

Surface Mount Multilayer Ceramic Chip Capacitors for Non-Magnetic Applications



FEATURES

- Specialty: Non-magnetic MLCCs
- Manufactured with non-magnetic materials
- Safety screened for magnetic properties
- C0G (NP0) and X7R/X5R dielectrics offered
- Wide range of case sizes, voltage ratings and capacitance values
- Allowed assembly methods are conductive epoxy bonding and IR reflow
- Wet built process
- Reliable Noble Metal Electrode (NME) system
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

APPLICATIONS

- Magnetic Resonance Imaging (MRI)
- Medical test and diagnostic equipment
- High Rel medical systems
- High Rel aviation systems
- Laboratory analysis systems
- Navigation and electronic test equipment
- Audio amplifiers

ELECTRICAL SPECIFICATIONS

NON-MAGNETIC C0G (NP0)

GENERAL SPECIFICATION

Note

Electrical characteristics at + 25 °C unless otherwise specified

Operating Temperature: - 55 °C to + 125 °C

Capacitance Range: 0.5 pF to 56 nF

Voltage Range: 10 V_{DC} to 3000 V_{DC}

Temperature Coefficient of Capacitance (TCC):

0 ppm/°C ± 30 ppm/°C from - 55 °C to + 125 °C

Dissipation Factor (DF):

0.1 % maximum at 1.0 V_{RMS} and

1 MHz for values ≤ 1000 pF

0.1 % maximum at 1.0 V_{RMS} and

1 kHz for values > 1000 pF

Insulating Resistance:

At + 25 °C 100 000 MΩ min. or 1000 ΩF whichever is less

At + 125 °C 10 000 MΩ min. or 100 ΩF whichever is less

Aging: 0 % maximum per decade

Dielectric Strength Test:

Performed per method 103 of EIA 198-2-E.

Applied test voltages

≤ 200 V_{DC}-rated: 250 % of rated voltage

500 V_{DC}-rated: 200 % of rated voltage

630 V_{DC}, 1000 V_{DC}-rated: 150 % of rated voltage

1500 V_{DC} to 3000 V_{DC}-rated: 120 % of rated voltage

NON-MAGNETIC X7R/X5R

GENERAL SPECIFICATION

Note

Electrical characteristics at + 25 °C unless otherwise specified

Operating Temperature: - 55 °C to + 125 °C

Capacitance Range: 100 pF to 6.8 μF

Voltage Range: 6.3 V_{DC} to 3000 V_{DC}

Temperature Coefficient of Capacitance (TCC):

X5R: ± 15 % from - 55 °C to + 85 °C, with 0 V_{DC} applied

X7R: ± 15 % from - 55 °C to + 125 °C, with 0 V_{DC} applied

Dissipation Factor (DF):

≤ 6.3 V, 10 V ratings: 5 % maximum at 1.0 V_{RMS} and 1 kHz

16 V, 25 V ratings: 3.5 % maximum at 1.0 V_{RMS} and 1 kHz

≥ 50 V ratings: 2.5 % maximum at 1.0 V_{RMS} and 1 kHz

Insulating Resistance:

At + 25 °C 100 000 MΩ min. or 1000 ΩF whichever is less

At + 125 °C 10 000 MΩ min. or 100 ΩF whichever is less

Aging Rate: 1 % maximum per decade

Dielectric Strength Test:

Performed per method 103 of EIA 198-2-E.

Applied test voltages

≤ 200 V_{DC}-rated: 250 % of rated voltage

500 V_{DC}-rated: min. 150 % of rated voltage

630 V_{DC}, 1000 V_{DC}-rated: 150 % of rated voltage

1500 V_{DC}, 3000 V_{DC}-rated: 120 % of rated voltage



| QUICK REFERENCE DATA | | | | |
|----------------------|------|---------------------|-------------|---------|
| DIELECTRIC | CASE | MAXIMUM VOLTAGE (V) | CAPACITANCE | |
| | | | MINIMUM | MAXIMUM |
| C0G (NP0) | 0402 | 100 | 0.5 pF | 180 pF |
| | 0603 | 200 | 0.5 pF | 1.8 nF |
| | 0805 | 500 | 0.5 pF | 3.3 nF |
| | 1206 | 600 | 0.5 pF | 10 nF |
| | 1210 | 500 | 0.5 pF | 12 nF |
| | 1808 | 3000 | 10 pF | 10 nF |
| | 1812 | 3000 | 10 pF | 22 nF |
| | 1825 | 1000 | 15 pF | 39 nF |
| | 2220 | 1000 | 100 pF | 47 nF |
| | 2225 | 1000 | 120 pF | 56 nF |
| X5R | 0402 | 16 | 27 nF | 100 nF |
| | 0603 | 6.3 | 120 nF | 150 nF |
| X7R | 0402 | 100 | 100 pF | 22 nF |
| | 0603 | 100 | 270 pF | 100 nF |
| | 0805 | 200 | 390 pF | 390 nF |
| | 1206 | 500 | 680 pF | 1.0 μF |
| | 1210 | 500 | 1.0 nF | 1.0 μF |
| | 1808 | 3000 | 220 pF | 270 nF |
| | 1812 | 3000 | 270 pF | 1.0 μF |
| | 1825 | 1000 | 10 nF | 2.7 μF |
| | 2220 | 3000 | 1.0 nF | 2.2 μF |
| | 2225 | 2000 | 5.6 nF | 4.7 μF |
| | 3640 | 500 | 15 nF | 6.8 μF |

Note

- Detail ratings see "Selection Chart"

| ORDERING INFORMATION | | | | | | | |
|--|--|--|--|---------------------|--|-----------------|--|
| VJ0603 | Y | 102 | K | N | A | A | O |
| CASE CODE | DIELECTRIC | CAPACITANCE NOMINAL CODE | CAPACITANCE TOLERANCE | TERMINATION | DC VOLTAGE RATING ⁽¹⁾ | MARKING | PACKAGING |
| 0402 0603 0805 1206 1210 1808 1812 1825 2220 2225 3640 | A = COG Y = X7R G = X5R ⁽²⁾ | Expressed in picofarads (pF). The first two digits are significant, the third is a multiplier. An "R" indicates a decimal point. Examples 102 = 1000 pF 1R0 = 1.0 pF | COG(NP0): < 10 pF C = ± 0.25 pF D = 0.5 pF ≥ 10 pF F = ± 1 % G = ± 2 % J = ± 5 % K = ± 10 % X5R/X7R: J = ± 5 % K = ± 10 % M = ± 20 % | N = Non-magnetic | Q = 10 V J = 16 V X = 25 V A = 50 V K = 75 V B = 100 V C = 200 V E = 500 V L = 630 V G = 1000 V R = 1500 V F = 2000 V H = 3000 V | A = Unmarked | T = 7" reel/plastic tape R = 11 1/4"/13" reel/plastic tape O = 7" reel/flamed paper tape I = 11 1/4"/13" reel/flamed paper tape J = 7" reel (low quantity) |

Notes

- ⁽¹⁾ DC voltage rating should not be exceeded in application
⁽²⁾ Selected values for X5R, see dielectric selection chart

| DIMENSIONS in inches (millimeters) | | | | | | |
|------------------------------------|--------|---|---------------------------------|-----------------------|------------------|-----------------|
| | | | | | | |
| CASE CODE | STYLE | LENGTH (L) | WIDTH (W) | MAXIMUM THICKNESS (T) | TERMINATIONS (P) | |
| | | | | | MINIMUM | MAXIMUM |
| 0402 | VJ0402 | 0.040 + 0.006/- 0.004 (1.00 + 0.15/- 0.10) | 0.020 ± 0.004 (0.50 ± 0.10) | 0.024 (0.60) | 0.004 (0.10) | 0.016 (0.41) |
| 0603 | VJ0603 | 0.063 ± 0.006 (1.60 ± 0.15) | 0.031 ± 0.006 (0.80 ± 0.15) | 0.038 (0.92) | 0.012 (0.30) | 0.018 (0.46) |
| 0805 | VJ0805 | 0.079 ± 0.008 (2.00 ± 0.20) | 0.049 ± 0.008 (1.25 ± 0.20) | 0.057 (1.45) | 0.010 (0.25) | 0.028 (0.71) |
| 1206 | VJ1206 | 0.126 ± 0.010 (3.20 ± 0.25) | 0.063 ± 0.010 (1.60 ± 0.25) | 0.067 (1.70) | 0.010 (0.25) | 0.028 (0.71) |
| 1210 | VJ1210 | 0.126 ± 0.010 (3.20 ± 0.25) | 0.098 ± 0.010 (2.50 ± 0.25) | 0.067 (1.70) | 0.010 (0.25) | 0.028 (0.71) |
| 1808 | VJ1808 | 0.177 ± 0.012 (4.50 ± 0.30) | 0.080 ± 0.010 (2.03 ± 0.25) | 0.067 (1.70) | 0.010 (0.25) | 0.030 (0.76) |
| 1812 | VJ1812 | 0.177 ± 0.012 (4.50 ± 0.30) | 0.126 ± 0.010 (3.20 ± 0.25) | 0.086 (2.18) | 0.010 (0.25) | 0.030 (0.76) |
| 1825 | VJ1825 | 0.177 ± 0.012 (4.50 ± 0.30) | 0.252 ± 0.010 (6.40 ± 0.25) | 0.086 (2.18) | 0.010 (0.25) | 0.030 (0.76) |
| 2220 | VJ2220 | 0.220 ± 0.008 (5.59 ± 0.20) | 0.200 ± 0.010 (5.08 ± 0.25) | 0.086 (2.18) | 0.010 (0.25) | 0.030 (0.76) |
| 2225 | VJ2225 | 0.220 ± 0.010 (5.59 ± 0.25) | 0.250 ± 0.010 (6.35 ± 0.25) | 0.086 (2.18) | 0.010 (0.25) | 0.030 (0.76) |
| 3640 | VJ3640 | 0.360 ± 0.015 (9.14 ± 0.38) | 0.400 ± 0.015 (10.20 ± 0.38) | 0.086 (2.18) | 0.010 (0.25) | 0.030 (0.76) |



| SELECTION CHART | | | | | | | | | | | | | | | | | | | |
|----------------------------|--------|-----------|----|----|----|-----|--------|----|----|----|-----|-----|--------|----|----|----|-----|-----|-----|
| DIELECTRIC | | C0G (NP0) | | | | | | | | | | | | | | | | | |
| STYLE | | VJ0402 | | | | | VJ0603 | | | | | | VJ0805 | | | | | | |
| CASE CODE | | 0402 | | | | | 0603 | | | | | | 0805 | | | | | | |
| VOLTAGE (V _{DC}) | | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 | 200 | 10 | 16 | 25 | 50 | 100 | 200 | 500 |
| VOLTAGE CODE | | Q | J | X | A | B | Q | J | X | A | B | C | Q | J | X | A | B | C | E |
| CAP. CODE | CAP. | | | | | | | | | | | | | | | | | | |
| 0R5 | 0.5 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 1R0 | 1.0 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 1R2 | 1.2 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 1R5 | 1.5 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 1R8 | 1.8 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 2R2 | 2.2 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 2R7 | 2.7 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 3R3 | 3.3 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 3R9 | 3.9 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 4R7 | 4.7 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 5R6 | 5.6 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 6R8 | 6.8 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 8R2 | 8.2 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 100 | 10 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 120 | 12 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 150 | 15 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 180 | 18 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 220 | 22 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 270 | 27 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 330 | 33 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 390 | 39 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 470 | 47 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 560 | 56 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 680 | 68 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 820 | 82 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 101 | 100 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 121 | 120 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 151 | 150 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 181 | 180 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 221 | 220 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 271 | 270 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 331 | 330 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 391 | 390 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 471 | 470 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 561 | 560 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 681 | 680 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 821 | 820 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 102 | 1.0 nF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 122 | 1.2 nF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 152 | 1.5 nF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 182 | 1.8 nF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 222 | 2.2 nF | | | | | | | | | | | | • | • | • | • | • | • | • |
| 272 | 2.7 nF | | | | | | | | | | | | • | • | • | • | • | • | • |
| 332 | 3.3 nF | | | | | | | | | | | | • | • | • | • | • | • | • |
| 392 | 3.9 nF | | | | | | | | | | | | | | | | | | |
| 472 | 4.7 nF | | | | | | | | | | | | | | | | | | |
| 562 | 5.6 nF | | | | | | | | | | | | | | | | | | |
| 682 | 6.8 nF | | | | | | | | | | | | | | | | | | |
| 822 | 8.2 nF | | | | | | | | | | | | | | | | | | |
| 103 | 10 nF | | | | | | | | | | | | | | | | | | |
| 123 | 12 nF | | | | | | | | | | | | | | | | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



| SELECTION CHART | | | | | | | | | | | | | |
|----------------------------|--------|-----------|----|----|-----|-----|-----|--------|----|----|-----|-----|-----|
| DIELECTRIC | | COG (NP0) | | | | | | | | | | | |
| STYLE | | VJ1206 | | | | | | VJ1210 | | | | | |
| CASE CODE | | 1206 | | | | | | 1210 | | | | | |
| VOLTAGE (V _{DC}) | | 16 | 25 | 50 | 100 | 200 | 500 | 600 | 25 | 50 | 100 | 200 | 500 |
| VOLTAGE CODE | | J | X | A | B | C | E | N | X | A | B | C | E |
| CAP. CODE | CAP. | | | | | | | | | | | | |
| 0R5 | 0.5 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 1R0 | 1.0 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 1R2 | 1.2 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 1R5 | 1.5 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 1R8 | 1.8 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 2R2 | 2.2 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 2R7 | 2.7 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 3R3 | 3.3 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 3R9 | 3.9 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 4R7 | 4.7 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 5R6 | 5.6 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 6R8 | 6.8 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 8R2 | 8.2 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 100 | 10 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 120 | 12 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 150 | 15 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 180 | 18 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 220 | 22 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 270 | 27 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 330 | 33 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 390 | 39 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 470 | 47 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 560 | 56 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 680 | 68 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 820 | 82 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 101 | 100 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 121 | 120 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 151 | 150 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 181 | 180 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 221 | 220 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 271 | 270 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 331 | 330 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 391 | 390 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 471 | 470 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 561 | 560 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 681 | 680 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 821 | 820 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 102 | 1.0 nF | • | • | • | • | • | • | • | • | • | • | • | • |
| 122 | 1.2 nF | • | • | • | • | • | • | • | • | • | • | • | • |
| 152 | 1.5 nF | • | • | • | • | • | • | • | • | • | • | • | • |
| 182 | 1.8 nF | • | • | • | • | • | | | • | • | • | • | • |
| 222 | 2.2 nF | • | • | • | • | • | | | • | • | • | • | |
| 272 | 2.7 nF | • | • | • | • | • | | | • | • | • | • | |
| 332 | 3.3 nF | • | • | • | • | | | | • | • | • | • | |
| 392 | 3.9 nF | • | • | • | • | | | | • | • | • | • | |
| 472 | 4.7 nF | • | • | • | • | | | | • | • | • | • | |
| 562 | 5.6 nF | • | • | • | | | | | • | • | • | • | |
| 682 | 6.8 nF | • | • | • | | | | | • | • | • | | |
| 822 | 8.2 nF | • | • | • | | | | | • | • | | | |
| 103 | 10 nF | • | • | • | | | | | • | • | | | |
| 123 | 12 nF | | | | | | | | • | • | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



| SELECTION CHART | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|--------|-----------|----|-----|-----|-----|-----|------|------|------|------|--------|----|-----|-----|-----|-----|------|------|------|------|
| DIELECTRIC | | COG (NP0) | | | | | | | | | | | | | | | | | | | |
| STYLE | | VJ1808 | | | | | | | | | | VJ1812 | | | | | | | | | |
| CASE CODE | | 1808 | | | | | | | | | | 1812 | | | | | | | | | |
| VOLTAGE (V _{DC}) | | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 1500 | 2000 | 3000 | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 1500 | 2000 | 3000 |
| VOLTAGE CODE | | X | A | B | C | E | L | G | R | F | H | X | A | B | C | E | L | G | R | F | H |
| CAP. CODE | CAP. | | | | | | | | | | | | | | | | | | | | |
| 100 | 10 pF | | | | | | • | • | • | • | • | | | | | | • | • | • | • | • |
| 120 | 12 pF | | | | | | • | • | • | • | • | | | | | | • | • | • | • | • |
| 150 | 15 pF | | | | | | • | • | • | • | • | | | | | | • | • | • | • | • |
| 180 | 18 pF | | | | | | • | • | • | • | • | | | | | | • | • | • | • | • |
| 220 | 22 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 270 | 27 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 330 | 33 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 390 | 39 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 470 | 47 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 560 | 56 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 680 | 68 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 820 | 82 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 101 | 100 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 121 | 120 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 151 | 150 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 181 | 180 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 221 | 220 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 271 | 270 pF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 331 | 330 pF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 391 | 390 pF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 471 | 470 pF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 561 | 560 pF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 681 | 680 pF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 821 | 820 pF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 102 | 1.0 nF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 122 | 1.2 nF | • | • | • | • | • | | | | | | | | | | | • | • | • | • | • |
| 152 | 1.5 nF | • | • | • | • | • | | | | | | | | | | | • | • | • | • | • |
| 182 | 1.8 nF | • | • | • | • | • | | | | | | | | | | | • | • | • | • | • |
| 222 | 2.2 nF | • | • | • | • | | | | | | | | | | | | • | • | • | • | • |
| 272 | 2.7 nF | • | • | • | • | | | | | | | | | | | | • | • | • | • | • |
| 332 | 3.3 nF | • | • | • | • | | | | | | | | | | | | • | • | • | • | • |
| 392 | 3.9 nF | • | • | • | • | | | | | | | | | | | | • | • | • | • | • |
| 472 | 4.7 nF | • | • | • | • | | | | | | | | | | | | • | • | • | • | • |
| 562 | 5.6 nF | • | • | • | • | | | | | | | | | | | | • | • | • | • | • |
| 682 | 6.8 nF | • | • | • | • | | | | | | | | | | | | • | • | • | • | • |
| 822 | 8.2 nF | • | • | • | | | | | | | | | | | | | • | • | • | • | • |
| 103 | 10 nF | • | • | | | | | | | | | | | | | | • | • | • | • | • |
| 123 | 12 nF | | | | | | | | | | | | | | | | • | • | • | • | • |
| 153 | 15 nF | | | | | | | | | | | | | | | | • | • | • | • | • |
| 183 | 18 nF | | | | | | | | | | | | | | | | • | • | • | • | • |
| 223 | 22 nF | | | | | | | | | | | | | | | | • | • | • | • | • |
| 273 | 27 nF | | | | | | | | | | | | | | | | • | • | • | • | • |
| 333 | 33 nF | | | | | | | | | | | | | | | | | | | | |
| 393 | 39 nF | | | | | | | | | | | | | | | | | | | | |
| 473 | 47 nF | | | | | | | | | | | | | | | | | | | | |
| 563 | 56 nF | | | | | | | | | | | | | | | | | | | | |
| 683 | 68 nF | | | | | | | | | | | | | | | | | | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



| SELECTION CHART | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|--------|-----------|----|-----|-----|-----|-----|--------|----|----|-----|-----|-----|--------|------|----|----|-----|-----|-----|-----|------|
| DIELECTRIC | | C0G (NP0) | | | | | | | | | | | | | | | | | | | | |
| STYLE | | VJ1825 | | | | | | VJ2220 | | | | | | VJ2225 | | | | | | | | |
| CASE CODE | | 1825 | | | | | | 2220 | | | | | | 2225 | | | | | | | | |
| VOLTAGE (V _{DC}) | | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 25 | 50 | 100 | 200 | 500 | 630 | 1000 |
| VOLTAGE CODE | | X | A | B | C | E | L | G | X | A | B | C | E | L | G | X | A | B | C | E | L | G |
| CAP. CODE | CAP. | | | | | | | | | | | | | | | | | | | | | |
| 100 | 10 pF | | | | | | | | | | | | | | | | | | | | | |
| 120 | 12 pF | | | | | | | | | | | | | | | | | | | | | |
| 150 | 15 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 180 | 18 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 220 | 22 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 270 | 27 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 330 | 33 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 390 | 39 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 470 | 47 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 560 | 56 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 680 | 68 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 820 | 82 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 101 | 100 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | | | | | | | | |
| 121 | 120 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | | | • | • | • | • | • | |
| 151 | 150 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | | | • | • | • | • | • | |
| 181 | 180 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | | | • | • | • | • | • | |
| 221 | 220 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | | | • | • | • | • | • | |
| 271 | 270 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 331 | 330 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 391 | 390 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 471 | 470 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 561 | 560 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 681 | 680 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 821 | 820 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 102 | 1.0 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 122 | 1.2 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 152 | 1.5 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 182 | 1.8 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 222 | 2.2 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 272 | 2.7 nF | • | • | • | • | • | | | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 332 | 3.3 nF | • | • | • | • | • | | | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 392 | 3.9 nF | • | • | • | • | • | | | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 472 | 4.7 nF | • | • | • | • | • | | | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 562 | 5.6 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | • | • | • | • | • | |
| 682 | 6.8 nF | • | • | • | • | • | | | • | • | • | • | • | | | • | • | • | • | • | • | |
| 822 | 8.2 nF | • | • | • | • | • | | | • | • | • | • | • | | | • | • | • | • | • | • | |
| 103 | 10 nF | • | • | • | • | • | | | • | • | • | • | • | | | • | • | • | • | • | • | |
| 123 | 12 nF | • | • | • | • | • | | | • | • | • | • | • | | | • | • | • | • | • | • | • |
| 153 | 15 nF | • | • | • | • | • | | | • | • | • | • | • | | | • | • | • | • | • | • | |
| 183 | 18 nF | • | • | • | • | • | | | • | • | • | • | • | | | • | • | • | • | • | • | |
| 223 | 22 nF | • | • | • | • | • | | | • | • | • | • | • | | | • | • | • | • | • | • | |
| 273 | 27 nF | • | • | • | • | • | | | • | • | • | • | • | | | • | • | • | • | • | • | |
| 333 | 33 nF | • | • | • | • | • | | | • | • | • | • | • | | | • | • | • | • | • | • | |
| 393 | 39 nF | • | • | | | | | | • | • | | | | | | • | • | • | • | • | • | |
| 473 | 47 nF | | | | | | | | • | • | | | | | | • | • | • | • | • | • | |
| 563 | 56 nF | | | | | | | | | | | | | | | • | • | | | | | |
| 683 | 68 nF | | | | | | | | | | | | | | | | | | | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



| SELECTION CHART | | | | | | | | | | | | | | | | | | | |
|----------------------------|--------|------------------------|--------|--------|----|----|--------|--------|----|----|----|----|--------|----|----|----|----|-----|-----|
| DIELECTRIC | | X7R/X5R ⁽¹⁾ | | | | | | | | | | | | | | | | | |
| STYLE | | VJ0402 | | | | | VJ0603 | | | | | | VJ0805 | | | | | | |
| CASE CODE | | 0402 | | | | | 0603 | | | | | | 0805 | | | | | | |
| VOLTAGE (V _{DC}) | | 6.3 | 10 | 16 | 25 | 50 | 100 | 6.3 | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 | 200 |
| VOLTAGE CODE | | Y | Q | J | X | A | B | Y | Q | J | X | A | B | Q | J | X | A | B | C |
| CAP. CODE | CAP. | | | | | | | | | | | | | | | | | | |
| 101 | 100 pF | •• | •• | •• | •• | •• | •• | | | | | | | | | | | | |
| 121 | 120 pF | •• | •• | •• | •• | •• | •• | | | | | | | | | | | | |
| 151 | 150 pF | •• | •• | •• | •• | •• | •• | | | | | | | | | | | | |
| 181 | 180 pF | •• | •• | •• | •• | •• | •• | | | | | | | | | | | | |
| 221 | 220 pF | •• | •• | •• | •• | •• | •• | | | | | | | | | | | | |
| 271 | 270 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | | | | | | |
| 331 | 330 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | | | | | | |
| 391 | 390 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 471 | 470 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 561 | 560 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 681 | 680 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 821 | 820 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 102 | 1.0 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 122 | 1.2 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 152 | 1.5 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 182 | 1.8 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 222 | 2.2 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 272 | 2.7 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 332 | 3.3 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 392 | 3.9 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 472 | 4.7 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 562 | 5.6 nF | •• | •• | •• | •• | •• | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 682 | 6.8 nF | •• | •• | •• | •• | •• | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 822 | 8.2 nF | •• | •• | •• | •• | •• | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 103 | 10 nF | •• | •• | •• | •• | •• | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 123 | 12 nF | •• | •• | •• | •• | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 153 | 15 nF | •• | •• | •• | •• | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 183 | 18 nF | •• | •• | •• | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 223 | 22 nF | •• | •• | •• | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 273 | 27 nF | X5R •• | X5R •• | X5R •• | | | | •• | •• | •• | •• | •• | | • | • | • | • | • | • |
| 333 | 33 nF | X5R •• | X5R •• | X5R •• | | | | •• | •• | •• | •• | •• | | • | • | • | • | • | • |
| 393 | 39 nF | X5R •• | | | | | | •• | •• | •• | •• | •• | | • | • | • | • | • | • |
| 473 | 47 nF | X5R •• | | | | | | •• | •• | •• | •• | •• | | • | • | • | • | • | • |
| 563 | 56 nF | X5R •• | | | | | | •• | •• | •• | •• | | | • | • | • | • | • | • |
| 683 | 68 nF | X5R •• | | | | | | •• | •• | •• | •• | | | • | • | • | • | • | • |
| 823 | 82 nF | X5R •• | | | | | | •• | •• | •• | •• | | | • | • | • | • | • | • |
| 104 | 100 nF | X5R •• | | | | | | •• | •• | •• | •• | | | • | • | • | • | | |
| 124 | 120 nF | | | | | | | X5R •• | | | | | | • | • | • | • | | |
| 154 | 150 nF | | | | | | | X5R •• | | | | | | • | • | • | • | | |
| 184 | 180 nF | | | | | | | | | | | | | • | • | • | | | |
| 224 | 220 nF | | | | | | | | | | | | | • | • | • | | | |
| 274 | 270 nF | | | | | | | | | | | | | • | • | • | | | |
| 334 | 330 nF | | | | | | | | | | | | | • | • | • | | | |
| 394 | 390 nF | | | | | | | | | | | | | • | | | | | |
| 474 | 470 nF | | | | | | | | | | | | | | | | | | |
| 564 | 560 nF | | | | | | | | | | | | | | | | | | |
| 684 | 680 nF | | | | | | | | | | | | | | | | | | |
| 824 | 820 nF | | | | | | | | | | | | | | | | | | |
| 105 | 1.0 μF | | | | | | | | | | | | | | | | | | |
| 125 | 1.2 μF | | | | | | | | | | | | | | | | | | |

Notes

•• RoHS-compliant

•• Flamed paper tape • Plastic tape

(1) See selection chart for values only available as X5R. All other values X7R.



| SELECTION CHART | | | | | | | | | | | | | | |
|----------------------------|--------|--------|----|----|-----|-----|-----|--------|----|----|----|-----|-----|-----|
| DIELECTRIC | | VJ1206 | | | | | | X7R | | | | | | |
| STYLE | | 1206 | | | | | | VJ1210 | | | | | | |
| CASE CODE | | 1206 | | | | | | 1210 | | | | | | |
| VOLTAGE (V _{DC}) | | 16 | 25 | 50 | 100 | 200 | 500 | 16 | 25 | 50 | 75 | 100 | 200 | 500 |
| VOLTAGE CODE | | J | X | A | B | C | E | J | X | A | K | B | C | E |
| CAP. CODE | CAP. | | | | | | | | | | | | | |
| 101 | 100 pF | | | | | | | | | | | | | |
| 121 | 120 pF | | | | | | | | | | | | | |
| 151 | 150 pF | | | | | | | | | | | | | |
| 181 | 180 pF | | | | | | | | | | | | | |
| 221 | 220 pF | | | | | | | | | | | | | |
| 271 | 270 pF | | | | | | | | | | | | | |
| 331 | 330 pF | | | | | | | | | | | | | |
| 391 | 390 pF | | | | | | | | | | | | | |
| 471 | 470 pF | | | | | | | | | | | | | |
| 561 | 560 pF | | | | | | | | | | | | | |
| 681 | 680 pF | • | • | • | • | • | • | | | | | | | |
| 821 | 820 pF | • | • | • | • | • | • | | | | | | | |
| 102 | 1.0 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 122 | 1.2 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 152 | 1.5 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 182 | 1.8 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 222 | 2.2 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 272 | 2.7 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 332 | 3.3 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 392 | 3.9 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 472 | 4.7 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 562 | 5.6 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 682 | 6.8 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 822 | 8.2 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 103 | 10 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 123 | 12 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 153 | 15 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 183 | 18 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 223 | 22 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 273 | 27 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 333 | 33 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 393 | 39 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 473 | 47 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 563 | 56 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 683 | 68 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 823 | 82 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 104 | 100 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 124 | 120 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 154 | 150 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 184 | 180 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 224 | 220 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 274 | 270 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 334 | 330 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 394 | 390 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 474 | 470 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 564 | 560 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 684 | 680 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 824 | 820 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 105 | 1.0 μF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 125 | 1.2 μF | | | | | | | | | | | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



| SELECTION CHART | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|--------|--------|----|-----|-----|-----|-----|------|------|------|------|--------|----|----|-----|-----|-----|-----|-----|------|------|------|------|
| DIELECTRIC | | X7R | | | | | | | | | | | | | | | | | | | | | |
| STYLE | | VJ1808 | | | | | | | | | | VJ1812 | | | | | | | | | | | |
| CASE CODE | | 1808 | | | | | | | | | | 1812 | | | | | | | | | | | |
| VOLTAGE (V _{DC}) | | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 1500 | 2000 | 3000 | 25 | 50 | 75 | 100 | 200 | 250 | 500 | 630 | 1000 | 1500 | 2000 | 3000 |
| VOLTAGE CODE | | X | A | B | C | E | L | G | R | F | H | X | A | K | B | C | P | E | L | G | R | F | H |
| CAP. CODE | CAP. | | | | | | | | | | | | | | | | | | | | | | |
| 221 | 220 pF | | | | | | | | | | • | | | | | | | | | | | | |
| 271 | 270 pF | | | | | | | | | | • | | | | | | | • | • | • | • | • | |
| 471 | 470 pF | | | | | | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 561 | 560 pF | | | | | | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 681 | 680 pF | | | | | | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 821 | 820 pF | | | | | | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 102 | 1.0 nF | • | • | • | • | • | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 122 | 1.2 nF | • | • | • | • | • | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 152 | 1.5 nF | • | • | • | • | • | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 182 | 1.8 nF | • | • | • | • | • | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 222 | 2.2 nF | • | • | • | • | • | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 272 | 2.7 nF | • | • | • | • | • | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 332 | 3.3 nF | • | • | • | • | • | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 392 | 3.9 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 472 | 4.7 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 562 | 5.6 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 682 | 6.8 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 822 | 8.2 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 103 | 10 µF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 123 | 12 µF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 153 | 15 µF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 183 | 18 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 223 | 22 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 273 | 27 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 333 | 33 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 393 | 39 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 473 | 47 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 563 | 56 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 683 | 68 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 823 | 82 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 104 | 100 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 124 | 120 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 154 | 150 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 184 | 180 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 224 | 220 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 274 | 270 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 334 | 330 nF | | | | | | | | | | | | • | • | • | • | • | • | • | • | • | • | |
| 394 | 390 nF | | | | | | | | | | | | • | • | • | • | • | • | • | • | • | • | |
| 474 | 470 nF | | | | | | | | | | | | • | • | • | • | • | • | • | • | • | • | |
| 564 | 560 nF | | | | | | | | | | | | • | • | • | • | • | • | • | • | • | • | |
| 684 | 680 nF | | | | | | | | | | | | • | • | • | • | • | • | • | • | • | • | |
| 824 | 820 nF | | | | | | | | | | | | • | • | • | • | • | • | • | • | • | • | |
| 105 | 1.0 µF | | | | | | | | | | | | • | • | • | • | • | • | • | • | • | • | |
| 125 | 1.2 µF | | | | | | | | | | | | | | | | | | | | | | |
| 155 | 1.5 µF | | | | | | | | | | | | | | | | | | | | | | |
| 185 | 1.8 µF | | | | | | | | | | | | | | | | | | | | | | |
| 225 | 2.2 µF | | | | | | | | | | | | | | | | | | | | | | |
| 275 | 2.7 µF | | | | | | | | | | | | | | | | | | | | | | |
| 335 | 3.3 µF | | | | | | | | | | | | | | | | | | | | | | |
| 395 | 3.9 µF | | | | | | | | | | | | | | | | | | | | | | |
| 475 | 4.7 µF | | | | | | | | | | | | | | | | | | | | | | |
| 565 | 5.6 µF | | | | | | | | | | | | | | | | | | | | | | |
| 685 | 6.8 µF | | | | | | | | | | | | | | | | | | | | | | |
| 825 | 8.2 µF | | | | | | | | | | | | | | | | | | | | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



| SELECTION CHART | | | | | | | | | | | | | | | | | |
|----------------------------|--------|--------|----|-----|-----|-----|-----|--------|----|----|-----|-----|-----|-----|------|------|------|
| DIELECTRIC | | X7R | | | | | | | | | | | | | | | |
| STYLE | | VJ1825 | | | | | | VJ2220 | | | | | | | | | |
| CASE CODE | | 1825 | | | | | | 2220 | | | | | | | | | |
| VOLTAGE (V _{DC}) | | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 2000 | 3000 |
| VOLTAGE CODE | | X | A | B | C | E | L | G | X | A | B | C | E | L | G | F | H |
| CAP. CODE | CAP. | | | | | | | | | | | | | | | | |
| 221 | 220 pF | | | | | | | | | | | | | | | | |
| 271 | 270 pF | | | | | | | | | | | | | | | | |
| 471 | 470 pF | | | | | | | | | | | | | | | | |
| 561 | 560 pF | | | | | | | | | | | | | | | | |
| 681 | 680 pF | | | | | | | | | | | | | | | | |
| 821 | 820 pF | | | | | | | | | | | | | | | | |
| 102 | 1.0 nF | | | | | | | | | | | | | | | | • |
| 122 | 1.2 nF | | | | | | | | | | | | | | | | • |
| 152 | 1.5 nF | | | | | | | | | | | | | | | | • |
| 182 | 1.8 nF | | | | | | | | | | | | | | | | • |
| 222 | 2.2 nF | | | | | | | | | | | | | | | | • |
| 272 | 2.7 nF | | | | | | | | | | | | | | | | |
| 332 | 3.3 nF | | | | | | | | | | | | | | | | |
| 392 | 3.9 nF | | | | | | | | | | | | | | | | |
| 472 | 4.7 nF | | | | | | | | | | | | | | | | |
| 562 | 5.6 nF | | | | | | | | | | | | | | | | • |
| 682 | 6.8 nF | | | | | | | | | | | | | | | | • |
| 822 | 8.2 nF | | | | | | | | | | | | | | | | • |
| 103 | 10 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 123 | 12 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 153 | 15 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 183 | 18 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 223 | 22 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 273 | 27 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 333 | 33 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 393 | 39 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 473 | 47 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 563 | 56 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 683 | 68 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 823 | 82 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 104 | 100 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 124 | 120 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 154 | 150 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 184 | 180 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 224 | 220 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 274 | 270 nF | • | • | • | • | | | | • | • | • | • | | | | | |
| 334 | 330 nF | • | • | • | • | | | | • | • | • | • | | | | | |
| 394 | 390 nF | • | • | • | • | | | | • | • | • | • | | | | | |
| 474 | 470 nF | • | • | • | • | | | | • | • | • | • | | | | | |
| 564 | 560 nF | • | • | • | • | | | | • | • | • | • | | | | | |
| 684 | 680 nF | • | • | • | • | | | | • | • | • | • | | | | | |
| 824 | 820 nF | • | • | • | | | | | • | • | • | • | | | | | |
| 105 | 1.0 μF | • | • | • | | | | | • | • | • | • | | | | | |
| 125 | 1.2 μF | • | • | • | | | | | • | • | • | | | | | | |
| 155 | 1.5 μF | • | • | • | | | | | • | • | • | | | | | | |
| 185 | 1.8 μF | • | • | | | | | | • | • | | | | | | | |
| 225 | 2.2 μF | • | | | | | | | • | • | | | | | | | |
| 275 | 2.7 μF | • | | | | | | | | | | | | | | | |
| 335 | 3.3 μF | | | | | | | | | | | | | | | | |
| 395 | 3.9 μF | | | | | | | | | | | | | | | | |
| 475 | 4.7 μF | | | | | | | | | | | | | | | | |
| 565 | 5.6 μF | | | | | | | | | | | | | | | | |
| 685 | 6.8 μF | | | | | | | | | | | | | | | | |
| 825 | 8.2 μF | | | | | | | | | | | | | | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



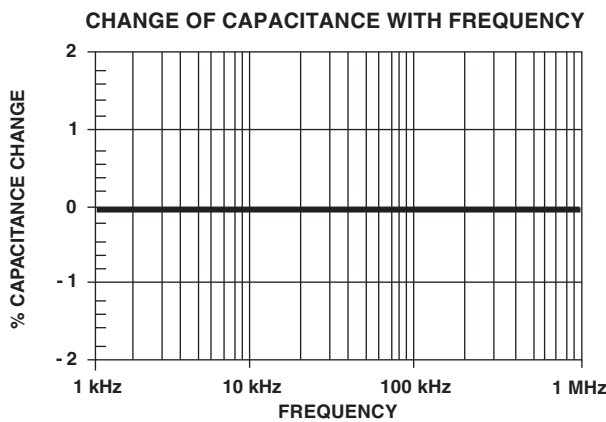
| SELECTION CHART | | | | | | | | | | | | | | | |
|----------------------------|--------|--------|----|-----|-----|-----|-----|------|------|--------|----|----|-----|-----|-----|
| DIELECTRIC | | X7R | | | | | | | | | | | | | |
| STYLE | | VJ2225 | | | | | | | | VJ3640 | | | | | |
| CASE CODE | | 2225 | | | | | | | | 3640 | | | | | |
| VOLTAGE (V _{DC}) | | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 1500 | 2000 | 25 | 50 | 100 | 200 | 500 |
| VOLTAGE CODE | | X | A | B | C | E | L | G | R | F | X | A | B | C | E |
| CAP. CODE | CAP. | | | | | | | | | | | | | | |
| 102 | 1.0 nF | | | | | | | | | | | | | | |
| 122 | 1.2 nF | | | | | | | | | | | | | | |
| 152 | 1.5 nF | | | | | | | | | | | | | | |
| 182 | 1.8 nF | | | | | | | | | | | | | | |
| 222 | 2.2 nF | | | | | | | | | | | | | | |
| 272 | 2.7 nF | | | | | | | | | | | | | | |
| 332 | 3.3 nF | | | | | | | | | | | | | | |
| 392 | 3.9 nF | | | | | | | | | | | | | | |
| 472 | 4.7 nF | | | | | | | | | | | | | | |
| 562 | 5.6 nF | | | | | | | | • | • | | | | | |
| 682 | 6.8 nF | | | | | | | | • | • | | | | | |
| 822 | 8.2 nF | | | | | | | | • | • | | | | | |
| 103 | 10 nF | • | • | • | • | • | • | • | • | • | | | | | |
| 123 | 12 nF | • | • | • | • | • | • | • | • | • | | | | | |
| 153 | 15 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 183 | 18 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 223 | 22 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 273 | 27 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 333 | 33 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 393 | 39 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 473 | 47 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 563 | 56 nF | • | • | • | • | • | • | • | | | • | • | • | • | • |
| 683 | 68 nF | • | • | • | • | • | • | • | | | • | • | • | • | • |
| 823 | 82 nF | • | • | • | • | • | • | • | | | • | • | • | • | • |
| 104 | 100 nF | • | • | • | • | • | • | • | | | • | • | • | • | • |
| 124 | 120 nF | • | • | • | • | • | | | | | • | • | • | • | • |
| 154 | 150 nF | • | • | • | • | • | | | | | • | • | • | • | • |
| 184 | 180 nF | • | • | • | • | • | | | | | • | • | • | • | • |
| 224 | 220 nF | • | • | • | • | • | | | | | • | • | • | • | • |
| 274 | 270 nF | • | • | • | • | • | | | | | • | • | • | • | • |
| 334 | 330 nF | • | • | • | • | • | | | | | • | • | • | • | • |
| 394 | 390 nF | • | • | • | • | | | | | | • | • | • | • | • |
| 474 | 470 nF | • | • | • | • | | | | | | • | • | • | • | • |
| 564 | 560 nF | • | • | • | • | | | | | | • | • | • | • | • |
| 684 | 680 nF | • | • | • | • | | | | | | • | • | • | • | • |
| 824 | 820 nF | • | • | • | • | | | | | | • | • | • | • | |
| 105 | 1.0 μF | • | • | • | • | | | | | | • | • | • | • | |
| 125 | 1.2 μF | • | • | • | • | | | | | | • | • | • | • | |
| 155 | 1.5 μF | • | • | • | | | | | | | • | • | • | • | |
| 185 | 1.8 μF | • | • | • | | | | | | | • | • | • | • | |
| 225 | 2.2 μF | • | • | | | | | | | | • | • | • | | |
| 275 | 2.7 μF | • | • | | | | | | | | • | • | • | | |
| 335 | 3.3 μF | • | | | | | | | | | • | • | • | | |
| 395 | 3.9 μF | • | | | | | | | | | • | • | • | | |
| 475 | 4.7 μF | • | | | | | | | | | • | • | | | |
| 565 | 5.6 μF | | | | | | | | | | • | | | | |
| 685 | 6.8 μF | | | | | | | | | | • | | | | |
| 825 | 8.2 μF | | | | | | | | | | | | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



NON-MAGNETIC COG (NP0) DIELECTRIC - TYPICAL PARAMETERS



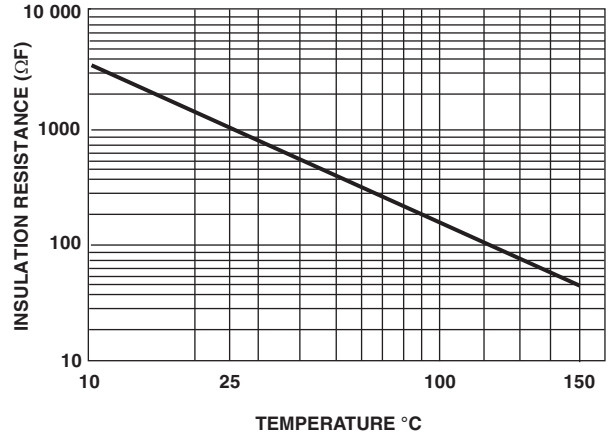


NON-MAGNETIC X7R DIELECTRIC - TYPICAL PARAMETERS

RATED VOLTAGE VS. TEMPERATURE



MIN. INSULATION RESISTANCE VS. TEMPERATURE



AGING RATE



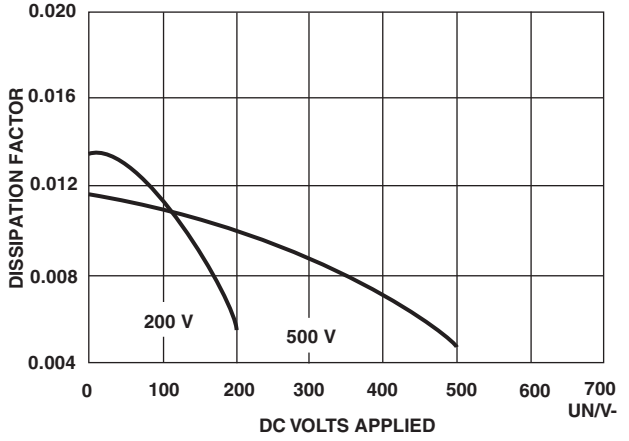
DISSIPATION FACTOR VS. TEMPERATURE



DISSIPATION FACTOR VS. VOLTAGE

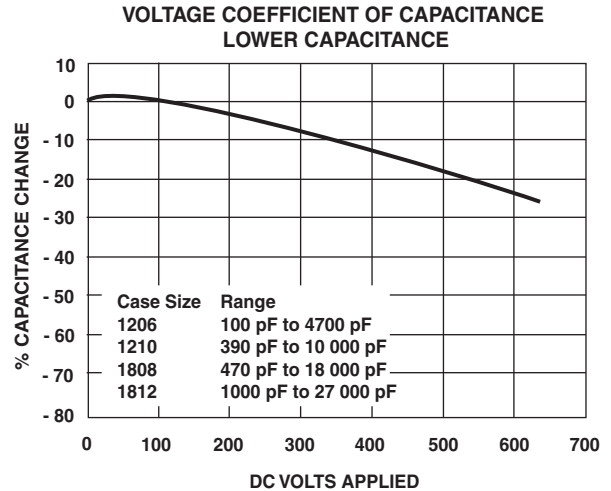
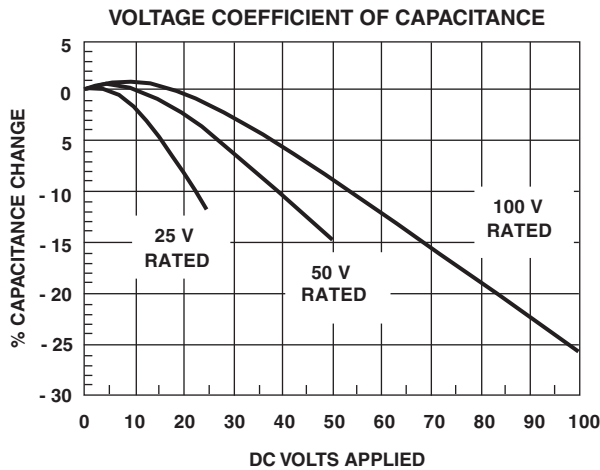
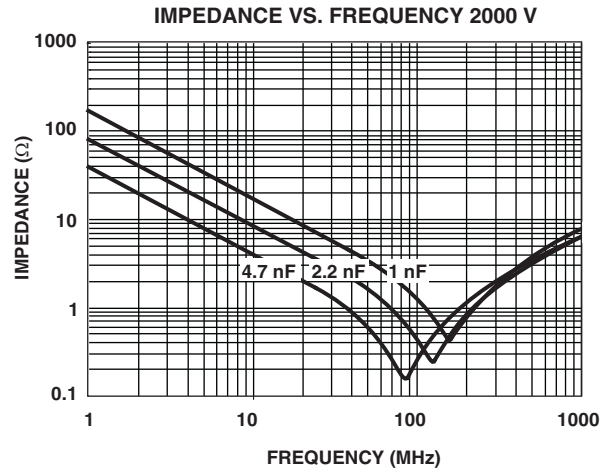
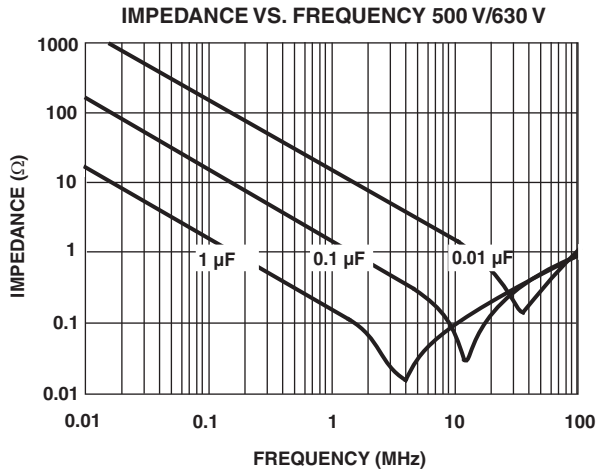


DISSIPATION FACTOR VS. VOLTAGE





NON-MAGNETIC X7R DIELECTRIC - TYPICAL PARAMETERS





| STANDARD PACKAGING QUANTITIES (1)(2)(3) | | | | | | |
|---|-----------|-------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| CASE CODE | TAPE SIZE | 7" REEL QUANTITIES | | | 11 1/4" AND 13" REEL QUANTITIES | |
| | | PAPER TAPE PACKAGING CODE "O" | PLASTIC TAPE PACKAGING CODE "T" | LOW QUANTITY PACKAGING CODE "J" | PAPER TAPE PACKAGING CODE "I" | PLASTIC TAPE PACKAGING CODE "R" |
| 0402 | 8 mm | 5000 | n/a | 1000 | 10 000 | n/a |
| 0603 (4) | 8 mm | 4000 | 4000 | 1000 | 10 000 | 10 000 |
| 0805 (4) | 8 mm | 3000 | 3000 | 1000 | 10 000 | 10 000 |
| 1206 (4) | 8 mm | n/a | 3000/2500 | 1000 | n/a | 10 000/9000 |
| 1210 (4) | 8 mm | n/a | 3000/2500/2000 | 1000 | n/a | 10 000/9000 |
| 1808 | 12 mm | n/a | 2000 | 500 | n/a | 10 000 |
| 1812 | 12 mm | n/a | 1000 | 500 | n/a | 4000 |
| 1825 | 12 mm | n/a | 1000 | 500 | n/a | 4000 |
| 2220 | 12 mm | n/a | 1000 | 500 | n/a | 4000 |
| 2225 | 12 mm | n/a | 1000 | 500 | n/a | 4000 |
| 3640 | 16 mm | n/a | 500 | n/a | n/a | n/a |

Notes

- (1) Vishay Vitramon uses embossed plastic carrier tape
- (2) Reference: EIA standard RS 481 - "Taping of Surface Mount Components for Automatic Placement"
- (3) n/a = Not available
- (4) Packaging code "O/I" or "T/R" and lower quantities can depend from product thickness

| STORAGE AND HANDLING CONDITIONS |
|---|
| <p>(1) Store the components at 5 °C to + 40 °C ambient temperature and ≤ 70 % related humidity conditions.</p> <p>(2) The product is recommended to be used within a time-frame of 2 years after shipment. Check solderability in case extended shelf life beyond the expiry date is needed.</p> <p>Precautions:</p> <ul style="list-style-type: none"> a. Do not store products in an environment containing corrosive elements, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. This may cause corrosion or oxidization of the terminations, which can easily lead to poor soldering. b. Store products on the shelf and avoid exposure to moisture or dust. c. Do not expose products to excessive shock, vibration, direct sunlight and so on. |



RoHS COMPLIANCE UPDATE

The RoHS compliance of the parts in this datasheet is currently under review. For more information, please contact your local Vishay sales representative.



Disclaimer

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Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.



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.);

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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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