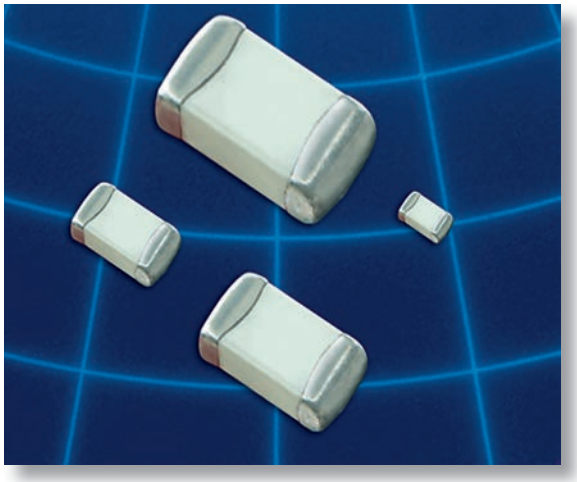
# Multi-Layer High-Q Capacitors



These lines of multilayer capacitors have been developed for High-Q and microwave applications.

• The S-Series (R07S, R14S, R15S) capacitors give an ultra-high Q performance, and exhibit NP0 temperature characteristics.

• The L-Series (R05L) capacitors give mid-high Q performance, and exhibit NP0 temperature characteristics.

• The E-Series (S42E, S48E, S58E) capacitors give excellent high-Q performance from HF to Microwave frequencies.
Typical uses are high voltage, high current applications. They are offered in chip (Ni barrier or Non-Magnetic Pt.-Ag) or in Non-Magnetic leaded form.

• RoHS compliance is standard for all unleaded parts (see termination options box).

• Automotive versions (AEC-Q200) of R05L, R07S, R14S, R15S, and S42E series are available on request

## How to Order

| 252 | S48 | E | 470 | K | V | 4 | E | -AEC |
|---|---|---|---|---|---|---|---|---|

**WVDC[2]**
250 = 25 V
500 = 50V
201 = 200 V
251 = 250 V
501 = 500 V
102 = 1000 V
152 = 1500 V
252 = 2500 V
362 = 3600 V
722 = 7200 V

**CASE SIZE**
R05 (0201)
R07 (0402)
R14 (0603)
R15 (0805)
S42 (1111)
S48 (2525)
S58 (3838)

**CAPACITANCE (pF)**
1st two digits are significant; third digit denotes number of zeros, R = decimal.
100 = 10 pF
101 = 100 pF

**DIELECTRIC**
S = Ultra High Q NPO
L = High Q NPO
E = Ultra High Q NPO, High Voltage, High Power
G = Fully Oriented, Ultra High-Q NPO

**TOLERANCE**
< 10pF
A = ± 0.05 pF
B = ± 0.10 pF
C = ± 0.25 pF
D = ± 0.50 pF

≥ 10pF
F = ±1 %
G = ±2%
J = ±5%
K = ± 10%

For tolerance availability, see chart.

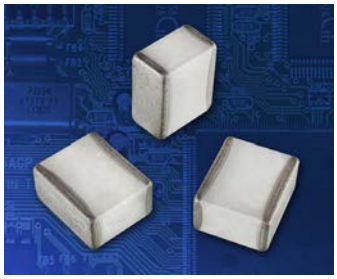
**TERMINATION**
Nickel Barrier
V = Ni/Sn (Green)
T = Ni/SnPb
G = Ni/Au (Green)
Non-Mag[1]
U = Cu/Sn (Green)
C = Cu/SnPb
Leaded (All Non-Mag)[1]
1 = Microstrip
2 = Axial Ribbon
3 = Axial Wire
4 = Radial Ribbon
5 = Radial Wire

**MARKING**
3 = Cap Code & Tolerance
4 = No Marking
6 = EIA Code
(Marking option is only available on 0805 and larger case sizes)

**PACKAGING**
S = Bulk
W = Waffle Pack
0201 - 0603
Y = Paper 5" Reel
T = Paper 7" Reel
R[1] = Paper 13" Reel
J[1] = Paper 5" Reel - Horizontally Oriented Electrodes
N[1] = Paper 5" Reel - Vertically Oriented Electrodes
L[1] = Paper 7" Reel - Horizontally Oriented Electrodes
V[1] = Paper 7" Reel - Vertically Oriented Electrodes
0805 - 3838
Z = Embossed 5" Reel
E = Embossed 7" Reel
U[1] = Embossed 13" Reel
M[1] = Embossed 5" Reel - Horizontally Oriented Electrodes
Q[1] = Embossed 5" Reel - Vertically Oriented Electrodes
G[1] = Embossed 7" Reel - Horizontally Oriented Electrodes
P[1] = Embossed 7" Reel - Vertically Oriented Electrodes
Tape specifications conform to EIA RS481

**QUALIFICATION**
AEC-Q200 qualification [3] (optional)

Part Number written:
252S48E470KV4E



[1] - Not available for all MLCC - Call factory for info.
[2] - WVDC - Working Voltage DC.
[3] -Qualification required for automotive application, Not available for all series - Call factory for info.

# Low ESR / High-Q Capacitor Selection Chart

| Cap. Value \ EIA Size | | | RF Power Applications | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0201 (R05) | 0402 | 0603 | 0805 | 0805 | 1111 | | 2525 | 3838 | |
| | | NPO (R05L) | (R07S) | (R14S) | (R15S) | (R15L) | (S42E) | | (S48E) | (S58E) | |
| Capacitance pF | Code | | | | | | | | | | |
| 0.1 | 0R1 | 25/50 V | 50/250 V | 250 V | | | | | | | |
| 0.2 | 0R2 | 25/50 V | 50/250 V | 250 V | | | 500V | 1500V | | | |
| 0.3 | 0R3 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | | | |
| 0.4 | 0R4 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | | | |
| 0.5 | 0R5 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | | |
| 0.6 | 0R6 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 0.7 | 0R7 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 0.8 | 0R8 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 0.9 | 0R9 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 1.0 | 1R0 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 1.1 | 1R1 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 1.2 | 1R2 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 1.3 | 1R3 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 1.4 | 1R4 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 1.5 | 1R5 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 1.6 | 1R6 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 1.7 | 1R7 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 1.8 | 1R8 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 1.9 | 1R9 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 2.0 | 2R0 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 2.1 | 2R1 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 2.2 | 2R2 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 2.4 | 2R4 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 2.7 | 2R7 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 3.0 | 3R0 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 3.3 | 3R3 | 25/50 V | 50/250 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 3.6 | 3R6 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 3.9 | 3R9 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 4.3 | 4R3 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 4.7 | 4R7 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 5.1 | 5R1 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 5.6 | 5R6 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 6.2 | 6R2 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 6.8 | 6R8 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 7.5 | 7R5 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 8.2 | 8R2 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 9.1 | 9R1 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 10 | 100 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 11 | 110 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 12 | 120 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 13 | 130 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 15 | 150 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 16 | 160 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 18 | 180 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 20 | 200 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 22 | 220 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 24 | 240 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 27 | 270 | 25/50 V | 50/200 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 30 | 300 | 25/50 V | 50 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 33 | 330 | 25/50 V | 50 V | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |

Consult factory for Non-Standard values.
**A tolerance only available for R07S (0402) and R14S(0603) caps

## Low ESR / High-Q Capacitor Selection Chart

| Cap. Value \ EIA Size | | | | | RF Power Applications | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0201 (R05) | 0402 | 0603 | 0805 | 0805 | 1111 | | 2525 | 3838 | |
| | | | NPO (R05L) | (R07S) | (R14S) | (R15S) | (R15L) | (S42E) | | (S48E) | (S58E) | |
| Capacitance pF | Capacitance Code | Tolerance | | | | | | | | | | |
| 36 | 360 | F G J K | 25/50 V | | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 39 | 390 | | 25/50 V | | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 43 | 430 | | 25/50 V | | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 47 | 470 | | 25/50 V | | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 51 | 510 | | 25/50 V | | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 56 | 560 | | 25/50 V | | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 62 | 620 | | 25/50 V | | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 68 | 680 | | 25/50 V | | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 75 | 750 | | 25/50 V | | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 82 | 820 | | 25/50 V | | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 91 | 910 | | 25/50 V | | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 100 | 101 | | 25/50 V | | 250 V | 250 V | | 500V | 1500V | 3600V | 3600V | 7200V |
| 110 | 111 | | | | | 250 V | | 300V | 1500V | 2500V | 3600V | 7200V |
| 120 | 121 | | | | | 250 V | | 300V | 1000V | 2500V | 3600V | 7200V |
| 130 | 131 | | | | | 250 V | | 300V | 1000V | 2500V | 3600V | 7200V |
| 150 | 151 | | | | | 250 V | | 300V | 1000V | 2500V | 3600V | 7200V |
| 160 | 161 | | | | | 250 V | | 300V | 1000V | 2500V | 3600V | 7200V |
| 180 | 181 | | | | | 250 V | | 300V | 1000V | 2500V | 3600V | 7200V |
| 200 | 201 | | | | | 250 V | | 300V | 1000V | 2500V | 3600V | |
| 220 | 221 | | | | | 250 V | | 200V | 1000V | 2500V | 3600V | |
| 240 | 241 | | | | | | 500V | 200V | 600V | 2500V | 3600V | |
| 270 | 271 | | | | | | 500V | 200V | 600V | 2500V | 3600V | |
| 300 | 301 | | | | | | 500V | 200V | 600V | 1500V | 3600V | |
| 330 | 331 | | | | | | 500V | 200V | 600V | 1500V | 3600V | |
| 360 | 361 | | | | | | 500V | 200V | 600V | 1500V | 3600V | |
| 390 | 391 | | | | | | 500V | 200V | 500V | 1500V | 3600V | |
| 430 | 431 | G J K | | | | | 500V | 200V | 500V | 1500V | 2500V | |
| 470 | 471 | | | | | | 500V | 200V | 500V | 1500V | 2500V | |
| 510 | 511 | | | | | | 100V | 200V | 500V | 1000V | 2500V | |
| 560 | 561 | | | | | | 100V | 200V | 500V | 1000V | 2500V | |
| 620 | 621 | | | | | | 100V | 200V | 500V | 1000V | 2500V | |
| 680 | 681 | | | | | | 50V | 200V | | 1000V | 2500V | |
| 750 | 751 | | | | | | 50V | 200V | | 1000V | 2500V | |
| 820 | 821 | | | | | | 50V | 200V | | 1000V | 2500V | |
| 910 | 911 | | | | | | 50V | 200V | | 1000V | 1000V | |
| 1000 | 102 | | | | | | 50V | 200V | | 1000V | 1000V | |
| 1200 | 122 | | | | | | 50V | | | 1000V | 1000V | |
| 1500 | 152 | | | | | | 50V | | | 500V | 1000V | |
| 1800 | 182 | | | | | | 50V | | | 500V | 1000V | |
| 2200 | 222 | | | | | | 50V | | | 300V | 1000V | |
| 2700 | 272 | | | | | | | | | 300V | 500V | |
| 3300 | 332 | | | | | | | | | | 500V | |
| 3900 | 392 | | | | | | | | | | 500V | |
| 4700 | 472 | | | | | | | | | | 500V | |
| 5100 | 512 | | | | | | | | | | 500V | |
| 10000 | 103 | | | | | | | | | | | |

Consult factory for Non-Standard values.

## Dielectric Characteristics — NPO

| | |
|---|---|
| TEMPERATURE COEFFICIENT: | 0 ± 30ppm /°C, -55 to 150°C |
| QUALITY FACTOR / DF: | Q >1,000 @ 1KHz (C>1,000pF), Typical 10,000 (C<1,000 pF) |
| INSULATION RESISTANCE: | >100 GΩ @ 25°C,WVDC[1];<br>125°C IR is 10% of 25°C rating |
| TEST PARAMETERS: | 1MHz ±50kHz, 1.0±0.2VRMS for capacitance values ≤ 1,000pF<br>1kHZ ±50Hz, 1.0±0.2VRMS for capacitance values > 1,000pF |
| DIELECTRIC STRENGTH: | 500 V ≤ 2.5 X WVDC[1] Min., 25°C, 50 mA max<br>1000 V ≤ 1.5 X WVDC[1] Min., 25°C, 50 mA max<br>> 1500 = 1 X WVDC[1] Min., 25°C, 50 mA max |

AVAILABLE CAPACITANCE:

| | | | |
|---|---|---|---|
| Size 0201: | 0.2 - 100 pF | Size 1111: | 0.2 - 1000 pF |
| Size 0402: | 0.2 - 33 pF | Size 2525: | 1.0 - 2700 pF |
| Size 0603: | 0.2 - 100 pF | Size 3838: | 1.0 - 5100 pF |
| Size 0805: | 0.3 - 220 pF | | |

## Mechanical & Environmental Characteristics

| | SPECIFICATION | TEST PARAMETERS |
|---|---|---|
| SOLDERABILITY: | Solder coverage ≥ 90% of metalized areas<br>No termination degradation | Preheat chip to 120°-150°C for 60 sec., dip terminals in rosin flux<br>then dip in Sn62 solder @ 240°±5°C for 5±1 sec |
| RESISTANCE TO SOLDERING HEAT: | No mechanical damage<br>Capacitance change: ±2.5% or 0.25pF<br>Q>500 I.R. >10 G Ohms<br>DWV[2]: 2.5 x WVDC[1] | Preheat device to 80°-100°C for 60 sec.<br>followed by 150°-180°C for 60 sec.<br>Dip in 260°±5°C solder for 10±1 sec.<br>Measure after 24±2 hour cooling period |
| TERMINAL ADHESION: | Termination should not pull off.<br>Ceramic should remain undamaged. | Linear pull force[3] exerted on axial leads soldered to each terminal. |
| PCB DEFLECTION: | No mechanical damage.<br>Capacitance change: 5% or<br>0.5pF whichever is greater. | Glass epoxy PCB: 2 mm deflection |
| LIFE TEST: | MIL-STD-202, Method 108l<br>No mechanical damage<br>Capacitance change: ±3.0% or 0.3 pF<br>Q>500 I.R. >1 G Ohms<br>DWV[2]: 2.5 x WVDC[1] | Applied voltage: 200% of WVDC[1] for capacitors rated at 500 volts DC or less.<br>100% of WVDC[1] for capacitors rated at 1250 volts DC or less.<br>Temperature: 125°±3°C<br>Test time: 1000+48-0 hours |
| THERMAL CYCLE: | No mechanical damage.<br>Capacitance change: ±2.5% or 0.25pF<br>Q>2000 I.R. >10 G Ohms<br>DWV[2]: 2.5 x WVDC[1] | 5 cycles of: 30±3 minutes @ -55°+0/-3°C,<br>2-3 min. @ 25°C, 30±3 min. @ +125°+3/-0°C,<br>2-3 min. @ 25°C<br>Measure after 24±2 hour cooling period |
| HUMIDITY, STEADY STATE: | No mechanical damage.<br>Capacitance change: ±5.0% or 0.50pF max.<br>Q>300 I.R. ≥ 1 G-Ohm<br>DWV[2]: 2.5 x WVDC[1] | Relative humidity: 90-95%<br>Temperature: 40°±2°C<br>Test time: 500 +12/-0 Hours<br>Measure after 24±2 hour cooling period |
| HUMIDITY, LOW VOLTAGE: | No mechanical damage.<br>Capacitance change: ±5.0% or 0.50pF max.<br>Q>300 I.R. = 1 G-Ohm min.<br>DWV[2]: 2.5 x WVDC[1] | Applied voltage: 1.5 VDC, 50 mA max.<br>Relative humidity: 85±2% Temperature: 40°±2°C<br>Test time: 240 +12/-0 Hours<br>Measure after 24±2 hour cooling period |
| VIBRATION: | No mechanical damage.<br>Capacitance change: ±2.5% or 0.25pF<br>Q>1000 I.R. ≥ 10 G-Ohm<br>DWV[2]: 2.5 x WVDC[1] | Cycle performed for 2 hours in each of three perpendicular directions<br>Frequency range 10Hz to 55 Hz to 10 Hz traversed<br>in 1 minute. Harmonic motion amplitude: 1.5mm |

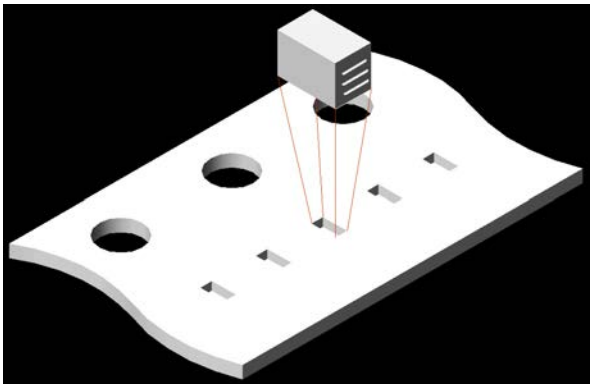
[1] - WVDC - Working Voltage DC.
[2] - DWV - Dielectric Withstanding Voltage.
[3] - 0402 ≥ 2.0lbs, 0603 ≥ 4.0lbs (min).
AEC-Q200: Qualification required for automotive application - Not available for all series - Call factory for info.

## Mechanical Characteristics

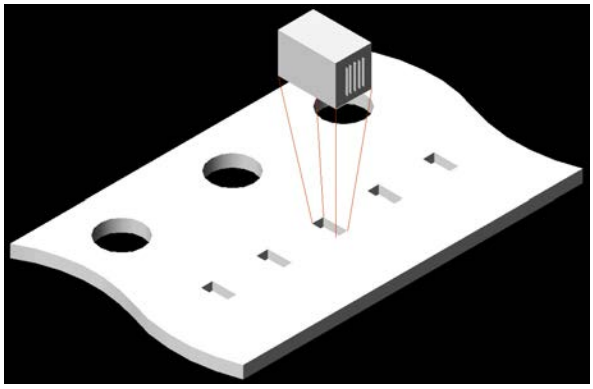
| Size | Units | Length | Width | Thickness | End Band |
|---|---|---|---|---|---|
| EIA 0201 | In | .024 ±.001 | .012 ±.001 | .012 ±.001 | .008 Max. |
| Metric (0603) | mm | (0.60 ±0.03) | (0.30 ±0.03) | (0.30 ±0.03) | (0.20 Max.) |
| EIA 0402 | In | .040 ±.004 | .020 ±.004 | .020 ±.004 | .010 ±.006 |
| Metric (1005) | mm | (1.02 ±0.1) | (0.51 ±0.1) | (0.51 ±0.1) | (0.25 ±.15) |
| EIA 0603 | In | .062 ±.006 | .032 ±.006 | .030 +.005/-.003 | .014 ±.006 |
| Metric (1608) | mm | (1.57 ±0.15) | (0.81 ±0.15) | (0.76 +.13-.08) | (0.35 ±.15) |
| EIA 0805 | In | .080 ±.008 | .050 ±.008 | .040 ±.006 | .020 ±.010 |
| Metric (2012) | mm | (2.03 ±0.20) | (1.27 ±0.20) | (1.02 ±.15) | (0.50 ±.25) |

## Horizontal and Verticle Oriented Capacitors

### Horizontal Electrode Orientation



### Vertical Electrode Orientation



## Applications & Features

| | |
|---|---|
| Size: | EIA 0201, 0805, 1111 |
| Performance: | SRF's up to 20 GHz, Ultra High Q, Tight tolerance, Ultralow ESR |
| Termination: | Ni/Au, Ni/Sn, Ni/SnPb |
| Applications: | High Frequency Wireless Communications, Portable Wireless Products, Battery Powered Products |

RoHS Compliant

## Benifits of using Oriented Capacitors

- Consistent Orientation - Improved repeatability of production circuits.
- Consistent Orientation - More consistent filter performance.
- Vertical Orientation - The elimination of parallel frequencies.
- Vertical Orinetation - Lower inductance for a given capacitor.
- Horizontal Orientation - Lower coupling between adjacent capacitors.

# E-Series Terminations and Leads

## CHIP DIMENSIONS

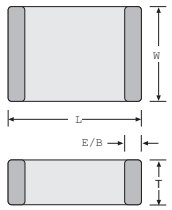
| Termination | Size | Units | L | Tol | W | Tol | T | E / B | Tol |
|---|---|---|---|---|---|---|---|---|---|
| V,T U,C | S42E | In | 0.110 | +.020 -.010 | 0.110 | +/- .015 | 0.102 Max. | 0.015 Typ. | +/- 0.008 |
| | | mm | 2.79 | +0.51 -0.25 | 2.79 | +/- 0.38 | 2.59 Max. | 0.38 Typ. | +/- 0.20 |
| | S48E | In | 0.230 | +.025 -.010 | 0.250 | +/- .015 | 0.150 Max. | 0.025 Typ. | |
| | | mm | 5.84 | +0.63 -0.25 | 6.35 | +/- 0.38 | 3.81 Max. | 0.63 Typ. | |
| | S58E | In | 0.380 | +.015 -.010 | 0.380 | +/- .010 | 0.170 Max. | 0.025 Typ. | |
| | | mm | 9.65 | +0.38 -0.25 | 9.65 | +/- 0.25 | 4.32 Max. | 0.63 Typ. | |

For all E-Series Models:

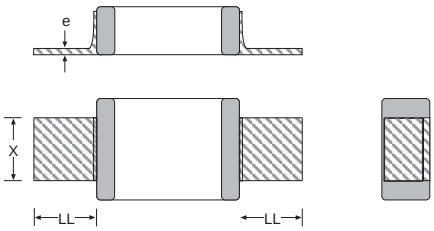
| | |
|---|---|
| OPERATING TEMP. : | -55 to +150°C |
| INSULATION RESISTANCE: | >10G Ω @ 25°C |
| TEMPERATURE COEFFICIENT: | 0 ± 30ppm /°C, -55 to 125°C |
| DISSIPATION FACTOR (TYP.): | < 0.05% @ 1 MHz |

Drawings not to scale

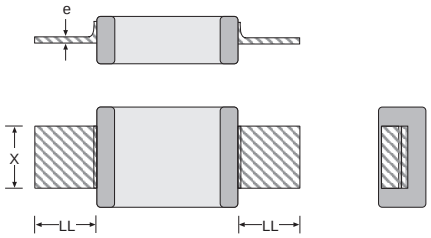
Unleaded Termination Codes "V" (Ni/Sn), "T" (Ni/SnPb), "U" (Cu/Sn non-mag), "C" (Cu/SnPb non-mag)



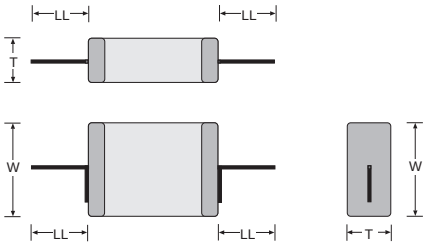

Microstrip Ribbon Leads (Non-Magnetic), Termination Code "1"



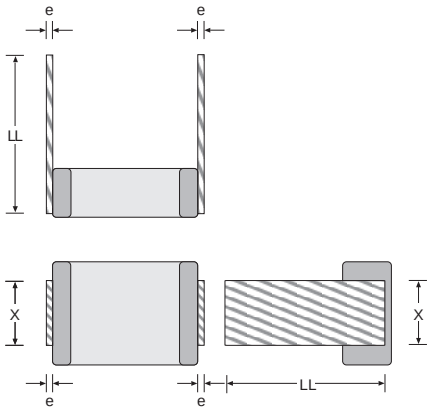

Axial Ribbon Leads (Non-Magnetic), Termination Code "2"



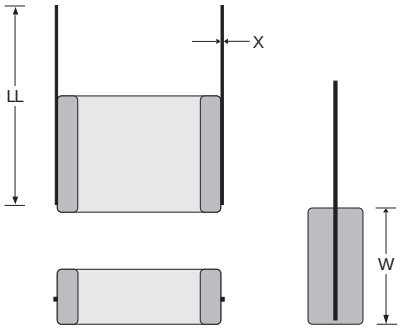

Axial Wire Leads (Non-Magnetic), Termination Code "3"




Radial Ribbon Leads (Non-Magnetic), Termination Code "4"




Radial Wire Leads (Non-Magnetic), Termination Code "5"

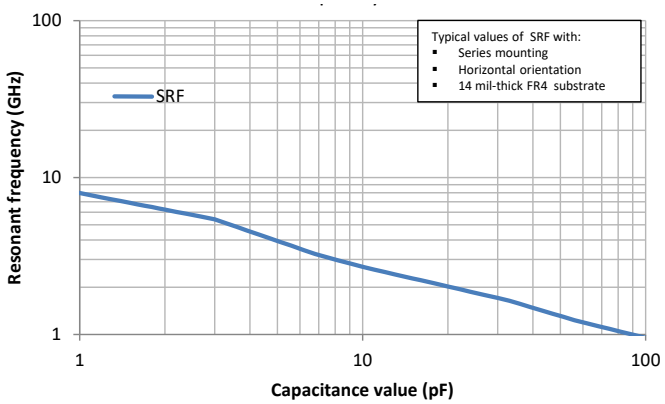



| Lead | Size | LL(min) | X | Tol | e | e-Tol |
|---|---|---|---|---|---|---|
| 1 | S42E | 0.25 | 0.093 | +/-0.005 | 0.004 | +/- 0.002 |
| | | 6.40 | 2.36 | +/- 0.13 | 0.102 | +/- 0.051 |
| | S48E | 0.394 | 0.217 | +/- 0.02 | 0.009 | - 0.0019/+ 0.0031 |
| | | 10.0 | 5.5 | +/- 0.50 | 0.220 | - 0.050/+ 0.080 |
| | S58E | 0.748 | 0.35 | +/- 0.02 | 0.010 | - 0.0019/+ 0.0039 |
| | | 19.00 | 8.90 | +/- 0.50 | 0.250 | - 0.050/+ 0.100 |
| 2 | S42E | 0.25 | 0.093 | +/-0.005 | 0.004 | +/- 0.002 |
| | | 6.40 | 2.36 | +/- 0.13 | 0.102 | +/- 0.051 |
| | S48E | 0.394 | 0.217 | +/- 0.02 | 0.009 | - 0.0019/+ 0.0031 |
| | | 10.00 | 5.50 | +/- 0.50 | 0.220 | - 0.050/+ 0.080 |
| | S58E | 0.748 | 0.35 | +/- 0.02 | 0.010 | - 0.0019/+ 0.0039 |
| | | 19.00 | 8.90 | +/- 0.50 | 0.25 | - 0.050/+ 0.100 |
| 3 | S42E | 0.25 | 0.020in (0.511) diameter wire | | | |
| | | 6.40 | | | | |
| | S48E | 0.394 | | | | |
| | | 10.00 | | | | |
| | S58E | 0.748 | | | | |
| | | 19.00 | | | | |

| Lead | Size | LL(min) | X | Tol | e | e-Tol |
|---|---|---|---|---|---|---|
| 4 | S42E | 0.352 | 0.093 | +/-0.005 | 0.004 | +/- 0.002 |
| | | 8.90 | 2.36 | +/- 0.13 | 0.102 | +/- 0.051 |
| | S48E | 0.501 | 0.217 | +/- 0.02 | 0.009 | - 0.0019/+ 0.0031 |
| | | 12.70 | 5.50 | +/- 0.50 | 0.220 | - 0.050/+ 0.080 |
| | S58E | 0.886 | 0.35 | +/- 0.02 | 0.010 | - 0.0019/+ 0.0039 |
| | | 22.50 | 8.90 | +/- 0.50 | 0.25 | - 0.050/+ 0.100 |
| 5 | S42E | 0.25 | 0.020in (0.511) diameter wire | | | |
| | | 6.40 | | | | |
| | S48E | 0.394 | | | | |
| | | 10.00 | | | | |
| | S58E | 0.748 | | | | |
| | | 19.00 | | | | |

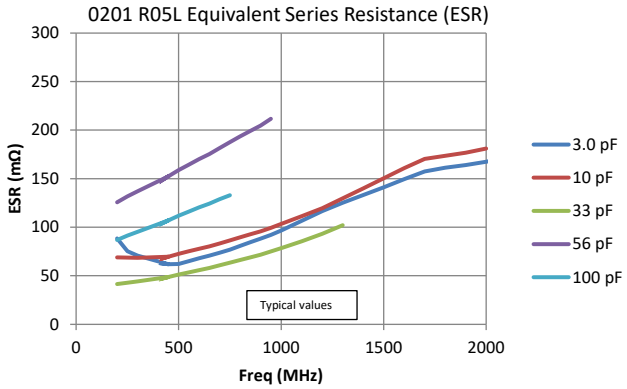
## RF Characteristics - 0201 R05L Series More data at: https://jtisoft.johansontechnology.com

Resonant Frequency : 0201/R05L

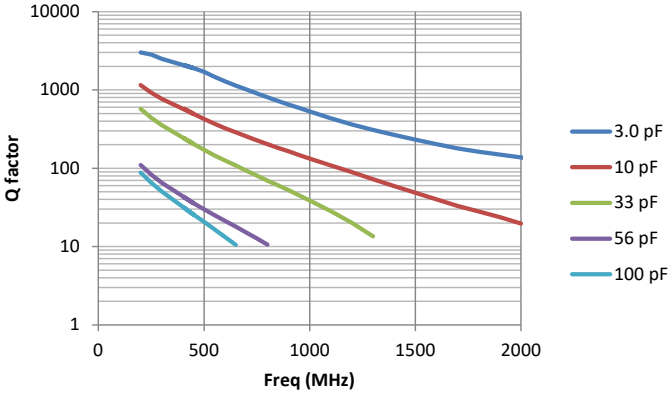



The Series Resonant Frequency is highly dependent on the substrate, pad dimensions, and measurement method. The above chart is for reference only.

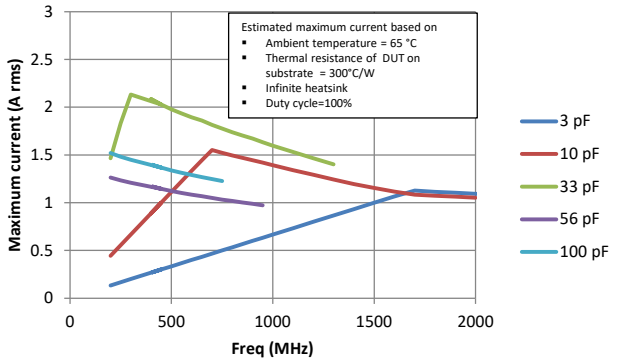
0201 R05L Equivalent Series Resistance (ESR)




0201 R05L Q factor

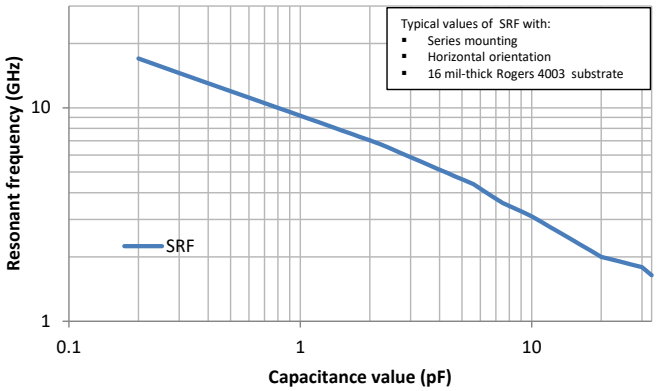



0201 R05L Max Current



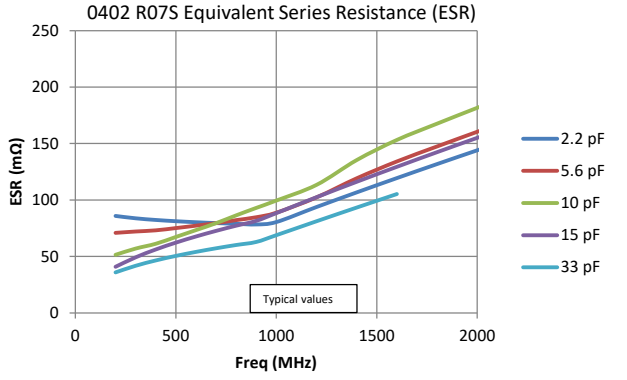

## RF Characteristics - 0402 R07S Series More data at: https://jtisoft.johansontechnology.com

0402 R07S Series Resonant frequency

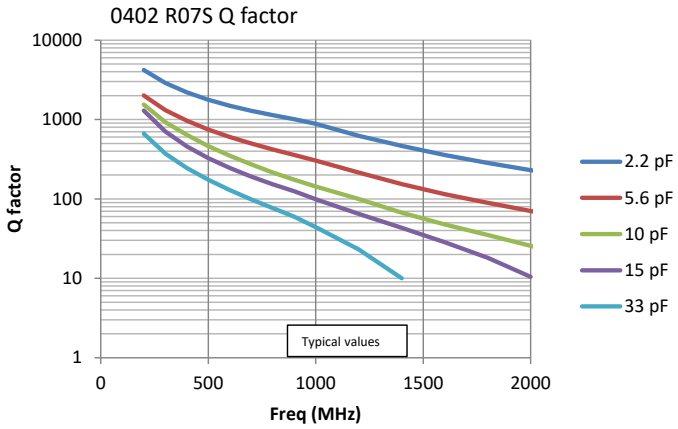


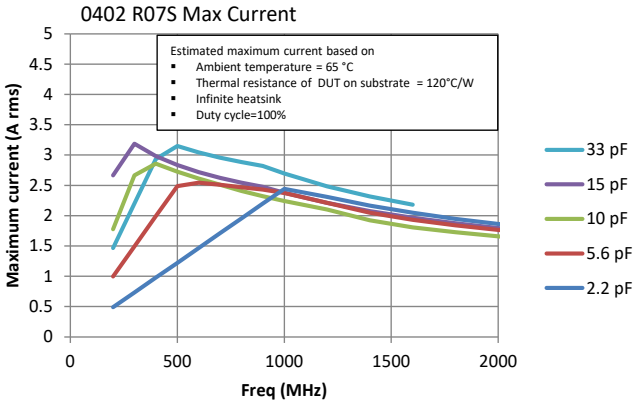

The Series Resonant Frequency is highly dependent on the substrate, pad dimensions, and measurement method. The above chart is for reference only.

0402 R07S Equivalent Series Resistance (ESR)

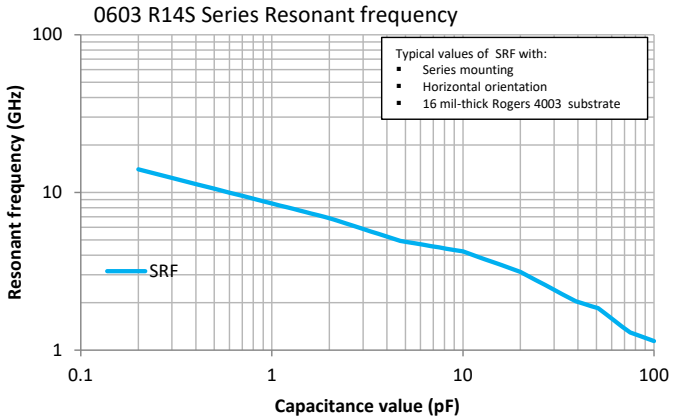


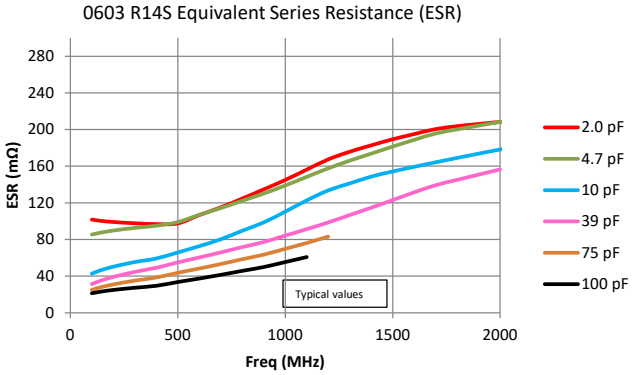
## RF Characteristics 0402 R07S Series More data at: https://jtisoft.johansontechnology.com



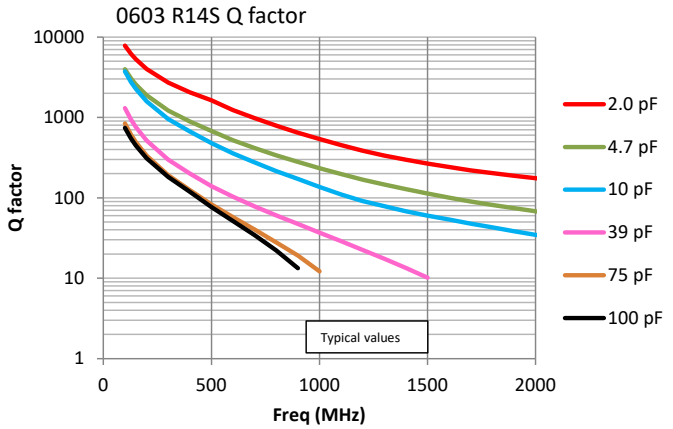



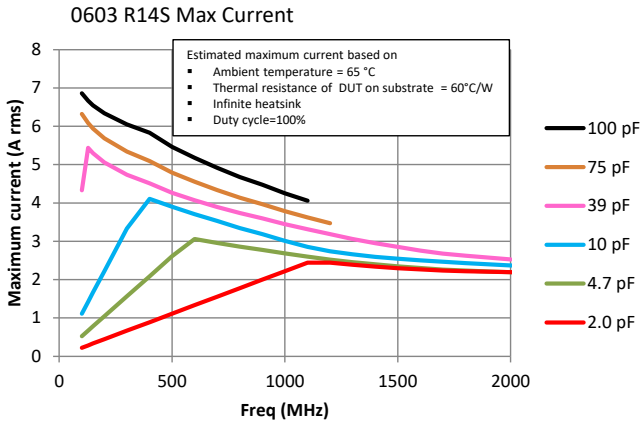

## RF Characteristics 0603 R14S Series More data at: https://jtisoft.johansontechnology.com

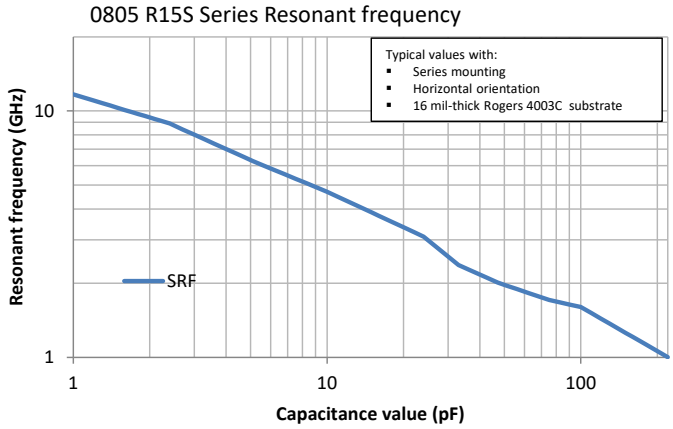


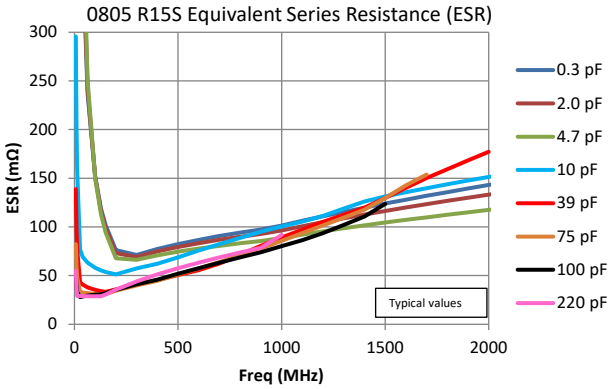

The Series Resonant Frequency is highly dependent on the substrate, pad dimensions, and measurement method. The above chart is for reference only.

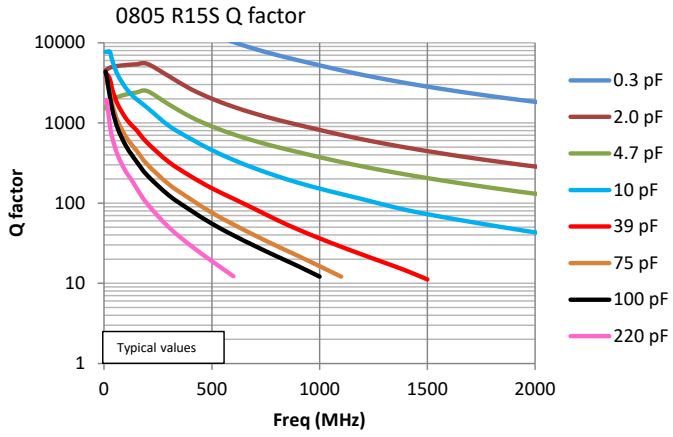


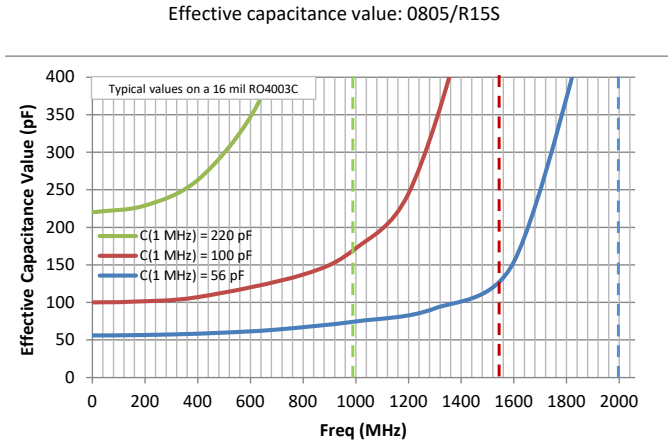



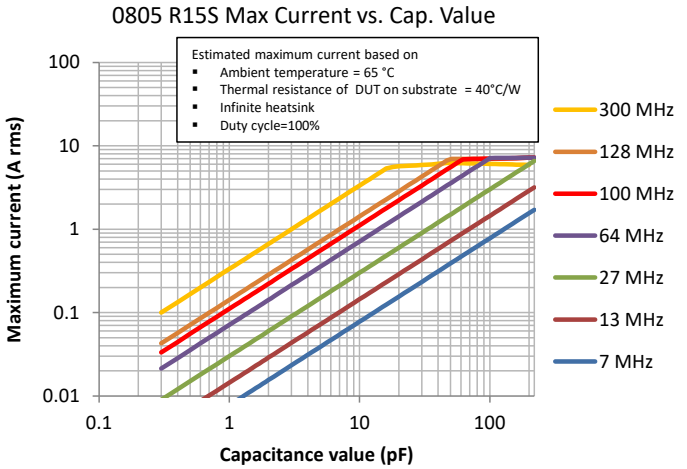


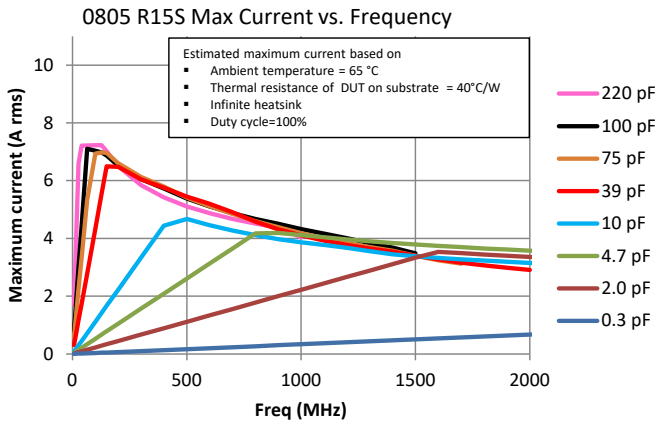

The Series Resonant Frequency is highly dependent on the substrate, pad dimensions, and measurement method. The above chart is for reference only.

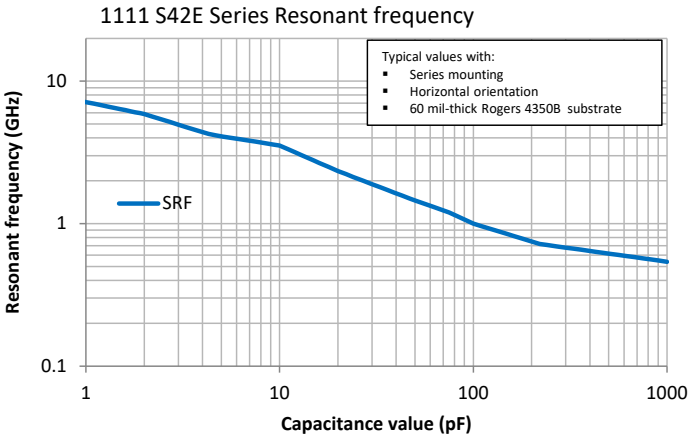


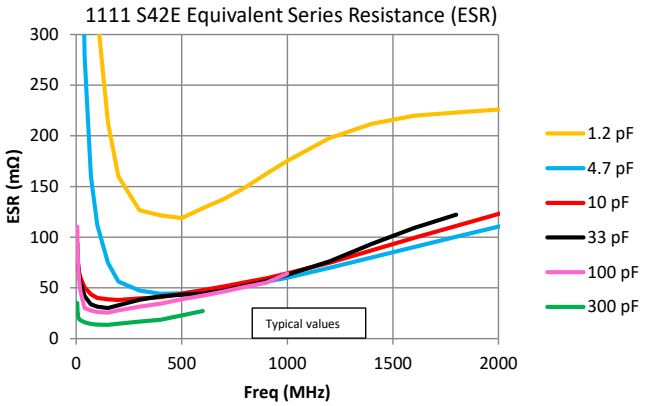



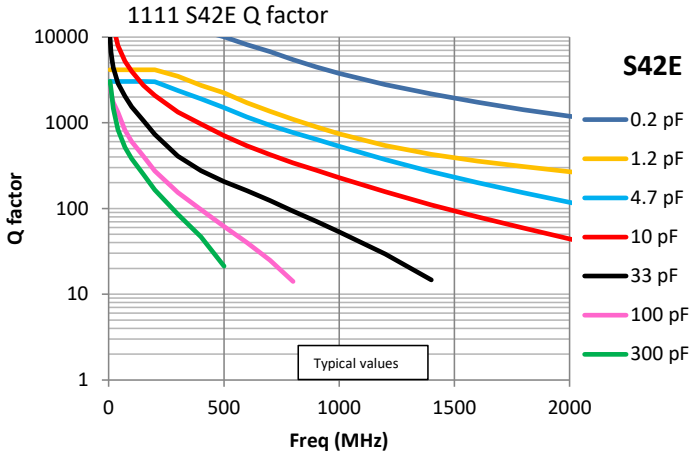



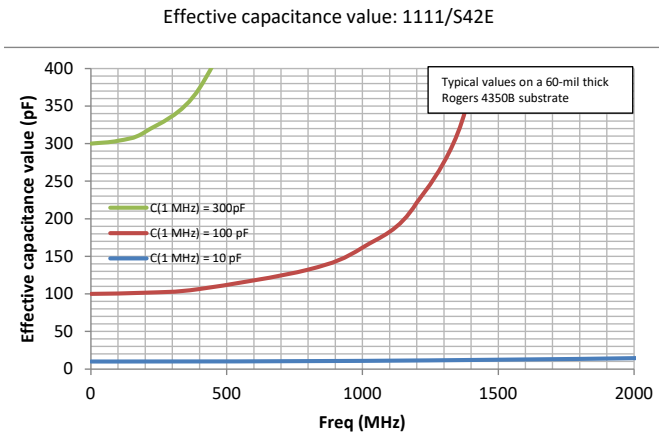



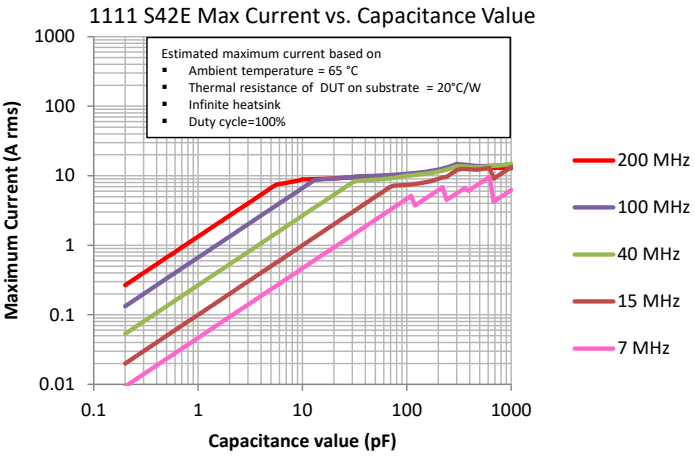


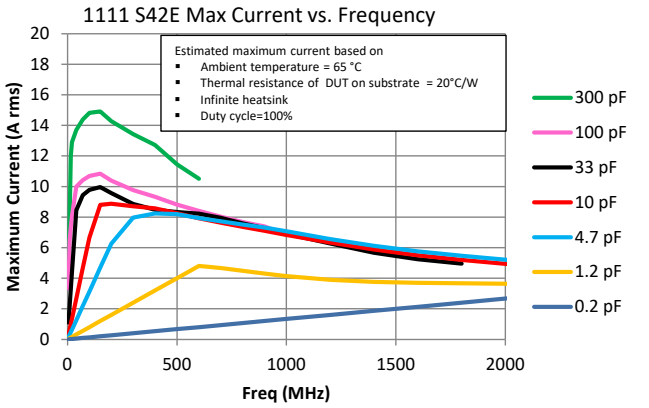

The Series Resonant Frequency is highly dependent on the substrate, pad dimensions, and measurement method. The above chart is for reference only.

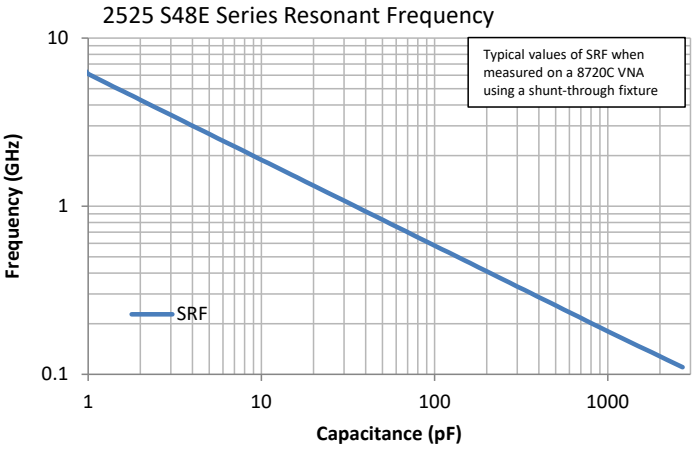


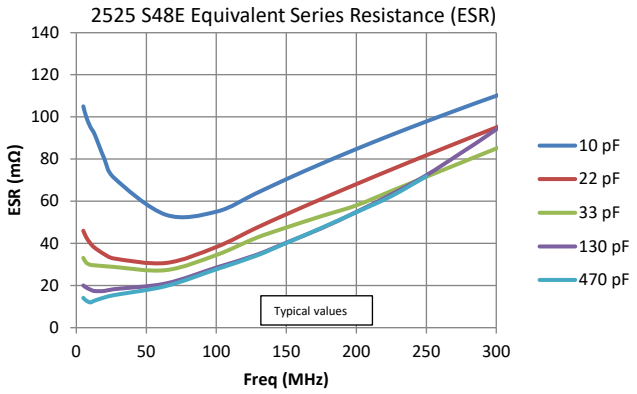



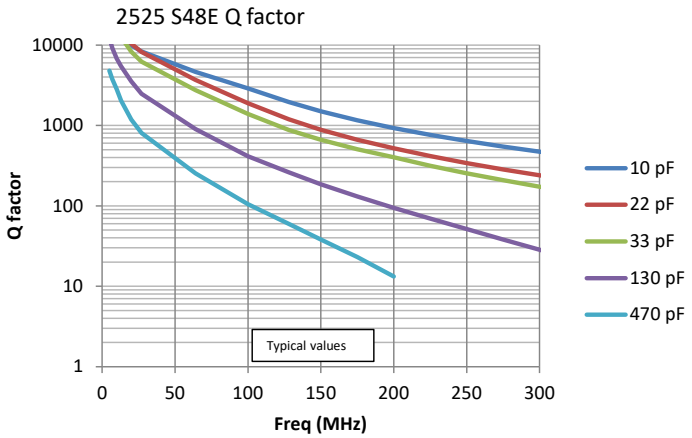



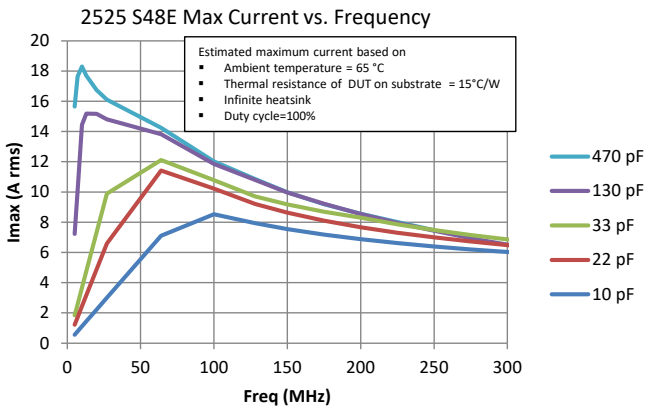





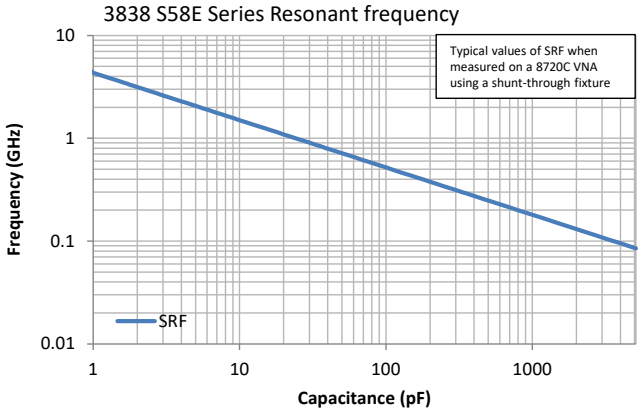

The Series Resonant Frequency is highly dependent on the substrate, pad dimensions, and measurement method. The above chart is for reference only.



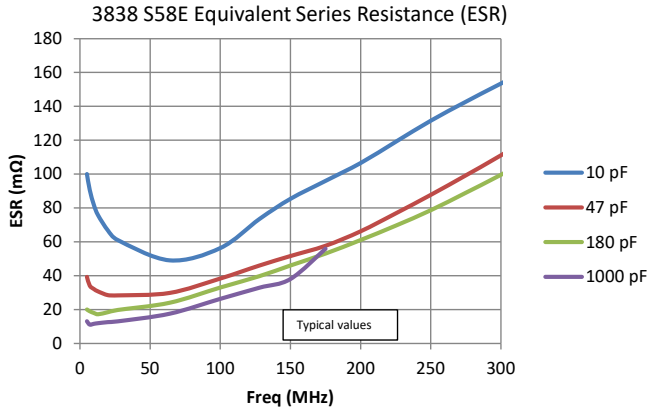



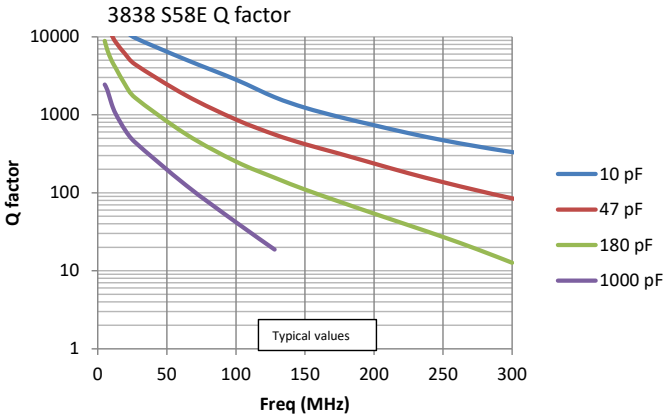



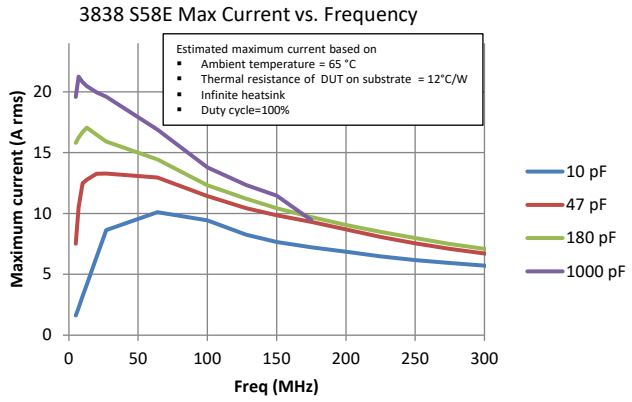
# RF Characteristics - 3838 S58E Series




The Series Resonant Frequency is highly dependent on the substrate, pad dimensions, and measurement method. The above chart is for reference only.



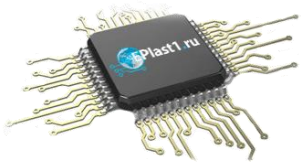
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

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
**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.