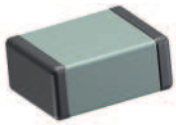
# MLCC HIGH Q
# 50V - 500V

## • Applications

**RF and microwave communication (100MHz - 5GHz) for satellite communcation, base station, wireless devices, radar**



RoHS compliant

## • Electrical Parameters

| | |
|---|---|
| **Electrical Characteristics** | at + 25°C unless otherwise specified |
| **Operating Temperature** | - 55°C, + 125°C |
| **Temperature Coefficient** | ± 30ppm |
| **Dissipation Factor** | ≤ $5.10^{-4}$ at 1Vrms and 1MHz for values ≤ 1000pF<br>≤ $5.10^{-4}$ at 1Vrms and 1KHz for values > 1000pF |

**Insulation Resistance (IR)**
25°C/Un $10^5$ MOhm or 1000 Ohm-Farad whichever is less
125°C/Un $10^4$ MOhm or 100 Ohm-Farad whichever is less
**Dielectric Strength Test**
Performed per method 103 of EIA 198-2-E
Applied test voltages :
≤ 100Vdc-rated : 250% of rated voltage
200Vdc-rated : 250% of rated voltage
500Vdc-rated : 200% of rated voltage

## • Quick Reference Data

| | 0402 | 0504 | 0603 | 0805 | 1206 | 1210 |
|---|---|---|---|---|---|---|
| 50V | 0.47pF - 68pF | 1pF - 560pF | | | | |
| 100V | 0.47pF - 47pF | 1pF - 68pF | 1pF - 330pF | 1pF - 820pF | 1pF - 1nF | 1pF - 1nF |
| 200V | 0.47pF - 22pF | | 1pF - 100pF | 1pF - 470pF | 1pF - 680pF | 1pF - 820pF |
| 500V | | | 1pF - 68pF | 1pF - 220pF | 1pF - 560pF | 1pF - 680pF |

## • Ordering Information

| 1206 | Q | 560 | F | E | X | B | XX |
|---|---|---|---|---|---|---|---|

**SIZE**
0402
0504
0603
0805
1206
1210

**DIELECTRIC**
Q = High Q

**CAPACITANCE**
Expressed in picofarads (pF).
The first two digits are significant, the third digit give the number of noughts.
Example :
102 = 1000pF

**TOLERANCE**
A = ± 0.05pF
B = ± 0.1pF
C = 0.25pF
D = ± 0.5pF
F = ± 1%
G = ± 2%
J = ± 5%

**VOLTAGE**
A = 50V
B = 100V
C = 200V
E = 500V

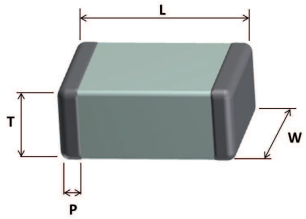
**TERMINATION**
F = Palladium-Silver
X = Nickel Tin
P = Polymer Tin
C = Copper Tin
W = Nickel Gold

**PACKAGING**
B = 7'' reel
V = Bulk

**SPECIAL REQUIREMENT**

## • Dimensions in millimeters

| Designation | | 0402 | 0504 | 0603 | 0805 | 1206 | 1210 |
|---|---|---|---|---|---|---|---|
| Length (L) | | 1.00 ± 0.1 | 1.25 ± 0.1 | 1.60 ± 0.1 | 2.00 ± 0.2 | 3.20 ± 0.2 | 3.20 ± 0.2 |
| Width (W) | | 0.50 ± 0.1 | 1 ± 0.1 | 0.80 ± 0.1 | 1.25 ± 0.2 | 1.60 ± 0.2 | 2.50 ± 0.2 |
| Thickness (T) | | 0.60 | 1 | 0.90 | 1.40 | 1.70 | 1.70 |
| Termination (P) | Min | 0.10 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| | Max | 0.40 | 0.40 | 0.40 | 0.70 | 0.70 | 0.80 |



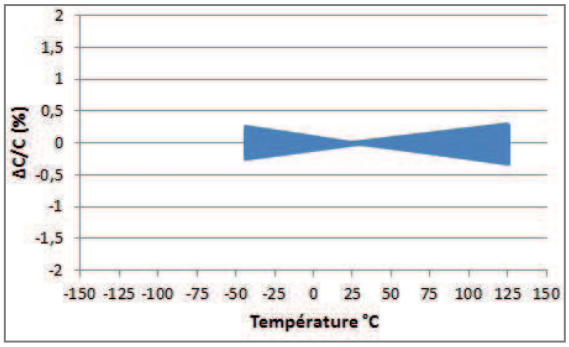

For P termination (Polymer type) add 0.20mm to all dimensions.

## • Standard Sizes : 0402 to 1210

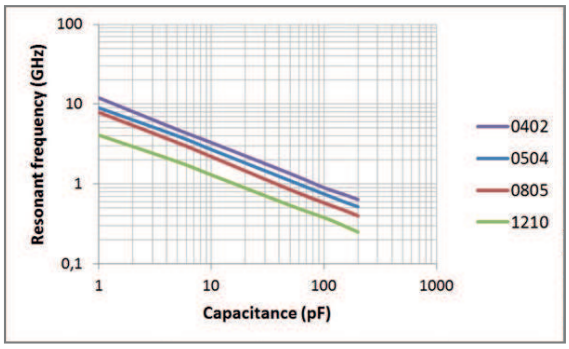
| SIZE | | 0402 | | | 0504 | | 0603 | | | 0805 | | | 1206 | | | 1210 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Voltage (Vdc) | | 50 | 100 | 200 | 50 | 100 | 100 | 200 | 500 | 100 | 200 | 500 | 100 | 200 | 500 | 100 | 200 | 500 |
| Cap. Code | Capacitance | | | | | | | | | | | | | | | | | |
| 1R0 | 1pF | | | | | | | | | | | | | | | | | |
| 1R2 | 1.2pF | | | | | | | | | | | | | | | | | |
| 1R5 | 1.5pF | | | | | | | | | | | | | | | | | |
| 1R8 | 1.8pF | | | | | | | | | | | | | | | | | |
| 2R2 | 2.2pF | | | | | | | | | | | | | | | | | |
| 2R7 | 2.7pF | | | | | | | | | | | | | | | | | |
| 3R3 | 3.3pF | | | | | | | | | | | | | | | | | |
| 3R9 | 3.9pF | | | | | | | | | | | | | | | | | |
| 4R7 | 4.7pF | | | | | | | | | | | | | | | | | |
| 5R6 | 5.6pF | | | | | | | | | | | | | | | | | |
| 6R8 | 6.8pF | | | | | | | | | | | | | | | | | |
| 8R2 | 8.2pF | | | | | | | | | | | | | | | | | |
| 100 | 10pF | | | | | | | | | | | | | | | | | |
| 120 | 12pF | | | | | | | | | | | | | | | | | |
| 150 | 15pF | | | | | | | | | | | | | | | | | |
| 180 | 18pF | | | | | | | | | | | | | | | | | |
| 220 | 22pF | | | | | | | | | | | | | | | | | |
| 270 | 27pF | | | | | | | | | | | | | | | | | |
| 330 | 33pF | | | | | | | | | | | | | | | | | |
| 390 | 39pF | | | | | | | | | | | | | | | | | |
| 470 | 47pF | | | | | | | | | | | | | | | | | |
| 560 | 56pF | | | | | | | | | | | | | | | | | |
| 680 | 68pF | | | | | | | | | | | | | | | | | |
| 820 | 82pF | | | | | | | | | | | | | | | | | |
| 101 | 100pF | | | | | | | | | | | | | | | | | |
| 121 | 120pF | | | | | | | | | | | | | | | | | |
| 151 | 150pF | | | | | | | | | | | | | | | | | |
| 181 | 180pF | | | | | | | | | | | | | | | | | |
| 221 | 220pF | | | | | | | | | | | | | | | | | |
| 271 | 270pF | | | | | | | | | | | | | | | | | |
| 331 | 330pF | | | | | | | | | | | | | | | | | |
| 391 | 390pF | | | | | | | | | | | | | | | | | |
| 471 | 470pF | | | | | | | | | | | | | | | | | |
| 561 | 560pF | | | | | | | | | | | | | | | | | |
| 681 | 680pF | | | | | | | | | | | | | | | | | |
| 821 | 820pF | | | | | | | | | | | | | | | | | |
| 102 | 1nF | | | | | | | | | | | | | | | | | |

## • Typical Characteristics

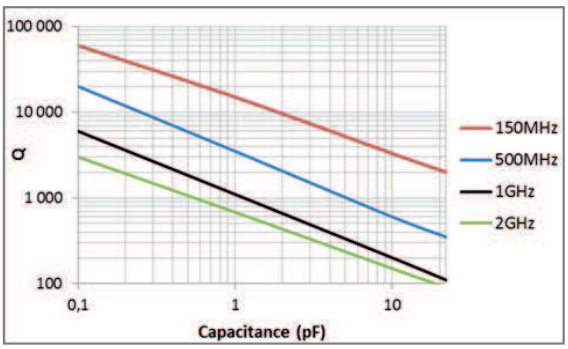
**Temperature coefficient of capacitance**



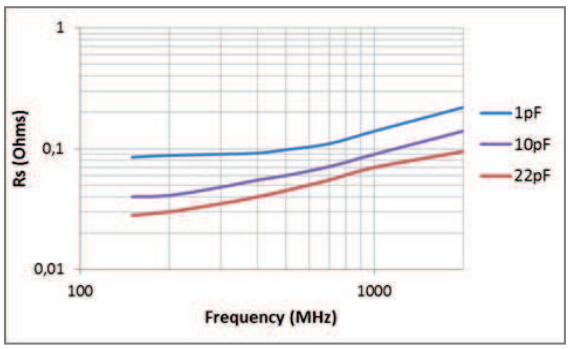

**Series resonant frequency**



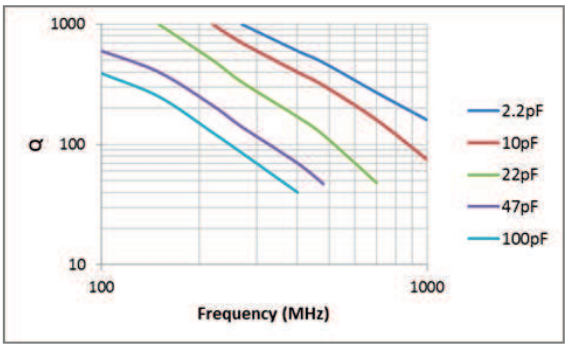

**Q / Frequency - 0402, 200V**




**ESR / Frequency - 0402, 200V**




**Q / Frequency - 0805, 1206, 200V**




**ESR / Frequency - 0805, 1206, 200V**