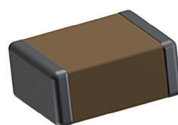


### Applications

- Magnetic resonance imaging
- Medical test equipment
- Laboratory analyse system



RoHS compliant

### Electrical Parameters

Manufactured with non magnetic materials

Electrical Characteristics at + 25°C unless otherwise specified

Operating Temperature - 55°C, + 125°C

Temperature Coefficient ± 15% with 0Vdc applied

Dissipation Factor 16V < Un < 25V 2.5% max at 1Vrms and 1kHz  
25V < Un < 50V 1% max at 1Vrms and 1kHz

Aging Rate : 1% max per decade

#### Insulation Resistance (IR)

25°C/Un 10<sup>5</sup> MOhm or 1000 Ohm-Farad whichever is less  
125°C/Un 10<sup>4</sup> 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  
250Vdc-rated : 250% of rated voltage  
500Vdc-rated : min 150% of rated voltage  
630Vdc, 1000Vdc-rated : min 120% of rated voltage

### Quick Reference Data

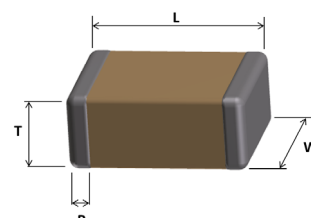
|       | 0402         | 0603          | 0805          | 1206          | 1210       | 1812          | 2220          | 3640          | 5550          |
|-------|--------------|---------------|---------------|---------------|------------|---------------|---------------|---------------|---------------|
| 16V   | 100pF - 47nF | 100pF - 120nF | 100pF - 220nF | 330pF - 1µF   | 1nF - 1µF  | 4.7nF - 15µF  | 4.7nF - 2.2µF |               |               |
| 25V   | 100pF - 39nF | 100pF - 100nF | 100pF - 270nF | 330pF - 680nF | 1nF - 1µF  | 4.7nF - 1.2µF | 4.7nF - 2.2µF |               |               |
| 50V   | 100pF - 22nF | 100pF - 100nF | 100pF - 220nF | 330pF - 470nF | 1nF - 1µF  | 4.7nF - 1.2µF | 10nF - 2.2µF  | 100nF - 5.6µF | 100nF - 8.2µF |
| 100V  |              | 100pF - 47nF  | 100pF - 68nF  | 330pF - 100nF | 1nF - 47nF | 4.7nF - 1µF   | 1nF - 2.2µF   | 100nF - 47µF  | 100nF - 6.8µF |
| 500V  |              | 100pF - 1.5nF | 100pF - 8.2nF | 100pF - 47nF  | 1nF - 22nF | 4.7nF - 270nF | 4.7nF - 560nF | 4.7nF - 1µF   | 100nF - 1.5µF |
| 1000V |              |               | 100pF - 1nF   | 100pF - 22nF  | 1nF - 33nF | 4.7nF - 100nF | 5.6nF - 120nF | 4.7nF - 150nF | 1nF - 270nF   |
| 3000V |              |               |               |               |            | 470pF - 4.7nF | 1nF - 6.8nF   | 470pF - 22nF  | 1nF - 47nF    |
| 6000V |              |               |               |               |            | 470pF - 1nF   | 470pF - 2.2nF | 470pF - 2.2nF | 1nF - 8.2nF   |

### Ordering Information

| 0805   | Y                 | 220   | J                                  | A  | P   | B                       | N                   |
|--|-------------------|---|------------------------------------|--|---|-------------------------|---------------------|
| <b>SIZE</b>  | <b>DIELECTRIC</b> | <b>CAPACITANCE</b>  | <b>TOLERANCE</b>                   | <b>VOLTAGE</b>   | <b>TERMINATION</b>  | <b>PACKAGING</b>        | <b>NON MAGNETIC</b> |
| 0402<br>0603<br>0805<br>1206<br>1210<br>1812<br>2220<br>3640<br>5550 | Y = X7R           | Expressed in picofarads (pF).<br>The first two digits are significant, the third digit give the number of noughts.<br>Example :<br>102 = 1000pF | J = ± 5%<br>K = ± 10%<br>M = ± 20% | J = 16V<br>X = 25V<br>A = 50V<br>B = 100V<br>E = 500V<br>G = 1000V<br>I = 3000V<br>M = 6000V | F = Palladium-Silver<br>C = Copper with Tin plated finish<br>W = Silver with Gold plated finish | B = 7" reel<br>V = Bulk |                     |

### Dimensions in millimeters

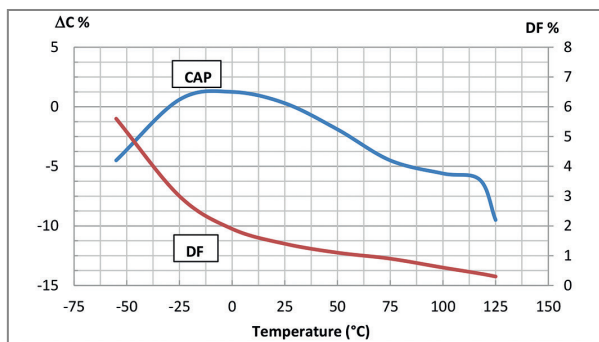
| Designation     | 0402       | 0603       | 0805       | 1206       | 1210       | 1812       | 2220       | 3640       | 5550    |
|-----------------|------------|------------|------------|------------|------------|------------|------------|------------|---------|
| Length (L)      | 1.00 ± 0.1 | 1.60 ± 0.1 | 2.00 ± 0.2 | 3.20 ± 0.2 | 3.20 ± 0.2 | 4.50 ± 0.3 | 5.70 ± 0.4 | 9.20 ± 0.4 | 14.00 ± |
| Width (W)       | 0.50 ± 0.1 | 0.80 ± 0.1 | 1.25 ± 0.2 | 1.60 ± 0.2 | 2.50 ± 0.2 | 3.20 ± 0.2 | 5.00 ± 0.4 | 10.2 ± 0.4 | 12.70 ± |
| Thickness (T)   | 0.60       | 0.90       | 1.40       | 1.70       | 1.70       | 2.80       | 4.00       | 6.00       |         |
| Termination (P) | Min        | 0.10       | 0.25       | 0.25       | 0.25       | 0.25       | 0.25       | 0.80       |         |
|                 | Max        | 0.40       | 0.40       | 0.70       | 0.70       | 0.80       | 1.00       | 1.50       |         |



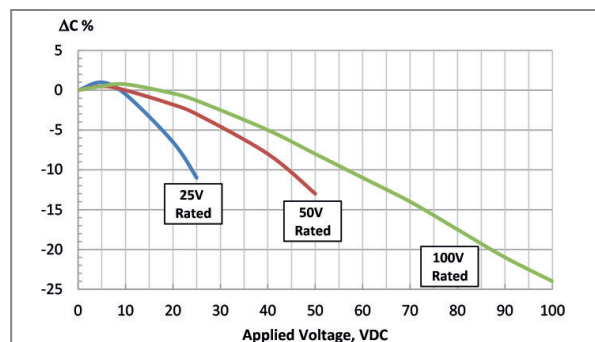
For P termination (Polymer type) add 0.20mm to all dimensions.

• **Typical Characteristics**

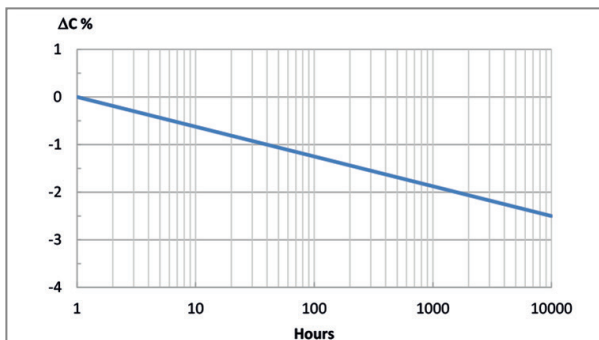
**X7R Capacitance and dissipation factor vs temperature**



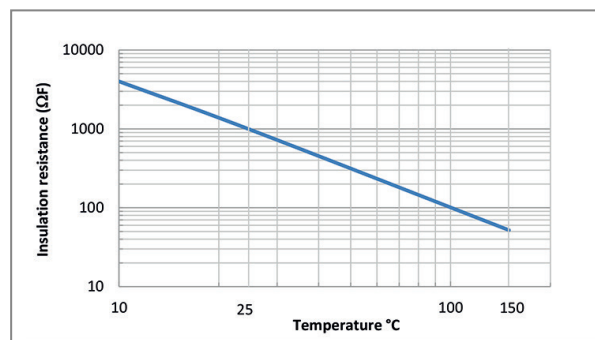
**X7R Voltage coefficient of capacitance**



**X7R Aging**



**X7R Insulation resistance vs temperature**



**X7R Impedance vs frequency**

