy board) shown in Fig. 4.<br>Perform the 5 cycles according to the 4 heat treatments listed in the following table.<br>Let sit for 24±2 hrs. at room condition,* then measure. <table><tr><th>Step</th><th>Temperature (°C)</th><th>Time (min.)</th></tr><tr><td>1</td><td>Min. Operating Temp.±3</td><td>30±3</td></tr><tr><td>2</td><td>Room Temp.</td><td>2 to 3</td></tr><tr><td>3</td><td>Max. Operating Temp.±2</td><td>30±3</td></tr><tr><td>4</td><td>Room Temp.</td><td>2 to 3</td></tr></table> <div><p>Fig. 4</p></div> | Step        | Temperature (°C) | Time (min.) | 1 | Min. Operating Temp.±3 | 30±3   | 2 | Room Temp.   | 2 to 3 | 3 | Max. Operating Temp.±2 | 30±3 | 4 | Room Temp. | 2 to 3 |
|                    |                              | Step                         | Temperature (°C)                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Time (min.) |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    |                              | 1                            | Min. Operating Temp.±3                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 30±3        |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    |                              | 2                            | Room Temp.                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2 to 3      |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    |                              | 3                            | Max. Operating Temp.±2                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 30±3        |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
| 4                  | Room Temp.                   | 2 to 3                       |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
| Capacitance Change | Within ±2.5%                 |                              |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
| Q                  | 1,000 min.                   |                              |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
| I.R.               | More than 10,000MΩ           |                              |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    | Dielectric Strength          | In accordance with item No.4 |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
| 15                 | Humidity (Steady State)      | Appearance                   | No marking defects                                                  | Let the capacitor sit at 40±2°C and relative humidity of 90 to 95% for 500 <sup>+24</sup> hrs.<br>Remove and let sit for 24±2 hrs. at room condition,* then measure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    |                              | Capacitance Change           | Within ±5.0%                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    |                              | Q                            | 350 min.                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    |                              | I.R.                         | More than 1,000MΩ                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    |                              | Dielectric Strength          | In accordance with item No.4                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
| 16                 | Life                         | Appearance                   | No marking defects                                                  | Apply 120% of the rated voltage for 1,000 <sup>+48</sup> hrs. at maximum operating temperature ±3°C.<br>Remove and let sit for 24±2 hrs. at room condition,* then measure.<br>The charge/discharge current is less than 50mA.                                                                                                                                                                                                                                                                                                                                                                                                                                             |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    |                              | Capacitance Change           | Within ±3.0%                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    |                              | Q                            | 350 min.                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    |                              | I.R.                         | More than 1,000MΩ                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |
|                    |                              | Dielectric Strength          | In accordance with item No.4                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |                  |             |   |                        |        |   |              |        |   |                        |      |   |            |        |

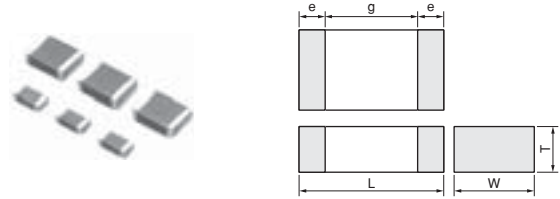
\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

## Chip Monolithic Ceramic Capacitors (Medium Voltage)

# For Information Devices GR4 Series

### ■ Features

1. These items are designed specifically for telecommunications devices (IEEE802.3) in Ethernet LAN and primary-secondary coupling for DC-DC converters.
2. A new monolithic structure for small, high capacitance capable of operating at high voltage levels
3. Sn-plated external electrodes realize good solderability.
4. Only for reflow soldering



| Part Number | Dimensions (mm) |          |              |        |        |
|-------------|-----------------|----------|--------------|--------|--------|
|             | L               | W        | T            | e min. | g min. |
| GR442Q      | 4.5 ±0.3        | 2.0 ±0.2 | 1.5 +0, -0.3 | 0.3    | 2.5    |
| GR443D      | 4.5 ±0.4        | 3.2 ±0.3 | 2.0 +0, -0.3 |        |        |
| GR443Q      |                 |          | 1.5 +0, -0.3 |        |        |
| GR455D      | 5.7 ±0.4        | 5.0 ±0.4 | 2.0 +0, -0.3 |        | 3.2    |

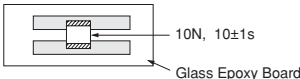
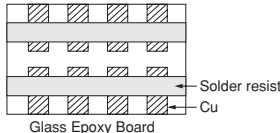
### ■ Applications

1. Ideal for use on telecommunications devices in Ethernet LAN
2. Ideal for use as primary-secondary coupling for DC-DC converters

Do not use these products in any Automotive Power train or Safety equipment including Battery charger for Electric Vehicles and Plug-in Hybrid.  
Only Murata products clearly stipulated as "for Automotive use" can be used for automobile applications such as Power train and Safety equipment.

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GR442QR73D101KW01L | 2000Vdc       | X7R (EIA)          | 100pF±10%   | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR442QR73D121KW01L | 2000Vdc       | X7R (EIA)          | 120pF±10%   | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR442QR73D151KW01L | 2000Vdc       | X7R (EIA)          | 150pF±10%   | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR442QR73D181KW01L | 2000Vdc       | X7R (EIA)          | 180pF±10%   | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR442QR73D221KW01L | 2000Vdc       | X7R (EIA)          | 220pF±10%   | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR442QR73D271KW01L | 2000Vdc       | X7R (EIA)          | 270pF±10%   | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR442QR73D331KW01L | 2000Vdc       | X7R (EIA)          | 330pF±10%   | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR442QR73D391KW01L | 2000Vdc       | X7R (EIA)          | 390pF±10%   | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR442QR73D471KW01L | 2000Vdc       | X7R (EIA)          | 470pF±10%   | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR442QR73D561KW01L | 2000Vdc       | X7R (EIA)          | 560pF±10%   | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR442QR73D681KW01L | 2000Vdc       | X7R (EIA)          | 680pF±10%   | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR442QR73D821KW01L | 2000Vdc       | X7R (EIA)          | 820pF±10%   | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR442QR73D102KW01L | 2000Vdc       | X7R (EIA)          | 1000pF±10%  | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR442QR73D122KW01L | 2000Vdc       | X7R (EIA)          | 1200pF±10%  | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR442QR73D152KW01L | 2000Vdc       | X7R (EIA)          | 1500pF±10%  | 4.5           | 2            | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR443QR73D182KW01L | 2000Vdc       | X7R (EIA)          | 1800pF±10%  | 4.5           | 3.2          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR443QR73D222KW01L | 2000Vdc       | X7R (EIA)          | 2200pF±10%  | 4.5           | 3.2          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR443QR73D272KW01L | 2000Vdc       | X7R (EIA)          | 2700pF±10%  | 4.5           | 3.2          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR443QR73D332KW01L | 2000Vdc       | X7R (EIA)          | 3300pF±10%  | 4.5           | 3.2          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR443QR73D392KW01L | 2000Vdc       | X7R (EIA)          | 3900pF±10%  | 4.5           | 3.2          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GR443DR73D472KW01L | 2000Vdc       | X7R (EIA)          | 4700pF±10%  | 4.5           | 3.2          | 2                     | 2.5mm            | 0.3mm min.  |
| GR455DR73D103KW01L | 2000Vdc       | X7R (EIA)          | 10000pF±10% | 5.7           | 5            | 2                     | 3.2mm            | 0.3mm min.  |

## GR4 Series Specifications and Test Methods

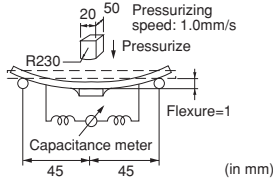
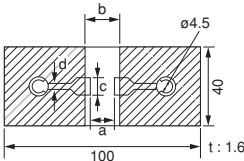
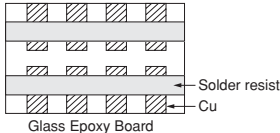
| No.           | Item                                    |             | Specifications                                                               | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
|---------------|-----------------------------------------|-------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------|------|-------|---------------------------|------------------------|-----------------|-----------|---|------------------------|---|------|
| 1             | Operating Temperature Range             |             | −55 to +125°C                                                                | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 2             | Appearance                              |             | No defects or abnormalities                                                  | Visual inspection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 3             | Dimensions                              |             | Within the specified dimensions                                              | Using calipers and micrometers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 4             | Dielectric Strength                     |             | No defects or abnormalities                                                  | <div>No failure should be observed when voltage in the table is applied between the terminations, provided the charge/discharge current is less than 50mA.</div> <table><tr><th>Rated Voltage</th><th>Test Voltage</th><th>Time</th></tr><tr><td rowspan="2">DC2kV</td><td>120% of the rated voltage</td><td>60±1 sec.</td></tr><tr><td>AC1500V(r.m.s.)</td><td>60±1 sec.</td></tr></table>                                                                                                                                                                                                       | Rated Voltage | Test Voltage     | Time | DC2kV | 120% of the rated voltage | 60±1 sec.              | AC1500V(r.m.s.) | 60±1 sec. |   |                        |   |      |
| Rated Voltage | Test Voltage                            | Time        |                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| DC2kV         | 120% of the rated voltage               | 60±1 sec.   |                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
|               | AC1500V(r.m.s.)                         | 60±1 sec.   |                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 5             | Pulse Voltage                           |             | No self healing breakdowns or flash-overs have taken place in the capacitor. | 10 impulses of alternating polarity are subjected.<br>(5 impulses for each polarity)<br>The interval between impulses is 60 sec.<br>Applied Pulse: 1.2/50µs<br>Applied Voltage: 2.5kVo-p                                                                                                                                                                                                                                                                                                                                                                                                          |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 6             | Insulation Resistance (I.R.)            |             | More than 6,000MΩ                                                            | The insulation resistance should be measured with DC500±50V and within 60±5 sec. of charging.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 7             | Capacitance                             |             | Within the specified tolerance                                               | The capacitance/D.F. should be measured at a frequency of 1±0.2kHz and a voltage of AC1±0.2V(r.m.s.).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 8             | Dissipation Factor (D.F.)               |             | 0.025 max.                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 9             | Capacitance Temperature Characteristics |             | Cap. Change within ±15%<br>(Temp. Range: −55 to +125°C)                      | <div>The capacitance measurement should be made at each step specified in the Table.</div> <table><tr><th>Step</th><th>Temperature (°C)</th></tr><tr><td>1</td><td>25±2</td></tr><tr><td>2</td><td>Min. Operating Temp.±3</td></tr><tr><td>3</td><td>25±2</td></tr><tr><td>4</td><td>Max. Operating Temp.±2</td></tr><tr><td>5</td><td>25±2</td></tr></table> <div>•Pretreatment<br/>Perform a heat treatment at 150±10°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</div>                                                                                                  | Step          | Temperature (°C) | 1    | 25±2  | 2                         | Min. Operating Temp.±3 | 3               | 25±2      | 4 | Max. Operating Temp.±2 | 5 | 25±2 |
| Step          | Temperature (°C)                        |             |                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 1             | 25±2                                    |             |                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 2             | Min. Operating Temp.±3                  |             |                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 3             | 25±2                                    |             |                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 4             | Max. Operating Temp.±2                  |             |                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 5             | 25±2                                    |             |                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 10            | Adhesive Strength of Termination        |             | No removal of the terminations or other defect should occur.                 | <div>Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 1.</div> <div>Then apply 10N force in the direction of the arrow.</div> <div>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock.</div> <div></div> <div>Fig. 1</div>                                                                                                                                              |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
| 11            | Vibration Resistance                    | Appearance  | No defects or abnormalities                                                  | <div>Solder the capacitor to the test jig (glass epoxy board).</div> <div>The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55Hz. The frequency range, from 10 to 55Hz and return to 10Hz, should be traversed in approximately 1 min. This motion should be applied for a period of 2 hrs. in each of 3 mutually perpendicular directions (total of 6 hrs.).</div> <div></div> |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
|               |                                         | Capacitance | Within the specified tolerance                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |
|               |                                         | D.F.        | 0.025 max.                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |                  |      |       |                           |                        |                 |           |   |                        |   |      |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page. ↗

## GR4 Series Specifications and Test Methods

Continued from the preceding page.

| No.                | Item                         | Specifications                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Test Method                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
|--------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|-------------|---|------------------------|--------|---|--------------|---------|-----|------------------------|------|-----|------------|--------|-----|-----|---------|-----|-----|-----|
| 12                 | Deflection                   | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 2.</p> <p>Then apply a force in the direction shown in Fig. 3.</p> <p>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock.</p> <div></div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
|                    |                              | <div></div> <p>Fig. 2</p> <table><tr><th rowspan="2">L×W<br/>(mm)</th><th colspan="4">Dimension (mm)</th></tr><tr><th>a</th><th>b</th><th>c</th><th>d</th></tr><tr><td>4.5×2.0</td><td>3.5</td><td>7.0</td><td>2.4</td><td rowspan="3">1.0</td></tr><tr><td>4.5×3.2</td><td>3.5</td><td>7.0</td><td>3.7</td></tr><tr><td>5.7×5.0</td><td>4.5</td><td>8.0</td><td>5.6</td></tr></table> |                                                                                                                                                                                                                                                                                                                                                                                                                       | L×W<br>(mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Dimension (mm) |                  |             |   | a                      | b      | c | d            | 4.5×2.0 | 3.5 | 7.0                    | 2.4  | 1.0 | 4.5×3.2    | 3.5    | 7.0 | 3.7 | 5.7×5.0 | 4.5 | 8.0 | 5.6 |
|                    |                              | L×W<br>(mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Dimension (mm) |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| a                  | b                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | c                                                                                                                                                                                                                                                                                                                                                                                                                     | d                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| 4.5×2.0            | 3.5                          | 7.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2.4                                                                                                                                                                                                                                                                                                                                                                                                                   | 1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| 4.5×3.2            | 3.5                          | 7.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3.7                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| 5.7×5.0            | 4.5                          | 8.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5.6                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| 13                 | Solderability of Termination | 75% of the terminations are to be soldered evenly and continuously.                                                                                                                                                                                                                                                                                                                                                                                                     | <p>Immerse the capacitor in a solution of ethanol (JIS-K-8101) and rosin (JIS-K-5902) (25% rosin in weight proportion). Immerse in solder solution for 2±0.5 sec.</p> <p>Immersing speed: 25±2.5mm/s</p> <p>Temp. of solder: 245±5°C Lead Free Solder (Sn-3.0Ag-0.5Cu) 235±5°C H60A or H63A Eutectic Solder</p>                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| 14                 | Resistance to Soldering Heat | Appearance                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                    | <p>Preheat the capacitor as in table.</p> <p>Immerse the capacitor in solder solution at 260±5°C for 10±1 sec. Let sit at room condition* for 24±2 hrs., then measure.</p> <p>●Immersing speed: 25±2.5mm/s</p> <p>●Pretreatment</p> <p>Perform a heat treatment at 150±1,8°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p> <p>*Preheating</p> <table><tr><th>Step</th><th>Temperature</th><th>Time</th></tr><tr><td>1</td><td>100 to 120°C</td><td>1 min.</td></tr><tr><td>2</td><td>170 to 200°C</td><td>1 min.</td></tr></table>                                                                                                                                                                                                                                                                     | Step           | Temperature      | Time        | 1 | 100 to 120°C           | 1 min. | 2 | 170 to 200°C | 1 min.  |     |                        |      |     |            |        |     |     |         |     |     |     |
|                    |                              | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Temperature                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Time           |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
|                    |                              | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 100 to 120°C                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1 min.         |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
|                    |                              | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 170 to 200°C                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1 min.         |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
|                    |                              | Capacitance Change                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Within ±10%                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| D.F.               | 0.025 max.                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| I.R.               | More than 1,000MΩ            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| 15                 | Temperature Cycle            | Dielectric Strength                                                                                                                                                                                                                                                                                                                                                                                                                                                     | In accordance with item No.4                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
|                    |                              | Appearance                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                    | <p>Fix the capacitor to the supporting jig (glass epoxy board) shown in Fig. 4.</p> <p>Perform the 5 cycles according to the 4 heat treatments listed in the following table.</p> <p>Let sit for 24±2 hrs. at room condition,* then measure.</p> <table><tr><th>Step</th><th>Temperature (°C)</th><th>Time (min.)</th></tr><tr><td>1</td><td>Min. Operating Temp.±3</td><td>30±3</td></tr><tr><td>2</td><td>Room Temp.</td><td>2 to 3</td></tr><tr><td>3</td><td>Max. Operating Temp.±2</td><td>30±3</td></tr><tr><td>4</td><td>Room Temp.</td><td>2 to 3</td></tr></table> <p>●Pretreatment</p> <p>Perform a heat treatment at 150±1,8°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p> <div></div> <p>Fig. 4</p> | Step           | Temperature (°C) | Time (min.) | 1 | Min. Operating Temp.±3 | 30±3   | 2 | Room Temp.   | 2 to 3  | 3   | Max. Operating Temp.±2 | 30±3 | 4   | Room Temp. | 2 to 3 |     |     |         |     |     |     |
|                    |                              | Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Temperature (°C)                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Time (min.)    |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
|                    |                              | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Min. Operating Temp.±3                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 30±3           |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
|                    |                              | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Room Temp.                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2 to 3         |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| 3                  | Max. Operating Temp.±2       | 30±3                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| 4                  | Room Temp.                   | 2 to 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| Capacitance Change | Within ±15%                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| D.F.               | 0.05 max.                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| I.R.               | More than 3,000MΩ            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
| 16                 | Humidity (Steady State)      | Dielectric Strength                                                                                                                                                                                                                                                                                                                                                                                                                                                     | In accordance with item No.4                                                                                                                                                                                                                                                                                                                                                                                          | <p>Let the capacitor sit at 40±2°C and relative humidity of 90 to 95% for 500±24 hrs.</p> <p>Remove and let sit for 24±2 hrs. at room condition,* then measure.</p> <p>●Pretreatment</p> <p>Perform a heat treatment at 150±1,8°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
|                    |                              | Appearance                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
|                    |                              | Capacitance Change                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Within ±15%                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
|                    |                              | D.F.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.05 max.                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |
|                    |                              | I.R.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | More than 1,000MΩ                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |             |   |                        |        |   |              |         |     |                        |      |     |            |        |     |     |         |     |     |     |

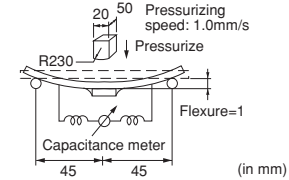


Fig. 3

| Step | Temperature  | Time   |
|------|--------------|--------|
| 1    | 100 to 120°C | 1 min. |
| 2    | 170 to 200°C | 1 min. |

| Step | Temperature (°C)       | Time (min.) |
|------|------------------------|-------------|
| 1    | Min. Operating Temp.±3 | 30±3        |
| 2    | Room Temp.             | 2 to 3      |
| 3    | Max. Operating Temp.±2 | 30±3        |
| 4    | Room Temp.             | 2 to 3      |

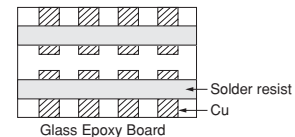


Fig. 4

Continued on the following page. ➤

For General Purpose  
GRM/GRJ/GR3 Series

Only for Applications  
GR4 Series

AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information

## GR4 Series Specifications and Test Methods

↳ Continued from the preceding page.

| No. | Item |                     | Specifications               | Test Method                                                                                                                                                                                                                                                                                                                                                                                      |
|-----|------|---------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17  | Life | Appearance          | No marking defects           | Apply 110% of the rated voltage for $1,000 \pm 48$ hrs. at maximum operating temperature $\pm 3^{\circ}\text{C}$ . Remove and let sit for $24 \pm 2$ hrs. at room condition,* then measure.<br>The charge/discharge current is less than 50mA.<br><b>•Pretreatment</b><br>Apply test voltage for $60 \pm 5$ min. at test temperature. Remove and let sit for $24 \pm 2$ hrs. at room condition.* |
|     |      | Capacitance Change  | Within $\pm 20\%$            |                                                                                                                                                                                                                                                                                                                                                                                                  |
|     |      | D.F.                | 0.05 max.                    |                                                                                                                                                                                                                                                                                                                                                                                                  |
|     |      | I.R.                | More than 2,000M $\Omega$    |                                                                                                                                                                                                                                                                                                                                                                                                  |
|     |      | Dielectric Strength | In accordance with item No.4 |                                                                                                                                                                                                                                                                                                                                                                                                  |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

For General Purpose  
GRM/GRJ/GR3 Series

Only for Applications  
GR4 Series

AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information

## Chip Monolithic Ceramic Capacitors (Medium Voltage)

# For Camera Flash Circuit GR7 Series

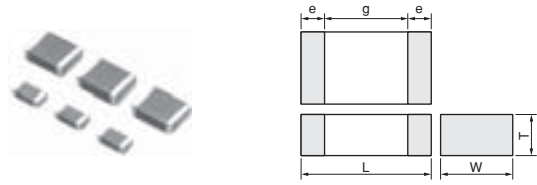
### ■ Features

1. Suitable for the trigger of the flash circuit, because real capacitance is stable during operating voltage.
2. The thin type fits thinner cameras.
3. Sn-plated external electrodes realize good solderability.
4. For flow and reflow soldering

### ■ Applications

For strobe circuit

Do not use these products in any Automotive Power train or Safety equipment including Battery chargers for Electric Vehicles and Plug-in Hybrids. Only Murata products clearly stipulated as "for Automotive use" can be used for automobile applications such as Power train and Safety equipment.



| Part Number | Dimensions (mm) |           |               |        |        |
|-------------|-----------------|-----------|---------------|--------|--------|
|             | L               | W         | T             | e min. | g min. |
| GR721A      | 2.0 ±0.2        | 1.25 ±0.2 | 1.0 +0, -0.3  | 0.3    | 0.7    |
| GR721B      |                 |           | 1.25 ±0.2     |        |        |
| GR731A      | 3.2 ±0.2        | 1.6 ±0.2  | 1.0 +0, -0.3  | 0.3    | 1.2    |
| GR731B      |                 |           | 1.25 +0, -0.3 |        |        |
| GR731C      |                 |           | 1.6 ±0.2      |        |        |

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GR721AW0BB103KW01D | 350Vdc        | -                  | 10000pF±10% | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GR731AW0BB103KW01D | 350Vdc        | -                  | 10000pF±10% | 3.2           | 1.6          | 1                     | 1.2mm            | 0.3mm min.  |
| GR721AW0BB153KW01D | 350Vdc        | -                  | 15000pF±10% | 2             | 1.25         | 1                     | 0.7mm            | 0.3mm min.  |
| GR731AW0BB153KW01D | 350Vdc        | -                  | 15000pF±10% | 3.2           | 1.6          | 1                     | 1.2mm            | 0.3mm min.  |
| GR721BW0BB223KW03L | 350Vdc        | -                  | 22000pF±10% | 2             | 1.25         | 1.45                  | 0.7mm            | 0.3mm min.  |
| GR731AW0BB223KW01D | 350Vdc        | -                  | 22000pF±10% | 3.2           | 1.6          | 1                     | 1.2mm            | 0.3mm min.  |
| GR731BW0BB223KW01L | 350Vdc        | -                  | 22000pF±10% | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GR721BW0BB273KW03L | 350Vdc        | -                  | 27000pF±10% | 2             | 1.25         | 1.45                  | 0.7mm            | 0.3mm min.  |
| GR731AW0BB273KW01D | 350Vdc        | -                  | 27000pF±10% | 3.2           | 1.6          | 1                     | 1.2mm            | 0.3mm min.  |
| GR731AW0BB333KW01D | 350Vdc        | -                  | 33000pF±10% | 3.2           | 1.6          | 1                     | 1.2mm            | 0.3mm min.  |
| GR731BW0BB333KW01L | 350Vdc        | -                  | 33000pF±10% | 3.2           | 1.6          | 1.25                  | 1.2mm            | 0.3mm min.  |
| GR731CW0BB473KW03L | 350Vdc        | -                  | 47000pF±10% | 3.2           | 1.6          | 1.8                   | 1.2mm            | 0.3mm min.  |

For General Purpose  
GRW/GRJ/GR3 Series

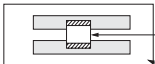
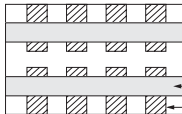
Only for Applications  
GR7 Series

AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information

## GR7 Series Specifications and Test Methods

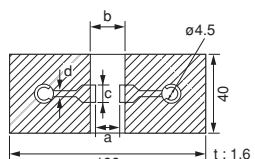
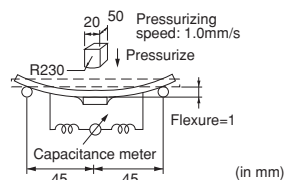
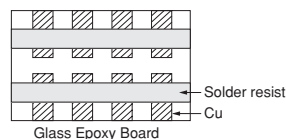
| No.  | Item                                    |             | Specifications                                                                                              | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |                  |   |      |   |                        |   |      |   |                        |   |      |
|------|-----------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------|---|------|---|------------------------|---|------|---|------------------------|---|------|
| 1    | Operating Temperature Range             |             | −55 to +125°C                                                                                               | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 2    | Appearance                              |             | No defects or abnormalities                                                                                 | Visual inspection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 3    | Dimensions                              |             | Within the specified dimensions                                                                             | Using calipers and micrometers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 4    | Dielectric Strength                     |             | No defects or abnormalities                                                                                 | No failure should be observed when DC500V is applied between the terminations for 1 to 5 sec., provided the charge/discharge current is less than 50mA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 5    | Insulation Resistance (I.R.)            |             | C≥0.01μF: More than 100MΩ • μF<br>C<0.01μF: More than 10,000MΩ                                              | The insulation resistance should be measured with DC250±50V and within 60±5 sec. of charging.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 6    | Capacitance                             |             | Within the specified tolerance                                                                              | The capacitance/D.F. should be measured at a frequency of 1±0.2kHz and a voltage of AC1±0.2V(r.m.s.).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 7    | Dissipation Factor (D.F.)               |             | 0.025 max.                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 8    | Capacitance Temperature Characteristics |             | Cap. Change<br>Within ±10% (Apply DC350V bias)<br>Within ±33% (No DC bias)<br>(Temp. Range : −55 to +125°C) | <p>The capacitance measurement should be made at each step specified in the Table.</p> <table><tr><th>Step</th><th>Temperature (°C)</th></tr><tr><td>1</td><td>25±2</td></tr><tr><td>2</td><td>Min. Operating Temp.±3</td></tr><tr><td>3</td><td>25±2</td></tr><tr><td>4</td><td>Max. Operating Temp.±2</td></tr><tr><td>5</td><td>25±2</td></tr></table> <p>•Pretreatment<br/>Perform a heat treatment at 150±5°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p>                                                                                                                                                        | Step | Temperature (°C) | 1 | 25±2 | 2 | Min. Operating Temp.±3 | 3 | 25±2 | 4 | Max. Operating Temp.±2 | 5 | 25±2 |
| Step | Temperature (°C)                        |             |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 1    | 25±2                                    |             |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 2    | Min. Operating Temp.±3                  |             |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 3    | 25±2                                    |             |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 4    | Max. Operating Temp.±2                  |             |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 5    | 25±2                                    |             |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 9    | Adhesive Strength of Termination        |             | No removal of the terminations or other defect should occur.                                                | <p>Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 1.</p> <p>Then apply 10N force in the direction of the arrow.</p> <p>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock.</p> <div><p>10N, 10±1s</p><p>Glass Epoxy Board</p></div> <p>Fig. 1</p>                                                                                                                                                                  |      |                  |   |      |   |                        |   |      |   |                        |   |      |
| 10   | Vibration Resistance                    | Appearance  | No defects or abnormalities                                                                                 | <p>Solder the capacitor to the test jig (glass epoxy board).</p> <p>The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55Hz. The frequency range, from 10 to 55Hz and return to 10Hz, should be traversed in approximately 1 min. This motion should be applied for a period of 2 hrs. in each of 3 mutually perpendicular directions (total of 6 hrs.).</p> <div><p>Solder resist</p><p>Cu</p><p>Glass Epoxy Board</p></div> |      |                  |   |      |   |                        |   |      |   |                        |   |      |
|      |                                         | Capacitance | Within the specified tolerance                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                  |   |      |   |                        |   |      |   |                        |   |      |
|      |                                         | D.F.        | 0.025 max.                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                  |   |      |   |                        |   |      |   |                        |   |      |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page. 

## GR7 Series Specifications and Test Methods

Continued from the preceding page.

| No.                 | Item                                                           | Specifications                                                      | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
|---------------------|----------------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|-------------|---|------------------------|------|---|------------|--------|----------|------------------------|------|------|------------|---------|-----|-----|-----|
| 11                  | Deflection                                                     | No marking defects                                                  | <p>Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 2.</p> <p>Then apply a force in the direction shown in Fig. 3.</p> <p>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock.</p> <div><p>Fig. 2</p><table><tr><th>L×W (mm)</th><th colspan="4">Dimension (mm)</th></tr><tr><th></th><th>a</th><th>b</th><th>c</th><th>d</th></tr><tr><td>2.0×1.25</td><td>1.2</td><td>4.0</td><td>1.65</td><td rowspan="2">1.0</td></tr><tr><td>3.2×1.6</td><td>2.2</td><td>5.0</td><td>2.0</td></tr></table></div> <div><p>Fig. 3</p></div> | L×W (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Dimension (mm) |                  |             |   |                        | a    | b | c          | d      | 2.0×1.25 | 1.2                    | 4.0  | 1.65 | 1.0        | 3.2×1.6 | 2.2 | 5.0 | 2.0 |
|                     |                                                                | L×W (mm)                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Dimension (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
|                     |                                                                |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | b              | c                | d           |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
| 2.0×1.25            | 1.2                                                            | 4.0                                                                 | 1.65                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
| 3.2×1.6             | 2.2                                                            | 5.0                                                                 | 2.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
| 12                  | Solderability of Termination                                   | 75% of the terminations are to be soldered evenly and continuously. | <p>Immerse the capacitor in a solution of ethanol (JIS-K-8101) and rosin (JIS-K-5902) (25% rosin in weight proportion). Immerse in solder solution for 2±0.5 sec.</p> <p>Immersing speed: 25±2.5mm/s</p> <p>Temp. of solder: 245±5°C Lead Free Solder (Sn-3.0Ag-0.5Cu) 235±5°C H60A or H63A Eutectic Solder</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
| 13                  | Resistance to Soldering Heat                                   | Appearance                                                          | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>Preheat the capacitor at 120 to 150°C for 1 min.</p> <p>Immerse the capacitor in solder solution at 260±5°C for 10±1 sec. Let sit at room condition* for 24±2 hrs., then measure.</p> <p>•Immersing speed: 25±2.5mm/s</p> <p>•Pretreatment</p> <p>Perform a heat treatment at 150±10°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
|                     |                                                                | Capacitance Change                                                  | Within ±10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
|                     |                                                                | D.F.                                                                | 0.025 max.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
|                     |                                                                | I.R.                                                                | C≥0.01μF: More than 100MΩ • μF<br>C<0.01μF: More than 10,000MΩ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
|                     |                                                                | Dielectric Strength                                                 | In accordance with item No.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
| 14                  | Temperature Cycle                                              | Appearance                                                          | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>Fix the capacitor to the supporting jig (glass epoxy board) shown in Fig. 4.</p> <p>Perform the 5 cycles according to the 4 heat treatments listed in the following table.</p> <p>Let sit for 24±2 hrs. at room condition,* then measure.</p> <table><tr><th>Step</th><th>Temperature (°C)</th><th>Time (min.)</th></tr><tr><td>1</td><td>Min. Operating Temp.±3</td><td>30±3</td></tr><tr><td>2</td><td>Room Temp.</td><td>2 to 3</td></tr><tr><td>3</td><td>Max. Operating Temp.±2</td><td>30±3</td></tr><tr><td>4</td><td>Room Temp.</td><td>2 to 3</td></tr></table> <p>•Pretreatment</p> <p>Perform a heat treatment at 150±10°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p> <div><p>Fig. 4</p></div> | Step           | Temperature (°C) | Time (min.) | 1 | Min. Operating Temp.±3 | 30±3 | 2 | Room Temp. | 2 to 3 | 3        | Max. Operating Temp.±2 | 30±3 | 4    | Room Temp. | 2 to 3  |     |     |     |
|                     |                                                                | Step                                                                | Temperature (°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Time (min.)    |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
|                     |                                                                | 1                                                                   | Min. Operating Temp.±3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 30±3           |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
|                     |                                                                | 2                                                                   | Room Temp.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2 to 3         |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
|                     |                                                                | 3                                                                   | Max. Operating Temp.±2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 30±3           |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
| 4                   | Room Temp.                                                     | 2 to 3                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
| Capacitance Change  | Within ±7.5%                                                   |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
| D.F.                | 0.025 max.                                                     |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
| I.R.                | C≥0.01μF: More than 100MΩ • μF<br>C<0.01μF: More than 10,000MΩ |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
| Dielectric Strength | In accordance with item No.4                                   |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
| 15                  | Humidity (Steady State)                                        | Appearance                                                          | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>Let the capacitor sit at 40±2°C and relative humidity of 90 to 95% for 500±20 hrs.</p> <p>Remove and let sit for 24±2 hrs. at room condition,* then measure.</p> <p>•Pretreatment</p> <p>Perform a heat treatment at 150±10°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
|                     |                                                                | Capacitance Change                                                  | Within ±15%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
|                     |                                                                | D.F.                                                                | 0.05 max.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
|                     |                                                                | I.R.                                                                | C≥0.01μF: More than 10MΩ • μF<br>C<0.01μF: More than 1,000MΩ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |
|                     |                                                                | Dielectric Strength                                                 | In accordance with item No.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |                  |             |   |                        |      |   |            |        |          |                        |      |      |            |         |     |     |     |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page. ➤

For General Purpose  
GRW/GRJ/GR3 Series

Only for Applications  
GR7 Series

AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information

## GR7 Series Specifications and Test Methods

Continued from the preceding page.

| No. | Item             |                     | Specifications                                                                                                                       | Test Method                                                                                                                                                                                                                                                                                                                                                                      |
|-----|------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16  | Life             | Appearance          | No marking defects                                                                                                                   | Apply DC350V for $1,000 \pm 48$ hrs. at maximum operating temperature $\pm 3^{\circ}\text{C}$ . Remove and let sit for $24 \pm 2$ hrs. at room condition,* then measure.<br>The charge/discharge current is less than 50mA.<br><b>•Pretreatment</b><br>Apply test voltage for $60 \pm 5$ min. at test temperature.<br>Remove and let sit for $24 \pm 2$ hrs. at room condition.* |
|     |                  | Capacitance Change  | Within $\pm 15\%$                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                  |
|     |                  | D.F.                | 0.05 max.                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                  |
|     |                  | I.R.                | $C \geq 0.01\mu\text{F}$ : More than $10\text{M}\Omega \cdot \mu\text{F}$<br>$C < 0.01\mu\text{F}$ : More than $1,000\text{M}\Omega$ |                                                                                                                                                                                                                                                                                                                                                                                  |
|     |                  | Dielectric Strength | In accordance with item No.4                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                  |
| 17  | Humidity Loading | Appearance          | No marking defects                                                                                                                   | Apply the rated voltage at $40 \pm 2^{\circ}\text{C}$ and relative humidity of 90 to 95% for $500 \pm 24$ hrs.<br>Remove and let sit for $24 \pm 2$ hrs. at room condition,* then measure.<br><b>•Pretreatment</b><br>Apply test voltage for $60 \pm 5$ min. at test temperature.<br>Remove and let sit for $24 \pm 2$ hrs. at room condition.*                                  |
|     |                  | Capacitance Change  | Within $\pm 15\%$                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                  |
|     |                  | D.F.                | 0.05 max.                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                  |
|     |                  | I.R.                | $C \geq 0.01\mu\text{F}$ : More than $10\text{M}\Omega \cdot \mu\text{F}$<br>$C < 0.01\mu\text{F}$ : More than $1,000\text{M}\Omega$ |                                                                                                                                                                                                                                                                                                                                                                                  |
|     |                  | Dielectric Strength | In accordance with item No.4                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                  |

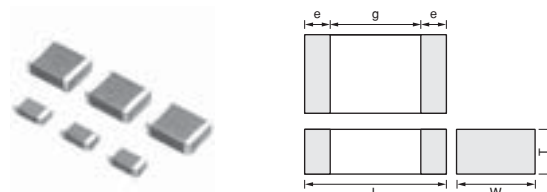
\* "Room condition" Temperature: 15 to  $35^{\circ}\text{C}$ , Relative humidity: 45 to 75%, Atmospheric pressure: 86 to  $106\text{kPa}$

## Chip Monolithic Ceramic Capacitors

# AC250V Type (Which Meet Japanese Law) GA2 Series

### ■ Features

1. Chip monolithic ceramic capacitor for AC lines.
2. A new monolithic structure for small, high capacitance capable of operating at high voltage levels.
3. Sn-plated external electrodes realize good solderability.
4. Only for reflow soldering
5. Capacitance 0.01 to 0.1uF for connecting lines and 470 to 4700pF for connecting lines to earth.



| Part Number   | Dimensions (mm) |          |              |        |        |
|---------------|-----------------|----------|--------------|--------|--------|
|               | L               | W        | T            | e min. | g min. |
| <b>GA242Q</b> | 4.5 ±0.3        | 2.0 ±0.2 | 1.5 +0, -0.3 | 0.3    | 2.5    |
| <b>GA243D</b> | 4.5 ±0.4        | 3.2 ±0.3 | 2.0 +0, -0.3 |        |        |
| <b>GA243Q</b> |                 |          | 1.5 +0, -0.3 |        |        |
| <b>GA255D</b> | 5.7 ±0.4        | 5.0 ±0.4 | 2.0 +0, -0.3 |        | 3.2    |

### ■ Applications

Noise suppression filters for switching power supplies, telephones, facsimiles, modems.

Do not use these products in any Automotive Power train or Safety equipment including Battery chargers for Electric Vehicles and Plug-in Hybrids. Only Murata products clearly stipulated as "for Automotive use" can be used for automobile applications such as Power train and Safety equipment.

### ■ Reference Standard

GA2 series obtains no safety approval. This series is based on the standards of the electrical appliance and material safety law of Japan (separated table 4).

| Part Number               | Rated Voltage  | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|---------------------------|----------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| <b>GA242QR7E2471MW01L</b> | 250Vac(r.m.s.) | X7R (EIA)          | 470pF±20%   | 4.5           | 2.0          | 1.5                   | 2.5mm            | 0.3mm min.  |
| <b>GA242QR7E2102MW01L</b> | 250Vac(r.m.s.) | X7R (EIA)          | 1000pF±20%  | 4.5           | 2.0          | 1.5                   | 2.5mm            | 0.3mm min.  |
| <b>GA243QR7E2222MW01L</b> | 250Vac(r.m.s.) | X7R (EIA)          | 2200pF±20%  | 4.5           | 3.2          | 1.5                   | 2.5mm            | 0.3mm min.  |
| <b>GA243QR7E2332MW01L</b> | 250Vac(r.m.s.) | X7R (EIA)          | 3300pF±20%  | 4.5           | 3.2          | 1.5                   | 2.5mm            | 0.3mm min.  |
| <b>GA243DR7E2472MW01L</b> | 250Vac(r.m.s.) | X7R (EIA)          | 4700pF±20%  | 4.5           | 3.2          | 2                     | 2.5mm            | 0.3mm min.  |
| <b>GA243QR7E2103MW01L</b> | 250Vac(r.m.s.) | X7R (EIA)          | 10000pF±20% | 4.5           | 3.2          | 1.5                   | 2.5mm            | 0.3mm min.  |
| <b>GA243QR7E2223MW01L</b> | 250Vac(r.m.s.) | X7R (EIA)          | 22000pF±20% | 4.5           | 3.2          | 1.5                   | 2.5mm            | 0.3mm min.  |
| <b>GA243DR7E2473MW01L</b> | 250Vac(r.m.s.) | X7R (EIA)          | 47000pF±20% | 4.5           | 3.2          | 2                     | 2.5mm            | 0.3mm min.  |
| <b>GA255DR7E2104MW01L</b> | 250Vac(r.m.s.) | X7R (EIA)          | 0.10μF±20%  | 5.7           | 5.0          | 2                     | 3.2mm            | 0.3mm min.  |

For General Purpose  
GRW/GRJ/GR3 Series

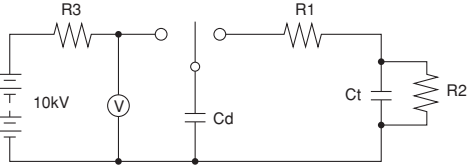
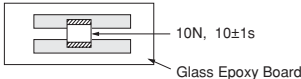
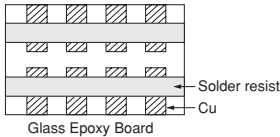
Only for Applications

AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information

## GA2 Series Specifications and Test Methods

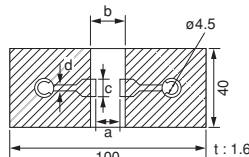
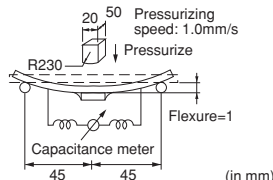
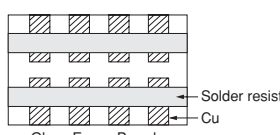
| No.                 | Item                                                         |             | Specifications                                                | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
|---------------------|--------------------------------------------------------------|-------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------|------------|-----------------|------------|------------------------|---|------|---|------------------------|---|------|
| 1                   | Operating Temperature Range                                  |             | −55 to +125°C                                                 | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 2                   | Appearance                                                   |             | No defects or abnormalities                                   | Visual inspection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 3                   | Dimensions                                                   |             | Within the specified dimensions                               | Using calipers and micrometers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 4                   | Dielectric Strength                                          |             | No defects or abnormalities                                   | No failure should be observed when voltage in the table is applied between the terminations for 60±1 sec., provided the charge/discharge current is less than 50mA. <table><tr><th>Nominal Capacitance</th><th>Test Voltage</th></tr><tr><td>C≥10,000pF</td><td>AC575V (r.m.s.)</td></tr><tr><td>C&lt;10,000pF</td><td>AC1500V (r.m.s.)</td></tr></table>                                                                                                                                                                                                                                              | Nominal Capacitance | Test Voltage     | C≥10,000pF | AC575V (r.m.s.) | C<10,000pF | AC1500V (r.m.s.)       |   |      |   |                        |   |      |
| Nominal Capacitance | Test Voltage                                                 |             |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| C≥10,000pF          | AC575V (r.m.s.)                                              |             |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| C<10,000pF          | AC1500V (r.m.s.)                                             |             |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 5                   | Insulation Resistance (I.R.)                                 |             | More than 2,000MΩ                                             | The insulation resistance should be measured with DC500±50V and within 60±5 sec. of charging.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 6                   | Capacitance                                                  |             | Within the specified tolerance                                | The capacitance/D.F. should be measured at a frequency of 1±0.2kHz and a voltage of AC1±0.2V (r.m.s.).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 7                   | Dissipation Factor (D.F.)                                    |             | 0.025 max.                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 8                   | Capacitance Temperature Characteristics                      |             | Cap. Change Within ±15% (Temp. Range: −55 to +125°C)          | The capacitance measurement should be made at each step specified in the Table. <table><tr><th>Step</th><th>Temperature (°C)</th></tr><tr><td>1</td><td>25±2</td></tr><tr><td>2</td><td>Min. Operating Temp.±3</td></tr><tr><td>3</td><td>25±2</td></tr><tr><td>4</td><td>Max. Operating Temp.±2</td></tr><tr><td>5</td><td>25±2</td></tr></table> <p>•Pretreatment<br/>Perform a heat treatment at 150±18°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p>                                                                                                                      | Step                | Temperature (°C) | 1          | 25±2            | 2          | Min. Operating Temp.±3 | 3 | 25±2 | 4 | Max. Operating Temp.±2 | 5 | 25±2 |
| Step                | Temperature (°C)                                             |             |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 1                   | 25±2                                                         |             |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 2                   | Min. Operating Temp.±3                                       |             |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 3                   | 25±2                                                         |             |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 4                   | Max. Operating Temp.±2                                       |             |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 5                   | 25±2                                                         |             |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 9                   | Discharge Test (Application: Nominal Capacitance C<10,000pF) | Appearance  | No defects or abnormalities                                   | As in Fig., discharge is made 50 times at 5 sec. intervals from the capacitor (Cd) charged at DC voltage of specified. <div><p>Ct: Capacitor under test   Cd: 0.001μF<br/>R1: 1,000Ω   R2: 100MΩ   R3: Surge resistance</p></div>                                                                                                                                                                                                                                                                                  |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 10                  | Adhesive Strength of Termination                             |             | No removal of the terminations or other defects should occur. | Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 1.<br>Then apply 10N force in the direction of the arrow. The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock. <div><p>Fig. 1</p></div>                                                                                                                                                                                      |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
| 11                  | Vibration Resistance                                         | Appearance  | No defects or abnormalities                                   | Solder the capacitor to the test jig (glass epoxy board).<br>The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55Hz. The frequency range, from 10 to 55Hz and return to 10Hz, should be traversed in approximately 1 min. This motion should be applied for a period of 2 hrs. in each of 3 mutually perpendicular directions (total of 6 hrs.). <div><p>Glass Epoxy Board</p></div> |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
|                     |                                                              | Capacitance | Within the specified tolerance                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |
|                     |                                                              | D.F.        | 0.025 max.                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                  |            |                 |            |                        |   |      |   |                        |   |      |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page. ➤

## GA2 Series Specifications and Test Methods

Continued from the preceding page.

| No.                 | Item                         |                                                                     | Specifications                                                                                                                                                                                                                                                                                                  | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
|---------------------|------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---|------------------------|--------|---|--------------|--------|---|------------------------|------|-----|------------|--------|---------|-----|-----|-----|---------|-----|-----|-----|
| 12                  | Deflection                   |                                                                     | No marking defects                                                                                                                                                                                                                                                                                              | <p>Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 2.</p> <p>Then apply a force in the direction shown in Fig. 3. The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock.</p> <div><p>Fig. 2</p><table><tr><th>L×W (mm)</th><th colspan="4">Dimension (mm)</th></tr><tr><th></th><th>a</th><th>b</th><th>c</th><th>d</th></tr><tr><td>4.5×2.0</td><td>3.5</td><td>7.0</td><td>2.4</td><td rowspan="3">1.0</td></tr><tr><td>4.5×3.2</td><td>3.5</td><td>7.0</td><td>3.7</td></tr><tr><td>5.7×5.0</td><td>4.5</td><td>8.0</td><td>5.6</td></tr></table></div> <div><p>Fig. 3</p></div> | L×W (mm)           | Dimension (mm)                                                                                                                                                 |             |   |                        |        | a | b            | c      | d | 4.5×2.0                | 3.5  | 7.0 | 2.4        | 1.0    | 4.5×3.2 | 3.5 | 7.0 | 3.7 | 5.7×5.0 | 4.5 | 8.0 | 5.6 |
|                     |                              |                                                                     | L×W (mm)                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Dimension (mm)     |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
|                     |                              |                                                                     |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | a                  | b                                                                                                                                                              | c           | d |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| 4.5×2.0             | 3.5                          | 7.0                                                                 | 2.4                                                                                                                                                                                                                                                                                                             | 1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| 4.5×3.2             | 3.5                          | 7.0                                                                 | 3.7                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| 5.7×5.0             | 4.5                          | 8.0                                                                 | 5.6                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| 13                  | Solderability of Termination | 75% of the terminations are to be soldered evenly and continuously. | <p>Immerse the capacitor in a solution of ethanol (JIS-K-8101) and rosin (JIS-K-5902) (25% rosin in weight proportion). Immerse in solder solution for 2±0.5 sec.</p> <p>Immersing speed: 25±2.5mm/s</p> <p>Temp. of solder: 245±5°C Lead Free Solder (Sn-3.0Ag-0.5Cu) 235±5°C H60A or H63A Eutectic Solder</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
|                     |                              | 14                                                                  | Humidity Insulation                                                                                                                                                                                                                                                                                             | Appearance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | No marking defects | <p>The capacitor should be subjected to 40±2°C, relative humidity of 90 to 98% for 8 hrs., and then removed in room condition* for 16 hrs. until 5 cycles.</p> |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| Capacitance Change  | Within ±15%                  |                                                                     |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| D.F.                | 0.05 max.                    |                                                                     |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| I.R.                | More than 1,000MΩ            |                                                                     |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| Dielectric Strength | In accordance with item No.4 |                                                                     |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| 15                  | Resistance to Soldering Heat | Appearance                                                          | No marking defects                                                                                                                                                                                                                                                                                              | <p>Preheat the capacitor as in table.</p> <p>Immerse the capacitor in solder solution at 260±5°C for 10±1 sec. Let sit at room condition* for 24±2 hrs., then measure.</p> <p>●Immersing speed: 25±2.5mm/s</p> <p>●Pretreatment</p> <p>Perform a heat treatment at 150±18°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p> <p>*Preheating</p> <table><tr><th>Step</th><th>Temperature</th><th>Time</th></tr><tr><td>1</td><td>100 to 120°C</td><td>1 min.</td></tr><tr><td>2</td><td>170 to 200°C</td><td>1 min.</td></tr></table>                                                                                                                                                                                                                                                                                                                                   | Step               | Temperature                                                                                                                                                    | Time        | 1 | 100 to 120°C           | 1 min. | 2 | 170 to 200°C | 1 min. |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
|                     |                              | Step                                                                | Temperature                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Time               |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
|                     |                              | 1                                                                   | 100 to 120°C                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1 min.             |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
|                     |                              | 2                                                                   | 170 to 200°C                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1 min.             |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
|                     |                              | Capacitance Change                                                  | Within ±10%                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| D.F.                | 0.025 max.                   |                                                                     |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| I.R.                | More than 2,000MΩ            |                                                                     |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| Dielectric Strength | In accordance with item No.4 |                                                                     |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| 16                  | Temperature Cycle            | Appearance                                                          | No marking defects                                                                                                                                                                                                                                                                                              | <p>Fix the capacitor to the supporting jig (glass epoxy board) shown in Fig. 4.</p> <p>Perform the 5 cycles according to the 4 heat treatments listed in the following table.</p> <p>Let sit for 24±2 hrs. at room condition,* then measure.</p> <table><tr><th>Step</th><th>Temperature (°C)</th><th>Time (min.)</th></tr><tr><td>1</td><td>Min. Operating Temp.±3</td><td>30±3</td></tr><tr><td>2</td><td>Room Temp.</td><td>2 to 3</td></tr><tr><td>3</td><td>Max. Operating Temp.±2</td><td>30±3</td></tr><tr><td>4</td><td>Room Temp.</td><td>2 to 3</td></tr></table> <p>●Pretreatment</p> <p>Perform a heat treatment at 150±18°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p> <div><p>Fig. 4</p></div>                                                                | Step               | Temperature (°C)                                                                                                                                               | Time (min.) | 1 | Min. Operating Temp.±3 | 30±3   | 2 | Room Temp.   | 2 to 3 | 3 | Max. Operating Temp.±2 | 30±3 | 4   | Room Temp. | 2 to 3 |         |     |     |     |         |     |     |     |
|                     |                              | Step                                                                | Temperature (°C)                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Time (min.)        |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
|                     |                              | 1                                                                   | Min. Operating Temp.±3                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 30±3               |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
|                     |                              | 2                                                                   | Room Temp.                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2 to 3             |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
|                     |                              | 3                                                                   | Max. Operating Temp.±2                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 30±3               |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| 4                   | Room Temp.                   | 2 to 3                                                              |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| Capacitance Change  | Within ±15%                  |                                                                     |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| D.F.                | 0.05 max.                    |                                                                     |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| I.R.                | More than 2,000MΩ            |                                                                     |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |
| Dielectric Strength | In accordance with item No.4 |                                                                     |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                                                                                                                                                                |             |   |                        |        |   |              |        |   |                        |      |     |            |        |         |     |     |     |         |     |     |     |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page. 

## GA2 Series Specifications and Test Methods

Continued from the preceding page.

| No.                 | Item                         |                     | Specifications                          | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                     |           |              |            |                                         |                 |            |                                         |                  |
|---------------------|------------------------------|---------------------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------|--------------|------------|-----------------------------------------|-----------------|------------|-----------------------------------------|------------------|
| 17                  | Humidity<br>(Steady State)   | Appearance          | No marking defects                      | Let the capacitor sit at 40±2°C and relative humidity of 90 to 95% for 500 <sup>+24</sup> <sub>-8</sub> hrs.<br>Remove and let sit for 24±2 hrs. at room condition,* then measure.<br>●Pretreatment<br>Perform a heat treatment at 150 <sup>+10</sup> <sub>-5</sub> °C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*                                                                                                                                                                                                                                                                                                                                                                                         |                     |           |              |            |                                         |                 |            |                                         |                  |
|                     |                              | Capacitance Change  | Within ±15%                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |           |              |            |                                         |                 |            |                                         |                  |
|                     |                              | D.F.                | 0.05 max.                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |           |              |            |                                         |                 |            |                                         |                  |
|                     |                              | I.R.                | More than 1,000MΩ                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |           |              |            |                                         |                 |            |                                         |                  |
|                     |                              | Dielectric Strength | In accordance with item No.4            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |           |              |            |                                         |                 |            |                                         |                  |
| 18                  | Life                         | Appearance          | No marking defects                      | Apply voltage and time as in Table at maximum operating temperature ±3°C. Remove and let sit for 24±2 hrs. at room condition,* then measure. The charge / discharge current is less than 50mA.<br><table><tr><th>Nominal Capacitance</th><th>Test Time</th><th>Test Voltage</th></tr><tr><td>C≥10,000pF</td><td>1,000<sup>+48</sup><sub>-8</sub> hrs.</td><td>AC300V (r.m.s.)</td></tr><tr><td>C&lt;10,000pF</td><td>1,500<sup>+48</sup><sub>-8</sub> hrs.</td><td>AC500V (r.m.s.)*</td></tr></table><br>* Except that once each hour the voltage is increased to AC1,000V (r.m.s.) for 0.1 sec.<br>●Pretreatment<br>Apply test voltage for 60±5 min. at test temperature. Remove and let sit for 24±2 hrs. at room condition.* | Nominal Capacitance | Test Time | Test Voltage | C≥10,000pF | 1,000 <sup>+48</sup> <sub>-8</sub> hrs. | AC300V (r.m.s.) | C<10,000pF | 1,500 <sup>+48</sup> <sub>-8</sub> hrs. | AC500V (r.m.s.)* |
|                     |                              | Nominal Capacitance | Test Time                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Test Voltage        |           |              |            |                                         |                 |            |                                         |                  |
|                     |                              | C≥10,000pF          | 1,000 <sup>+48</sup> <sub>-8</sub> hrs. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | AC300V (r.m.s.)     |           |              |            |                                         |                 |            |                                         |                  |
|                     |                              | C<10,000pF          | 1,500 <sup>+48</sup> <sub>-8</sub> hrs. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | AC500V (r.m.s.)*    |           |              |            |                                         |                 |            |                                         |                  |
|                     |                              | Capacitance Change  | Within ±20%                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |           |              |            |                                         |                 |            |                                         |                  |
| D.F.                | 0.05 max.                    |                     |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |           |              |            |                                         |                 |            |                                         |                  |
| I.R.                | More than 1,000MΩ            |                     |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |           |              |            |                                         |                 |            |                                         |                  |
| Dielectric Strength | In accordance with item No.4 |                     |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |           |              |            |                                         |                 |            |                                         |                  |
| 19                  | Humidity Loading             | Appearance          | No marking defects                      | Apply the rated voltage at 40±2°C and relative humidity of 90 to 95% for 500 <sup>+24</sup> <sub>-8</sub> hrs.<br>Remove and let sit for 24±2 hrs. at room condition,* then measure.<br>●Pretreatment<br>Apply test voltage for 60±5 min. at test temperature. Remove and let sit for 24±2 hrs. at room condition.*                                                                                                                                                                                                                                                                                                                                                                                                             |                     |           |              |            |                                         |                 |            |                                         |                  |
|                     |                              | Capacitance Change  | Within ±15%                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |           |              |            |                                         |                 |            |                                         |                  |
|                     |                              | D.F.                | 0.05 max.                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |           |              |            |                                         |                 |            |                                         |                  |
|                     |                              | I.R.                | More than 1,000MΩ                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |           |              |            |                                         |                 |            |                                         |                  |
|                     |                              | Dielectric Strength | In accordance with item No.4            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |           |              |            |                                         |                 |            |                                         |                  |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

## Chip Monolithic Ceramic Capacitors

# Safety Standard Certified GA3 Series UL, IEC60384-14 Class X1/Y2 Type GC

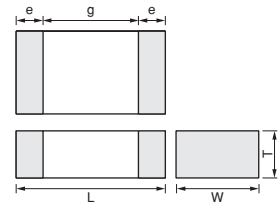
### ■ Features

1. Chip monolithic ceramic capacitor (certified as conforming to safety standards) for AC lines.
2. A new monolithic structure for small, high capacitance capable of operating at high voltage levels.
3. Compared to lead type capacitors, this new capacitor is greatly downsized and low-profiled to 1/10 or less in volume, and 1/4 or less in height.
4. Type GC can be used as an X1-class and Y2-class capacitor, line-by-pass capacitor of UL1414.
5. +125 degree C guaranteed
6. Only for reflow soldering

### ■ Applications

1. Ideal for use as Y capacitor or X capacitor for various switching power supplies
2. Ideal for modem applications

Do not use these products in any Automotive Power train or Safety equipment including Battery chargers for Electric Vehicles and Plug-in Hybrids. Only Murata products clearly stipulated as "for Automotive use" can be used for automobile applications such as Power train and Safety equipment.



| Part Number   | Dimensions (mm) |          |          |        |        |
|---------------|-----------------|----------|----------|--------|--------|
|               | L               | W        | T        | e min. | g min. |
| <b>GA355D</b> | 5.7 ±0.4        | 5.0 ±0.4 | 2.0 ±0.3 | 0.3    | 4.0    |

### ■ Standard Certification

|       | Standard No.                                   | Class        | Rated Voltage      |
|-------|------------------------------------------------|--------------|--------------------|
| UL    | UL1414                                         | Line By-pass | AC250V<br>(r.m.s.) |
| VDE   | IEC 60384-14<br>EN 60384-14                    | X1, Y2       |                    |
| BSI   | EN 60065 (14.2)<br>IEC 60384-14<br>EN 60384-14 |              |                    |
| SEMKO | IEC 60384-14<br>EN 60384-14                    |              |                    |
| ESTI  | IEC 60384-14                                   |              |                    |

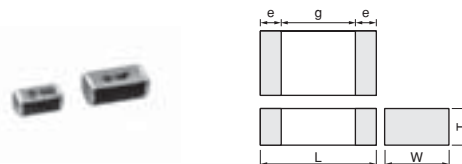
| Part Number               | Rated Voltage  | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|---------------------------|----------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| <b>GA355DR7GC101KY02L</b> | 250Vac(r.m.s.) | X7R (EIA)          | 100pF±10%   | 5.7           | 5.0          | 2.3                   | 4.0mm            | 0.3mm min.  |
| <b>GA355DR7GC151KY02L</b> | 250Vac(r.m.s.) | X7R (EIA)          | 150pF±10%   | 5.7           | 5.0          | 2.3                   | 4.0mm            | 0.3mm min.  |
| <b>GA355DR7GC221KY02L</b> | 250Vac(r.m.s.) | X7R (EIA)          | 220pF±10%   | 5.7           | 5.0          | 2.3                   | 4.0mm            | 0.3mm min.  |
| <b>GA355DR7GC331KY02L</b> | 250Vac(r.m.s.) | X7R (EIA)          | 330pF±10%   | 5.7           | 5.0          | 2.3                   | 4.0mm            | 0.3mm min.  |

## Chip Monolithic Ceramic Capacitors

### Safety Standard Certified GA3 Series IEC60384-14 Class Y2, X1/Y2 Type GF

#### ■ Features

1. Available for equipment based on IEC/EN60950 and UL1950. Besides, the GA352/355 types are available for equipment based on IEC/EN60065, UL1492, and UL6500.
2. Type GF can be used as a Y2-class capacitor.
3. A new monolithic structure for small, high capacitance capable of operating at high voltage levels.
4. +125 degree C guaranteed
5. Only for reflow soldering



| Part Number | Dimensions (mm) |          |              |        |        |
|-------------|-----------------|----------|--------------|--------|--------|
|             | L               | W        | T            | e min. | g min. |
| GA342A      | 4.5 ±0.3        | 2.0 ±0.2 | 1.0 +0, -0.3 | 0.3    | 2.5    |
| GA342D      |                 |          | 2.0 ±0.2     |        |        |
| GA342Q      |                 |          | 1.5 +0, -0.3 |        |        |
| GA352Q      | 5.7 ±0.4        | 2.8 ±0.3 | 1.5 +0, -0.3 | 0.3    | 4.0    |
| GA355D      |                 |          | 2.0 +0, -0.3 |        |        |
| GA355Q      |                 |          | 1.5 +0, -0.3 |        |        |

#### ■ Applications

1. Ideal for use on line filters and couplings for DAA modems without transformers
2. Ideal for use on line filters for information equipment
3. Ideal for use as Y capacitor or X capacitor for various switching power supplies (GA352/355 types only)

Do not use these products in any Automotive Power train or Safety equipment including Battery chargers for Electric Vehicles and Plug-in Hybrids. Only Murata products clearly stipulated as "for Automotive use" can be used for automobile applications such as Power train and Safety equipment.

#### ■ Standard Certification

|       | Standard No. | Class  | Status of Certification |                           | Rated Voltage      |
|-------|--------------|--------|-------------------------|---------------------------|--------------------|
|       |              |        | Size : 4.5x2.0mm        | Size : 5.7x2.8mm and over |                    |
| UL    | UL1414       | X1, Y2 | —                       | ⊙                         | AC250V<br>(r.m.s.) |
|       | UL 60950-1   | —      | ⊙                       | —                         |                    |
| VDE   | IEC 60384-14 | X1, Y2 | —                       | ⊙                         | (r.m.s.)           |
| SEMKO | EN 60384-14  | Y2     | ⊙                       | ⊙                         |                    |

#### Applications

| Size               | Switching power supplies | Communication network devices such as a modem |
|--------------------|--------------------------|-----------------------------------------------|
| 4.5x2.0mm          | —                        | ⊙                                             |
| 5.7x2.8mm and over | ⊙                        | ⊙                                             |

| Part Number        | Rated Voltage  | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|----------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GA342D1XGF100JY02L | 250Vac(r.m.s.) | SL (JIS)           | 10pF±5%     | 4.5           | 2.0          | 2.2                   | 2.5mm            | 0.3mm min.  |
| GA342D1XGF120JY02L | 250Vac(r.m.s.) | SL (JIS)           | 12pF±5%     | 4.5           | 2.0          | 2.2                   | 2.5mm            | 0.3mm min.  |
| GA342D1XGF150JY02L | 250Vac(r.m.s.) | SL (JIS)           | 15pF±5%     | 4.5           | 2.0          | 2.2                   | 2.5mm            | 0.3mm min.  |
| GA342D1XGF180JY02L | 250Vac(r.m.s.) | SL (JIS)           | 18pF±5%     | 4.5           | 2.0          | 2.2                   | 2.5mm            | 0.3mm min.  |
| GA342D1XGF220JY02L | 250Vac(r.m.s.) | SL (JIS)           | 22pF±5%     | 4.5           | 2.0          | 2.2                   | 2.5mm            | 0.3mm min.  |
| GA342A1XGF270JW31L | 250Vac(r.m.s.) | SL (JIS)           | 27pF±5%     | 4.5           | 2.0          | 1                     | 2.5mm            | 0.3mm min.  |
| GA342A1XGF330JW31L | 250Vac(r.m.s.) | SL (JIS)           | 33pF±5%     | 4.5           | 2.0          | 1                     | 2.5mm            | 0.3mm min.  |
| GA342A1XGF390JW31L | 250Vac(r.m.s.) | SL (JIS)           | 39pF±5%     | 4.5           | 2.0          | 1                     | 2.5mm            | 0.3mm min.  |
| GA342A1XGF470JW31L | 250Vac(r.m.s.) | SL (JIS)           | 47pF±5%     | 4.5           | 2.0          | 1                     | 2.5mm            | 0.3mm min.  |
| GA342A1XGF560JW31L | 250Vac(r.m.s.) | SL (JIS)           | 56pF±5%     | 4.5           | 2.0          | 1                     | 2.5mm            | 0.3mm min.  |
| GA342A1XGF680JW31L | 250Vac(r.m.s.) | SL (JIS)           | 68pF±5%     | 4.5           | 2.0          | 1                     | 2.5mm            | 0.3mm min.  |
| GA342A1XGF820JW31L | 250Vac(r.m.s.) | SL (JIS)           | 82pF±5%     | 4.5           | 2.0          | 1                     | 2.5mm            | 0.3mm min.  |
| GA342QR7GF101KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 100pF±10%   | 4.5           | 2.0          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GA342QR7GF151KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 150pF±10%   | 4.5           | 2.0          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GA342DR7GF221KW02L | 250Vac(r.m.s.) | X7R (EIA)          | 220pF±10%   | 4.5           | 2.0          | 2.2                   | 2.5mm            | 0.3mm min.  |
| GA342DR7GF331KW02L | 250Vac(r.m.s.) | X7R (EIA)          | 330pF±10%   | 4.5           | 2.0          | 2.2                   | 2.5mm            | 0.3mm min.  |
| GA342QR7GF471KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 470pF±10%   | 4.5           | 2.0          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GA352QR7GF471KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 470pF±10%   | 5.7           | 2.8          | 1.5                   | 4.0mm            | 0.3mm min.  |
| GA342QR7GF681KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 680pF±10%   | 4.5           | 2.0          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GA352QR7GF681KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 680pF±10%   | 5.7           | 2.8          | 1.5                   | 4.0mm            | 0.3mm min.  |
| GA342DR7GF102KW02L | 250Vac(r.m.s.) | X7R (EIA)          | 1000pF±10%  | 4.5           | 2.0          | 2.2                   | 2.5mm            | 0.3mm min.  |
| GA352QR7GF102KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 1000pF±10%  | 5.7           | 2.8          | 1.5                   | 4.0mm            | 0.3mm min.  |

Continued on the following page. ↗

Continued from the preceding page.

| Part Number        | Rated Voltage  | TC Code<br>(Standard) | Capacitance | Length L<br>(mm) | Width W<br>(mm) | Thickness T<br>max.<br>(mm) | Electrode g<br>min. | Electrode e |
|--------------------|----------------|-----------------------|-------------|------------------|-----------------|-----------------------------|---------------------|-------------|
| GA352QR7GF152KW01L | 250Vac(r.m.s.) | X7R (EIA)             | 1500pF±10%  | 5.7              | 2.8             | 1.5                         | 4.0mm               | 0.3mm min.  |
| GA355QR7GF182KW01L | 250Vac(r.m.s.) | X7R (EIA)             | 1800pF±10%  | 5.7              | 5.0             | 1.5                         | 4.0mm               | 0.3mm min.  |
| GA355QR7GF222KW01L | 250Vac(r.m.s.) | X7R (EIA)             | 2200pF±10%  | 5.7              | 5.0             | 1.5                         | 4.0mm               | 0.3mm min.  |
| GA355QR7GF332KW01L | 250Vac(r.m.s.) | X7R (EIA)             | 3300pF±10%  | 5.7              | 5.0             | 1.5                         | 4.0mm               | 0.3mm min.  |
| GA355DR7GF472KW01L | 250Vac(r.m.s.) | X7R (EIA)             | 4700pF±10%  | 5.7              | 5.0             | 2                           | 4.0mm               | 0.3mm min.  |

For General Purpose  
 GRW/GRJ/GR3 Series

Only for Applications

AC250V Type  
 GA2 Series

Safety Standard  
 Certified GA3 Series

Product Information

## Chip Monolithic Ceramic Capacitors

# Safety Standard Certified GA3 Series IEC60384-14 Class Y3 Type GD

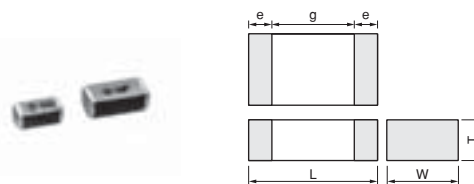
### ■ Features

1. Available for equipment based on IEC/EN60950 and UL1950.
2. Type GD can be used as a Y3-class capacitor.
3. A new monolithic structure for small, high capacitance capable of operating at high voltage levels.
4. +125 degree C guaranteed
5. Only for reflow soldering

### ■ Applications

1. Ideal for use on line filters and couplings for DAA modems without transformers
2. Ideal for use on line filters for information equipment

Do not use these products in any Automotive Power train or Safety equipment including Battery chargers for Electric Vehicles and Plug-in Hybrids. Only Murata products clearly stipulated as "for Automotive use" can be used for automobile applications such as Power train and Safety equipment.



| Part Number | Dimensions (mm) |          |              |        |        |
|-------------|-----------------|----------|--------------|--------|--------|
|             | L               | W        | T            | e min. | g min. |
| GA342A      | 4.5 ±0.3        | 2.0 ±0.2 | 1.0 +0, -0.3 | 0.3    | 2.5    |
| GA342D      |                 |          | 2.0 ±0.2     |        |        |
| GA342Q      |                 |          | 1.5 +0, -0.3 |        |        |
| GA343D      | 4.5 ±0.4        | 3.2 ±0.3 | 2.0 +0, -0.3 |        |        |
| GA343Q      |                 |          | 1.5 +0, -0.3 |        |        |

### ■ Standard Certification

|       | Standard No.                | Class | Rated Voltage  |
|-------|-----------------------------|-------|----------------|
| UL    | UL 60950-1                  | —     | AC250V(r.m.s.) |
| SEMKO | IEC 60384-14<br>EN 60384-14 | Y3    |                |

#### Applications

| Size                | Switching power supplies | Communication network devices such as a modem |
|---------------------|--------------------------|-----------------------------------------------|
| 4.5x3.2mm and under | —                        | ◎                                             |

| Part Number        | Rated Voltage  | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|----------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GA342D1XGD100JY02L | 250Vac(r.m.s.) | SL (JIS)           | 10pF±5%     | 4.5           | 2.0          | 2.2                   | 2.5mm            | 0.3mm min.  |
| GA342D1XGD120JY02L | 250Vac(r.m.s.) | SL (JIS)           | 12pF±5%     | 4.5           | 2.0          | 2.2                   | 2.5mm            | 0.3mm min.  |
| GA342D1XGD150JY02L | 250Vac(r.m.s.) | SL (JIS)           | 15pF±5%     | 4.5           | 2.0          | 2.2                   | 2.5mm            | 0.3mm min.  |
| GA342D1XGD180JY02L | 250Vac(r.m.s.) | SL (JIS)           | 18pF±5%     | 4.5           | 2.0          | 2.2                   | 2.5mm            | 0.3mm min.  |
| GA342D1XGD220JY02L | 250Vac(r.m.s.) | SL (JIS)           | 22pF±5%     | 4.5           | 2.0          | 2.2                   | 2.5mm            | 0.3mm min.  |
| GA342A1XGD270JW31L | 250Vac(r.m.s.) | SL (JIS)           | 27pF±5%     | 4.5           | 2.0          | 1                     | 2.5mm            | 0.3mm min.  |
| GA342A1XGD330JW31L | 250Vac(r.m.s.) | SL (JIS)           | 33pF±5%     | 4.5           | 2.0          | 1                     | 2.5mm            | 0.3mm min.  |
| GA342A1XGD390JW31L | 250Vac(r.m.s.) | SL (JIS)           | 39pF±5%     | 4.5           | 2.0          | 1                     | 2.5mm            | 0.3mm min.  |
| GA342A1XGD470JW31L | 250Vac(r.m.s.) | SL (JIS)           | 47pF±5%     | 4.5           | 2.0          | 1                     | 2.5mm            | 0.3mm min.  |
| GA342A1XGD560JW31L | 250Vac(r.m.s.) | SL (JIS)           | 56pF±5%     | 4.5           | 2.0          | 1                     | 2.5mm            | 0.3mm min.  |
| GA342A1XGD680JW31L | 250Vac(r.m.s.) | SL (JIS)           | 68pF±5%     | 4.5           | 2.0          | 1                     | 2.5mm            | 0.3mm min.  |
| GA342A1XGD820JW31L | 250Vac(r.m.s.) | SL (JIS)           | 82pF±5%     | 4.5           | 2.0          | 1                     | 2.5mm            | 0.3mm min.  |
| GA342QR7GD101KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 100pF±10%   | 4.5           | 2.0          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GA342QR7GD151KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 150pF±10%   | 4.5           | 2.0          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GA342QR7GD221KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 220pF±10%   | 4.5           | 2.0          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GA342QR7GD331KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 330pF±10%   | 4.5           | 2.0          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GA342QR7GD471KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 470pF±10%   | 4.5           | 2.0          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GA342QR7GD681KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 680pF±10%   | 4.5           | 2.0          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GA342QR7GD102KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 1000pF±10%  | 4.5           | 2.0          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GA342QR7GD152KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 1500pF±10%  | 4.5           | 2.0          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GA343QR7GD182KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 1800pF±10%  | 4.5           | 3.2          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GA343QR7GD222KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 2200pF±10%  | 4.5           | 3.2          | 1.5                   | 2.5mm            | 0.3mm min.  |
| GA343DR7GD472KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 4700pF±10%  | 4.5           | 3.2          | 2                     | 2.5mm            | 0.3mm min.  |

## Chip Monolithic Ceramic Capacitors

# Safety Standard Certified GA3 Series IEC60384-14 Class X2 Type GB

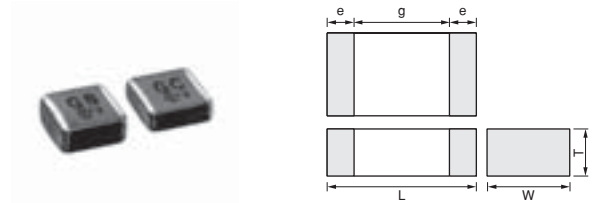
### ■ Features

1. Type GB can be used as an X2-class capacitor.
2. Chip monolithic ceramic capacitor (certified as conforming to safety standards) for AC lines.
3. A new monolithic structure for small, high capacitance capable of operating at high voltage levels.
4. Compared to lead type capacitors, this new capacitor is greatly downsized and low-profiled to 1/10 or less in volume, and 1/4 or less in height.
5. +125 degree C guaranteed
6. Only for reflow soldering

### ■ Applications

Ideal for use as X capacitor for various switching power supplies

Do not use these products in any Automotive Power train or Safety equipment including Battery chargers for Electric Vehicles and Plug-in Hybrids. Only Murata products clearly stipulated as "for Automotive use" can be used for automobile applications such as Power train and Safety equipment.



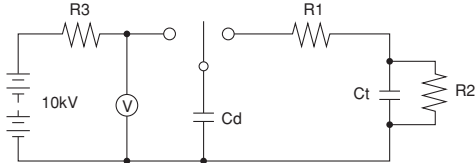
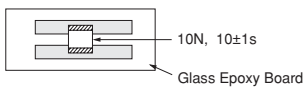
| Part Number | Dimensions (mm) |          |             |        |        |
|-------------|-----------------|----------|-------------|--------|--------|
|             | L               | W        | T           | e min. | g min. |
| GA355Q      | 5.7 ±0.4        | 5.0 ±0.4 | 1.5 +0,-0.3 | 0.3    | 3.0    |
| GA355D      |                 |          | 2.0 +0,-0.3 |        |        |
| GA355E      |                 |          | 2.5 +0,-0.3 |        |        |
| GA355X      |                 |          | 2.9 +0,-0.4 |        |        |

### ■ Standard Certification

|       | Standard No. | Class | Rated Voltage      |
|-------|--------------|-------|--------------------|
| VDE   | IEC 60384-14 | X2    | AC250V<br>(r.m.s.) |
| SEMKO | EN 60384-14  |       |                    |
| ESTI  | IEC 60384-14 |       |                    |

| Part Number        | Rated Voltage  | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Electrode g min. | Electrode e |
|--------------------|----------------|--------------------|-------------|---------------|--------------|-----------------------|------------------|-------------|
| GA355QR7GB103KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 10000pF±10% | 5.7           | 5.0          | 1.5                   | 3.0mm            | 0.3mm min.  |
| GA355QR7GB153KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 15000pF±10% | 5.7           | 5.0          | 1.5                   | 3.0mm            | 0.3mm min.  |
| GA355DR7GB223KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 22000pF±10% | 5.7           | 5.0          | 2                     | 3.0mm            | 0.3mm min.  |
| GA355ER7GB333KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 33000pF±10% | 5.7           | 5.0          | 2.5                   | 3.0mm            | 0.3mm min.  |
| GA355ER7GB473KW01L | 250Vac(r.m.s.) | X7R (EIA)          | 47000pF±10% | 5.7           | 5.0          | 2.5                   | 3.0mm            | 0.3mm min.  |
| GA355XR7GB563KW06L | 250Vac(r.m.s.) | X7R (EIA)          | 56000pF±10% | 5.7           | 5.0          | 2.9                   | 3.0mm            | 0.3mm min.  |

## GA3 Series Specifications and Test Methods

| No.        | Item                                                | Specifications                                                                                                                                                                                                                                                                                                                                  | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
|------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|------------|-------------------------|-----------------------------------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------|---|--------------------------|---|------------------------|---|--------------------------|---|------------------------|---|--------------------------|
| 1          | Operating Temperature Range                         | -55 to +125°C                                                                                                                                                                                                                                                                                                                                   | —                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 2          | Appearance                                          | No defects or abnormalities                                                                                                                                                                                                                                                                                                                     | Visual inspection                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 3          | Dimensions                                          | Within the specified dimensions                                                                                                                                                                                                                                                                                                                 | Using calipers and micrometers                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 4          | Dielectric Strength                                 | No defects or abnormalities                                                                                                                                                                                                                                                                                                                     | No failure should be observed when voltage in the table is applied between the terminations for 60±1 sec., provided the charge/discharge current is less than 50mA. <table><tr><th></th><th>Test Voltage</th></tr><tr><td>Type GB</td><td>DC1075V</td></tr><tr><td>Type GC/GD</td><td>AC1500V (r.m.s.)</td></tr><tr><td>Type GF</td><td>AC2000V (r.m.s.)</td></tr></table>                                                                                |                                                                                                                                                                                                                                                                                                                       | Test Voltage  | Type GB     | DC1075V    | Type GC/GD              | AC1500V (r.m.s.)                                    | Type GF             | AC2000V (r.m.s.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
|            | Test Voltage                                        |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| Type GB    | DC1075V                                             |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| Type GC/GD | AC1500V (r.m.s.)                                    |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| Type GF    | AC2000V (r.m.s.)                                    |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 5          | Pulse Voltage<br>(Application: Type GD/GF)          | No self healing breakdowns or flash-overs have taken place in the capacitor.                                                                                                                                                                                                                                                                    | 10 impulses of alternating polarity are subjected.<br>(5 impulses for each polarity)<br>The interval between impulses is 60 sec.<br>Applied Pulse: 1.2/50µs<br>Applied Voltage: 2.5kVo-p                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 6          | Insulation Resistance (I.R.)                        | More than 6,000MΩ                                                                                                                                                                                                                                                                                                                               | The insulation resistance should be measured with DC500±50V and within 60±5 sec. of charging.                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 7          | Capacitance                                         | Within the specified tolerance                                                                                                                                                                                                                                                                                                                  | The capacitance/Q/D.F. should be measured at a frequency of 1±0.2kHz (SL char.: 1±0.2MHz) and a voltage of AC1±0.2V (r.m.s.).                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 8          | Dissipation Factor (D.F.)<br>Q                      | <table><tr><th>Char.</th><th>Specification</th></tr><tr><td>X7R</td><td>D.F.≤0.025</td></tr><tr><td>SL</td><td>Q≥400+20C*<sup>2</sup> (C&lt;30pF)<br/>Q≥1000 (C≥30pF)</td></tr></table>                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Char.                                                                                                                                                                                                                                                                                                                 | Specification | X7R         | D.F.≤0.025 | SL                      | Q≥400+20C* <sup>2</sup> (C<30pF)<br>Q≥1000 (C≥30pF) |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| Char.      | Specification                                       |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| X7R        | D.F.≤0.025                                          |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| SL         | Q≥400+20C* <sup>2</sup> (C<30pF)<br>Q≥1000 (C≥30pF) |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 9          | Capacitance Temperature Characteristics             | <table><tr><th>Char.</th><th>Capacitance Change</th></tr><tr><td>X7R</td><td>Within ±15%</td></tr></table> Temperature characteristic guarantee is -55 to +125°C<br><table><tr><th>Char.</th><th>Temperature Coefficient</th></tr><tr><td>SL</td><td>+350 to -1000ppm/°C</td></tr></table> Temperature characteristic guarantee is +20 to +85°C | Char.                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Capacitance Change                                                                                                                                                                                                                                                                                                    | X7R           | Within ±15% | Char.      | Temperature Coefficient | SL                                                  | +350 to -1000ppm/°C | The capacitance measurement should be made at each step specified in the Table. <table><tr><th>Step</th><th>Temperature (°C)</th></tr><tr><td>1</td><td>25±2 (20±2 for SL char.)</td></tr><tr><td>2</td><td>Min. Operating Temp.±3</td></tr><tr><td>3</td><td>25±2 (20±2 for SL char.)</td></tr><tr><td>4</td><td>Max. Operating Temp.±2</td></tr><tr><td>5</td><td>25±2 (20±2 for SL char.)</td></tr></table> SL char. :<br>The capacitance should be measured at even 85°C between step 3 and step 4.<br>•Pretreatment for X7R char.<br>Perform a heat treatment at 150 <sup>±</sup> ,8°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*1 | Step | Temperature (°C) | 1 | 25±2 (20±2 for SL char.) | 2 | Min. Operating Temp.±3 | 3 | 25±2 (20±2 for SL char.) | 4 | Max. Operating Temp.±2 | 5 | 25±2 (20±2 for SL char.) |
| Char.      | Capacitance Change                                  |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| X7R        | Within ±15%                                         |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| Char.      | Temperature Coefficient                             |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| SL         | +350 to -1000ppm/°C                                 |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| Step       | Temperature (°C)                                    |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 1          | 25±2 (20±2 for SL char.)                            |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 2          | Min. Operating Temp.±3                              |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 3          | 25±2 (20±2 for SL char.)                            |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 4          | Max. Operating Temp.±2                              |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 5          | 25±2 (20±2 for SL char.)                            |                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 10         | Discharge Test<br>(Application: Type GC)            | Appearance                                                                                                                                                                                                                                                                                                                                      | No defects or abnormalities                                                                                                                                                                                                                                                                                                                                                                                                                               | As in Fig., discharge is made 50 times at 5 sec. intervals from the capacitor (Cd) charged at DC voltage of specified. <div><p>Ct: Capacitor under test   Cd: 0.001µF<br/>R1: 1,000Ω   R2: 100MΩ   R3: Surge resistance</p></div> |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
|            |                                                     | I.R.                                                                                                                                                                                                                                                                                                                                            | More than 1,000MΩ                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
|            |                                                     | Dielectric Strength                                                                                                                                                                                                                                                                                                                             | In accordance with item No.4                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |
| 11         | Adhesive Strength of Termination                    | No removal of the terminations or other defect should occur.                                                                                                                                                                                                                                                                                    | Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 1.<br>Then apply 10N force in the direction of the arrow. The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock. <div><p>10N, 10±1s<br/>Glass Epoxy Board</p></div> <p>Fig. 1</p> |                                                                                                                                                                                                                                                                                                                       |               |             |            |                         |                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                  |   |                          |   |                        |   |                          |   |                        |   |                          |

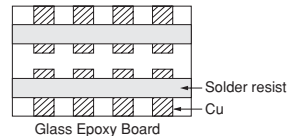
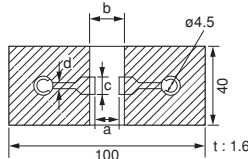
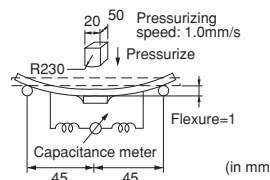
\*1 "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

\*2 "C" expresses nominal capacitance value (pF).

Continued on the following page. ➤

## GA3 Series Specifications and Test Methods

Continued from the preceding page.

| No.                                                                 | Item                                                                                                                                                                                 |                    | Specifications                                                                                                                                                                                 | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|-----------------------------------------------|-------------|--------------|-----------------------------------------------------------|---|--------------|--------|---|---------|-----|-----|-----|-----|---------|-----|-----|-----|---------|-----|-----|-----|---------|-----|-----|-----|
| 12                                                                  | Vibration Resistance                                                                                                                                                                 | Appearance         | No defects or abnormalities                                                                                                                                                                    | <p>Solder the capacitor to the test jig (glass epoxy board).<br/>The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55Hz. The frequency range, from 10 to 55Hz and return to 10Hz, should be traversed in approximately 1 min. This motion should be applied for a period of 2 hrs. in each of 3 mutually perpendicular directions (total of 6 hrs.).</p>                                                                                                                                                                                                                                                                                                                                                          |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                     |                                                                                                                                                                                      | Capacitance        | Within the specified tolerance                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                     |                                                                                                                                                                                      | D.F.<br>Q          | <table><tr><th>Char.</th><th>Specification</th></tr><tr><td>X7R</td><td>D.F. ≤0.025</td></tr><tr><td>SL</td><td>Q ≥ 400+20C*<sup>2</sup> (C&lt;30pF)<br/>Q ≥ 1000 (C ≥ 30pF)</td></tr></table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Char.       | Specification  | X7R                                           | D.F. ≤0.025 | SL           | Q ≥ 400+20C* <sup>2</sup> (C<30pF)<br>Q ≥ 1000 (C ≥ 30pF) |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| Char.                                                               | Specification                                                                                                                                                                        |                    |                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| X7R                                                                 | D.F. ≤0.025                                                                                                                                                                          |                    |                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| SL                                                                  | Q ≥ 400+20C* <sup>2</sup> (C<30pF)<br>Q ≥ 1000 (C ≥ 30pF)                                                                                                                            |                    |                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 13                                                                  | Deflection                                                                                                                                                                           | No marking defects |                                                                                                                                                                                                | <p>Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 2.<br/>Then apply a force in the direction shown in Fig. 3. The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock.</p>  <p>Fig. 2</p> <table><tr><th>L×W (mm)</th><th colspan="4">Dimension (mm)</th></tr><tr><th></th><th>a</th><th>b</th><th>c</th><th>d</th></tr><tr><td>4.5×2.0</td><td>3.5</td><td>7.0</td><td>2.4</td><td rowspan="4">1.0</td></tr><tr><td>4.5×3.2</td><td>3.5</td><td>7.0</td><td>3.7</td></tr><tr><td>5.7×2.8</td><td>4.5</td><td>8.0</td><td>3.2</td></tr><tr><td>5.7×5.0</td><td>4.5</td><td>8.0</td><td>5.6</td></tr></table>  <p>Fig. 3</p> | L×W (mm)    | Dimension (mm) |                                               |             |              |                                                           | a | b            | c      | d | 4.5×2.0 | 3.5 | 7.0 | 2.4 | 1.0 | 4.5×3.2 | 3.5 | 7.0 | 3.7 | 5.7×2.8 | 4.5 | 8.0 | 3.2 | 5.7×5.0 | 4.5 | 8.0 | 5.6 |
|                                                                     |                                                                                                                                                                                      | L×W (mm)           | Dimension (mm)                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                     |                                                                                                                                                                                      |                    | a                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | b           | c              | d                                             |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 4.5×2.0                                                             | 3.5                                                                                                                                                                                  | 7.0                | 2.4                                                                                                                                                                                            | 1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 4.5×3.2                                                             | 3.5                                                                                                                                                                                  | 7.0                | 3.7                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 5.7×2.8                                                             | 4.5                                                                                                                                                                                  | 8.0                | 3.2                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 5.7×5.0                                                             | 4.5                                                                                                                                                                                  | 8.0                | 5.6                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 75% of the terminations are to be soldered evenly and continuously. |                                                                                                                                                                                      |                    |                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 14                                                                  | Solderability of Termination                                                                                                                                                         |                    |                                                                                                                                                                                                | <p>Immerse the capacitor in a solution of ethanol (JIS-K-8101) and rosin (JIS-K-5902) (25% rosin in weight proportion). Immerse in solder solution for 2±0.5 sec.<br/>Immersing speed: 25±2.5mm/s<br/>Temp. of solder: 245±5°C Lead Free Solder (Sn-3.0Ag-0.5Cu)<br/>235±5°C H60A or H63A Eutectic Solder</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| 15                                                                  | Resistance to Soldering Heat                                                                                                                                                         | Appearance         | No marking defects                                                                                                                                                                             | <p>Preheat the capacitor as in table. Immerse the capacitor in solder solution at 260±5°C for 10±1 sec. Let sit at room condition*<sup>1</sup> for 24±2 hrs., then measure.<br/>●Immersing speed: 25±2.5mm/s<br/>●Pretreatment for X7R char.<br/>Perform a heat treatment at 150±18°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*<sup>1</sup></p> <p>*Preheating</p> <table><tr><th>Step</th><th>Temperature</th><th>Time</th></tr><tr><td>1</td><td>100 to 120°C</td><td>1 min.</td></tr><tr><td>2</td><td>170 to 200°C</td><td>1 min.</td></tr></table>                                                                                                                                                                                                                                                                                                                                                    | Step        | Temperature    | Time                                          | 1           | 100 to 120°C | 1 min.                                                    | 2 | 170 to 200°C | 1 min. |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                     |                                                                                                                                                                                      | Step               | Temperature                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Time        |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                     |                                                                                                                                                                                      | 1                  | 100 to 120°C                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1 min.      |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
|                                                                     |                                                                                                                                                                                      | 2                  | 170 to 200°C                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1 min.      |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| Capacitance Change                                                  | <table><tr><th>Char.</th><th>Capacitance Change</th></tr><tr><td>X7R</td><td>Within ±10%</td></tr><tr><td>SL</td><td>Within ±2.5% or ±0.25pF (Whichever is larger)</td></tr></table> | Char.              | Capacitance Change                                                                                                                                                                             | X7R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Within ±10% | SL             | Within ±2.5% or ±0.25pF (Whichever is larger) |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| Char.                                                               | Capacitance Change                                                                                                                                                                   |                    |                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| X7R                                                                 | Within ±10%                                                                                                                                                                          |                    |                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| SL                                                                  | Within ±2.5% or ±0.25pF (Whichever is larger)                                                                                                                                        |                    |                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| I.R.                                                                | More than 1,000MΩ                                                                                                                                                                    |                    |                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |
| Dielectric Strength                                                 | In accordance with item No.4                                                                                                                                                         |                    |                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                |                                               |             |              |                                                           |   |              |        |   |         |     |     |     |     |         |     |     |     |         |     |     |     |         |     |     |     |

\*1 "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

\*2 "C" expresses nominal capacitance value (pF).

Continued on the following page. ➤

For General Purpose  
GRW/GRJ/GR3 Series

Only for Applications

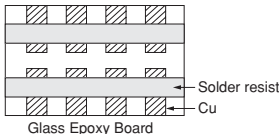
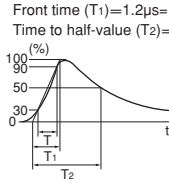
AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information

## GA3 Series Specifications and Test Methods

Continued from the preceding page.

| No.    | Item                                                                                                                                                                                    | Specifications               | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|-------------|----------------------------------------------------------------------------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------|----|------------|--------|---|------------------------|------|---|------------|--------|
| 16     | Temperature Cycle                                                                                                                                                                       | Appearance                   | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        |                                                                                                                                                                                         | Capacitance Change           | <table><tr><th>Char.</th><th>Capacitance Change</th></tr><tr><td>X7R</td><td>Within ±15%</td></tr><tr><td>SL</td><td>Within ±2.5% or ±0.25pF (Whichever is larger)</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Char.              | Capacitance Change | X7R         | Within ±15%                                                                                              | SL                     | Within ±2.5% or ±0.25pF (Whichever is larger)                                                          |    |            |        |   |                        |      |   |            |        |
|        |                                                                                                                                                                                         |                              | Char.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Capacitance Change |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        |                                                                                                                                                                                         |                              | X7R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Within ±15%        |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        |                                                                                                                                                                                         | SL                           | Within ±2.5% or ±0.25pF (Whichever is larger)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| D.F. Q | <table><tr><th>Char.</th><th>Specification</th></tr><tr><td>X7R</td><td>D.F. ≤0.05</td></tr><tr><td>SL</td><td>Q≥400+20C*<sup>2</sup> (C&lt;30pF)<br/>Q≥1000 (C≥30pF)</td></tr></table> | Char.                        | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | X7R                | D.F. ≤0.05         | SL          | Q≥400+20C* <sup>2</sup> (C<30pF)<br>Q≥1000 (C≥30pF)                                                      |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        | Char.                                                                                                                                                                                   | Specification                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| X7R    | D.F. ≤0.05                                                                                                                                                                              |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| SL     | Q≥400+20C* <sup>2</sup> (C<30pF)<br>Q≥1000 (C≥30pF)                                                                                                                                     |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| I.R.   | More than 3,000MΩ                                                                                                                                                                       |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        | Dielectric Strength                                                                                                                                                                     | In accordance with item No.4 | <p>Fix the capacitor to the supporting jig (glass epoxy board) shown in Fig. 4.</p> <p>Perform the 5 cycles according to the 4 heat treatments listed in the following table.</p> <p>Let sit for 24±2 hrs. at room condition,*<sup>1</sup> then measure.</p> <table><tr><th>Step</th><th>Temperature (°C)</th><th>Time (min.)</th></tr><tr><td>1</td><td>Min. Operating Temp.±3</td><td>30±3</td></tr><tr><td>2</td><td>Room Temp.</td><td>2 to 3</td></tr><tr><td>3</td><td>Max. Operating Temp.±2</td><td>30±3</td></tr><tr><td>4</td><td>Room Temp.</td><td>2 to 3</td></tr></table> <p>•Pretreatment for X7R char.</p> <p>Perform a heat treatment at 150<sup>±</sup><sub>1</sub>°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*<sup>1</sup></p> <div><p>Glass Epoxy Board</p><p>Solder resist</p><p>Cu</p></div> <p>Fig. 4</p>                                                                                                                                                                                                                                                                                                                                                                                                                       | Step               | Temperature (°C)   | Time (min.) | 1                                                                                                        | Min. Operating Temp.±3 | 30±3                                                                                                   | 2  | Room Temp. | 2 to 3 | 3 | Max. Operating Temp.±2 | 30±3 | 4 | Room Temp. | 2 to 3 |
| Step   | Temperature (°C)                                                                                                                                                                        | Time (min.)                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| 1      | Min. Operating Temp.±3                                                                                                                                                                  | 30±3                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| 2      | Room Temp.                                                                                                                                                                              | 2 to 3                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| 3      | Max. Operating Temp.±2                                                                                                                                                                  | 30±3                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| 4      | Room Temp.                                                                                                                                                                              | 2 to 3                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| 17     | Humidity (Steady State)                                                                                                                                                                 | Appearance                   | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        |                                                                                                                                                                                         | Capacitance Change           | <table><tr><th>Char.</th><th>Capacitance Change</th></tr><tr><td>X7R</td><td>Within ±15%</td></tr><tr><td>SL</td><td>Within ±5.0% or ±0.5pF (Whichever is larger)</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Char.              | Capacitance Change | X7R         | Within ±15%                                                                                              | SL                     | Within ±5.0% or ±0.5pF (Whichever is larger)                                                           |    |            |        |   |                        |      |   |            |        |
|        |                                                                                                                                                                                         |                              | Char.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Capacitance Change |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        |                                                                                                                                                                                         |                              | X7R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Within ±15%        |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        |                                                                                                                                                                                         | SL                           | Within ±5.0% or ±0.5pF (Whichever is larger)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| D.F. Q | <table><tr><th>Char.</th><th>Specification</th></tr><tr><td>X7R</td><td>D.F. ≤0.05</td></tr><tr><td>SL</td><td>Q≥275+5/2C*<sup>2</sup> (C&lt;30pF)<br/>Q≥350 (C≥30pF)</td></tr></table> | Char.                        | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | X7R                | D.F. ≤0.05         | SL          | Q≥275+5/2C* <sup>2</sup> (C<30pF)<br>Q≥350 (C≥30pF)                                                      |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        | Char.                                                                                                                                                                                   | Specification                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| X7R    | D.F. ≤0.05                                                                                                                                                                              |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| SL     | Q≥275+5/2C* <sup>2</sup> (C<30pF)<br>Q≥350 (C≥30pF)                                                                                                                                     |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| I.R.   | More than 3,000MΩ                                                                                                                                                                       |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        | Dielectric Strength                                                                                                                                                                     | In accordance with item No.4 | <p>Before this test, the test shown in the following is performed.</p> <p>·Item 11 Adhesive Strength of Termination (applied force is 5N)</p> <p>·Item 13 Deflection</p> <p>Let the capacitor sit at 40±2°C and relative humidity of 90 to 95% for 500<sup>±</sup><sub>24</sub> hrs.</p> <p>Remove and let sit for 24±2 hrs. at room condition,*<sup>1</sup> then measure.</p> <p>•Pretreatment for X7R char.</p> <p>Perform a heat treatment at 150<sup>±</sup><sub>1</sub>°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*<sup>1</sup></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| 18     | Life                                                                                                                                                                                    | Appearance                   | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        |                                                                                                                                                                                         | Capacitance Change           | <table><tr><th>Char.</th><th>Capacitance Change</th></tr><tr><td>X7R</td><td>Within ±20%</td></tr><tr><td>SL</td><td>Within ±3.0% or ±0.3pF (Whichever is larger)</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Char.              | Capacitance Change | X7R         | Within ±20%                                                                                              | SL                     | Within ±3.0% or ±0.3pF (Whichever is larger)                                                           |    |            |        |   |                        |      |   |            |        |
|        |                                                                                                                                                                                         |                              | Char.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Capacitance Change |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        |                                                                                                                                                                                         |                              | X7R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Within ±20%        |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        |                                                                                                                                                                                         | SL                           | Within ±3.0% or ±0.3pF (Whichever is larger)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| D.F. Q | <table><tr><th>Char.</th><th>Specification</th></tr><tr><td>X7R</td><td>D.F. ≤0.05</td></tr><tr><td>SL</td><td>Q≥275+5/2C*<sup>2</sup> (C&lt;30pF)<br/>Q≥350 (C≥30pF)</td></tr></table> | Char.                        | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | X7R                | D.F. ≤0.05         | SL          | Q≥275+5/2C* <sup>2</sup> (C<30pF)<br>Q≥350 (C≥30pF)                                                      |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        | Char.                                                                                                                                                                                   | Specification                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| X7R    | D.F. ≤0.05                                                                                                                                                                              |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| SL     | Q≥275+5/2C* <sup>2</sup> (C<30pF)<br>Q≥350 (C≥30pF)                                                                                                                                     |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| I.R.   | More than 3,000MΩ                                                                                                                                                                       |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
|        | Dielectric Strength                                                                                                                                                                     | In accordance with item No.4 | <p>Before this test, the test shown in the following is performed.</p> <p>·Item 11 Adhesive Strength of Termination (apply force is 5N)</p> <p>·Item 13 Deflection</p> <p>Impulse Voltage</p> <p>Each individual capacitor should be subjected to a 2.5kV (Type GC/GF: 5kV) Impulse (the voltage value means zero to peak) for three times. Then the capacitors are applied to life test.</p> <div><p>Front time (T<sub>1</sub>)=1.2μs=1.67T<br/>Time to half-value (T<sub>2</sub>)=50μs</p></div> <p>Apply voltage as in Table for 1,000 hrs. at 125<sup>±</sup><sub>2</sub>°C, relative humidity 50% max.</p> <table><tr><th>Type</th><th>Applied Voltage</th></tr><tr><td>GB</td><td>AC312.5V (r.m.s.), except that once each hour the voltage is increased to AC1,000V (r.m.s.) for 0.1 sec.</td></tr><tr><td>GC</td><td>AC425V (r.m.s.), except that once each hour the voltage is increased to AC1,000V (r.m.s.) for 0.1 sec.</td></tr><tr><td>GF</td><td></td></tr><tr><td>GD</td><td></td></tr></table> <p>Let sit for 24±2 hrs. at room condition,*<sup>1</sup> then measure.</p> <p>•Pretreatment for X7R char.</p> <p>Perform a heat treatment at 150<sup>±</sup><sub>1</sub>°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*<sup>1</sup></p> | Type               | Applied Voltage    | GB          | AC312.5V (r.m.s.), except that once each hour the voltage is increased to AC1,000V (r.m.s.) for 0.1 sec. | GC                     | AC425V (r.m.s.), except that once each hour the voltage is increased to AC1,000V (r.m.s.) for 0.1 sec. | GF |            | GD     |   |                        |      |   |            |        |
| Type   | Applied Voltage                                                                                                                                                                         |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| GB     | AC312.5V (r.m.s.), except that once each hour the voltage is increased to AC1,000V (r.m.s.) for 0.1 sec.                                                                                |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| GC     | AC425V (r.m.s.), except that once each hour the voltage is increased to AC1,000V (r.m.s.) for 0.1 sec.                                                                                  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| GF     |                                                                                                                                                                                         |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |
| GD     |                                                                                                                                                                                         |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                    |             |                                                                                                          |                        |                                                                                                        |    |            |        |   |                        |      |   |            |        |

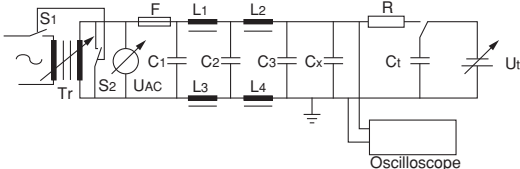
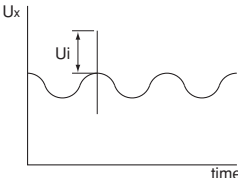
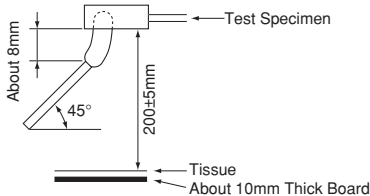
\*1 "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

\*2 "C" expresses nominal capacitance value (pF).

Continued on the following page. ➤

## GA3 Series Specifications and Test Methods

Continued from the preceding page.

| No.                 | Item                                                | Specifications                                                                    | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |                    |        |             |        |                                                     |
|---------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|--------|-------------|--------|-----------------------------------------------------|
| 19                  | Humidity Loading                                    | Appearance                                                                        | No marking defects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                    |        |             |        |                                                     |
|                     |                                                     | Capacitance Change                                                                | <table><tr><th>Char.</th><th>Capacitance Change</th></tr><tr><td>X7R</td><td>Within ±15%</td></tr><tr><td>SL</td><td>Within ±5.0% or ±0.5pF (Whichever is larger)</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Char.              | Capacitance Change | X7R    | Within ±15% | SL     | Within ±5.0% or ±0.5pF (Whichever is larger)        |
|                     |                                                     |                                                                                   | Char.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Capacitance Change |                    |        |             |        |                                                     |
|                     |                                                     |                                                                                   | X7R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Within ±15%        |                    |        |             |        |                                                     |
|                     |                                                     | SL                                                                                | Within ±5.0% or ±0.5pF (Whichever is larger)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                    |        |             |        |                                                     |
|                     |                                                     | D.F. Q                                                                            | <table><tr><th>Char.</th><th>Specification</th></tr><tr><td>X7R</td><td>D.F.≤0.05</td></tr><tr><td>SL</td><td>Q≥275+5/2C*<sup>2</sup> (C&lt;30pF)<br/>Q≥350 (C≥30pF)</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Char.              | Specification      | X7R    | D.F.≤0.05   | SL     | Q≥275+5/2C* <sup>2</sup> (C<30pF)<br>Q≥350 (C≥30pF) |
| Char.               | Specification                                       |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |                    |        |             |        |                                                     |
| X7R                 | D.F.≤0.05                                           |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |                    |        |             |        |                                                     |
| SL                  | Q≥275+5/2C* <sup>2</sup> (C<30pF)<br>Q≥350 (C≥30pF) |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |                    |        |             |        |                                                     |
| I.R.                | More than 3,000MΩ                                   |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |                    |        |             |        |                                                     |
| Dielectric Strength | In accordance with item No.4                        |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |                    |        |             |        |                                                     |
|                     |                                                     |                                                                                   | <p>Before this test, the test shown in the following is performed.</p> <p>·Item 11 Adhesive Strength of Termination (apply force is 5N)</p> <p>·Item 13 Deflection</p> <p>Apply the rated voltage at 40±2°C and relative humidity of 90 to 95% for 500<sup>±24</sup>hrs. Remove and let sit for 24±2 hrs. at room condition,*1 then measure.</p> <p>•Pretreatment for X7R char.<br/>Perform a heat treatment at 150<sup>±18</sup>°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*1</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                    |        |             |        |                                                     |
| 20                  | Active Flammability                                 | The cheesecloth should not be on fire.                                            | <p>The capacitor should be individually wrapped in at least one but not more than two complete layers of cheesecloth. The capacitor should be subjected to 20 discharges. The interval between successive discharges should be 5 sec. The U<sub>AC</sub> should be maintained for 2 min. after the last discharge.</p>  <p>C<sub>1,2</sub> : 1μF±10%                      C<sub>3</sub> : 0.033μF±5% 10kV<br/>L<sub>1 to 4</sub> : 1.5mH±20% 16A Rod core choke<br/>C<sub>t</sub> : 3μF±5% 10kV                  R : 100Ω±2%<br/>C<sub>x</sub> : Capacitor under test        U<sub>AC</sub> : U<sub>R</sub>±5%<br/>F : Fuse, Rated 16A                U<sub>R</sub> : Rated Voltage<br/>                                              U<sub>t</sub> : Voltage applied to C<sub>t</sub></p>  <table><tr><th>Type</th><th>U<sub>i</sub></th></tr><tr><td>GD, GB</td><td>2.5kV</td></tr><tr><td>GC, GF</td><td>5kV</td></tr></table> | Type               | U <sub>i</sub>     | GD, GB | 2.5kV       | GC, GF | 5kV                                                 |
|                     |                                                     |                                                                                   | Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | U <sub>i</sub>     |                    |        |             |        |                                                     |
| GD, GB              | 2.5kV                                               |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |                    |        |             |        |                                                     |
| GC, GF              | 5kV                                                 |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |                    |        |             |        |                                                     |
| 21                  | Passive Flammability                                | The burning time should not exceed 30 sec.<br>The tissue paper should not ignite. | <p>The capacitor under test should be held in the flame in the position which best promotes burning. Each specimen should be exposed to the flame only once. Time of exposure to flame: 30 sec.</p> <p>Length of flame : 12±1mm<br/>Gas burner : Length 35mm min.<br/>                                 Inside Dia. 0.5±0.1mm<br/>                                 Outside Dia. 0.9mm max.<br/>Gas : Butane gas Purity 95% min.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                    |        |             |        |                                                     |

\*1 "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

\*2 "C" expresses nominal capacitance value (pF).

For General Purpose  
GRM/GRJ/GR3 Series

Only for Applications

AC250V Type  
GA2 Series

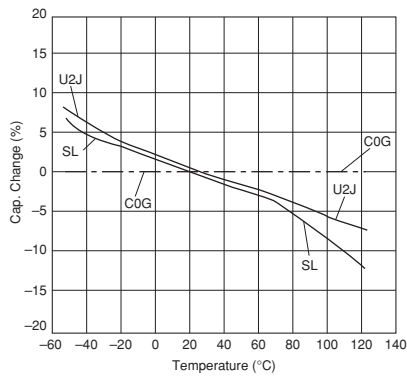
Safety Standard  
Certified GA3 Series

Product Information

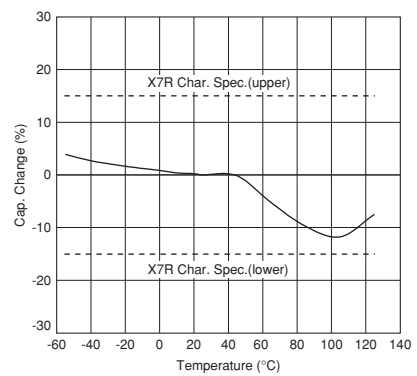
## GRM/GRJ/GR3/GR4/GR7/GA2/GA3 Series Reference Data (Typical Example)

### ■ Capacitance - Temperature Characteristics

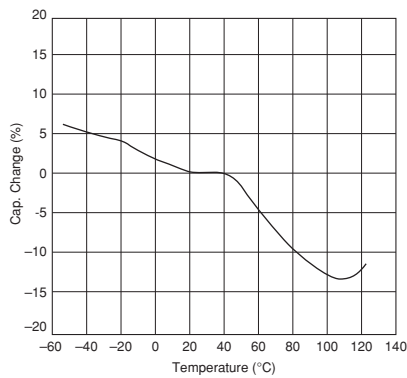
C0G/U2J/SL Characteristics



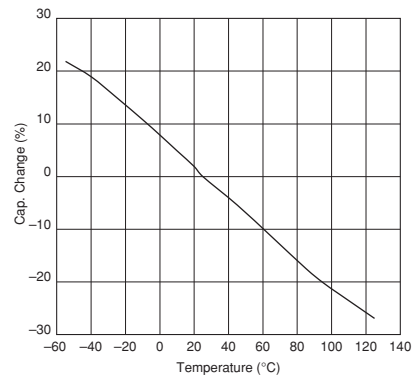
X7R Characteristics



GR4 Series

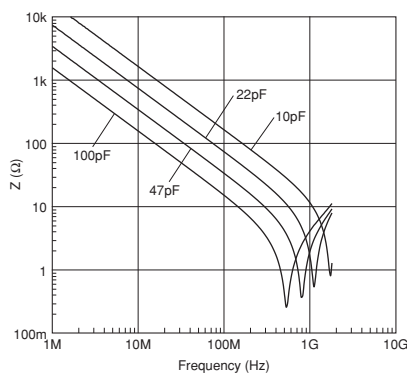


X7T Characteristics

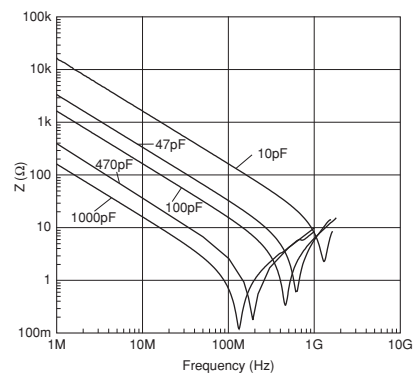


### ■ Impedance - Frequency Characteristics

GRM Series (C0G Char. 250V)



GRM Series (C0G Char. 630V)



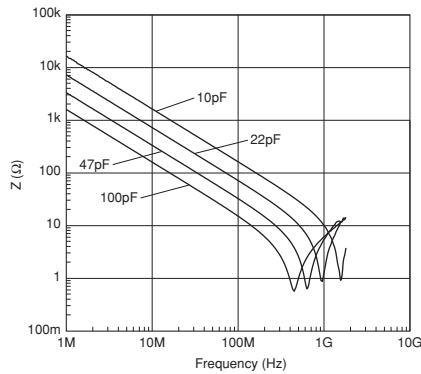
Continued on the following page.

# GRM/GRJ/GR3/GR4/GR7/GA2/GA3 Series Reference Data (Typical Example)

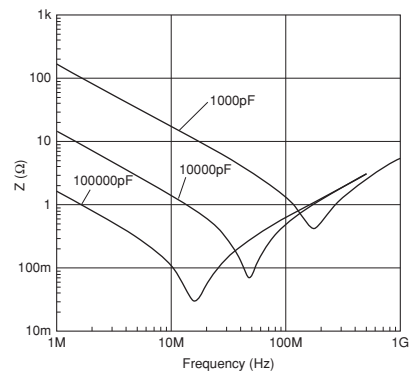
Continued from the preceding page.

## Impedance - Frequency Characteristics

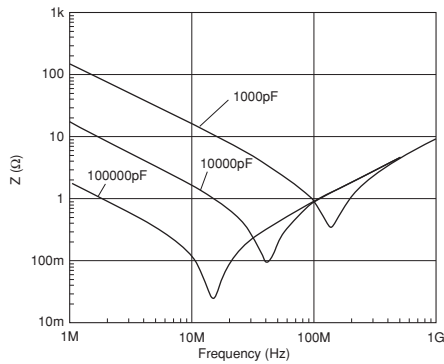
GRM Series (C0G Char. 1kV)



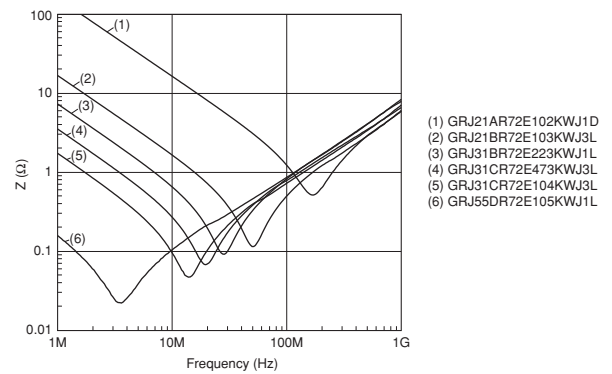
GRM Series (X7R Char. 250V)



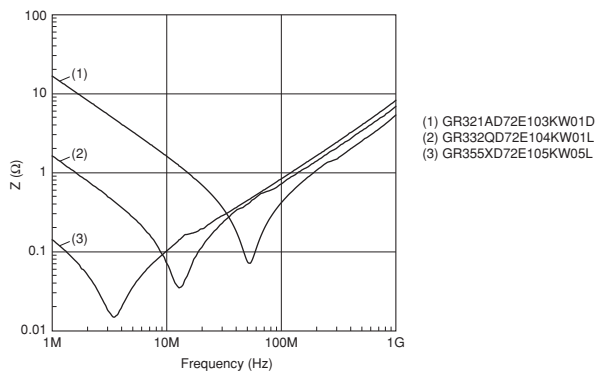
GRM Series (X7R Char. 630V)



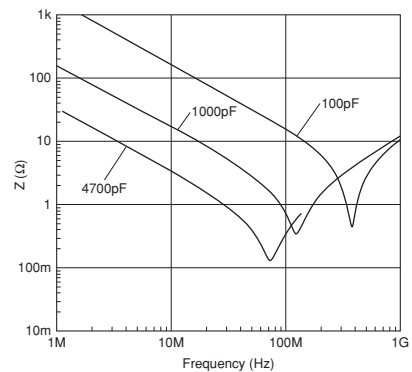
GRJ Series (X7R Char. 250V)



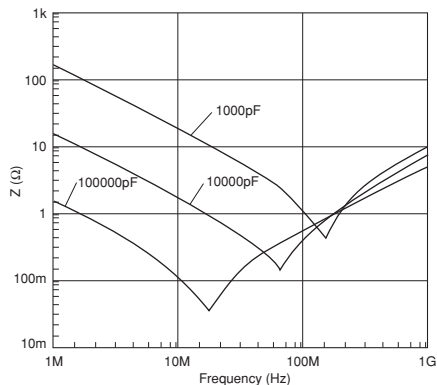
GR3 Series (X7T Char. 250V)



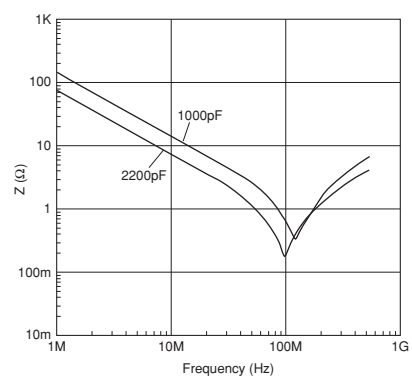
GR4 Series



GA2 Series



GA3 Series (Type GF)



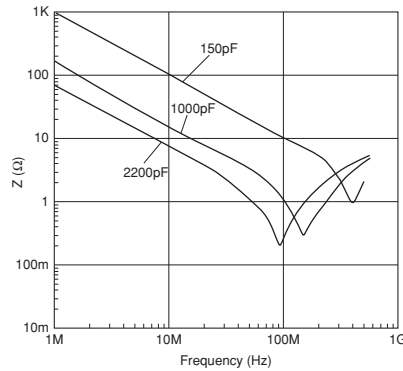
Continued on the following page.

## GRM/GRJ/GR3/GR4/GR7/GA2/GA3 Series Reference Data (Typical Example)

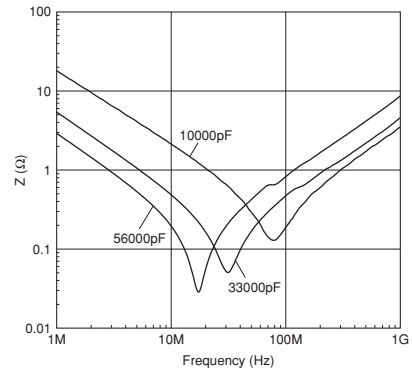
Continued from the preceding page.

### ■ Impedance - Frequency Characteristics

GA3 Series (Type GD)

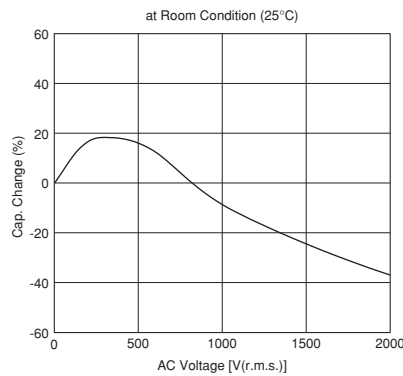


GA3 Series (Type GB)

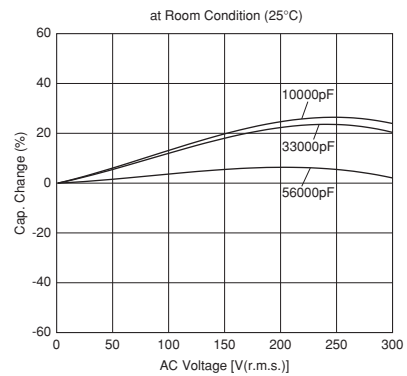


### ■ Capacitance - AC Voltage Characteristics

GA3 Series (Type GF/GD, X7R Char.)

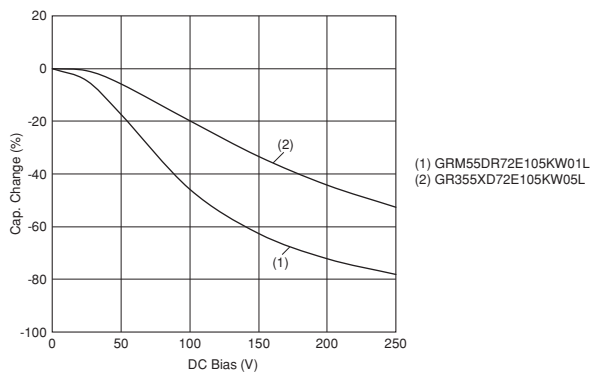


GA3 Series (Type GB)

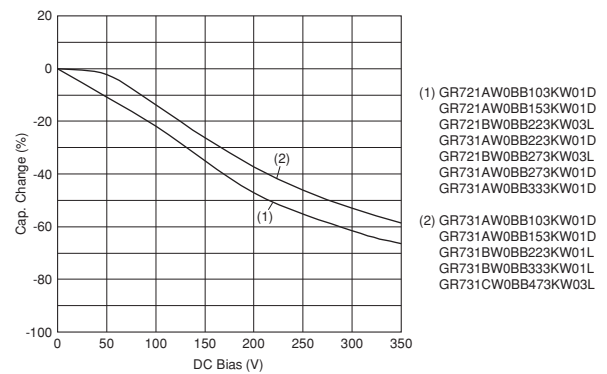


### ■ Capacitance - DC Bias Characteristics

GRM/GR3 Series



GR7 Series



## Package

Taping is the standard packaging method.

### ■ Minimum Quantity Guide

| Part Number                                                   |                             | Dimensions (mm) |      |      | Quantity (pcs.) |               |
|---------------------------------------------------------------|-----------------------------|-----------------|------|------|-----------------|---------------|
|                                                               |                             |                 |      |      | ø180mm Reel     |               |
|                                                               |                             | L               | W    | T    | Paper Tape      | Embossed Tape |
| 250Vdc min.<br>For General Purpose &<br>Only for Applications | GRM18                       | 1.6             | 0.8  | 0.8  | 4,000           | -             |
|                                                               | GRJ21/GRM21/GR321/<br>GR721 | 2.0             | 1.25 | 1.0  | 4,000           | -             |
|                                                               |                             |                 |      | 1.25 | -               | 3,000         |
|                                                               | GRJ31/GRM31/GR331/<br>GR731 | 3.2             | 1.6  | 1.0  | 4,000           | -             |
|                                                               |                             |                 |      | 1.25 | -               | 3,000         |
|                                                               |                             |                 |      | 1.6  | -               | 2,000         |
|                                                               | GRJ32/GRM32/GR332           | 3.2             | 2.5  | 1.0  | 4,000           | -             |
|                                                               |                             |                 |      | 1.25 | -               | 3,000         |
|                                                               |                             |                 |      | 1.5  | -               | 2,000         |
|                                                               |                             |                 |      | 2.0  | -               | 1,000         |
|                                                               | GRM42/GR442                 | 4.5             | 2.0  | 1.0  | -               | 3,000         |
|                                                               |                             |                 |      | 1.5  | -               | 2,000         |
| AC250V                                                        | GRJ43/GRM43/GR343/<br>GR443 | 4.5             | 3.2  | 1.5  | -               | 1,000         |
|                                                               |                             |                 |      | 2.0  | -               | 1,000         |
|                                                               |                             |                 |      | 2.5  | -               | 500           |
|                                                               | GRM55                       | 5.7             | 5.0  | 1.5  | -               | 1,000         |
|                                                               | GRJ55/GRM55/GR355/<br>GR455 | 5.7             | 5.0  | 2.0  | -               | 1,000         |
|                                                               | GR355                       | 5.7             | 5.0  | 2.7  | -               | 500           |
|                                                               | GA242                       | 4.5             | 2.0  | 1.5  | -               | 2,000         |
| Safety Std.<br>Certification                                  | GA243                       | 4.5             | 3.2  | 1.5  | -               | 1,000         |
|                                                               |                             |                 |      | 2.0  | -               | 1,000         |
|                                                               |                             |                 |      | 2.0  | -               | 1,000         |
|                                                               | GA342                       | 4.5             | 2.0  | 1.0  | -               | 3,000         |
|                                                               |                             |                 |      | 1.5  | -               | 2,000         |
|                                                               |                             |                 |      | 2.0  | -               | 2,000         |
|                                                               | GA343                       | 4.5             | 3.2  | 1.5  | -               | 1,000         |
|                                                               |                             |                 |      | 2.0  | -               | 1,000         |
|                                                               | GA352                       | 5.7             | 2.8  | 1.5  | -               | 1,000         |
|                                                               | GA355                       | 5.7             | 5.0  | 1.5  | -               | 1,000         |
|                                                               |                             |                 |      | 2.0  | -               | 1,000         |
|                                                               |                             |                 |      | 2.5  | -               | 500           |
|                                                               |                             |                 |      | 2.7  | -               | 500           |
|                                                               |                             |                 |      | 2.9  | -               | 500           |

Continued on the following page. 

For General Purpose  
GRM/GRJ/GR3 Series

Only for Applications

AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information  
Package

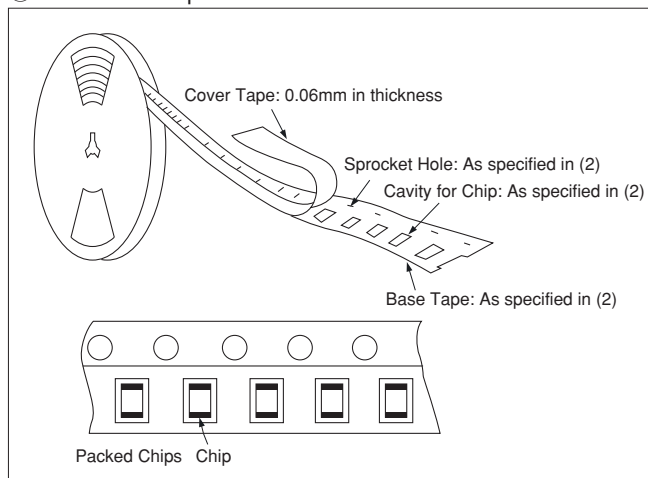
## Package

Continued from the preceding page.

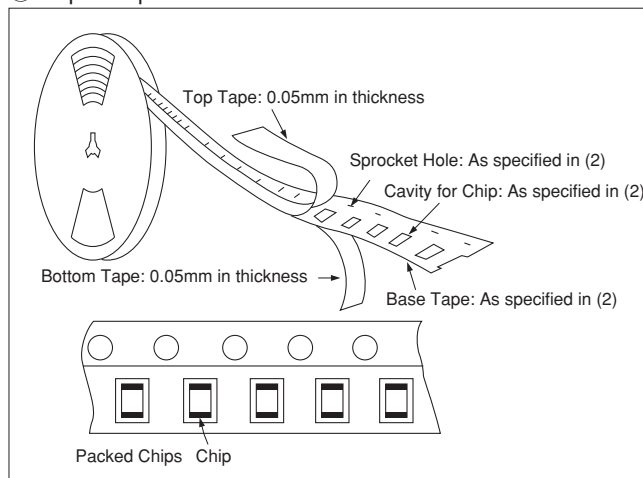
### ■ Tape Carrier Packaging

#### (1) Appearance of Taping

##### ① Embossed Tape



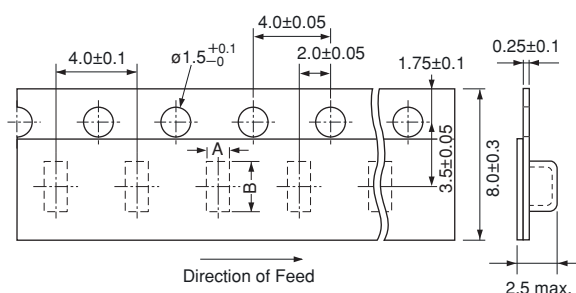
##### ② Paper Tape



#### (2) Dimensions of Tape

##### ① Embossed Tape

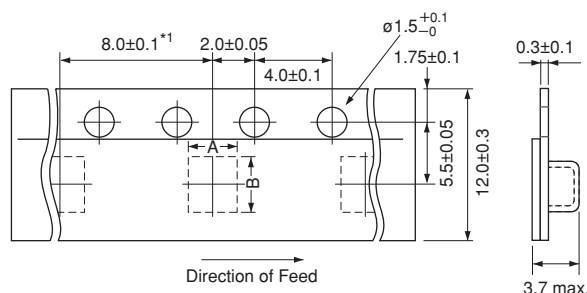
8mm width, 4mm pitch Tape



| Part Number                           | A*   | B*   |
|---------------------------------------|------|------|
| GRJ21/GRM21/GR321/GR721<br>(T≥1.25mm) | 1.45 | 2.25 |
| GRJ31/GRM31/GR331/GR731<br>(T≥1.25mm) | 2.0  | 3.6  |
| GRJ32/GRM32/GR332<br>(T≥1.25mm)       | 2.9  | 3.6  |

\*Nominal Value

12mm width, 8mm/4mm pitch Tape



| Part Number                         | A*  | B*  |
|-------------------------------------|-----|-----|
| GRM42/GR442/GA242/GA342             | 2.5 | 5.1 |
| GRJ43/GRM43/GR343/GR443/GA243/GA343 | 3.6 | 4.9 |
| GA352                               | 3.2 | 6.1 |
| GRJ55/GRM55/GR355/GR455/GA255/GA355 | 5.4 | 6.1 |

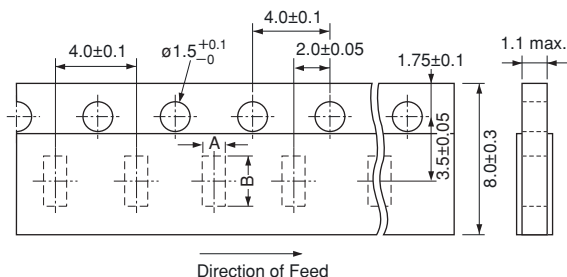
\*1 4.0±0.1mm in case of GRM42/GR442/GA242/GA342

\*Nominal Value

(in mm)

##### ② Paper Tape

8mm width, 4mm pitch Tape



| Part Number                          | A*   | B*   |
|--------------------------------------|------|------|
| GRM18                                | 1.05 | 1.85 |
| GRJ21/GRM21/GR321/GR721<br>(T=1.0mm) | 1.45 | 2.25 |
| GRM31/GR331/GR731<br>(T=1.0mm)       | 2.0  | 3.6  |
| GRM32<br>(T=1.0mm)                   | 2.9  | 3.6  |

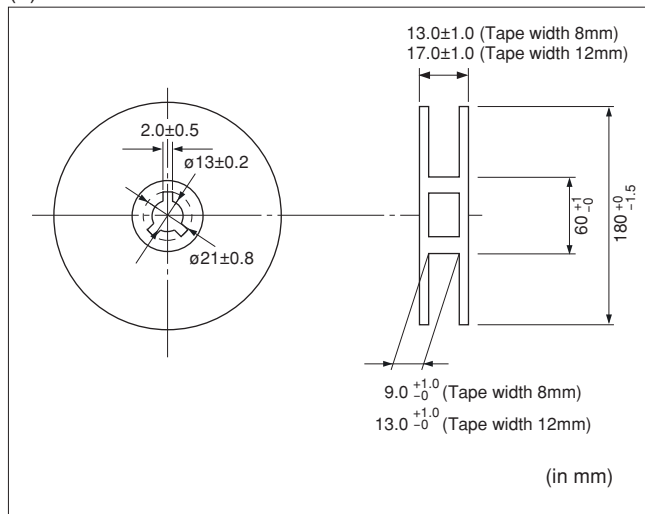
\*Nominal Value

(in mm)

## Package

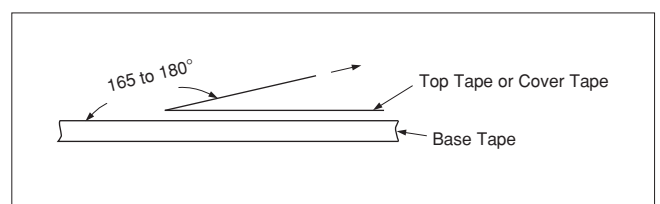
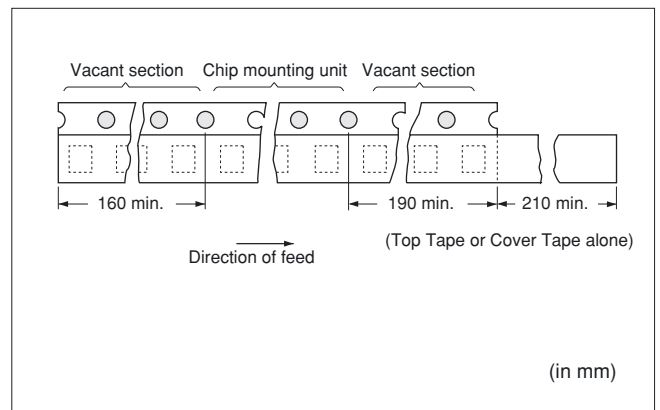
Continued from the preceding page.

### (3) Dimensions of Reel



### (4) Taping Method

- ① Tapes for capacitors are wound clockwise. The sprocket holes are to the right as the tape is pulled toward the user.
- ② Part of the leader and part of the empty tape should be attached to the end of the tape as shown at right.
- ③ The top tape or cover tape and base tape are not attached at the end of the tape for a minimum of 5 pitches.
- ④ Missing capacitors number within 0.1% of the number per reel or 1 pc, whichever is greater, and are not continuous.
- ⑤ The top tape or cover tape and bottom tape should not protrude beyond the edges of the tape and should not cover sprocket holes.
- ⑥ Cumulative tolerance of sprocket holes, 10 pitches:  $\pm 0.3\text{mm}$ .
- ⑦ Peeling off force: 0.1 to 0.6N in the direction shown at right.



For General Purpose  
GRM/GRJ/GR3 Series

Only for Applications

AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information  
Package

## ⚠Caution/Notice

### ⚠Caution

|                                                                                                                   |     |
|-------------------------------------------------------------------------------------------------------------------|-----|
| ■ Storage and Operation Conditions .....                                                                          | 189 |
| ■ Rating .....                                                                                                    | 189 |
| 1. Operating Voltage .....                                                                                        | 189 |
| 2. Operating Temperature, Self-generated Heat,<br>and Load Reduction at High-frequency Voltage<br>Condition ..... | 189 |
| 3. Fail-safe .....                                                                                                | 191 |
| 4. Test Condition for AC Withstanding Voltage .....                                                               | 191 |
| (1) Test Equipment .....                                                                                          | 191 |
| (2) Voltage Applied Method .....                                                                                  | 191 |
| ■ Soldering and Mounting .....                                                                                    | 191 |
| 1. Vibration and Impact .....                                                                                     | 191 |
| 2. Circuit Board Material .....                                                                                   | 191 |
| 3. Land Layout for Cropping PC Board .....                                                                        | 191 |
| 4. Reflow Soldering .....                                                                                         | 192 |
| 5. Flow Soldering .....                                                                                           | 193 |
| 6. Correction with a Soldering Iron .....                                                                         | 194 |
| 7. Washing .....                                                                                                  | 194 |
| 8. Handling .....                                                                                                 | 194 |

### Notice

|                                                                                                        |     |
|--------------------------------------------------------------------------------------------------------|-----|
| ■ Rating .....                                                                                         | 195 |
| 1. Capacitance Change of Capacitor .....                                                               | 195 |
| 2. Performance Check by Equipment .....                                                                | 195 |
| ■ Soldering and Mounting .....                                                                         | 195 |
| 1. Construction of Board Pattern .....                                                                 | 195 |
| 2. Mounting of Chips .....                                                                             | 196 |
| 3. Soldering .....                                                                                     | 197 |
| (1) Limit of losing effective area of the<br>terminations and conditions needed<br>for soldering. .... | 197 |
| (2) Flux Application .....                                                                             | 197 |
| (3) Solder .....                                                                                       | 197 |
| 4. Cleaning .....                                                                                      | 197 |
| 5. Resin Coating .....                                                                                 | 197 |

## ⚠Caution

### ■ Storage and Operation Conditions

Do not use or store capacitors in a corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. In addition, avoid exposure to moisture. Before cleaning, bonding or molding this product, verify that these processes do not affect product quality by testing the performance of a cleaned, bonded or molded product in the intended equipment. Store the capacitors where the temperature and relative humidity do not exceed 5 to 40 degrees centigrade and 20 to 70%. Use capacitors within 6 months of delivery. Check the solderability after 6 months or more.

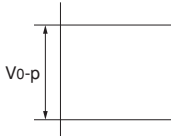
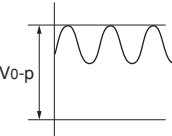
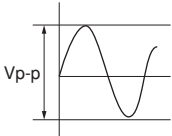
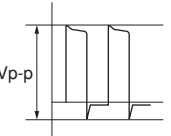
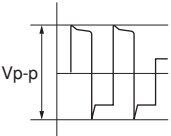
### ■ Rating

#### 1. Operating Voltage

When DC-rated capacitors are to be used in AC or ripple current circuits, be sure to maintain the  $V_{p-p}$  value of the applied voltage or the  $V_{0-p}$  which contains DC bias within the rated voltage range.

When the voltage is applied to the circuit, starting or stopping may generate irregular voltage for a transit period because of resonance or switching. Be sure to use a capacitor with a rated voltage range that includes these irregular voltages.

When DC-rated capacitors are to be used in input circuits from a commercial power source (AC filter), be sure to use Safety Certified Capacitors because various regulations for withstanding voltage or impulses, established for all equipment, should be taken into consideration.

| Voltage                | DC Voltage                                                                          | DC+AC Voltage                                                                       | AC Voltage                                                                          | Pulse Voltage (1)                                                                     | Pulse Voltage (2)                                                                     |
|------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Positional Measurement |  |  |  |  |  |

#### 2. Operating Temperature, Self-generated Heat, and Load Reduction at High-frequency Voltage Condition

Keep the surface temperature of a capacitor below the upper limit of its rated operating temperature range.

Be sure to take into account the heat generated by the capacitor itself. When the capacitor is used in a high-frequency voltage, pulse voltage, it may self-generate heat due to dielectric loss.

##### (1) In the case of X7R, X7T char.

Applied voltage should be the load such as self-generated heat is within 20°C on the condition of atmosphere temperature 25°C. When measuring, use a thermocouple of small thermal capacity -K of ø0.1mm in conditions where the capacitor is not affected by radiant heat from other components or surrounding ambient fluctuations. Excessive heat may lead to deterioration of the capacitor's characteristics and reliability. (Never attempt to perform measurement with the cooling fan running. Otherwise, accurate measurement cannot be ensured.)

Continued on the following page. ↗

## ⚠Caution

Continued from the preceding page.

### (2) In case of C0G, U2J char.

Due to the low self-heating characteristics of low-dissipation capacitors, the allowable electric power of these capacitors is generally much higher than that of X7R characteristic capacitors.

When a high frequency voltage that causes 20°C self-heating to the capacitor is applied, it will exceed the capacitor's allowable electric power.

The frequency of the applied sine wave voltage should be less than 500kHz (less than 100kHz in the case of rated voltage: DC3.15kV). The applied voltage should be less than the value shown in figure below.

In the case of non-sine wave that includes a harmonic frequency, please contact our sales representatives or product engineers. Excessive heat may lead to deterioration of the capacitor's characteristics and reliability. (Never attempt to perform measurement with the cooling fan running. Otherwise, accurate measurement cannot be ensured.)

<C0G char., Rated Voltage: DC3.15kV>

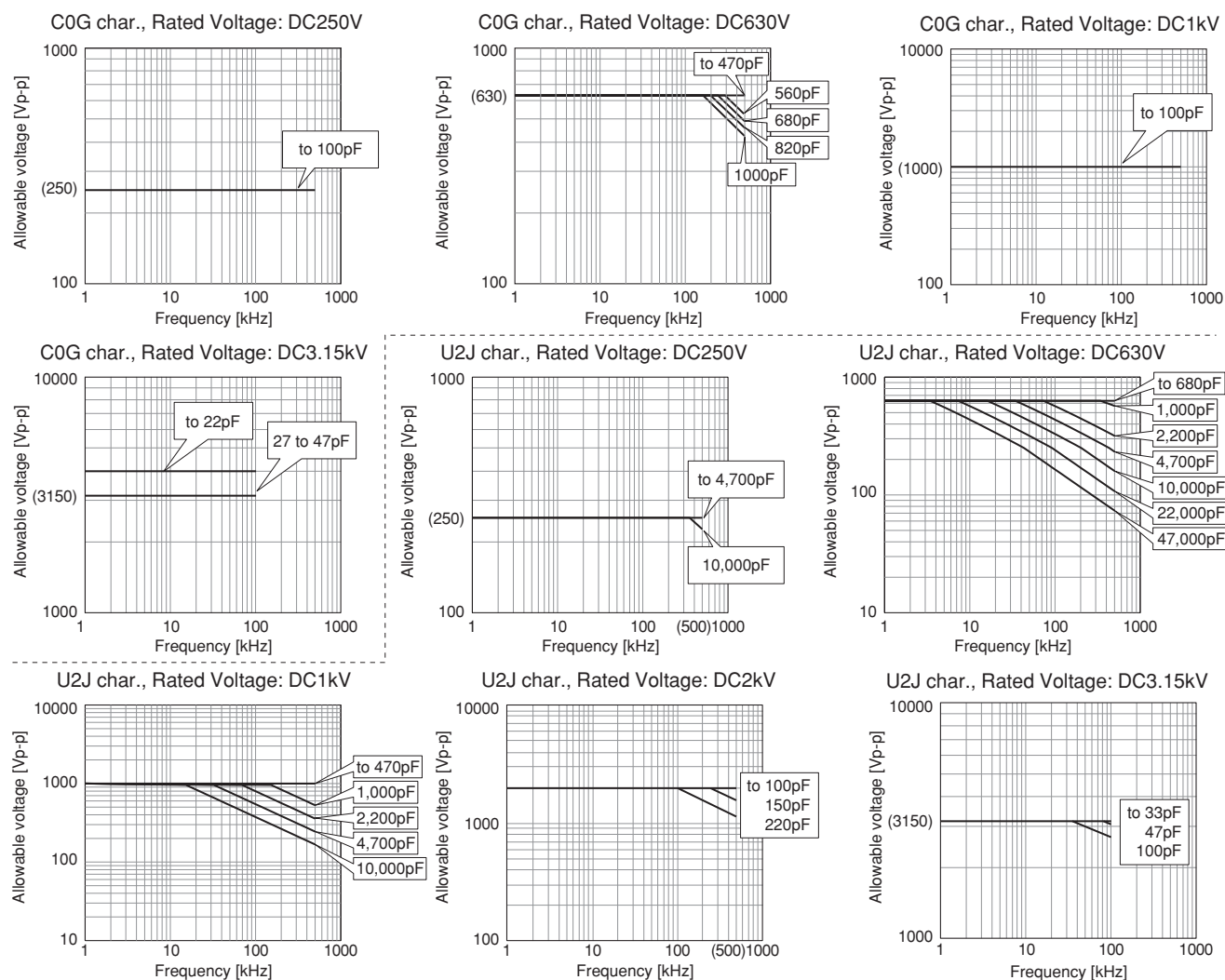
The capacitors less than 22pF can be applied maximum 4.0kV peak to peak at 100kHz or less only for the ballast or the resonance usage in the LCD backlight inverter circuit.

<Capacitor Selection Tool>

We are also offering free software/the capacitor selection tool: "Murata Medium Voltage Capacitors Selection Tool by Voltage Form," which will assist you in selecting a suitable capacitor.

The software can be downloaded from Murata's Website. (<http://www.murata.com/designlib/mmcsv/index.html>). By inputting capacitance values and the applied voltage waveform of the specific capacitor series, this software will calculate the capacitor's power consumption and list suitable capacitors (non-sine wave is also available).

The temperature of the surface of capacitor: 125°C or less (including self-heating)



The sine-wave frequency VS allowable voltage

Continued on the following page. ➤

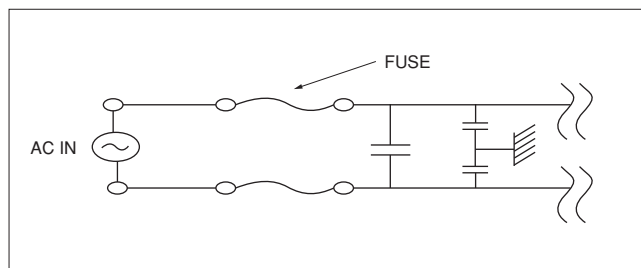
## ⚠Caution

Continued from the preceding page.

### 3. Fail-safe

Failure of a capacitor may result in a short circuit. Be sure to provide an appropriate fail-safe function such as a fuse on your product to help eliminate possible electric shock, fire, or fumes.

Please consider using fuses on each AC line if the capacitors are used between the AC input lines and earth (line bypass capacitors), to prepare for the worst case, such as a short circuit.



### 4. Test Condition for AC Withstanding Voltage

#### (1) Test Equipment

Tests for AC withstanding voltage should be made with equipment capable of creating a wave similar to a 50/60 Hz sine wave.

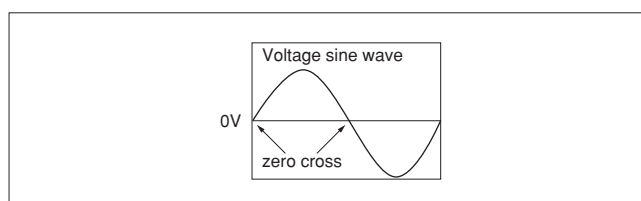
If the distorted sine wave or overload exceeding the specified voltage value is applied, a defect may be caused.

\*ZERO CROSS is the point where voltage sine wave passes 0V.

- See the figure at right -

#### (2) Voltage Applied Method

The capacitor's leads or terminals should be firmly connected to the output of the withstanding voltage test equipment, and then the voltage should be raised from near zero to the test voltage. If the test voltage is applied directly to the capacitor without raising it from near zero, it should be applied with the zero cross.\* At the end of the test time, the test voltage should be reduced to near zero, and then the capacitor's leads or terminals should be taken off the output of the withstanding voltage test equipment. If the test voltage is applied directly to the capacitor without raising it from near zero, surge voltage may occur and cause a defect.



## ■ Soldering and Mounting

### 1. Vibration and Impact

Do not expose a capacitor to excessive shock or vibration during use.

### 2. Circuit Board Material

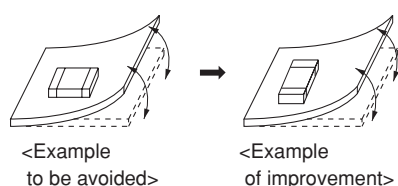
It is possible for the chip to crack by the expansion and shrinkage of a metal board.

Please contact us if you want to use our ceramic capacitors on a metal board such as Aluminum.

### 3. Land Layout for Cropping PC Board

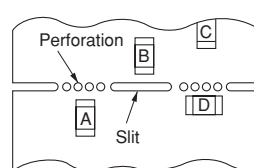
Choose a mounting position that minimizes the stress imposed on the chip during flexing or bending of the board.

#### [Component Direction]



Locate chip horizontal to the direction in which stress acts.

#### [Chip Mounting Close to Board Separation Point]



Chip arrangement  
Worst A>C>B~D Best

Continued on the following page. ➤

## ⚠Caution

Continued from the preceding page.

### 4. Reflow Soldering

- When components are exposed to sudden heat, their mechanical strength can be decreased due to the extreme temperature changes which can cause flexing and result in internal mechanical damage, which will cause the parts to fail. In order to prevent mechanical damage, preheating is required for both the components and the PCB board. Preheating conditions are shown in Table 1. It is required to keep the temperature differential between the soldering and the components surface ( $\Delta T$ ) as small as possible.
- Solderability of Tin plating termination chips might be deteriorated when low temperature soldering profile where peak solder temperature is below the Tin melting point is used. Please confirm the solderability of Tin plating termination chips before use.
- When components are immersed in solvent after mounting, be sure to maintain the temperature difference ( $\Delta T$ ) between the component and solvent within the range shown in the Table 1.

Table 1

| Part Number       | Temperature Differential          |
|-------------------|-----------------------------------|
| G□□18/21/31       | $\Delta T \leq 190^\circ\text{C}$ |
| G□□32/42/43/52/55 | $\Delta T \leq 130^\circ\text{C}$ |

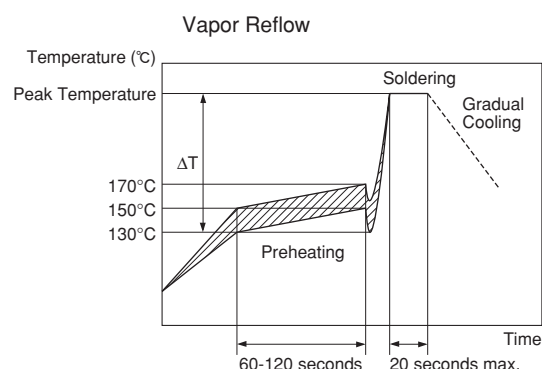
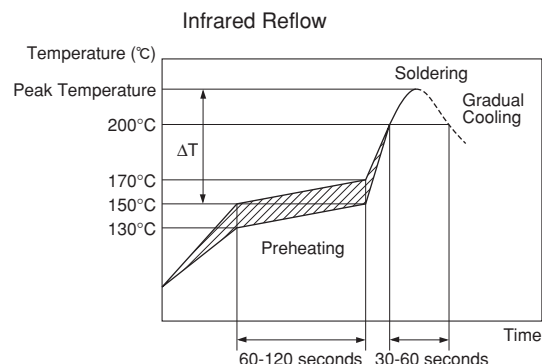
#### Recommended Conditions

|                  | Pb-Sn Solder    |              | Lead Free Solder      |
|------------------|-----------------|--------------|-----------------------|
|                  | Infrared Reflow | Vapor Reflow |                       |
| Peak Temperature | 230-250°C       | 230-240°C    | 240-260°C             |
| Atmosphere       | Air             | Air          | Air or N <sub>2</sub> |

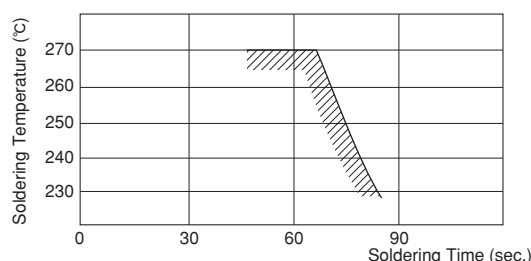
Pb-Sn Solder: Sn-37Pb

Lead Free Solder: Sn-3.0Ag-0.5Cu

#### [Standard Conditions for Reflow Soldering]



#### [Allowable Soldering Temperature and Time]



In the case of repeated soldering, the accumulated soldering time must be within the range shown above.

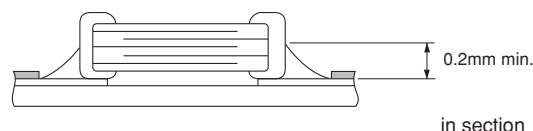
#### Optimum Solder Amount for Reflow Soldering

- Overly thick application of solder paste results in excessive solder fillet height. This makes the chip more susceptible to mechanical and thermal stress on the board and may cause cracked chips.
- Too little solder paste results in a lack of adhesive strength on the outer electrode, which may result in chips breaking loose from the PCB.
- Make sure the solder has been applied smoothly to the end surface to a height of 0.2mm min.

#### Inverting the PCB

Make sure not to impose an abnormal mechanical shock on the PCB.

#### [Optimum Solder Amount for Reflow Soldering]



## ⚠Caution

Continued from the preceding page.

### 5. Flow Soldering

- When components are exposed to sudden heat, their mechanical strength can be decreased due to the extreme temperature changes which can cause flexing and result in internal mechanical damage, which will cause the parts to fail. Additionally, an excessively long soldering time or high soldering temperature results in leaching by the outer electrodes, causing poor adhesion or a reduction in capacitance value due to loss of contact between electrodes and end termination.
- In order to prevent mechanical damage, preheating is required for both the components and the PCB board. Preheating conditions are shown in Table 2. It is required to keep temperature differential between the soldering and the components surface ( $\Delta T$ ) as small as possible.
- When components are immersed in solvent after mounting, be sure to maintain the temperature difference between the component and solvent within the range shown in Table 2.

Do not apply flow soldering to chips not listed in Table 2.

Table 2

| Part Number | Temperature Differential          |
|-------------|-----------------------------------|
| G□□18/21/31 | $\Delta T \leq 150^\circ\text{C}$ |

#### Recommended Conditions

|                  | Pb-Sn Solder | Lead Free Solder |
|------------------|--------------|------------------|
| Peak Temperature | 240-250°C    | 250-260°C        |
| Atmosphere       | Air          | N <sub>2</sub>   |

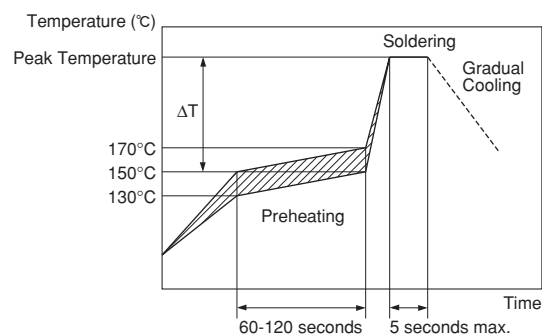
Pb-Sn Solder: Sn-37Pb

Lead Free Solder: Sn-3.0Ag-0.5Cu

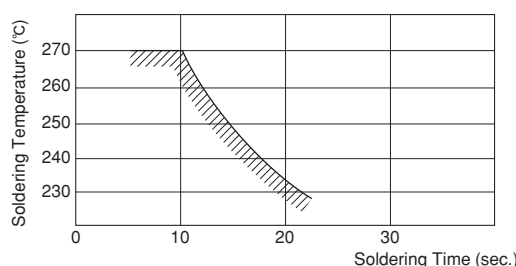
#### ● Optimum Solder Amount for Flow Soldering

The top of the solder fillet should be lower than the thickness of components. If the solder amount is excessively large, the risk of cracking is higher during board bending or under any other stressful conditions.

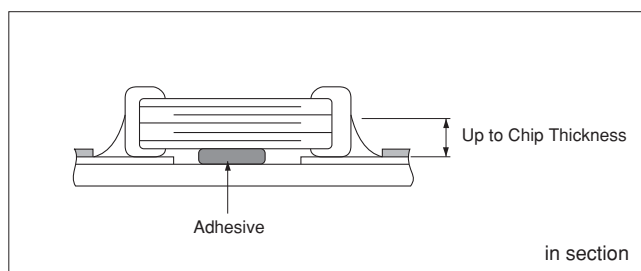
#### [Standard Conditions for Flow Soldering]



#### [Allowable Soldering Temperature and Time]



In the case of repeated soldering, the accumulated soldering time must be within the range shown above.



Continued on the following page. ↗

For General Purpose  
GRW/GRJ/GR3 Series

Only for Applications

AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information  
⚠Caution

## ⚠Caution

☐ Continued from the preceding page.

### 6. Correction with a Soldering Iron

- When sudden heat is applied to the components by use of a soldering iron, the mechanical strength of the components will decrease because the extreme temperature change causes deformations inside the components.

In order to prevent mechanical damage to the components, preheating is required for both the components and the PCB board.

Preheating conditions, (The "Temperature of the Soldering Iron Tip", "Preheating Temperature," "Temperature Differential" between iron tip and the

components and the PCB), should be within the conditions of table 3.

It is required to keep the temperature differential between the soldering Iron and the component's surface ( $\Delta T$ ) as small as possible.

After soldering, do not allow the component/PCB to cool down rapidly.

The operating time for the re-working should be as short as possible. When re-working time is too long, it may cause solder leaching, in turn causing a reduction of the adhesive strength of the terminations.

Table 3

| Part Number       | Temperature of Soldering Iron Tip | Preheating Temperature | Temperature Differential ( $\Delta T$ ) | Atmosphere |
|-------------------|-----------------------------------|------------------------|-----------------------------------------|------------|
| G□□18/21/31       | 350°C max.                        | 150°C min.             | $\Delta T \leq 190^\circ\text{C}$       | air        |
| G□□32/42/43/52/55 | 280°C max.                        | 150°C min.             | $\Delta T \leq 130^\circ\text{C}$       | air        |

\*Applicable for both Pb-Sn and Lead Free Solder.

Pb-Sn Solder: Sn-37Pb

Lead Free Solder: Sn-3.0Ag-0.5Cu

- Optimum Solder Amount when re-working Using a Soldering Iron

For sizes smaller than G□□18, the top of the solder fillet should be lower than 2/3 of the thickness of the component or 0.5mm whichever is smaller.

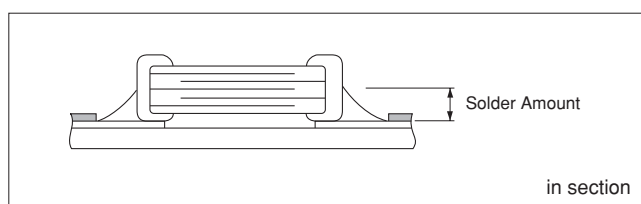
For sizes larger than G□□21, the top of the solder fillet should be lower than 2/3 of the thickness of the component.

If the solder amount is excessive, the risk of cracking is higher during board bending or under any other stressful conditions.

A Soldering iron  $\phi 3\text{mm}$  or smaller should be used.

It is also necessary to keep the soldering iron from touching the components during the re-work.

Solder wire with  $\phi 0.5\text{mm}$  or smaller is required for soldering.



### 7. Washing

Excessive output of ultrasonic oscillation during cleaning causes PCBs to resonate, resulting in cracked chips or broken solder. Take note not to vibrate PCBs.

### 8. Handling

Do not directly touch the chip capacitor, especially the ceramic body. Residue from hands/fingers may create a short circuit environment.

**FAILURE TO FOLLOW THE ABOVE CAUTIONS MAY RESULT, WORST CASE, IN A SHORT CIRCUIT AND FUMING WHEN THE PRODUCT IS USED.**

## Notice

### ■ Rating

#### 1. Capacitance Change of Capacitor

(1) In the case of X7R, X7T char.

Capacitors have an aging characteristic, whereby the capacitor continually decreases its capacitance slightly if the capacitor is left on for a long time. Moreover, capacitance might change greatly depending on the surrounding temperature or an applied voltage. Therefore, it is not likely to be suitable for use in a time constant circuit. Please contact us if you need detailed information.

(2) In the case of any char. except X7R, X7T

Capacitance might change a little depending on the surrounding temperature or an applied voltage. Please contact us if you intend to use this product in a strict time constant circuit.

#### 2. Performance Check by Equipment

Before using a capacitor, check that there is no problem in the equipment's performance and the specifications.

Generally speaking, CLASS 2 (X7R, X7T char.) ceramic capacitors have voltage dependence characteristics and temperature dependence characteristics in capacitance. Therefore, the capacitance value may change depending on the operating condition in the equipment.

Accordingly, be sure to confirm the apparatus performance of receiving influence in a capacitance value change of a capacitor, such as leakage current and noise suppression characteristics.

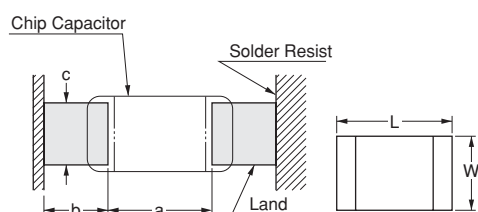
Moreover, check the surge-proof ability of a capacitor in the equipment, if needed, because the surge voltage may exceed the specific value by the inductance of the circuit.

### ■ Soldering and Mounting

#### 1. Construction of Board Pattern

After installing chips, if solder is excessively applied to the circuit board, mechanical stress will cause destruction resistance characteristics to lower. To prevent this, be extremely careful in determining shape and dimension before designing the circuit board diagram.

#### Construction and Dimensions of Pattern (Example)



#### Flow Soldering

| L×W      | a       | b       | c       |
|----------|---------|---------|---------|
| 1.6×0.8  | 0.6-1.0 | 0.8-0.9 | 0.6-0.8 |
| 2.0×1.25 | 1.0-1.2 | 0.9-1.0 | 0.8-1.1 |
| 3.2×1.6  | 2.2-2.6 | 1.0-1.1 | 1.0-1.4 |

Flow soldering: 3.2×1.6 or less available.

#### Reflow Soldering

| L×W      | a       | b       | c       |
|----------|---------|---------|---------|
| 1.6×0.8  | 0.6-0.8 | 0.6-0.7 | 0.6-0.8 |
| 2.0×1.25 | 1.0-1.2 | 0.6-0.7 | 0.8-1.1 |
| 3.2×1.6  | 2.2-2.4 | 0.8-0.9 | 1.0-1.4 |
| 3.2×2.5  | 2.0-2.4 | 1.0-1.2 | 1.8-2.3 |
| 4.5×2.0  | 2.8-3.4 | 1.2-1.4 | 1.4-1.8 |
| 4.5×3.2  | 2.8-3.4 | 1.2-1.4 | 2.3-3.0 |
| 5.7×2.8  | 4.0-4.6 | 1.4-1.6 | 2.1-2.6 |
| 5.7×5.0  | 4.0-4.6 | 1.4-1.6 | 3.5-4.8 |

(in mm)

Continued on the following page.

For General Purpose  
GRW/GRJ/GR3 Series

Only for Applications

AC250V Type  
GA2 Series

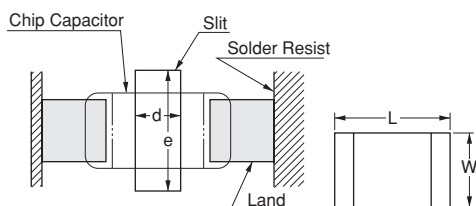
Safety Standard  
Certified GA3 Series

Product Information  
Notice

## Notice

Continued from the preceding page.

### Dimensions of Slit (Example)



| L×W      | d       | e       |
|----------|---------|---------|
| 1.6×0.8  | -       | -       |
| 2.0×1.25 | -       | -       |
| 3.2×1.6  | 1.0-2.0 | 3.2-3.7 |
| 3.2×2.5  | 1.0-2.0 | 4.1-4.6 |
| 4.5×2.0  | 1.0-2.8 | 3.6-4.1 |
| 4.5×3.2  | 1.0-2.8 | 4.8-5.3 |
| 5.7×2.8  | 1.0-4.0 | 4.4-4.9 |
| 5.7×5.0  | 1.0-4.0 | 6.6-7.1 |

(in mm)

Preparing the slit helps flux cleaning and resin coating on the back of the capacitor.

However, the length of the slit design should be as short as possible to prevent mechanical damage in the capacitor.

A longer slit design might receive more severe mechanical stress from the PCB.

Recommended slit design is shown in the Table.

### Land Layout to Prevent Excessive Solder

|                                               | Mounting Close to a Chassis | Mounting with Leaded Components | Mounting Leaded Components Later |
|-----------------------------------------------|-----------------------------|---------------------------------|----------------------------------|
| Examples to Be Avoided                        |                             |                                 |                                  |
| Examples of Improvements by the Land Division |                             |                                 |                                  |

## 2. Mounting of Chips

### ● Thickness of adhesives applied

Keep thickness of adhesives applied (50-105μm or more) to reinforce the adhesive contact considering the thickness of the termination or capacitor (20-70μm) and the land pattern (30-35μm).

### ● Mechanical shock of the chip placer

When the positioning claws and pick-up nozzle are worn, the load is applied to the chip while positioning is concentrated in one position, thus causing cracks, breakage, faulty positioning accuracy, etc. Careful checking and maintenance are necessary to prevent unexpected trouble.

An excessively low bottom dead point of the suction nozzle imposes great force on the chip during mounting, causing cracked chips. Please set the suction nozzle's bottom dead point on the upper surface of the board.

Continued on the following page. ↗

## Notice

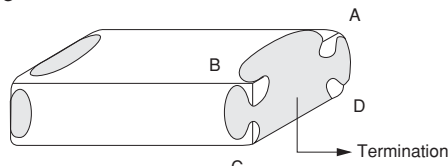
Continued from the preceding page.

### 3. Soldering

#### (1) Limit of losing effective area of the terminations and conditions needed for soldering.

Depending on the conditions of the soldering temperature and/or immersion (melting time), effective areas may be lost in some parts of the terminations.

To prevent this, be careful in soldering so that any possible loss of the effective area on the terminations will securely remain at a maximum of 25% on all edge length A-B-C-D-A of part with A, B, C, D, shown in the Figure below.



#### (2) Flux Application

- An excessive amount of flux generates a large quantity of flux gas, causing deteriorated solderability. So apply flux thinly and evenly throughout. (A foaming system is generally used for flow soldering.)
- Flux containing too high a percentage of halide may cause corrosion of the outer electrodes without sufficient cleaning. Use flux with a halide content of 0.2% max.
- Do not use strong acidic flux.
- Do not use water-soluble flux.\*  
(\*Water-soluble flux can be defined as non rosin type flux including wash-type flux and non-wash-type flux.)

#### (3) Solder

The use of Sn-Zn based solder will deteriorate the reliability of the MLCC.

Please contact our sales representative or product engineers on the use of Sn-Zn based solder in advance.

### 4. Cleaning

Please confirm there is no problem in the reliability of the product beforehand when cleaning it with the intended equipment.

The residue after cleaning it might cause a decrease in the surface resistance of the chip and the corrosion of the electrode part, etc. As a result it might cause reliability to deteriorate. Please confirm beforehand that there is no problem with the intended equipment in ultrasonic cleansing.

### 5. Resin Coating

Please use it after confirming there is no influence on the product with the intended equipment before the resin coating and molding.

A cracked chip might be caused at the cooling/heating cycle by the amount of resin spreading and/or bias thickness.

The resin for coating and molding must be selected as the stress is small when stiffening and the hygroscopic is low as possible.

For General Purpose  
GRW/GRJ/GR3 Series

Only for Applications

AC250V Type  
GA2 Series

Safety Standard  
Certified GA3 Series

Product Information  
Notice

## MEMO

# Contents

## Metal Terminal Monolithic Ceramic Capacitors

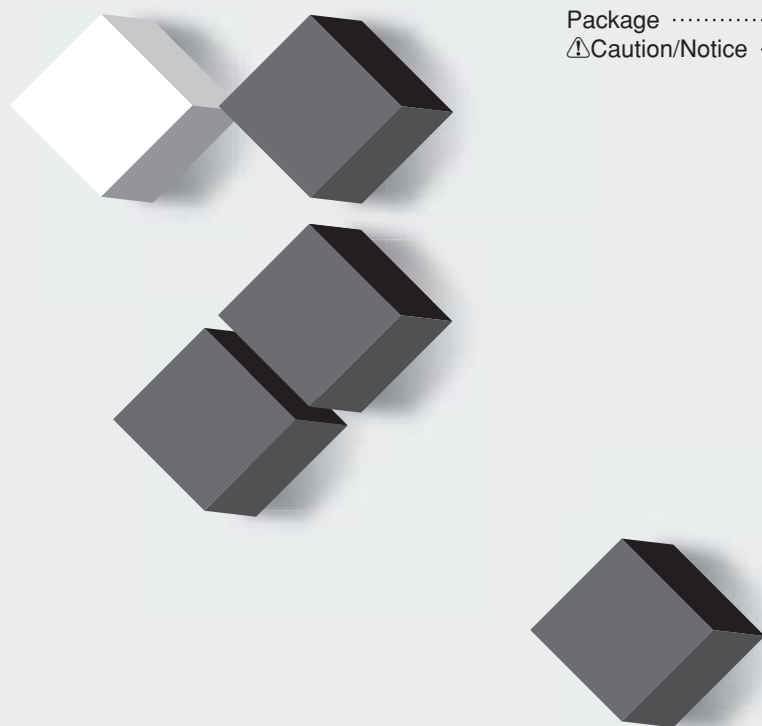
---

### For General Purpose KRM/KR3 Series

|                                       |      |
|---------------------------------------|------|
| High Capacitance for General Use      |      |
| KRM Series .....                      | p200 |
| Specifications and Test Methods ..... | p201 |
| Large Capacitance and High Allowable  |      |
| Ripple Current Type KR3 Series .....  | p204 |
| Specifications and Test Methods ..... | p205 |

---

|                       |      |
|-----------------------|------|
| Package .....         | p208 |
| ⚠Caution/Notice ..... | p210 |



## Metal Terminal Monolithic Ceramic Capacitors

### High Capacitance for General Use KRM Series

**Anti-noise**

**Deflecting crack**

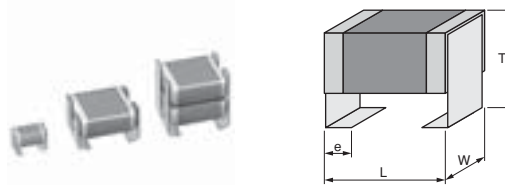
**Soldering crack**

#### ■ Features

1. The product has high reliability against heat and mechanical impact.
2. Stacking two capacitors reduces the mounting space and achieves a large capacitance.
3. The unique terminal structure greatly reduces noise from the ceramics on the board.

#### ■ Applications

For smoothing and noise suppression of DC-DC converters



| Part Number   | Dimensions (mm) |          |         |         |
|---------------|-----------------|----------|---------|---------|
|               | L               | W        | T       | e       |
| <b>KRM31F</b> | 3.5±0.3         | 1.7±0.2  | 1.9±0.1 | 0.8±0.2 |
| <b>KRM31K</b> | 3.5±0.3         | 1.7±0.2  | 2.7±0.2 |         |
|               | 3.6±0.3         | 1.7±0.2  | 2.7±0.2 |         |
|               | 3.7±0.3         | 1.85±0.2 | 2.7±0.2 |         |
| <b>KRM55L</b> | 6.1±0.4         | 5.3±0.2  | 2.8±0.2 | 1.2±0.2 |
| <b>KRM55Q</b> |                 |          | 3.7±0.2 |         |
| <b>KRM55T</b> |                 |          | 4.8±0.2 |         |
| <b>KRM55W</b> |                 |          | 6.4±0.3 |         |

Do not use these products in any Automotive Power train or Safety equipment including Battery chargers for Electric Vehicles and Plug-in Hybrids.  
Only Murata products clearly stipulated as "for Automotive use" can be used for automobile applications such as Power train and Safety equipment.

| Part Number               | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Metal Terminal Width e (mm) |
|---------------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|-----------------------------|
| <b>KRM31FR61E106KH01K</b> | 25Vdc         | X5R (EIA)          | 10μF±10%    | 3.5           | 1.7          | 2                     | 0.8±0.2mm                   |
| <b>KRM31KC81E106KH01K</b> | 25Vdc         | X6S (EIA)          | 10μF±10%    | 3.5           | 1.7          | 2.9                   | 0.8±0.2mm                   |
| <b>KRM55LR71E156KH01K</b> | 25Vdc         | X7R (EIA)          | 15μF±10%    | 6.1           | 5.3          | 3                     | 1.2±0.2mm                   |
| <b>KRM55QR71E226KH01K</b> | 25Vdc         | X7R (EIA)          | 22μF±10%    | 6.1           | 5.3          | 3.9                   | 1.2±0.2mm                   |
| <b>KRM55TR71E336MH01K</b> | 25Vdc         | X7R (EIA)          | 33μF±20%    | 6.1           | 5.3          | 5                     | 1.2±0.2mm                   |
| <b>KRM55WR71E476MH01K</b> | 25Vdc         | X7R (EIA)          | 47μF±20%    | 6.1           | 5.3          | 6.7                   | 1.2±0.2mm                   |
| <b>KRM31KR71H225KH01K</b> | 50Vdc         | X7R (EIA)          | 2.2μF±10%   | 3.6           | 1.7          | 2.9                   | 0.8±0.2mm                   |
| <b>KRM31KR71H475KH01K</b> | 50Vdc         | X7R (EIA)          | 4.7μF±10%   | 3.5           | 1.7          | 2.9                   | 0.8±0.2mm                   |
| <b>KRM55LR71H475KH01K</b> | 50Vdc         | X7R (EIA)          | 4.7μF±10%   | 6.1           | 5.3          | 3                     | 1.2±0.2mm                   |
| <b>KRM55QR71H106KH01K</b> | 50Vdc         | X7R (EIA)          | 10μF±10%    | 6.1           | 5.3          | 3.9                   | 1.2±0.2mm                   |
| <b>KRM55WR71H226MH01K</b> | 50Vdc         | X7R (EIA)          | 22μF±20%    | 6.1           | 5.3          | 6.7                   | 1.2±0.2mm                   |
| <b>KRM55LR71J475KH01K</b> | 63Vdc         | X7R (EIA)          | 4.7μF±10%   | 6.1           | 5.3          | 3                     | 1.2±0.2mm                   |
| <b>KRM55QR71J106KH01K</b> | 63Vdc         | X7R (EIA)          | 10μF±10%    | 6.1           | 5.3          | 3.9                   | 1.2±0.2mm                   |
| <b>KRM55WR71J226MH01K</b> | 63Vdc         | X7R (EIA)          | 22μF±20%    | 6.1           | 5.3          | 6.7                   | 1.2±0.2mm                   |
| <b>KRM31KR72A105KH01K</b> | 100Vdc        | X7R (EIA)          | 1.0μF±10%   | 3.5           | 1.7          | 2.9                   | 0.8±0.2mm                   |
| <b>KRM31KR72A225KH01K</b> | 100Vdc        | X7R (EIA)          | 2.2μF±10%   | 3.7           | 1.7          | 2.9                   | 0.8±0.2mm                   |
| <b>KRM55LR72A475KH01K</b> | 100Vdc        | X7R (EIA)          | 4.7μF±10%   | 6.1           | 5.3          | 3                     | 1.2±0.2mm                   |
| <b>KRM55QR72A685KH01K</b> | 100Vdc        | X7R (EIA)          | 6.8μF±10%   | 6.1           | 5.3          | 3.9                   | 1.2±0.2mm                   |
| <b>KRM55TR72A106MH01K</b> | 100Vdc        | X7R (EIA)          | 10μF±20%    | 6.1           | 5.3          | 5                     | 1.2±0.2mm                   |
| <b>KRM55WR72A156MH01K</b> | 100Vdc        | X7R (EIA)          | 15μF±20%    | 6.1           | 5.3          | 6.7                   | 1.2±0.2mm                   |

## KRM Series Specifications and Test Methods

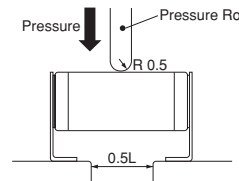
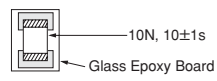
| No.                 | Item                                    | Specifications                                                                                                                                                   | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
|---------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|---------------------|---------------------------|----------|---------------------------|--------|----------|--------------------|-------------------------|---|------|
| 1                   | Operating Temperature Range             | X5R Char.: -55 to +85°C<br>X6S Char.: -55 to +105°C<br>X7R Char.: -55 to +125°C                                                                                  | Reference temperature: 25°C                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| 2                   | Appearance                              | No defects or abnormalities                                                                                                                                      | Visual inspection                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| 3                   | Dimensions                              | Within the specified dimensions                                                                                                                                  | Using calipers and micrometers                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| 4                   | Dielectric Strength                     | No defects or abnormalities                                                                                                                                      | No failure should be observed when voltage in the table is applied between the terminations for 1 to 5 sec., provided the charge/discharge current is less than 50mA.<br><table><tr><th>Rated Voltage</th><th>Test Voltage</th></tr><tr><td>DC25V, DC50V, DC63V</td><td>250% of the rated voltage</td></tr><tr><td>DC100V</td><td>200% of the rated voltage</td></tr></table>                                                                                                            | Rated Voltage       | Test Voltage        | DC25V, DC50V, DC63V | 250% of the rated voltage | DC100V   | 200% of the rated voltage |        |          |                    |                         |   |      |
| Rated Voltage       | Test Voltage                            |                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| DC25V, DC50V, DC63V | 250% of the rated voltage               |                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| DC100V              | 200% of the rated voltage               |                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| 5                   | Insulation Resistance (I.R.)            | [KRM31]<br>W.V.: 25V<br>: More than 50MΩ · μF<br>W.V.: 50V/100V<br>: More than 500MΩ · μF<br>[KRM55]<br>More than 100MΩ · μF                                     | The insulation resistance should be measured with Rated Voltage and within 60±5 sec. of charging.                                                                                                                                                                                                                                                                                                                                                                                        |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| 6                   | Capacitance                             | Within the specified tolerance                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| 7                   | Dissipation Factor (D.F.)               | [KRM31]<br>W.V.: 25V<br>: 0.15 max.<br>W.V.: 50V<br>: 0.025 max.<br>W.V.: 100V<br>: 0.05 max.<br>[KRM55]<br>0.025 max.                                           | The capacitance/D.F. should be measured at reference temperature at the meaning frequency and voltage shown in the table.<br><table><tr><th>Nominal Capacitance</th><th>Measuring Frequency</th><th>Measuring Voltage</th></tr><tr><td>C&gt;10μF</td><td>120±24Hz</td><td>AC0.5±0.1V(r.m.s.)</td></tr><tr><td>C≤10μF</td><td>1±0.2kHz</td><td>AC1.0±0.2V(r.m.s.)</td></tr></table>                                                                                                       | Nominal Capacitance | Measuring Frequency | Measuring Voltage   | C>10μF                    | 120±24Hz | AC0.5±0.1V(r.m.s.)        | C≤10μF | 1±0.2kHz | AC1.0±0.2V(r.m.s.) |                         |   |      |
| Nominal Capacitance | Measuring Frequency                     | Measuring Voltage                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| C>10μF              | 120±24Hz                                | AC0.5±0.1V(r.m.s.)                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| C≤10μF              | 1±0.2kHz                                | AC1.0±0.2V(r.m.s.)                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| 8                   | Capacitance Temperature Characteristics | X5R Char.: Within ±15% (Temp. Range: -55 to +85°C)<br>X6S Char.: Within ±22% (Temp. Range: -55 to +105°C)<br>X7R Char.: Within ±15% (Temp. Range: -55 to +125°C) | The capacitance measurement should be made at each step specified in the Table.<br><table><tr><th>Step</th><th>Temperature (°C)</th></tr><tr><td>1</td><td>25±2</td></tr><tr><td>2</td><td>Min. Operating Temp. ±3</td></tr><tr><td>3</td><td>25±2</td></tr><tr><td>4</td><td>Max. Operating Temp. ±2</td></tr><tr><td>5</td><td>25±2</td></tr></table><br>•Pretreatment<br>Perform a heat treatment at 150+0/-10°C for 60±5 min. and then let sit for 24±2 hrs. at room condition. (*1) | Step                | Temperature (°C)    | 1                   | 25±2                      | 2        | Min. Operating Temp. ±3   | 3      | 25±2     | 4                  | Max. Operating Temp. ±2 | 5 | 25±2 |
| Step                | Temperature (°C)                        |                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| 1                   | 25±2                                    |                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| 2                   | Min. Operating Temp. ±3                 |                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| 3                   | 25±2                                    |                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| 4                   | Max. Operating Temp. ±2                 |                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| 5                   | 25±2                                    |                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| 9                   | Strength of Metal Terminal              | Termination not to be broken or loosened                                                                                                                         | A static load of 10N using a pressure rod should be applied to the center in the direction of the arrow and held for 10 s.<br>                                                                                                                                                                                                                                                                      |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |
| 10                  | Adhesive Strength of Termination        | No removal of the terminations or other defect should occur.                                                                                                     | Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 1.<br>Then apply 10N force in the direction of the arrow.<br>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free defects such as heat shock.<br>                                                                                             |                     |                     |                     |                           |          |                           |        |          |                    |                         |   |      |

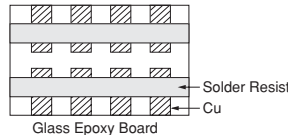
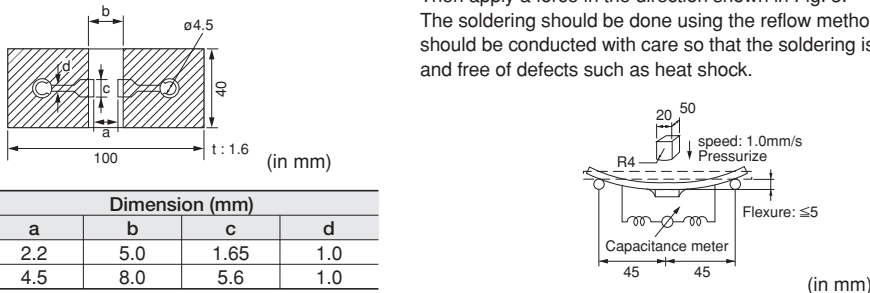
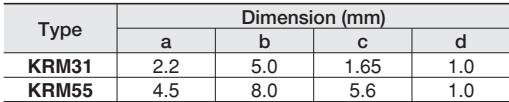
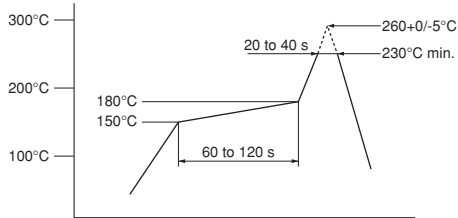
Fig. 1

(\*1) "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page. ➤

## KRM Series Specifications and Test Methods

Continued from the preceding page.

| No. | Item                         | Specifications                                                                                  | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----|------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11  | Appearance                   | No defects or abnormalities                                                                     | <p>Solder the capacitor to the test jig (glass epoxy board).<br/>The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55Hz. The frequency range, from 10 to 55Hz and return to 10Hz, should be traversed in approximately 1 min. This motion should be applied for a period of 2 hrs. in each of 3 mutually perpendicular directions (total of 6 hrs.).</p>  |
|     | Capacitance                  | Within the specified tolerance                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|     | D.F.                         | In accordance with item No.7                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 12  | Deflection                   | No marking defects                                                                              | <p>Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 2.<br/>Then apply a force in the direction shown in Fig. 3.<br/>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock.</p>                                                                                                                                                                        |
|     |                              |  <p>Fig. 2</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 13  | Solderability of Termination | The metal surface is soldered well                                                              | <p>Reflow Soldering: Peak 260+0/-5°C<br/>The area of soldering 230°C min., 20 to 40 s<br/>Let sit for 24±2 h at room condition,* then measure.</p> <p>•Pretreatment<br/>Perform the heat treatment at 150+0/-10°C for 60±5 min. and then let sit for 24±2 h at room condition. (*1)</p>                                                                                                                                                                                               |
| 14  | Resistance to Soldering Heat | Appearance                                                                                      | <p>•In case of Reflow Soldering<br/>See item 13 Solderability of termination<br/>•In case of Soldering Iron<br/>Temp. of solder: 350±10°C<br/>Solder time: 4+1/-0 s<br/>Let sit for 24±2 hrs.at room condition,* then measure<br/>Please refer to "Caution (Soldering and Mounting) Correction with a Soldering Iron"</p>                                                                                                                                                                                                                                                 |
|     |                              | Capacitance Change                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|     |                              | D.F.                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|     |                              | I.R.                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|     |                              | Dielectric Strength                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

(\*1) "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page. ➤

## KRM Series Specifications and Test Methods

Continued from the preceding page.

| No. | Item                    | Specifications      | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----|-------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15  | Temperature Cycle       | Appearance          | Fix the capacitor to the supporting jig (glass epoxy board) shown in Fig. 4.<br>Perform the 100 cycles according to the 4 heat treatments listed in the following table.<br>Let sit for 24±2 hrs. at room condition,* then measure.                                                                                                                                                                                                                                     |
|     |                         | Capacitance Change  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|     |                         | D.F.                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|     |                         | I.R.                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|     |                         | Dielectric Strength | In accordance with item No.4                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 16  | Humidity (Steady State) | Appearance          | Let the capacitor sit at 40±2°C and relative humidity of 90 to 95% for 500+24/-0 hrs.<br>Remove and let sit for 24±2 hrs. at room condition,* then measure.<br><br>•Pretreatment<br>Perform a heat treatment at 150+0/-10°C for 60±5 min. and then let sit for 24±2 hrs. at room condition. (*1)                                                                                                                                                                        |
|     |                         | Capacitance Change  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|     |                         | D.F.                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|     |                         | I.R.                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|     |                         | Dielectric Strength |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 17  | Life                    | Appearance          | Apply voltage as in the Table for 1000+48/-0 hrs. at maximum operating temperature ±3°C. Remove and let sit for 24±2 hrs. at room condition, (*1) then measure.<br><br>The charge/discharge current is than 50mA.<br>•Pretreatment<br>Perform a heat treatment at 150+0/-10°C for 60±5 min. and then let sit for 24±2 hrs. at room condition. (*1)<br><br>(*2) KRM31KC81E106, KRM31FR61E106, KRM31KR71H225, KRM31KR71H475, KRM31KR72A105<br>: 150% of the rated voltage |
|     |                         | Capacitance Change  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|     |                         | D.F.                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|     |                         | I.R.                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|     |                         | Dielectric Strength |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Step | Temperature (°C)        | Time (min.) |
|------|-------------------------|-------------|
| 1    | Min. Operating Temp. ±3 | 30±3        |
| 2    | Room Temp.              | 2 to 3      |
| 3    | Max. Operating Temp. ±2 | 30±3        |
| 4    | Room Temp.              | 2 to 3      |

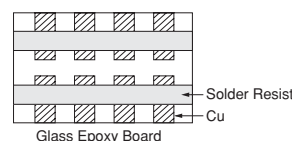


Fig. 4

(\*1) "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

## Metal Terminal Monolithic Ceramic Capacitors

### Large Capacitance and High Allowable Ripple Current KR3 Series

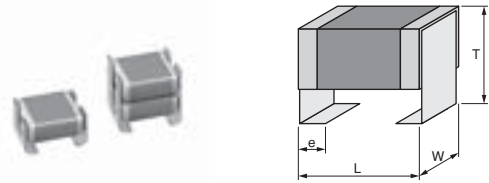
**Anti-noise**

**Deflecting crack**

**Soldering crack**

#### ■ Features

1. The product has high reliability against heat and mechanical impact.
2. Stacking two capacitors reduces the mounting space and achieves a large capacitance.
3. The unique terminal structure greatly reduces noise from the ceramics on the board.
4. This series can provide higher capacitance value under DC-Bias condition, compare with previous X7R char.
5. Improve the performance of ripple-resistance compared with X7R char.



| Part Number | Dimensions (mm) |         |         |         |
|-------------|-----------------|---------|---------|---------|
|             | L               | W       | T       | e       |
| KR355L      | 6.1±0.4         | 5.3±0.2 | 2.8±0.2 | 1.2±0.2 |
| KR355Q      |                 |         | 3.7±0.2 |         |
| KR355T      |                 |         | 4.8±0.2 |         |
| KR355W      |                 |         | 6.4±0.3 |         |

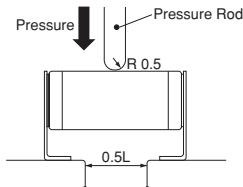
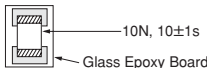
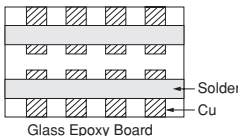
#### ■ Applications

1. DC smoothing & EMI filter for LED Lighting.
2. For PFC circuit in the switching power supplies, AC adaptor.
3. DC-DC converter for general electronic equipment.

Do not use these products in any Automotive Power train or Safety equipment including Battery chargers for Electric Vehicles and Plug-in Hybrids.  
Only Murata products clearly stipulated as "for Automotive use" can be used for automobile applications such as Power train and Safety equipment.

| Part Number        | Rated Voltage | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T max. (mm) | Metal Terminal Width e (mm) |
|--------------------|---------------|--------------------|-------------|---------------|--------------|-----------------------|-----------------------------|
| KR355LD72E474KH01K | 250Vdc        | X7T (EIA)          | 0.47μF±10%  | 6.1           | 5.3          | 3                     | 1.2±0.2mm                   |
| KR355QD72E105KH01K | 250Vdc        | X7T (EIA)          | 1.0μF±10%   | 6.1           | 5.3          | 3.9                   | 1.2±0.2mm                   |
| KR355WD72E225MH01K | 250Vdc        | X7T (EIA)          | 2.2μF±20%   | 6.1           | 5.3          | 6.7                   | 1.2±0.2mm                   |
| KR355LD72W224KH01K | 450Vdc        | X7T (EIA)          | 0.22μF±10%  | 6.1           | 5.3          | 3                     | 1.2±0.2mm                   |
| KR355LD72W474KH01K | 450Vdc        | X7T (EIA)          | 0.47μF±10%  | 6.1           | 5.3          | 3                     | 1.2±0.2mm                   |
| KR355QD72W564KH01K | 450Vdc        | X7T (EIA)          | 0.56μF±10%  | 6.1           | 5.3          | 3.9                   | 1.2±0.2mm                   |
| KR355TD72W105MH01K | 450Vdc        | X7T (EIA)          | 1.0μF±20%   | 6.1           | 5.3          | 5                     | 1.2±0.2mm                   |
| KR355WD72W125MH01K | 450Vdc        | X7T (EIA)          | 1.2μF±20%   | 6.1           | 5.3          | 6.7                   | 1.2±0.2mm                   |
| KR355LD72J104KH01K | 630Vdc        | X7T (EIA)          | 0.1μF±10%   | 6.1           | 5.3          | 3                     | 1.2±0.2mm                   |
| KR355LD72J154KH01K | 630Vdc        | X7T (EIA)          | 0.15μF±10%  | 6.1           | 5.3          | 3                     | 1.2±0.2mm                   |
| KR355QD72J224KH01K | 630Vdc        | X7T (EIA)          | 0.22μF±10%  | 6.1           | 5.3          | 3.9                   | 1.2±0.2mm                   |
| KR355QD72J274KH01K | 630Vdc        | X7T (EIA)          | 0.27μF±10%  | 6.1           | 5.3          | 3.9                   | 1.2±0.2mm                   |
| KR355WD72J474MH01K | 630Vdc        | X7T (EIA)          | 0.47μF±20%  | 6.1           | 5.3          | 6.7                   | 1.2±0.2mm                   |
| KR355WD72J564MH01K | 630Vdc        | X7T (EIA)          | 0.56μF±20%  | 6.1           | 5.3          | 6.7                   | 1.2±0.2mm                   |

## KR3 Series Specifications and Test Methods

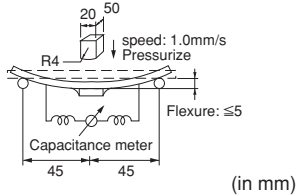
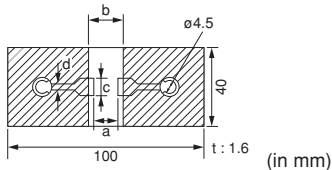
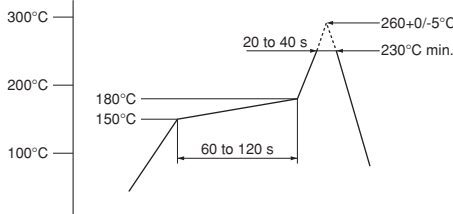
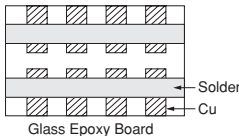
| No.           | Item                                    | Specifications                                               | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
|---------------|-----------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------------|--------|---------------------------|--------|---------------------------|--------|---------------------------|---|-------------------------|---|------|
| 1             | Operating Temperature Range             | -55 to +125°C                                                | Reference temperature: 25°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 2             | Appearance                              | No defects or adnormalities                                  | Visual inspection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 3             | Dimensions                              | Within the specified dimensions                              | Using calipers and micrometers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 4             | Dielectric Strength                     | No defects or abnormalities                                  | <p>No failure should be observed when voltage in the table is applied between the terminations for 1 to 5 sec., provided the charge/discharge current is less than 50mA.</p> <table><tr><th>Rated Voltage</th><th>Test Voltage</th></tr><tr><td>DC250V</td><td>200% of the rated voltage</td></tr><tr><td>DC450V</td><td>150% of the rated voltage</td></tr><tr><td>DC630V</td><td>120% of the rated voltage</td></tr></table>                                                                                                                                              | Rated Voltage                | Test Voltage     | DC250V | 200% of the rated voltage | DC450V | 150% of the rated voltage | DC630V | 120% of the rated voltage |   |                         |   |      |
| Rated Voltage | Test Voltage                            |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| DC250V        | 200% of the rated voltage               |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| DC450V        | 150% of the rated voltage               |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| DC630V        | 120% of the rated voltage               |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 5             | Insulation Resistance (I.R.)            | More than 10,000MΩ or 100Ω · μF (Whichever is Smaller)       | The inslation resisitance should be measured with DC500V±50V (DC250V±25V in case of rated Voltage: DC250V, DC450V) and within 60±5 sec. of charging.                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 6             | Capacitance                             | Within the specified tolerance                               | The capacitance/D.F. should be measured at a frequency of 1±0.2kHz and a voltage of AC1±0.2V (r.m.s.).                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 7             | Dissipation Factor (D.F.)               | 0.01 max.                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 8             | Capacitance Temperature Characteristics | Cap. Change Within +22/-33% (Temp. Range: -55 to +125°C)     | <p>The capacitance measurement should be made at each step specified in the table.</p> <table><tr><th>Step</th><th>Temperature (°C)</th></tr><tr><td>1</td><td>25±2</td></tr><tr><td>2</td><td>Min. Operating Temp. ±3</td></tr><tr><td>3</td><td>25±2</td></tr><tr><td>4</td><td>Max. Operating Temp. ±2</td></tr><tr><td>5</td><td>25±2</td></tr></table> <p>•Pretreatment<br/>Perform a heat treatment at 150+0/-10°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p>                                                                               | Step                         | Temperature (°C) | 1      | 25±2                      | 2      | Min. Operating Temp. ±3   | 3      | 25±2                      | 4 | Max. Operating Temp. ±2 | 5 | 25±2 |
| Step          | Temperature (°C)                        |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 1             | 25±2                                    |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 2             | Min. Operating Temp. ±3                 |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 3             | 25±2                                    |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 4             | Max. Operating Temp. ±2                 |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 5             | 25±2                                    |                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 9             | Strength of Metal Terminal              | Termination not to be broken or loosened                     | <p>A static load of 10N using a pressure rod should be applied to the center in the direction of the arrow and held for 10 sec.</p>                                                                                                                                                                                                                                                                                                                                                    |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 10            | Adhesive Strength of Termination        | No removal of the terminations or other defect should occur. | <p>Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 1.<br/>Then apply 10N force in the direction of the arrow.<br/>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free defects such as heat shock.</p>  <p>Fig. 1</p>                                                                                                                                                            |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
| 11            | Vibration Resistance                    | Appearance                                                   | <p>Solder the capacitor to the test jig (glass epoxy board).<br/>The capacitor should be subjected to a simple harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55Hz. The frequency range, from 10 to 55Hz and return to 10Hz, should be traversed in approximately 1 min. This motion should be applied for a period of 2 hrs. in each of 3 mutually perpendicular directions (total of 6 hrs.).</p>  |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
|               |                                         | Capacitance                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                  |        |                           |        |                           |        |                           |   |                         |   |      |
|               |                                         | D.F.                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | In accordance with item No.7 |                  |        |                           |        |                           |        |                           |   |                         |   |      |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page. 

## KR3 Series Specifications and Test Methods

Continued from the preceding page.

| No.                 | Item                         |                     | Specifications                                                                                                                                                                                                                                                                                                     | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
|---------------------|------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------|-------------|---|-------------------------|------|---|------------|--------|---|-------------------------|------|-----|------------|--------|
| 12                  | Deflection                   |                     | No marking defects                                                                                                                                                                                                                                                                                                 | <p>Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 2.</p> <p>Then apply a force in the direction shown in Fig. 3.</p> <p>The soldering should be done using the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock.</p> <div><p>(in mm)</p><p>Fig. 3</p></div>                                                                                                                                                                                                                                                                                                                                                                                   |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
|                     |                              |                     | <div><table><tr><th>Type</th><th colspan="4">Dimension (mm)</th></tr><tr><th></th><th>a</th><th>b</th><th>c</th><th>d</th></tr><tr><td>KR355</td><td>4.5</td><td>8.0</td><td>5.6</td><td>1.0</td></tr></table><p>Fig. 2</p></div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Type        | Dimension (mm)   |             |   |                         |      | a | b          | c      | d | KR355                   | 4.5  | 8.0 | 5.6        | 1.0    |
| Type                | Dimension (mm)               |                     |                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
|                     | a                            | b                   | c                                                                                                                                                                                                                                                                                                                  | d                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
| KR355               | 4.5                          | 8.0                 | 5.6                                                                                                                                                                                                                                                                                                                | 1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
| 13                  | Solderability of Termination |                     | The metal surface is soldered well.                                                                                                                                                                                                                                                                                | <p>Reflow Soldering: Peak 260+0/-5°C</p> <p>The area of soldering 230°C min., 20 to 40 sec.</p> <p>Let sit for 24±2 hrs. at room condition*, then measure.</p> <p>•Pretreatment</p> <p>Perform the heat treatment at 150+0/-10°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p> <div></div>                                                                                                                                                                                                                                                                                                                                                                                                                               |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
| 14                  | Resistance to Soldering Heat | Appearance          | No marking defects                                                                                                                                                                                                                                                                                                 | <p>•In case of Reflow Soldering</p> <p>See item 13 Solderability of Termination</p> <p>•In case of Soldering Iron</p> <p>Temp. of solder: 350±10°C</p> <p>Solder time: 4+1/-0 sec.</p> <p>Let sit for 24±2 hrs.at room condition,* then measure.</p> <p>Please refer to "Caution (Soldering and Mounting) Correction with a Soldering Iron".</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
|                     |                              | Capacitance Change  | Within ±10%                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
|                     |                              | D.F.                | In accordance with item No.7                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
|                     |                              | I.R.                | In accordance with item No.5                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
|                     |                              | Dielectric Strength | In accordance with item No.4                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
| 15                  | Temperature Cycle            | Appearance          | No marking defects                                                                                                                                                                                                                                                                                                 | <p>Fix the capacitor to the supporting jig (glass epoxy board) shown in Fig. 4.</p> <p>Perform the 100 cycles according to the 4 heat treatments listed in the following table.</p> <p>Let sit for 24±2 hrs. at room condition*, then measure.</p> <table><tr><th>Step</th><th>Temperature (°C)</th><th>Time (min.)</th></tr><tr><td>1</td><td>Min. Operating Temp. ±3</td><td>30±3</td></tr><tr><td>2</td><td>Room Temp.</td><td>2 to 3</td></tr><tr><td>3</td><td>Min. Operating Temp. ±2</td><td>30±3</td></tr><tr><td>4</td><td>Room Temp.</td><td>2 to 3</td></tr></table> <p>•Pretreatment</p> <p>Perform a heat treatment at 150+0/-10°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*</p> <div><p>Fig. 4</p></div> | Step        | Temperature (°C) | Time (min.) | 1 | Min. Operating Temp. ±3 | 30±3 | 2 | Room Temp. | 2 to 3 | 3 | Min. Operating Temp. ±2 | 30±3 | 4   | Room Temp. | 2 to 3 |
|                     |                              | Step                | Temperature (°C)                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Time (min.) |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
|                     |                              | 1                   | Min. Operating Temp. ±3                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 30±3        |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
|                     |                              | 2                   | Room Temp.                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2 to 3      |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
|                     |                              | 3                   | Min. Operating Temp. ±2                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 30±3        |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
| 4                   | Room Temp.                   | 2 to 3              |                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
| Capacitance Change  | Within ±7.5%                 |                     |                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
| D.F.                | In accordance with item No.7 |                     |                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
| I.R.                | In accordance with item No.5 |                     |                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |
| Dielectric Strength | In accordance with item No.4 |                     |                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |                  |             |   |                         |      |   |            |        |   |                         |      |     |            |        |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

Continued on the following page. ➤

## KR3 Series Specifications and Test Methods

Continued from the preceding page.

| No.                 | Item                                                  |                     | Specifications                                        | Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |               |                 |        |                           |        |                           |        |                           |
|---------------------|-------------------------------------------------------|---------------------|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|--------|---------------------------|--------|---------------------------|--------|---------------------------|
| 16                  | Humidity<br>(Steady State)                            | Appearance          | No marking defects                                    | Let the capacitor sit at 40±2°C and relative humidity of 90 to 95% for 500+24/-0 hrs.<br>Remove and let sit for 24±2 hrs. at room condition*, then measure.<br>●Pretreatment<br>Perform a heat treatment at 150+0/-10°C for 60±5 min. and then let sit for 24±2 hrs. at room condition.*                                                                                                                                                                                                                                                                                                  |               |                 |        |                           |        |                           |        |                           |
|                     |                                                       | Capacitance Change  | Within ±12.5%                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                 |        |                           |        |                           |        |                           |
|                     |                                                       | D.F.                | 0.02 max.                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                 |        |                           |        |                           |        |                           |
|                     |                                                       | I.R.                | More than 1,000MΩ or 10MΩ · μF (Whichever is smaller) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                 |        |                           |        |                           |        |                           |
|                     |                                                       | Dielectric Strength | In accordance with item No.4                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                 |        |                           |        |                           |        |                           |
| 17                  | Life                                                  | Appearance          | No marking defects                                    | Apply voltage as in the Table for 1000+48/-0 hrs. at maximum operating temperature ±3°C. Remove and let sit for 24±2 hrs. at room condition,* then measure. <table><tr><th>Rated Voltage</th><th>Applied Voltage</th></tr><tr><td>DC250V</td><td>150% of the rated voltage</td></tr><tr><td>DC450V</td><td>130% of the rated voltage</td></tr><tr><td>DC630V</td><td>120% of the rated voltage</td></tr></table> The charge/discharge current is than 50mA.<br>●Pretreatment<br>Apply test voltage for 60±5min. at test temperature. Remove and let sit for 24±2 hrs, at room condition.* | Rated Voltage | Applied Voltage | DC250V | 150% of the rated voltage | DC450V | 130% of the rated voltage | DC630V | 120% of the rated voltage |
|                     |                                                       | Rated Voltage       | Applied Voltage                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                 |        |                           |        |                           |        |                           |
|                     |                                                       | DC250V              | 150% of the rated voltage                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                 |        |                           |        |                           |        |                           |
|                     |                                                       | DC450V              | 130% of the rated voltage                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                 |        |                           |        |                           |        |                           |
|                     |                                                       | DC630V              | 120% of the rated voltage                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                 |        |                           |        |                           |        |                           |
| Capacitance Change  | Within ±12.5%                                         |                     |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                 |        |                           |        |                           |        |                           |
| D.F.                | 0.02 max.                                             |                     |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                 |        |                           |        |                           |        |                           |
| I.R.                | More than 1,000MΩ or 10MΩ · μF (Whichever is smaller) |                     |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                 |        |                           |        |                           |        |                           |
| Dielectric Strength | In accordance with item No.4                          |                     |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                 |        |                           |        |                           |        |                           |

\* "Room condition" Temperature: 15 to 35°C, Relative humidity: 45 to 75%, Atmospheric pressure: 86 to 106kPa

## Package

Taping is standard packaging method.

### ■ Minimum Quantity Guide

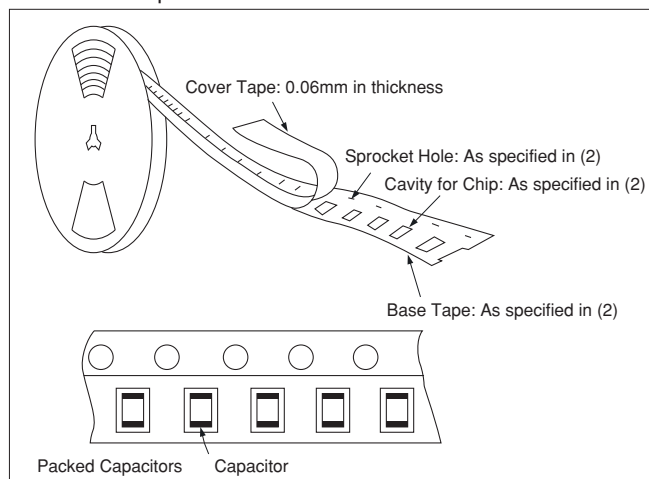
| Part Number | Dimensions (mm) |     |     | Quantity (pcs.) |
|-------------|-----------------|-----|-----|-----------------|
|             | L               | W   | T   | ø330mm Reel     |
| K□□31K      | 3.5             | 1.7 | 2.7 | 4,000           |
| K□□31F      | 3.5             | 1.7 | 1.9 | 5,000           |
| K□□55L      | 6.1             | 5.3 | 2.8 | 2,000           |
| K□□55Q      | 6.1             | 5.3 | 3.7 | 1,000           |
| K□□55T      | 6.1             | 5.3 | 4.8 | 1,000           |
| K□□55W      | 6.1             | 5.3 | 6.4 | 500             |

ø180mm reel is also available.

### ■ Tape Carrier Packaging

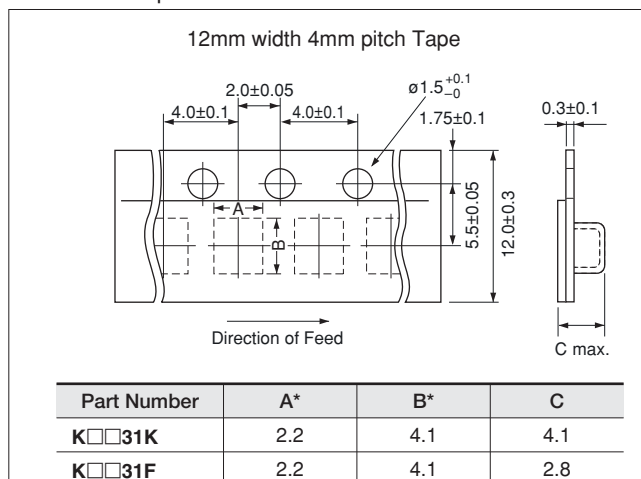
#### (1) Appearance of Taping

##### Embossed Tape



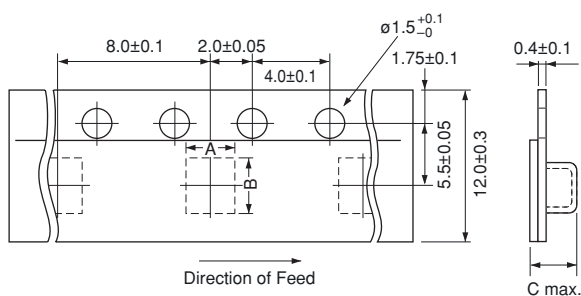
#### (2) Dimensions of Tape

##### Embossed Tape



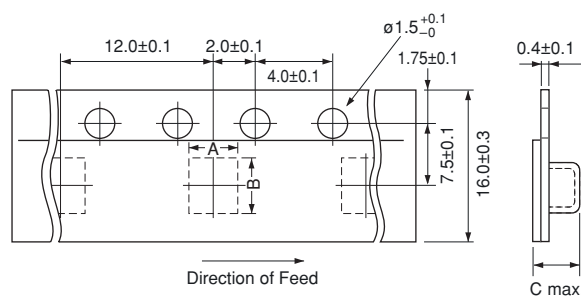
\*Nominal Value

##### 12mm width 8mm pitch Tape



\*Nominal Value

##### 16mm width 12mm pitch Tape



\*Nominal Value

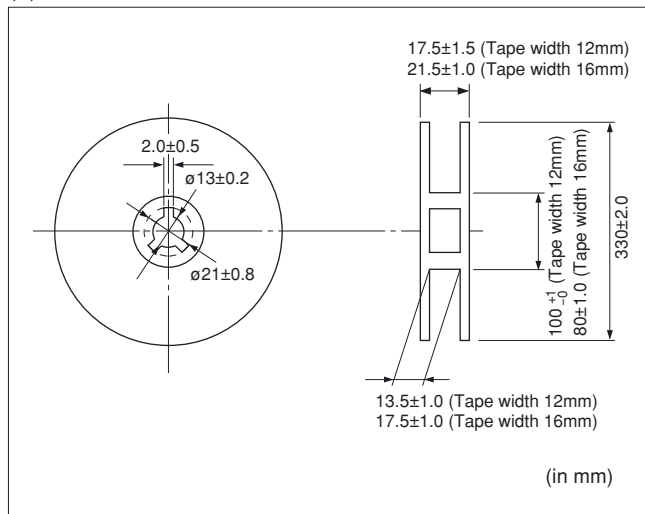
(in mm)

Continued on the following page. ➤

## Package

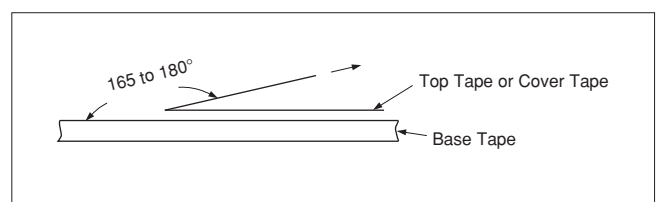
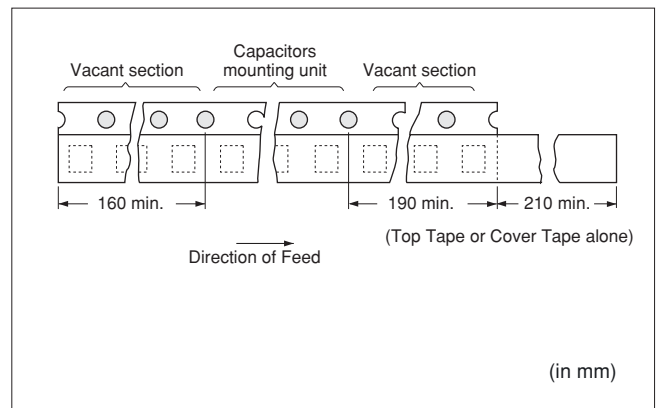
Continued from the preceding page.

### (3) Dimensions of Reel



### (4) Taping Method

- ① Tapes for capacitors are wound clockwise. The sprocket holes are to the right as the tape is pulled toward the user.
- ② Part of the leader and part of the empty tape should be attached to the end of the tape as shown at right.
- ③ The top tape or cover tape and base tape are not attached at the end of the tape for a minimum of 5 pitches.
- ④ Missing capacitors number within 0.1% of the number per reel or 1 pc, whichever is greater, and are not continuous.
- ⑤ The top tape or cover tape and bottom tape should not protrude beyond the edges of the tape and should not cover sprocket holes.
- ⑥ Cumulative tolerance of sprocket holes, 10 pitches:  $\pm 0.3\text{mm}$ .
- ⑦ Peeling off force: 0.1 to 0.6N in the direction shown at right.



## ⚠Caution/Notice

### ⚠Caution

|                                                           |     |
|-----------------------------------------------------------|-----|
| ■ Storage and Operation Conditions .....                  | 211 |
| ■ Rating .....                                            | 211 |
| 1. Operating Voltage .....                                | 211 |
| 2. Operating Temperature<br>and Self-generated Heat ..... | 211 |
| 3. Fail-safe .....                                        | 211 |
| ■ Soldering and Mounting .....                            | 212 |
| 1. Vibration and Impact .....                             | 212 |
| 2. Land Layout for Cropping PC Board .....                | 212 |
| 3. Reflow Soldering .....                                 | 212 |
| 4. Flow Soldering .....                                   | 213 |
| 5. Correction with a Soldering Iron .....                 | 213 |

### Notice

|                                          |     |
|------------------------------------------|-----|
| ■ Rating .....                           | 214 |
| 1. Capacitance Change of Capacitor ..... | 214 |
| 2. Performance Check by Equipment .....  | 214 |
| ■ Soldering and Mounting .....           | 214 |
| 1. Construction of Board Pattern .....   | 214 |
| 2. Mounting of Chips .....               | 214 |
| 3. Soldering .....                       | 214 |
| 4. Cleaning .....                        | 214 |
| 5. Resin Coating .....                   | 214 |

## ⚠️Caution

### ■ Storage and Operation Conditions

Do not use or store capacitors in a corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. In addition, avoid exposure to moisture. Before cleaning, bonding or molding this product, verify that these processes do not affect product quality by testing the

performance of a cleaned, bonded or molded product in the intended equipment. Store the capacitors where the temperature and relative humidity do not exceed 5 to 40 degrees centigrade and 20 to 70%. Use capacitors within 6 months of delivery. Check the solderability after 6 months or more.

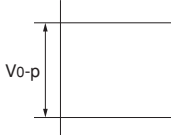
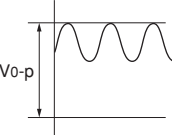
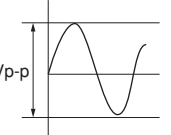
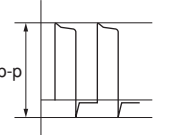
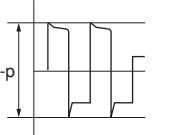
### ■ Rating

#### 1. Operating Voltage

When DC-rated capacitors are to be used in AC or ripple current circuits, be sure to maintain the  $V_{p-p}$  value of the applied voltage or the  $V_{o-p}$  which contains DC bias within the rated voltage range.

When the voltage is applied to the circuit, starting or stopping may generate irregular voltage for a transit period because of resonance or switching. Be sure to use a capacitor with a rated voltage range that includes these irregular voltages.

When DC-rated capacitors are to be used in input circuits from a commercial power source (AC filter), be sure to use Safety Certified Capacitors because various regulations for withstanding voltage or impulses, established for all equipment, should be taken into consideration.

| Voltage                | DC Voltage                                                                         | DC+AC Voltage                                                                      | AC Voltage                                                                          | Pulse Voltage (1)                                                                    | Pulse Voltage (2)                                                                    |
|------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Positional Measurement |  |  |  |  |  |

#### 2. Operating Temperature and Self-generated Heat

Keep the surface temperature of a capacitor below the upper limit of its rated operating temperature range. Be sure to take into account the heat generated by the capacitor itself. When the capacitor is used in a high-frequency voltage, pulse voltage, it may self-generate heat due to dielectric loss.

Applied voltage should be the load such as self-generated heat is within 20°C on the condition of atmosphere temperature 25°C. When measuring, use a thermocouple of small thermal capacity -K of  $\phi 0.1\text{mm}$  in conditions where the capacitor is not affected by radiant heat from other components or surrounding ambient fluctuations. Excessive heat may lead to deterioration of the capacitor's characteristics and reliability. (Never attempt to perform measurement with the cooling fan running. Otherwise, accurate measurement cannot be ensured.)

#### 3. Fail-safe

Failure of a capacitor may result in a short circuit. Be sure to provide an appropriate fail-safe function such as a fuse on your product to help eliminate possible electric shock, fire, or fumes.

Continued on the following page. ➤

## ⚠Caution

Continued from the preceding page.

### ■ Soldering and Mounting

#### 1. Vibration and Impact

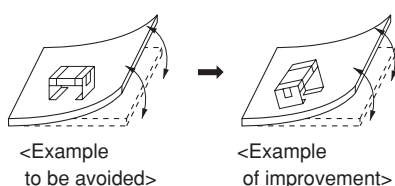
Do not expose a capacitor to excessive shock or vibration during use.

Do not directly touch the capacitor, especially the ceramic body. Residue from hands/fingers may create a short circuit environment.

#### 2. Land Layout for Cropping PC Board

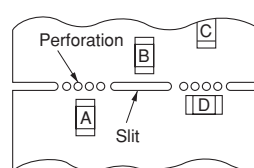
Choose a mounting position that minimizes the stress imposed on the chip during flexing or bending of the board.

[Component Direction]



Locate chip horizontal to the direction in which stress acts.

[Chip Mounting Close to Board Separation Point]



Chip arrangement  
Worst A>C>B~D Best

#### 3. Reflow Soldering

- When components are exposed to sudden heat, their mechanical strength can be decreased due to the extreme temperature changes which can cause flexing and result in internal mechanical damage, which will cause the parts to fail. In order to prevent mechanical damage, preheating is required for both the components and the PCB board. Preheating conditions are shown in Table 1. It is required to keep the temperature differential between the soldering and the components surface ( $\Delta T$ ) as small as possible.
- When components are immersed in solvent after mounting, be sure to maintain the temperature difference ( $\Delta T$ ) between the component and solvent within the range shown in the Table 1.

Table 1

| Part Number | Temperature Differential          |
|-------------|-----------------------------------|
| K□□31       | $\Delta T \leq 190^\circ\text{C}$ |
| K□□55       | $\Delta T \leq 130^\circ\text{C}$ |

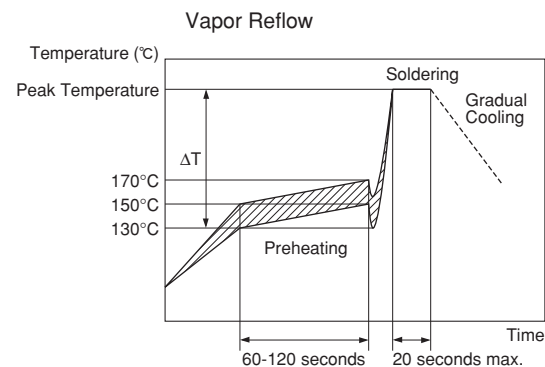
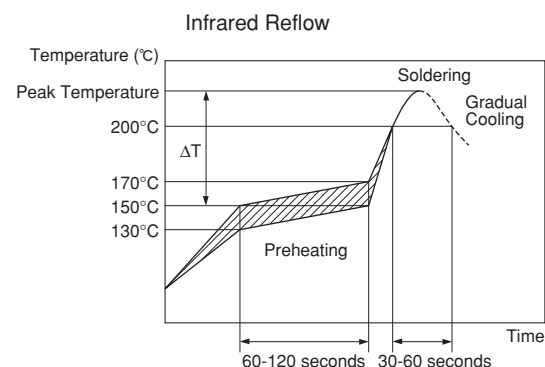
#### Recommended Conditions

|                  | Pb-Sn Solder    |              | Lead Free Solder      |
|------------------|-----------------|--------------|-----------------------|
|                  | Infrared Reflow | Vapor Reflow |                       |
| Peak Temperature | 230-250°C       | 230-240°C    | 240-260°C             |
| Atmosphere       | Air             | Air          | Air or N <sub>2</sub> |

Pb-Sn Solder: Sn-37Pb

Lead Free Solder: Sn-3.0Ag-0.5Cu

[Standard Conditions for Reflow Soldering]



Continued on the following page. ➤

## ⚠Caution

☐ Continued from the preceding page.

### Optimum Solder Amount for Reflow Soldering

- If solder paste is excessive, solder between a chip and a metal terminal melts. This causes the chip to move and come off.
- If solder paste is too little, it causes a lack of adhesive strength on the metal terminal and the capacitor comes off.
- Please make sure that solder is smoothly applied higher than 0.3mm and lower than the level of the bottom of the chip.

### Inverting the PCB

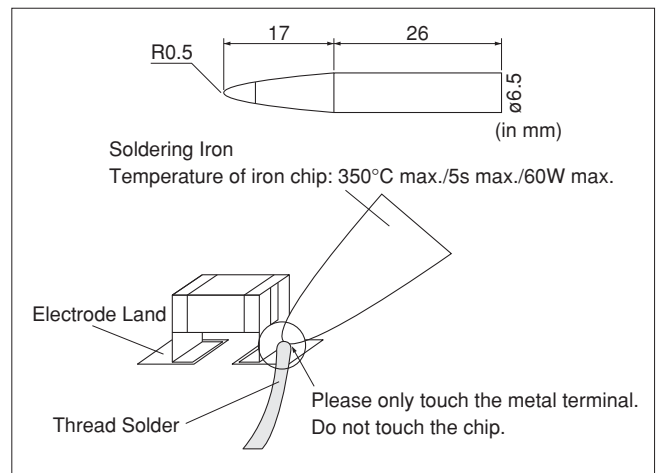
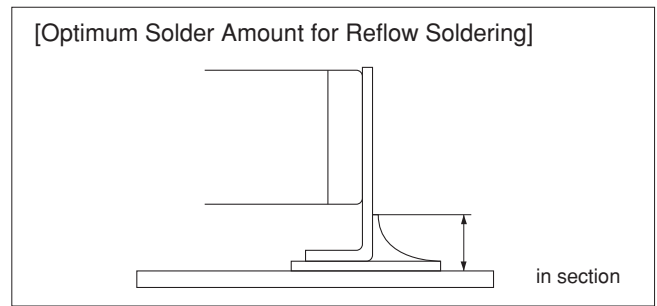
Make sure not to impose an abnormal mechanical shock on the PCB.

## 4. Flow Soldering

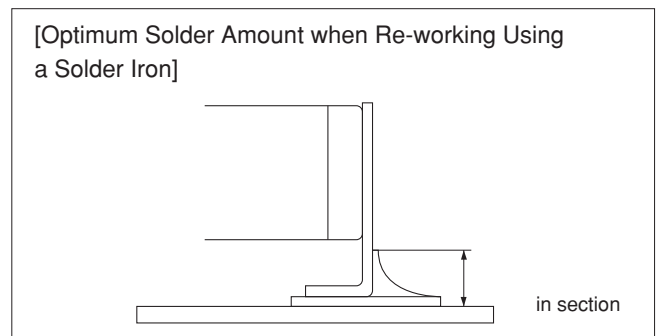
Do not apply flow soldering.

## 5. Correction with a Soldering Iron

- Please refer to the figure of a soldering iron on the right.
- Please use thread solder which is smaller than 0.5mm in diameter.
- A soldering iron must be touched the bottom of metal terminal.
  - \*1) Do not touch ceramic, or it causes cracks because of sudden heat.
  - \*2) Do not touch the connection between a chip and a metal and the outside of that area, or it causes the chip to move and come off.



- Optimum Solder Amount when re-working Using a Solder Iron.  
The top of the solder fillet should be lower than the level of the bottom of the chip.



FAILURE TO FOLLOW THE ABOVE CAUTIONS MAY RESULT, WORST CASE, IN A SHORT CIRCUIT AND CAUSE FUMING OR PARTIAL DISPERSION WHEN THE PRODUCT IS USED.

## Notice

### ■ Rating

#### 1. Capacitance Change of Capacitor

Capacitors have an aging characteristic, whereby the capacitor continually decreases its capacitance slightly if the capacitor is left on for a long time. Moreover, capacitance might change greatly depending on the surrounding temperature or an applied voltage. Therefore, it is not likely to be suitable for use in a time constant circuit. Please contact us if you need detailed information.

#### 2. Performance Check by Equipment

Before using a capacitor, check that there is no problem in the equipment's performance and the specifications.

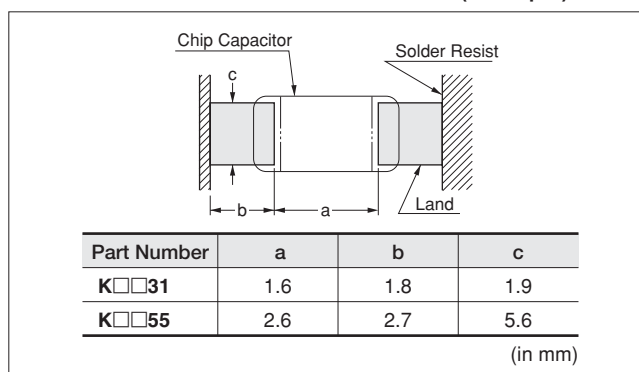
Generally speaking, CLASS 2 ceramic capacitors have voltage dependence characteristics and temperature dependence characteristics in capacitance. Therefore, the capacitance value may change depending on the operating condition in the equipment. Accordingly, be sure to confirm the apparatus performance of receiving influence in a capacitance value change of a capacitor, such as leakage current and noise suppression characteristics. Moreover, check the surge-proof ability of a capacitor in the equipment, if needed, because the surge voltage may exceed the specific value by the inductance of the circuit.

### ■ Soldering and Mounting

#### 1. Construction of Board Pattern

If solder is excessively applied to the circuit board, mechanical stress will cause destruction resistance characteristics to lower. To prevent this, be extremely careful in determining shape and dimension before designing the circuit board diagram.

#### Construction and Dimensions of Pattern (Example)



#### 2. Mounting of Chips

##### Mechanical shock of the chip placer

When the positioning claws and pick-up nozzle are worn, the load is applied to the chip while positioning is concentrated in one position, thus causing cracks, breakage, faulty positioning accuracy, etc.

Careful checking and maintenance are necessary to prevent unexpected trouble.

An excessively low bottom dead point of the suction nozzle imposes great force on the chip during mounting, causing cracked chips and the metal to bend. Please set the suction nozzle's bottom dead point on the upper surface of the board.

#### 3. Soldering

##### Flux Application

- Do not use strong acidic flux.
  - Do not use water-soluble flux.\*
- (\*Water-soluble flux can be defined as non rosin type flux including wash-type flux and non-wash-type flux.)

#### 4. Cleaning

Please confirm there is no problem in the reliability of the product beforehand when cleaning it with the intended equipment.

The residue after cleaning it might cause a decrease in the surface resistance of the chip and the corrosion of the electrode part, etc. As a result it might cause reliability to deteriorate. Please confirm beforehand that there is no problem with the intended equipment in ultrasonic cleansing.

#### 5. Resin Coating

Please use it after confirming there is no influence on the product with the intended equipment before the resin coating and molding.

A cracked chip might be caused at the cooling/heating cycle by the amount of resin spreading and/or bias thickness.

The resin for coating and molding must be selected as the stress is small when stiffening and the hygroscopic is low as possible.

## ISO 9001 Certifications

### ■ Qualified Standards

The products listed here have been produced by ISO 9001 certified factory.

| Plant                                    |
|------------------------------------------|
| Fukui Murata Mfg. Co., Ltd.              |
| Izumo Murata Mfg. Co., Ltd.              |
| Okayama Murata Mfg. Co., Ltd.            |
| Murata Electronics Singapore (Pte.) Ltd. |
| Beijing Murata Electronics Co., Ltd.     |
| Wuxi Murata Electronics Co., Ltd.        |

# Design assistant tool SimSurfing

# SimSurfing



## MLCC is now available !

Design assistant tool "SimSurfing" has been updated and you can now find and view any kind of characteristics of MLCCs.

### Available function for MLCCs.

- ① Products search
- ② View frequency characteristics (S parameters, Z, R, X, Q, DF, L, C)  
DC bias can be applied to available part number.
- ③ DC voltage bias characteristics (Absolute capacitance/change rate)
- ④ Temperature characteristics (Absolute capacitance/change rate)
- ⑤ AC voltage bias characteristics (Absolute capacitance/change rate)
- ⑥ Download SPICE netlist/ S parameter

### 1 Select the Products

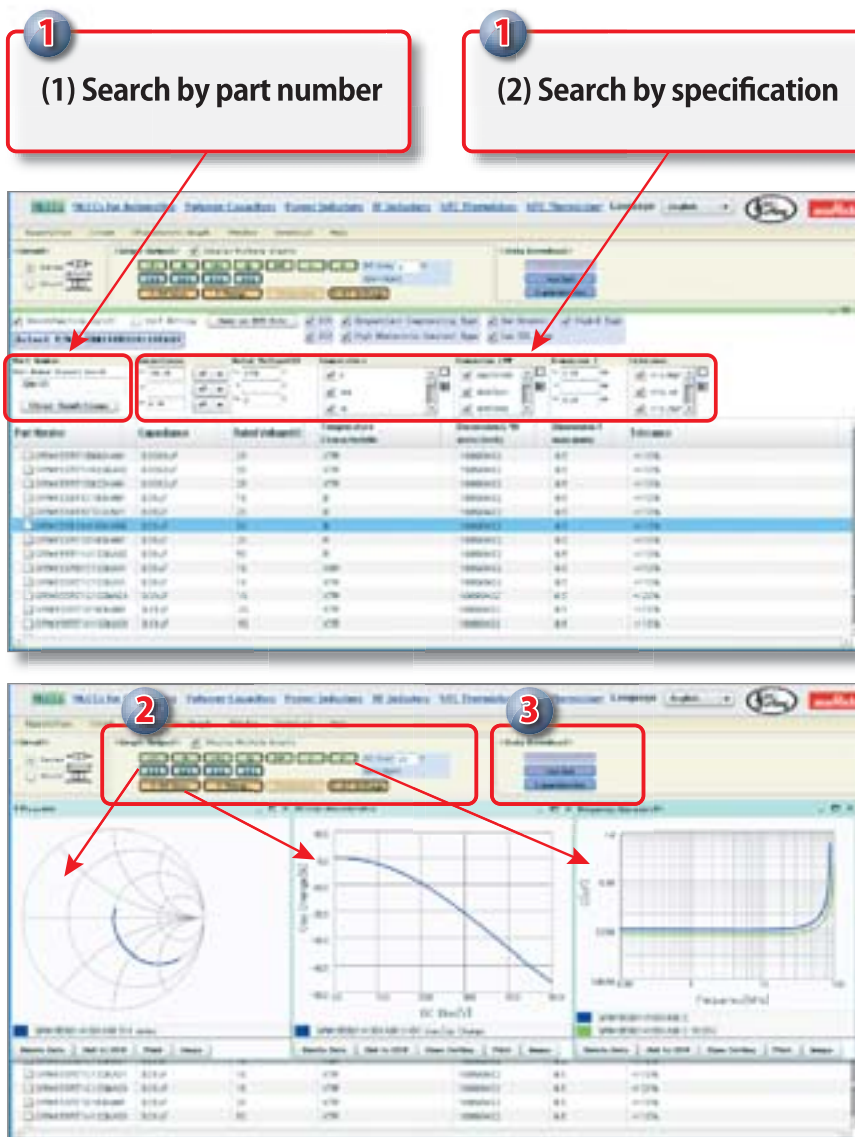
- (1) By part number
- (2) By specification

### 2 View characteristics

Clicking buttons in this area with partnumber selected, you can view any electrical characteristics chart.

### 3 Data download

You can download SPICE netlist and S parameter files (S2P)



These images are captured at September/2012. Be sure that this software will be updated frequently.

<http://ds.murata.com/software/simsurfing/en-us/mlcc/>



Please check Murata's newsletter!  
You can learn about electric parts with fun.  
[http://www.murata.com/products/emicon\\_fun/](http://www.murata.com/products/emicon_fun/)

EMICON-FUN! disseminated widely from basics (principles, characteristics, mounting, etc.) of capacitors, inductors and EMI suppression filters to information can practically be used.  
Updated information is also distributed via the mail magazine.

You can register from the Products page on Murata Manufacturing website.  
<http://www.murata.com/products/>



← This banner is the entrance of register form

**Murata Manufacturing Co., Ltd. Global**

News Products About MURATA Investor Relations

email Magazine: Have fun while learning about electronic components

# EMICON-FUN!

Expertly written articles explain the basics of capacitors, inductors and Noise suppression filters.

## Capacitor Room

Introduce quick know-how, and inside story of capacitors

Entrance

Message from Murata  
You did good work today. Time for a cup of coffee??

EMICON COLUMN

Recent articles

- Sep 14, 2012 **Noise suppression filter Room**
  - Basics of Noise Countermeasures [Lesson 1] Microscopic Absorption Sheet
- Aug 28, 2012 **Capacitor Room**
  - Strain Crack Mechanism and Prevention Measures for Capacitors
- Jul 27, 2012 **Inductor Room**
  - [Inductor Applied Products] Chapter 2: Ultra-small Inductors
- Jul 13, 2012 **Noise suppression filter Room**
  - Basics of noise countermeasures [Lesson 4] Ferrite
- Jun 28, 2012 **Capacitor Room**
  - Basics of capacitors [Lesson 7] Measurement Method of Capacitors
- Jun 14, 2012 **Inductor Room**
  - [Inductor Applied Products] Chapter 1: TV Tuning Coils
- May 28, 2012 **Noise suppression filter Room**
  - Case Study of AVN Car Navigation System "PLT1000" series
- May 14, 2012 **Inductor Room**
  - Basic Facts about Inductors [Lesson 5] Why Inductors are Used
- Apr 27, 2012 **SPECIAL CONTENTS**
  - Reliability of electronic components (Chapter 1: What is Reliability?)
- Apr 16, 2012 **SPECIAL CONTENTS**
  - Reliability of electronic components (Chapter 1: What is Reliability?)
- Mar 28, 2012 **Inductor Room**
  - Basics of Inductors [Lesson 1] Inductance and Inductor

**Murata Newsletter**  
EMICON-FUN! also available

Click here to register an e-mail

Make change to your registration or unsubscribe from e-Magazine  
The purpose of obtaining your personal information

Search by keyword

- Capacitor
- EMI filters
- noise countermeasures
- inductors
- magnetic field
- noise
- PLT1000
- alternating current
- Automotive
- AVN Car Navigation

=====

email Magazine: Have fun while learning about electronic components

EMICON-FUN !

The index of October 28 issue

- EMI suppression filter Room
- "Say Hello to MURATA BOY"
- Products news
- introduction of "SimSurfing"
- Questionnaire & Gift

Expertly written articles explain the basics of capacitors, inductors and EMI suppression filters.

=====

EMI suppression filter Room

What is an EMI filter?

=====

This column aims to provide a basic explanation about noise countermeasures, from "What is EMI?" to the functions and uses of various noise countermeasure parts. This first column starts with the question, "What is an EMI filter?"

<http://newsletter.murata.co.jp/c/p?02c2aRO88>

=====

"Say Hello to MURATA BOY"

=====

Check it out! <http://newsletter.murata.co.jp/c/p?12c2aRO88>

# Capacitor Website Introduction

The website and search engine of ceramic capacitors has been drastically renewed.

capacitor murata Search

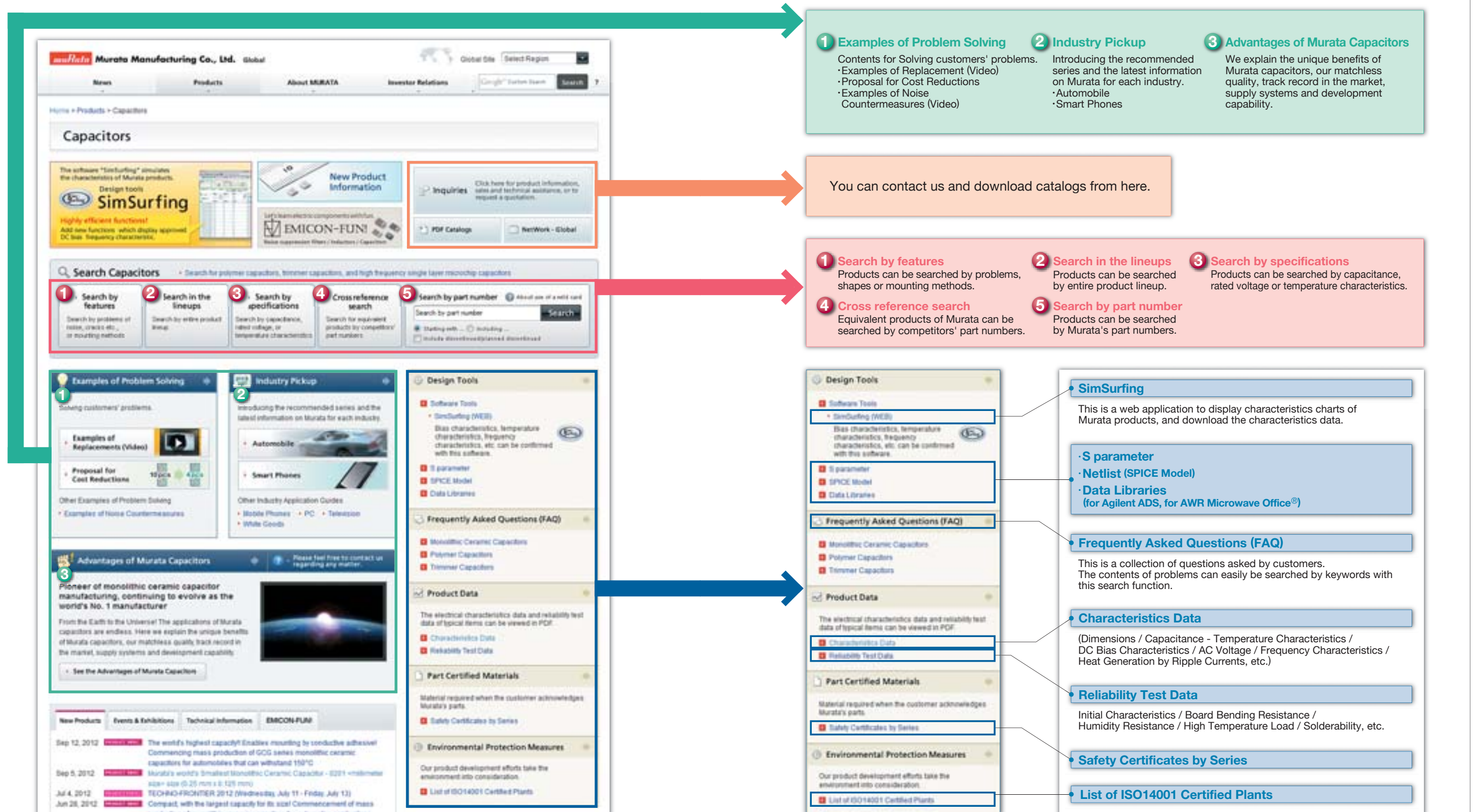
<http://www.murata.com/products/capacitor/>

## ► Convenient Search

The type of searches has been increased to respond to various ways of searching.  
The products you are searching for can easily be found from about 40,000 part numbers!  
The frequency of revisions and discontinuance has been increased to provide the latest information at all times!

## ► Substantial Technical Information

- Reference drawings (Specifications and Test Methods) can be downloaded in PDF format.
- Graphs of the electrical characteristic data (Capacitance - Temperature characteristics / DC bias characteristics / AC voltage characteristics / Frequency characteristics) can be displayed.
- Reliability test data can be downloaded.



⚠Note:

1. Export Control

<For customers outside Japan>

No Murata products should be used or sold, through any channels, for use in the design, development, production, utilization, maintenance or operation of, or otherwise contribution to (1) any weapons (Weapons of Mass Destruction [nuclear, chemical or biological weapons or missiles] or conventional weapons) or (2) goods or systems specially designed or intended for military end-use or utilization by military end-users.

<For customers in Japan>

For products which are controlled items subject to the "Foreign Exchange and Foreign Trade Law" of Japan, the export license specified by the law is required for export.

2. Please contact our sales representatives or product engineers before using the products in this catalog for the applications listed below, which require especially high reliability for the prevention of defects which might directly damage a third party's life, body or property, or when one of our products is intended for use in applications other than those specified in this catalog.

- |                             |                                                                                                      |
|-----------------------------|------------------------------------------------------------------------------------------------------|
| ① Aircraft equipment        | ② Aerospace equipment                                                                                |
| ③ Undersea equipment        | ④ Power plant equipment                                                                              |
| ⑤ Medical equipment         | ⑥ Transportation equipment (vehicles, trains, ships, etc.)                                           |
| ⑦ Traffic signal equipment  | ⑧ Disaster prevention / crime prevention equipment                                                   |
| ⑨ Data-processing equipment | ⑩ Application of similar complexity and/or reliability requirements to the applications listed above |

3. Product specifications in this catalog are as of July 2012. They are subject to change or our products in it may be discontinued without advance notice.

Please check with our sales representatives or product engineers before ordering. If there are any questions, please contact our sales representatives or product engineers.

4. Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

5. This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

6. Please note that unless otherwise specified, we shall assume no responsibility whatsoever for any conflict or dispute that may occur in connection with the effect of our and/or a third party's intellectual property rights and other related rights in consideration of your use of our products and/or information described or contained in our catalogs. In this connection, no representation shall be made to the effect that any third parties are authorized to use the rights mentioned above under licenses without our consent.

7. No ozone depleting substances (ODS) under the Montreal Protocol are used in our manufacturing process.



**Murata Manufacturing Co., Ltd.**

<http://www.murata.com/>

**Head Office**  
1-10-1, Higashi Kotari, Nagaokakyo-shi, Kyoto 617-8555, Japan  
Phone: 81-75-951-9111

**International Division**  
3-29-12, Shibuya, Shibuya-ku, Tokyo 150-0002, Japan  
Phone: 81-3-5469-6123 Fax: 81-3-5469-6155 E-mail: [intl@murata.co.jp](mailto:intl@murata.co.jp)

**Cat. No. C02E-17**



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.