



# MULTILAYER CERAMIC CHIP CAPACITORS



## C Series General Application

|       |                     |
|-------|---------------------|
| Type: | C0402 [EIA CC01005] |
|       | C0603 [EIA CC0201]  |
|       | C1005 [EIA CC0402]  |
|       | C1608 [EIA CC0603]  |
|       | C2012 [EIA CC0805]  |
|       | C3216 [EIA CC1206]  |
|       | C3225 [EIA CC1210]  |
|       | C4532 [EIA CC1812]  |
|       | C5750 [EIA CC2220]  |

|             |            |
|-------------|------------|
| Issue date: | April 2011 |
|-------------|------------|



**TDK MLCC  
US Catalog**

Version B11

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Please read before using this product

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## C Series General Application

Type: C0402, C0603, C1005, C1608,  
C2012, C3216, C3225, C4532, C5750

### Features



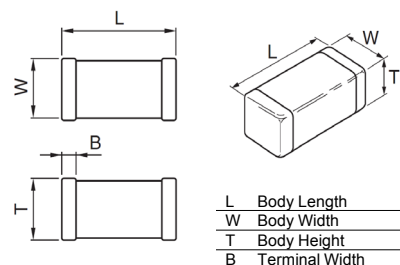
- High capacitance has been achieved through precision technologies that enable the use of multiple thinner ceramic dielectric layers.
- A monolithic structure ensures superior mechanical strength and reliability.
- High-accuracy automatic mounting is facilitated through the maintenance of very precise dimensional tolerances.
- Composed of only ceramics and metals, these capacitors provide extremely dependable performance, exhibiting virtually no degradation even when subjected to temperature extremes.
- Low stray capacitance ensures high conformity with nominal values, thereby simplifying the circuit design process.
- Low residual inductance assures superior frequency characteristics.
- Because electrostatic capacity has been obtained up to the electrolytic capacitor range, these capacitors offer long service life and are optimally suited for power supply designs that require high levels of reliability.
- Owing to their low ESR and excellent frequency characteristics, these products are optimally suited for high frequency and high-density type power supplies.

### Applications



- Electronics equipment
- Mobile communications equipment
- Office automation equipment
- Automotive electronics
- Test and measurement equipment
- Hybrid ICs, etc.
- Decoupling
- Smoothing
- Charge pump

### Shape & Dimensions



Dimensions in mm

|   |                |
|---|----------------|
| L | Body Length    |
| W | Body Width     |
| T | Body Height    |
| B | Terminal Width |

### Part Number Construction

Series Name **C** **2012** **X7R** **1E** **105** **K** **T** **XXXX**

#### Dimensions L x W (mm)

| Case Code | Length      | Width       |
|-----------|-------------|-------------|
| C0402     | 0.40 ± 0.02 | 0.20 ± 0.02 |
| C0603     | 0.60 ± 0.03 | 0.30 ± 0.03 |
| C1005     | 1.00 ± 0.05 | 0.50 ± 0.05 |
| C1608     | 1.60 ± 0.10 | 0.80 ± 0.10 |
| C2012     | 2.00 ± 0.20 | 1.25 ± 0.20 |
| C3216     | 3.20 ± 0.20 | 1.60 ± 0.20 |
| C3225     | 3.20 ± 0.40 | 2.50 ± 0.30 |
| C4532     | 4.50 ± 0.40 | 3.20 ± 0.40 |
| C5750     | 5.70 ± 0.40 | 5.00 ± 0.40 |

#### Temperature Characteristic

| Temperature Characteristics | Capacitance Change | Temperature Range |
|-----------------------------|--------------------|-------------------|
| C0G                         | 0±30 ppm/°C        | -55 to +125°C     |
| SL                          | +350/-1000 ppm/°C  | -25 to +85°C      |
| X5R                         | ±15%               | -55 to +85°C      |
| X6S                         | +22%               | -55 to +105°C     |
| X7R                         | ±15%               | -55 to +125°C     |
| X7S                         | +22%               | -55 to +125°C     |
| Y5V                         | +22/-82%           | -33 to +85°C      |

#### Rated Voltage (DC)

| Voltage Code | Voltage (DC) | Voltage Code | Voltage (DC) | Voltage Code | Voltage (DC) |
|--------------|--------------|--------------|--------------|--------------|--------------|
| 0G           | 4V           | 1C           | 16V          | 1H           | 50V          |
| 0J           | 6.3V         | 1E           | 25V          |              |              |
| 1A           | 10V          | 1V           | 35V          |              |              |

#### Internal Codes

##### Packaging Style

| Packaging Code | Style       |
|----------------|-------------|
| T              | Tape & Reel |

##### Capacitance Tolerance

| Tolerance Code | Tolerance |
|----------------|-----------|
| W              | ± 0.05 pF |
| B              | ± 0.10 pF |
| C              | ± 0.25 pF |
| D              | ± 0.50 pF |
| E              | ± 0.20 pF |
| G              | ± 2%      |
| J              | ± 5%      |
| K              | ± 10%     |
| M              | ± 20%     |
| Z              | +80-20%   |

##### Nominal Capacitance (pF)

The capacitance is expressed in three digit codes and in units of pico Farads (pF). The first and second digits identify the first and second significant figures of the capacitance. The third digit identifies the multiplier. R designates a decimal point.

| Capacitance Code | Capacitance       |
|------------------|-------------------|
| 0R5              | 0.5pF             |
| 010              | 1pF               |
| 102              | 1,000pF (1nF)     |
| 105              | 1,000,000pF (1μF) |



## Capacitance Range Chart

## C0402 [EIA CC01005]

### Capacitance Range Chart

Temperature Characteristics: C0G ( $0 \pm 30\text{ppm}/^\circ\text{C}$ )  
 Rated Voltage: 16V (1C)

| Capacitance (pF) | Cap Code | Tolerance                                                                                            | C0G<br>1C<br>(16V) |
|------------------|----------|------------------------------------------------------------------------------------------------------|--------------------|
| 0.1              | 0R1      | W: $\pm 0.05\text{pF}$<br>B: $\pm 0.10\text{pF}$<br>C: $\pm 0.25\text{pF}$<br>D: $\pm 0.50\text{pF}$ |                    |
| 0.2              | 0R2      |                                                                                                      |                    |
| 0.3              | 0R3      |                                                                                                      |                    |
| 0.4              | 0R4      |                                                                                                      |                    |
| 0.5              | 0R5      |                                                                                                      |                    |
| 0.6              | 0R6      |                                                                                                      |                    |
| 0.7              | 0R7      |                                                                                                      |                    |
| 0.8              | 0R8      |                                                                                                      |                    |
| 0.9              | 0R9      |                                                                                                      |                    |
| 1                | 010      |                                                                                                      |                    |
| 1.1              | 1R1      |                                                                                                      |                    |
| 1.2              | 1R2      |                                                                                                      |                    |
| 1.3              | 1R3      |                                                                                                      |                    |
| 1.5              | 1R5      |                                                                                                      |                    |
| 1.6              | 1R6      |                                                                                                      |                    |
| 1.8              | 1R8      |                                                                                                      |                    |
| 2                | 020      |                                                                                                      |                    |
| 2.2              | 2R2      |                                                                                                      |                    |
| 2.4              | 2R4      |                                                                                                      |                    |
| 2.7              | 2R7      |                                                                                                      |                    |
| 3                | 030      |                                                                                                      |                    |
| 3.3              | 3R3      |                                                                                                      |                    |
| 3.6              | 3R6      |                                                                                                      |                    |
| 3.9              | 3R9      |                                                                                                      |                    |
| 4.3              | 4R3      |                                                                                                      |                    |
| 4.7              | 4R7      |                                                                                                      |                    |
| 5.1              | 5R1      |                                                                                                      |                    |
| 5.6              | 5R6      |                                                                                                      |                    |
| 6.2              | 6R2      |                                                                                                      |                    |

| Capacitance (pF) | Cap Code | Tolerance                                                                                                                            | C0G<br>1C<br>(16V) |
|------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 6.8              | 6R8      | B: $\pm 0.10\text{pF}$<br>E: $\pm 0.20\text{pF}$<br>C: $\pm 0.25\text{pF}$<br>D: $\pm 0.50\text{pF}$<br>G: $\pm 2\%$<br>J: $\pm 5\%$ |                    |
| 7.5              | 7R5      |                                                                                                                                      |                    |
| 8.2              | 8R2      |                                                                                                                                      |                    |
| 9.1              | 9R1      |                                                                                                                                      |                    |
| 10               | 100      |                                                                                                                                      |                    |
| 11               | 110      |                                                                                                                                      |                    |
| 12               | 120      |                                                                                                                                      |                    |
| 13               | 130      |                                                                                                                                      |                    |
| 15               | 150      |                                                                                                                                      |                    |
| 16               | 160      |                                                                                                                                      |                    |
| 18               | 180      |                                                                                                                                      |                    |
| 20               | 200      |                                                                                                                                      |                    |
| 22               | 220      |                                                                                                                                      |                    |
| 24               | 240      |                                                                                                                                      |                    |
| 27               | 270      |                                                                                                                                      |                    |
| 30               | 300      |                                                                                                                                      |                    |
| 33               | 330      |                                                                                                                                      |                    |
| 36               | 360      |                                                                                                                                      |                    |
| 39               | 390      |                                                                                                                                      |                    |
| 43               | 430      |                                                                                                                                      |                    |
| 47               | 470      |                                                                                                                                      |                    |
| 51               | 510      |                                                                                                                                      |                    |
| 56               | 560      |                                                                                                                                      |                    |
| 62               | 620      |                                                                                                                                      |                    |
| 68               | 680      |                                                                                                                                      |                    |
| 75               | 750      |                                                                                                                                      |                    |
| 82               | 820      |                                                                                                                                      |                    |
| 91               | 910      |                                                                                                                                      |                    |
| 100              | 101      |                                                                                                                                      |                    |

• Standard capacitance is shown. Please refer to Capacitance Range Table for additional capacitance values.

### Capacitance Range Chart

Temperature Characteristics: X7R ( $\pm 15\%$ ), X5R ( $\pm 15\%$ )  
 Rated Voltage: 16V (1C), 10V (1A), 6.3V (0J)

| Capacitance (pF) | Cap Code | Tolerance     | X7R         |  |             |  | X5R         |  |              |  |
|------------------|----------|---------------|-------------|--|-------------|--|-------------|--|--------------|--|
|                  |          |               | 1A<br>(10V) |  | 1C<br>(16V) |  | 1A<br>(10V) |  | 0J<br>(6.3V) |  |
| 100              | 101      | K: $\pm 10\%$ |             |  |             |  |             |  |              |  |
| 150              | 151      |               |             |  |             |  |             |  |              |  |
| 220              | 221      |               |             |  |             |  |             |  |              |  |
| 330              | 331      |               |             |  |             |  |             |  |              |  |
| 470              | 471      |               |             |  |             |  |             |  |              |  |
| 680              | 681      |               |             |  |             |  |             |  |              |  |
| 1,000            | 102      |               |             |  |             |  |             |  |              |  |
| 1,500            | 152      |               |             |  |             |  |             |  |              |  |
| 2,200            | 222      |               |             |  |             |  |             |  |              |  |
| 3,300            | 332      |               |             |  |             |  |             |  |              |  |
| 4,700            | 472      |               |             |  |             |  |             |  |              |  |
| 6,800            | 682      |               |             |  |             |  |             |  |              |  |
| 10,000           | 103      |               |             |  |             |  |             |  |              |  |

Standard Thickness

0.20 mm



## Capacitance Range Table

## C0402 [EIA CC01005]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C0402C0G1C0R2W                     | C0G                            | 16V              | 0.2                 | ± 0.05pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R2B                     | C0G                            | 16V              | 0.2                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R3W                     | C0G                            | 16V              | 0.3                 | ± 0.05pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R3B                     | C0G                            | 16V              | 0.3                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R4W                     | C0G                            | 16V              | 0.4                 | ± 0.05pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R4B                     | C0G                            | 16V              | 0.4                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R5W                     | C0G                            | 16V              | 0.5                 | ± 0.05pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R5C                     | C0G                            | 16V              | 0.5                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R5B                     | C0G                            | 16V              | 0.5                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R6W                     | C0G                            | 16V              | 0.6                 | ± 0.05pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R6B                     | C0G                            | 16V              | 0.6                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R7W                     | C0G                            | 16V              | 0.7                 | ± 0.05pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R7B                     | C0G                            | 16V              | 0.7                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R8W                     | C0G                            | 16V              | 0.8                 | ± 0.05pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R8B                     | C0G                            | 16V              | 0.8                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R9W                     | C0G                            | 16V              | 0.9                 | ± 0.05pF                 | 0.20 ± 0.02       |
| C0402C0G1C0R9B                     | C0G                            | 16V              | 0.9                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C010B                     | C0G                            | 16V              | 1.0                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C010C                     | C0G                            | 16V              | 1.0                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C1R1B                     | C0G                            | 16V              | 1.1                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C1R1C                     | C0G                            | 16V              | 1.1                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C1R2B                     | C0G                            | 16V              | 1.2                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C1R2C                     | C0G                            | 16V              | 1.2                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C1R3B                     | C0G                            | 16V              | 1.3                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C1R3C                     | C0G                            | 16V              | 1.3                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C1R5B                     | C0G                            | 16V              | 1.5                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C1R5C                     | C0G                            | 16V              | 1.5                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C1R6B                     | C0G                            | 16V              | 1.6                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C1R6C                     | C0G                            | 16V              | 1.6                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C1R8B                     | C0G                            | 16V              | 1.8                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C1R8C                     | C0G                            | 16V              | 1.8                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C020B                     | C0G                            | 16V              | 2.0                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C020C                     | C0G                            | 16V              | 2.0                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C2R2B                     | C0G                            | 16V              | 2.2                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C2R2C                     | C0G                            | 16V              | 2.2                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C2R4B                     | C0G                            | 16V              | 2.4                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C2R4C                     | C0G                            | 16V              | 2.4                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C2R7B                     | C0G                            | 16V              | 2.7                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C2R7C                     | C0G                            | 16V              | 2.7                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C030B                     | C0G                            | 16V              | 3.0                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C030C                     | C0G                            | 16V              | 3.0                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C3R3B                     | C0G                            | 16V              | 3.3                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C3R3C                     | C0G                            | 16V              | 3.3                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C3R6B                     | C0G                            | 16V              | 3.6                 | ± 0.10pF                 | 0.20 ± 0.02       |



## Capacitance Range Table

## C0402 [EIA CC01005]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C0402C0G1C3R6C                     | C0G                            | 16V              | 3.6                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C3R9B                     | C0G                            | 16V              | 3.9                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C3R9C                     | C0G                            | 16V              | 3.9                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C040B                     | C0G                            | 16V              | 4.0                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C040C                     | C0G                            | 16V              | 4.0                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C4R3B                     | C0G                            | 16V              | 4.3                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C4R3C                     | C0G                            | 16V              | 4.3                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C4R7B                     | C0G                            | 16V              | 4.7                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C4R7C                     | C0G                            | 16V              | 4.7                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C050B                     | C0G                            | 16V              | 5.0                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C050C                     | C0G                            | 16V              | 5.0                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C5R1B                     | C0G                            | 16V              | 5.1                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C5R1C                     | C0G                            | 16V              | 5.1                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C5R1D                     | C0G                            | 16V              | 5.1                 | ± 0.50pF                 | 0.20 ± 0.02       |
| C0402C0G1C5R6B                     | C0G                            | 16V              | 5.6                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C5R6C                     | C0G                            | 16V              | 5.6                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C5R6D                     | C0G                            | 16V              | 5.6                 | ± 0.50pF                 | 0.20 ± 0.02       |
| C0402C0G1C060B                     | C0G                            | 16V              | 6.0                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C060C                     | C0G                            | 16V              | 6.0                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C060D                     | C0G                            | 16V              | 6.0                 | ± 0.50pF                 | 0.20 ± 0.02       |
| C0402C0G1C6R2B                     | C0G                            | 16V              | 6.2                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C6R2C                     | C0G                            | 16V              | 6.2                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C6R2D                     | C0G                            | 16V              | 6.2                 | ± 0.50pF                 | 0.20 ± 0.02       |
| C0402C0G1C6R8B                     | C0G                            | 16V              | 6.8                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C6R8C                     | C0G                            | 16V              | 6.8                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C6R8D                     | C0G                            | 16V              | 6.8                 | ± 0.50pF                 | 0.20 ± 0.02       |
| C0402C0G1C070B                     | C0G                            | 16V              | 7.0                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C070C                     | C0G                            | 16V              | 7.0                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C070D                     | C0G                            | 16V              | 7.0                 | ± 0.50pF                 | 0.20 ± 0.02       |
| C0402C0G1C7R5B                     | C0G                            | 16V              | 7.5                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C7R5C                     | C0G                            | 16V              | 7.5                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C7R5D                     | C0G                            | 16V              | 7.5                 | ± 0.50pF                 | 0.20 ± 0.02       |
| C0402C0G1C080B                     | C0G                            | 16V              | 8.0                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C080C                     | C0G                            | 16V              | 8.0                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C080D                     | C0G                            | 16V              | 8.0                 | ± 0.50pF                 | 0.20 ± 0.02       |
| C0402C0G1C8R2B                     | C0G                            | 16V              | 8.2                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C8R2C                     | C0G                            | 16V              | 8.2                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C8R2D                     | C0G                            | 16V              | 8.2                 | ± 0.50pF                 | 0.20 ± 0.02       |
| C0402C0G1C090B                     | C0G                            | 16V              | 9.0                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C090C                     | C0G                            | 16V              | 9.0                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C090D                     | C0G                            | 16V              | 9.0                 | ± 0.50pF                 | 0.20 ± 0.02       |
| C0402C0G1C9R1B                     | C0G                            | 16V              | 9.1                 | ± 0.10pF                 | 0.20 ± 0.02       |
| C0402C0G1C9R1C                     | C0G                            | 16V              | 9.1                 | ± 0.25pF                 | 0.20 ± 0.02       |
| C0402C0G1C9R1D                     | C0G                            | 16V              | 9.1                 | ± 0.50pF                 | 0.20 ± 0.02       |



## Capacitance Range Table

## C0402 [EIA CC01005]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C0402C0G1C100E                     | C0G                            | 16V              | 10                  | ± 0.20pF                 | 0.20 ± 0.02       |
| C0402C0G1C100D                     | C0G                            | 16V              | 10                  | ± 0.50pF                 | 0.20 ± 0.02       |
| C0402C0G1C110G                     | C0G                            | 16V              | 11                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C110J                     | C0G                            | 16V              | 11                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C120G                     | C0G                            | 16V              | 12                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C120J                     | C0G                            | 16V              | 12                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C130G                     | C0G                            | 16V              | 13                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C130J                     | C0G                            | 16V              | 13                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C150G                     | C0G                            | 16V              | 15                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C150J                     | C0G                            | 16V              | 15                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C160G                     | C0G                            | 16V              | 16                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C160J                     | C0G                            | 16V              | 16                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C180G                     | C0G                            | 16V              | 18                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C180J                     | C0G                            | 16V              | 18                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C200G                     | C0G                            | 16V              | 20                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C200J                     | C0G                            | 16V              | 20                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C220G                     | C0G                            | 16V              | 22                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C220J                     | C0G                            | 16V              | 22                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C240G                     | C0G                            | 16V              | 24                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C240J                     | C0G                            | 16V              | 24                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C270G                     | C0G                            | 16V              | 27                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C270J                     | C0G                            | 16V              | 27                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C300G                     | C0G                            | 16V              | 30                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C300J                     | C0G                            | 16V              | 30                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C330G                     | C0G                            | 16V              | 33                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C330J                     | C0G                            | 16V              | 33                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C360G                     | C0G                            | 16V              | 36                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C360J                     | C0G                            | 16V              | 36                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C390G                     | C0G                            | 16V              | 39                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C390J                     | C0G                            | 16V              | 39                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C430G                     | C0G                            | 16V              | 43                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C430J                     | C0G                            | 16V              | 43                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C470G                     | C0G                            | 16V              | 47                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C470J                     | C0G                            | 16V              | 47                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C510G                     | C0G                            | 16V              | 51                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C510J                     | C0G                            | 16V              | 51                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C560G                     | C0G                            | 16V              | 56                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C560J                     | C0G                            | 16V              | 56                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C620G                     | C0G                            | 16V              | 62                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C620J                     | C0G                            | 16V              | 62                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C680G                     | C0G                            | 16V              | 68                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C680J                     | C0G                            | 16V              | 68                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C750G                     | C0G                            | 16V              | 75                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C750J                     | C0G                            | 16V              | 75                  | ± 5%                     | 0.20 ± 0.02       |



## Capacitance Range Table

## C0402 [EIA CC01005]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C0402C0G1C820G                     | C0G                            | 16V              | 82                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C820J                     | C0G                            | 16V              | 82                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C910G                     | C0G                            | 16V              | 91                  | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C910J                     | C0G                            | 16V              | 91                  | ± 5%                     | 0.20 ± 0.02       |
| C0402C0G1C101G                     | C0G                            | 16V              | 100                 | ± 2%                     | 0.20 ± 0.02       |
| C0402C0G1C101J                     | C0G                            | 16V              | 100                 | ± 5%                     | 0.20 ± 0.02       |

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%), X5R (-55 to +85°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C0402X7R1A101K                     | X7R                            | 10V              | 100                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X7R1A151K                     | X7R                            | 10V              | 150                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X7R1A221K                     | X7R                            | 10V              | 220                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X7R1A331K                     | X7R                            | 10V              | 330                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X7R1A471K                     | X7R                            | 10V              | 470                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X7R1A681K                     | X7R                            | 10V              | 680                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R1C101K                     | X5R                            | 16V              | 100                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R1C151K                     | X5R                            | 16V              | 150                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R1C221K                     | X5R                            | 16V              | 220                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R1C331K                     | X5R                            | 16V              | 330                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R1C471K                     | X5R                            | 16V              | 470                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R1C681K                     | X5R                            | 16V              | 680                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R1A101K                     | X5R                            | 10V              | 100                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R1A221K                     | X5R                            | 10V              | 220                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R1A471K                     | X5R                            | 10V              | 470                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R1A102K                     | X5R                            | 10V              | 1,000               | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R1A152K                     | X5R                            | 10V              | 1,500               | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R1A222K                     | X5R                            | 10V              | 2,200               | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R0J681K                     | X5R                            | 6.3V             | 680                 | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R0J102K                     | X5R                            | 6.3V             | 1,000               | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R0J152K                     | X5R                            | 6.3V             | 1,500               | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R0J222K                     | X5R                            | 6.3V             | 2,200               | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R0J332K                     | X5R                            | 6.3V             | 3,300               | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R0J472K                     | X5R                            | 6.3V             | 4,700               | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R0J682K                     | X5R                            | 6.3V             | 6,800               | ± 10%                    | 0.20 ± 0.02       |
| C0402X5R0J103K                     | X5R                            | 6.3V             | 10,000              | ± 10%                    | 0.20 ± 0.02       |



## Capacitance Range Chart

## C0603 [EIA CC0201]

### Capacitance Range Chart

Temperature Characteristics: C0G ( $0 \pm 30\text{ppm}/^\circ\text{C}$ )  
 Rated Voltage: 50V (1H), 25V (1E)

| Capacitance (pF) | Cap Code | Tolerance              | C0G      |          | Capacitance (pF) | Cap Code | Tolerance              | C0G      |          |
|------------------|----------|------------------------|----------|----------|------------------|----------|------------------------|----------|----------|
|                  |          |                        | 1H (50V) | 1E (25V) |                  |          |                        | 1H (50V) | 1E (25V) |
| 0.2              | 0R2      | W: $\pm 0.05\text{pF}$ |          |          | 6.8              | 6R8      | B: $\pm 0.10\text{pF}$ |          |          |
| 0.3              | 0R3      | B: $\pm 0.10\text{pF}$ |          |          | 7.5              | 7R5      | E: $\pm 0.20\text{pF}$ |          |          |
| 0.4              | 0R4      | C: $\pm 0.25\text{pF}$ |          |          | 8.2              | 8R2      | C: $\pm 0.25\text{pF}$ |          |          |
| 0.5              | 0R5      | D: $\pm 0.50\text{pF}$ |          |          | 9.1              | 9R1      | D: $\pm 0.50\text{pF}$ |          |          |
| 0.6              | 0R6      |                        |          |          | 10               | 100      | G: $\pm 2\%$           |          |          |
| 0.7              | 0R7      |                        |          |          | 11               | 110      | J: $\pm 5\%$           |          |          |
| 0.75             | R75      |                        |          |          | 12               | 120      |                        |          |          |
| 0.8              | 0R8      |                        |          |          | 13               | 130      |                        |          |          |
| 0.9              | 0R9      |                        |          |          | 15               | 150      |                        |          |          |
| 1                | 010      |                        |          |          | 16               | 160      |                        |          |          |
| 1.1              | 1R1      |                        |          |          | 18               | 180      |                        |          |          |
| 1.2              | 1R2      |                        |          |          | 20               | 200      |                        |          |          |
| 1.3              | 1R3      |                        |          |          | 22               | 220      |                        |          |          |
| 1.5              | 1R5      |                        |          |          | 24               | 240      |                        |          |          |
| 1.6              | 1R6      |                        |          |          | 27               | 270      |                        |          |          |
| 1.8              | 1R8      |                        |          |          | 30               | 300      |                        |          |          |
| 2                | 020      |                        |          |          | 33               | 330      |                        |          |          |
| 2.2              | 2R2      |                        |          |          | 36               | 360      |                        |          |          |
| 2.4              | 2R4      |                        |          |          | 39               | 390      |                        |          |          |
| 2.7              | 2R7      |                        |          |          | 43               | 430      |                        |          |          |
| 3                | 030      |                        |          |          | 47               | 470      |                        |          |          |
| 3.3              | 3R3      |                        |          |          | 51               | 510      |                        |          |          |
| 3.6              | 3R6      |                        |          |          | 56               | 560      |                        |          |          |
| 3.9              | 3R9      |                        |          |          | 62               | 620      |                        |          |          |
| 4.3              | 4R3      |                        |          |          | 68               | 680      |                        |          |          |
| 4.7              | 4R7      |                        |          |          | 75               | 750      |                        |          |          |
| 5.1              | 5R1      |                        |          |          | 82               | 820      |                        |          |          |
| 5.6              | 5R6      |                        |          |          | 91               | 910      |                        |          |          |
| 6.2              | 6R2      |                        |          |          | 100              | 101      |                        |          |          |

Standard Thickness

 0.30 mm

• Standard capacitance is shown. Please refer to Capacitance Range Table for additional capacitance values.



## Capacitance Range Chart

## C0603 [EIA CC0201]

### Capacitance Range Chart

Temperature Characteristics: X7R ( $\pm 15\%$ ), X5R ( $\pm 15\%$ )

Rated Voltage: 50V (1H), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J)

| Capacitance<br>(pF) | Cap<br>Code | Tolerance                      | X7R         |             |             |             |              | X5R         |             |             |             |              |
|---------------------|-------------|--------------------------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|--------------|
|                     |             |                                | 1H<br>(50V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 1H<br>(50V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) |
| 100                 | 101         | K: $\pm 10\%$<br>M: $\pm 20\%$ | ■           | ■           | ■           |             |              | ■           | ■           |             |             |              |
| 150                 | 151         |                                | ■           | ■           | ■           |             |              | ■           | ■           |             |             |              |
| 220                 | 221         |                                | ■           | ■           | ■           |             |              | ■           | ■           |             |             |              |
| 330                 | 331         |                                | ■           | ■           | ■           |             |              | ■           | ■           |             |             |              |
| 470                 | 471         |                                | ■           | ■           | ■           |             |              | ■           | ■           |             |             |              |
| 680                 | 681         |                                | ■           | ■           | ■           |             |              | ■           | ■           |             |             |              |
| 1,000               | 102         |                                |             | ■           | ■           |             |              |             | ■           |             |             |              |
| 1,500               | 152         |                                |             | ■           | ■           |             |              |             | ■           |             |             |              |
| 2,200               | 222         |                                |             | ■           | ■           |             |              |             | ■           | ■           |             |              |
| 3,300               | 332         |                                |             | ■           | ■           |             |              |             | ■           | ■           |             |              |
| 4,700               | 472         |                                |             | ■           | ■           |             |              |             | ■           | ■           |             |              |
| 6,800               | 682         |                                |             |             |             | ■           | ■            |             |             |             | ■           |              |
| 10,000              | 103         |                                |             |             |             | ■           | ■            |             |             |             | ■           | ■            |
| 15,000              | 153         |                                |             |             |             |             |              |             |             |             |             | ■            |
| 22,000              | 223         |                                |             |             |             |             |              |             |             |             |             | ■            |
| 33,000              | 333         |                                |             |             |             |             |              |             |             |             |             | ■            |
| 47,000              | 473         |                                |             |             |             |             |              |             |             |             |             | ■            |
| 68,000              | 683         |                                |             |             |             |             |              |             |             |             |             | ■            |
| 100,000             | 104         |                                |             |             |             |             |              |             |             | ■           | ■           | ■            |
| 150,000             | 154         |                                |             |             |             |             |              |             |             | ■           | ■           | ■            |
| 220,000             | 224         |                                |             |             |             |             |              |             |             | ■           | ■           | ■            |

• Standard capacitance is shown. Please refer to Capacitance Range Table for additional capacitance values.

Standard Thickness

■ 0.30 mm



## Capacitance Range Table

## C0603 [EIA CC0201]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C0603C0G1H0R5B                     | C0G                            | 50V              | 0.5                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1H0R5C                     | C0G                            | 50V              | 0.5                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H010B                     | C0G                            | 50V              | 1.0                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1H010C                     | C0G                            | 50V              | 1.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H1R2C                     | C0G                            | 50V              | 1.2                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H1R5B                     | C0G                            | 50V              | 1.5                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1H1R5C                     | C0G                            | 50V              | 1.5                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H1R8C                     | C0G                            | 50V              | 1.8                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H020B                     | C0G                            | 50V              | 2.0                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1H020C                     | C0G                            | 50V              | 2.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H2R2B                     | C0G                            | 50V              | 2.2                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1H2R2C                     | C0G                            | 50V              | 2.2                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H2R7C                     | C0G                            | 50V              | 2.7                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H030B                     | C0G                            | 50V              | 3.0                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1H030C                     | C0G                            | 50V              | 3.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H3R3B                     | C0G                            | 50V              | 3.3                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1H3R3C                     | C0G                            | 50V              | 3.3                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H3R9C                     | C0G                            | 50V              | 3.9                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H040B                     | C0G                            | 50V              | 4.0                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1H040C                     | C0G                            | 50V              | 4.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H4R7B                     | C0G                            | 50V              | 4.7                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1H4R7C                     | C0G                            | 50V              | 4.7                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H050B                     | C0G                            | 50V              | 5.0                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1H050C                     | C0G                            | 50V              | 5.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H5R6C                     | C0G                            | 50V              | 5.6                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H060C                     | C0G                            | 50V              | 6.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H060D                     | C0G                            | 50V              | 6.0                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1H6R8C                     | C0G                            | 50V              | 6.8                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H6R8D                     | C0G                            | 50V              | 6.8                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1H070C                     | C0G                            | 50V              | 7.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H070D                     | C0G                            | 50V              | 7.0                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1H080C                     | C0G                            | 50V              | 8.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H080D                     | C0G                            | 50V              | 8.0                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1H8R2C                     | C0G                            | 50V              | 8.2                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H090C                     | C0G                            | 50V              | 9.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H090D                     | C0G                            | 50V              | 9.0                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1H100C                     | C0G                            | 50V              | 10                  | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1H100D                     | C0G                            | 50V              | 10                  | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1H110J                     | C0G                            | 50V              | 11                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H120J                     | C0G                            | 50V              | 12                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H130J                     | C0G                            | 50V              | 13                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H150J                     | C0G                            | 50V              | 15                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H160J                     | C0G                            | 50V              | 16                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H180J                     | C0G                            | 50V              | 18                  | ± 5%                     | 0.30 ± 0.03       |



## Capacitance Range Table

## C0603 [EIA CC0201]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C0603C0G1H200J                     | C0G                            | 50V              | 20                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H220J                     | C0G                            | 50V              | 22                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H240J                     | C0G                            | 50V              | 24                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H270J                     | C0G                            | 50V              | 27                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H300J                     | C0G                            | 50V              | 30                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H330J                     | C0G                            | 50V              | 33                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H360J                     | C0G                            | 50V              | 36                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H390J                     | C0G                            | 50V              | 39                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H430J                     | C0G                            | 50V              | 43                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H470J                     | C0G                            | 50V              | 47                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H510J                     | C0G                            | 50V              | 51                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H560J                     | C0G                            | 50V              | 56                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H620J                     | C0G                            | 50V              | 62                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H680J                     | C0G                            | 50V              | 68                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H750J                     | C0G                            | 50V              | 75                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H820J                     | C0G                            | 50V              | 82                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H910J                     | C0G                            | 50V              | 91                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1H101J                     | C0G                            | 50V              | 100                 | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E0R2W                     | C0G                            | 25V              | 0.2                 | ± 0.05pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R2B                     | C0G                            | 25V              | 0.2                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R3W                     | C0G                            | 25V              | 0.3                 | ± 0.05pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R3B                     | C0G                            | 25V              | 0.3                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R4W                     | C0G                            | 25V              | 0.4                 | ± 0.05pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R4B                     | C0G                            | 25V              | 0.4                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R5W                     | C0G                            | 25V              | 0.5                 | ± 0.05pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R5C                     | C0G                            | 25V              | 0.5                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R5B                     | C0G                            | 25V              | 0.5                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R6W                     | C0G                            | 25V              | 0.6                 | ± 0.05pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R6B                     | C0G                            | 25V              | 0.6                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R7W                     | C0G                            | 25V              | 0.7                 | ± 0.05pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R7B                     | C0G                            | 25V              | 0.7                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1ER75B                     | C0G                            | 25V              | 0.75                | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1ER75C                     | C0G                            | 25V              | 0.75                | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R8W                     | C0G                            | 25V              | 0.8                 | ± 0.05pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R8B                     | C0G                            | 25V              | 0.8                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R9W                     | C0G                            | 25V              | 0.9                 | ± 0.05pF                 | 0.30 ± 0.03       |
| C0603C0G1E0R9B                     | C0G                            | 25V              | 0.9                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E010B                     | C0G                            | 25V              | 1.0                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E010C                     | C0G                            | 25V              | 1.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E1R1B                     | C0G                            | 25V              | 1.1                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E1R1C                     | C0G                            | 25V              | 1.1                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E1R2B                     | C0G                            | 25V              | 1.2                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E1R2C                     | C0G                            | 25V              | 1.2                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E1R3B                     | C0G                            | 25V              | 1.3                 | ± 0.10pF                 | 0.30 ± 0.03       |



## Capacitance Range Table

## C0603 [EIA CC0201]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C0603C0G1E1R3C                     | C0G                            | 25V              | 1.3                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E1R5B                     | C0G                            | 25V              | 1.5                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E1R5C                     | C0G                            | 25V              | 1.5                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E1R6B                     | C0G                            | 25V              | 1.6                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E1R6C                     | C0G                            | 25V              | 1.6                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E1R8B                     | C0G                            | 25V              | 1.8                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E1R8C                     | C0G                            | 25V              | 1.8                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E020B                     | C0G                            | 25V              | 2.0                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E020C                     | C0G                            | 25V              | 2.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E2R2B                     | C0G                            | 25V              | 2.2                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E2R2C                     | C0G                            | 25V              | 2.2                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E2R4B                     | C0G                            | 25V              | 2.4                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E2R4C                     | C0G                            | 25V              | 2.4                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E2R7B                     | C0G                            | 25V              | 2.7                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E2R7C                     | C0G                            | 25V              | 2.7                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E030B                     | C0G                            | 25V              | 3.0                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E030C                     | C0G                            | 25V              | 3.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E3R3B                     | C0G                            | 25V              | 3.3                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E3R3C                     | C0G                            | 25V              | 3.3                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E3R6B                     | C0G                            | 25V              | 3.6                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E3R6C                     | C0G                            | 25V              | 3.6                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E3R9B                     | C0G                            | 25V              | 3.9                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E3R9C                     | C0G                            | 25V              | 3.9                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E040B                     | C0G                            | 25V              | 4.0                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E040C                     | C0G                            | 25V              | 4.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E4R3B                     | C0G                            | 25V              | 4.3                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E4R3C                     | C0G                            | 25V              | 4.3                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E4R7B                     | C0G                            | 25V              | 4.7                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E4R7C                     | C0G                            | 25V              | 4.7                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E050B                     | C0G                            | 25V              | 5.0                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E050C                     | C0G                            | 25V              | 5.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E5R1B                     | C0G                            | 25V              | 5.1                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E5R1C                     | C0G                            | 25V              | 5.1                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E5R1D                     | C0G                            | 25V              | 5.1                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1E5R6B                     | C0G                            | 25V              | 5.6                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E5R6C                     | C0G                            | 25V              | 5.6                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E5R6D                     | C0G                            | 25V              | 5.6                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1E060B                     | C0G                            | 25V              | 6.0                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E060C                     | C0G                            | 25V              | 6.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E060D                     | C0G                            | 25V              | 6.0                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1E6R2B                     | C0G                            | 25V              | 6.2                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E6R2C                     | C0G                            | 25V              | 6.2                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E6R2D                     | C0G                            | 25V              | 6.2                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1E6R8B                     | C0G                            | 25V              | 6.8                 | ± 0.10pF                 | 0.30 ± 0.03       |



## Capacitance Range Table

## C0603 [EIA CC0201]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C0603C0G1E6R8C                     | C0G                            | 25V              | 6.8                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E6R8D                     | C0G                            | 25V              | 6.8                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1E070B                     | C0G                            | 25V              | 7.0                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E070C                     | C0G                            | 25V              | 7.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E070D                     | C0G                            | 25V              | 7.0                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1E7R5B                     | C0G                            | 25V              | 7.5                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E7R5C                     | C0G                            | 25V              | 7.5                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E7R5D                     | C0G                            | 25V              | 7.5                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1E080B                     | C0G                            | 25V              | 8.0                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E080C                     | C0G                            | 25V              | 8.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E080D                     | C0G                            | 25V              | 8.0                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1E8R2B                     | C0G                            | 25V              | 8.2                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E8R2C                     | C0G                            | 25V              | 8.2                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E8R2D                     | C0G                            | 25V              | 8.2                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1E090B                     | C0G                            | 25V              | 9.0                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E090C                     | C0G                            | 25V              | 9.0                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E090D                     | C0G                            | 25V              | 9.0                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1E9R1B                     | C0G                            | 25V              | 9.1                 | ± 0.10pF                 | 0.30 ± 0.03       |
| C0603C0G1E9R1C                     | C0G                            | 25V              | 9.1                 | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E9R1D                     | C0G                            | 25V              | 9.1                 | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1E100E                     | C0G                            | 25V              | 10                  | ± 0.20pF                 | 0.30 ± 0.03       |
| C0603C0G1E100C                     | C0G                            | 25V              | 10                  | ± 0.25pF                 | 0.30 ± 0.03       |
| C0603C0G1E100D                     | C0G                            | 25V              | 10                  | ± 0.50pF                 | 0.30 ± 0.03       |
| C0603C0G1E110G                     | C0G                            | 25V              | 11                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E110J                     | C0G                            | 25V              | 11                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E120G                     | C0G                            | 25V              | 12                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E120J                     | C0G                            | 25V              | 12                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E130G                     | C0G                            | 25V              | 13                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E130J                     | C0G                            | 25V              | 13                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E150G                     | C0G                            | 25V              | 15                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E150J                     | C0G                            | 25V              | 15                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E160G                     | C0G                            | 25V              | 16                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E160J                     | C0G                            | 25V              | 16                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E180G                     | C0G                            | 25V              | 18                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E180J                     | C0G                            | 25V              | 18                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E200G                     | C0G                            | 25V              | 20                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E200J                     | C0G                            | 25V              | 20                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E220G                     | C0G                            | 25V              | 22                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E220J                     | C0G                            | 25V              | 22                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E240G                     | C0G                            | 25V              | 24                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E240J                     | C0G                            | 25V              | 24                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E270G                     | C0G                            | 25V              | 27                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E270J                     | C0G                            | 25V              | 27                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E300G                     | C0G                            | 25V              | 30                  | ± 2%                     | 0.30 ± 0.03       |



## Capacitance Range Table

## C0603 [EIA CC0201]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C0603C0G1E300J                     | C0G                            | 25V              | 30                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E330G                     | C0G                            | 25V              | 33                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E330J                     | C0G                            | 25V              | 33                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E360G                     | C0G                            | 25V              | 36                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E360J                     | C0G                            | 25V              | 36                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E390G                     | C0G                            | 25V              | 39                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E390J                     | C0G                            | 25V              | 39                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E430G                     | C0G                            | 25V              | 43                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E430J                     | C0G                            | 25V              | 43                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E470G                     | C0G                            | 25V              | 47                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E470J                     | C0G                            | 25V              | 47                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E510G                     | C0G                            | 25V              | 51                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E510J                     | C0G                            | 25V              | 51                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E560G                     | C0G                            | 25V              | 56                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E560J                     | C0G                            | 25V              | 56                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E620G                     | C0G                            | 25V              | 62                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E620J                     | C0G                            | 25V              | 62                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E680G                     | C0G                            | 25V              | 68                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E680J                     | C0G                            | 25V              | 68                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E750G                     | C0G                            | 25V              | 75                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E750J                     | C0G                            | 25V              | 75                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E820G                     | C0G                            | 25V              | 82                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E820J                     | C0G                            | 25V              | 82                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E910G                     | C0G                            | 25V              | 91                  | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E910J                     | C0G                            | 25V              | 91                  | ± 5%                     | 0.30 ± 0.03       |
| C0603C0G1E101G                     | C0G                            | 25V              | 100                 | ± 2%                     | 0.30 ± 0.03       |
| C0603C0G1E101J                     | C0G                            | 25V              | 100                 | ± 5%                     | 0.30 ± 0.03       |

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C0603X7R1H101K                     | X7R                            | 50V              | 100                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1H101M                     | X7R                            | 50V              | 100                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1H151K                     | X7R                            | 50V              | 150                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1H151M                     | X7R                            | 50V              | 150                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1H221K                     | X7R                            | 50V              | 220                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1H221M                     | X7R                            | 50V              | 220                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1H331K                     | X7R                            | 50V              | 330                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1H331M                     | X7R                            | 50V              | 330                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1H471K                     | X7R                            | 50V              | 470                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1H471M                     | X7R                            | 50V              | 470                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1E101K                     | X7R                            | 25V              | 100                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1E101M                     | X7R                            | 25V              | 100                 | ± 20%                    | 0.30 ± 0.03       |



## Capacitance Range Table

## C0603 [EIA CC0201]

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C0603X7R1E151K                     | X7R                            | 25V              | 150                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1E151M                     | X7R                            | 25V              | 150                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1E221K                     | X7R                            | 25V              | 220                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1E221M                     | X7R                            | 25V              | 220                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1E331K                     | X7R                            | 25V              | 330                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1E331M                     | X7R                            | 25V              | 330                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1E471K                     | X7R                            | 25V              | 470                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1E471M                     | X7R                            | 25V              | 470                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1E681K                     | X7R                            | 25V              | 680                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1E681M                     | X7R                            | 25V              | 680                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1E102K                     | X7R                            | 25V              | 1,000               | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1E102M                     | X7R                            | 25V              | 1,000               | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1E152K                     | X7R                            | 25V              | 1,500               | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1E152M                     | X7R                            | 25V              | 1,500               | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1E222K                     | X7R                            | 25V              | 2,200               | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1E222M                     | X7R                            | 25V              | 2,200               | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1E332K                     | X7R                            | 25V              | 3,300               | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1E332M                     | X7R                            | 25V              | 3,300               | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1C101K                     | X7R                            | 16V              | 100                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1C101M                     | X7R                            | 16V              | 100                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1C151K                     | X7R                            | 16V              | 150                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1C151M                     | X7R                            | 16V              | 150                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1C221K                     | X7R                            | 16V              | 220                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1C221M                     | X7R                            | 16V              | 220                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1C331K                     | X7R                            | 16V              | 330                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1C331M                     | X7R                            | 16V              | 330                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1C471K                     | X7R                            | 16V              | 470                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1C471M                     | X7R                            | 16V              | 470                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1C681K                     | X7R                            | 16V              | 680                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1C681M                     | X7R                            | 16V              | 680                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1C102K                     | X7R                            | 16V              | 1,000               | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1C102M                     | X7R                            | 16V              | 1,000               | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1C152K                     | X7R                            | 16V              | 1,500               | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1C152M                     | X7R                            | 16V              | 1,500               | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1C222K                     | X7R                            | 16V              | 2,200               | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1C222M                     | X7R                            | 16V              | 2,200               | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1C332K                     | X7R                            | 16V              | 3,300               | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1C332M                     | X7R                            | 16V              | 3,300               | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1C472K                     | X7R                            | 16V              | 4,700               | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1C472M                     | X7R                            | 16V              | 4,700               | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1A682K                     | X7R                            | 10V              | 6,800               | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1A682M                     | X7R                            | 10V              | 6,800               | ± 20%                    | 0.30 ± 0.03       |
| C0603X7R1A103K                     | X7R                            | 10V              | 10,000              | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R1A103M                     | X7R                            | 10V              | 10,000              | ± 20%                    | 0.30 ± 0.03       |



## Capacitance Range Table

## C0603 [EIA CC0201]

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%), X6S(-55 to 105°C, ±22%), X5R (-55 to +85°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C0603X7R0J103K                     | X7R                            | 6.3V             | 10,000              | ± 10%                    | 0.30 ± 0.03       |
| C0603X7R0J103M                     | X7R                            | 6.3V             | 10,000              | ± 20%                    | 0.30 ± 0.03       |
| C0603X6S0G104K                     | X6S                            | 4V               | 100,000             | ± 10%                    | 0.30 ± 0.03       |
| C0603X6S0G104M                     | X6S                            | 4V               | 100,000             | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1H101K                     | X5R                            | 50V              | 100                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1H101M                     | X5R                            | 50V              | 100                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1H151K                     | X5R                            | 50V              | 150                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1H151M                     | X5R                            | 50V              | 150                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1H221K                     | X5R                            | 50V              | 220                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1H221M                     | X5R                            | 50V              | 220                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1H331K                     | X5R                            | 50V              | 330                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1H331M                     | X5R                            | 50V              | 330                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1H471K                     | X5R                            | 50V              | 470                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1H471M                     | X5R                            | 50V              | 470                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1E101K                     | X5R                            | 25V              | 100                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1E101M                     | X5R                            | 25V              | 100                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1E151K                     | X5R                            | 25V              | 150                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1E151M                     | X5R                            | 25V              | 150                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1E221K                     | X5R                            | 25V              | 220                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1E221M                     | X5R                            | 25V              | 220                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1E331K                     | X5R                            | 25V              | 330                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1E331M                     | X5R                            | 25V              | 330                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1E471K                     | X5R                            | 25V              | 470                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1E471M                     | X5R                            | 25V              | 470                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1E681K                     | X5R                            | 25V              | 680                 | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1E681M                     | X5R                            | 25V              | 680                 | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1E102K                     | X5R                            | 25V              | 1,000               | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1E102M                     | X5R                            | 25V              | 1,000               | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1E152K                     | X5R                            | 25V              | 1,500               | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1E152M                     | X5R                            | 25V              | 1,500               | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1E222K                     | X5R                            | 25V              | 2,200               | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1E222M                     | X5R                            | 25V              | 2,200               | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1E332K                     | X5R                            | 25V              | 3,300               | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1E332M                     | X5R                            | 25V              | 3,300               | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1C222K                     | X5R                            | 16V              | 2,200               | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1C222M                     | X5R                            | 16V              | 2,200               | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1C332K                     | X5R                            | 16V              | 3,300               | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1C332M                     | X5R                            | 16V              | 3,300               | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1C472K                     | X5R                            | 16V              | 4,700               | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1C472M                     | X5R                            | 16V              | 4,700               | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1C104K                     | X5R                            | 16V              | 100,000             | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1C154K                     | X5R                            | 16V              | 150,000             | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1C224K                     | X5R                            | 16V              | 220,000             | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1C224M                     | X5R                            | 16V              | 220,000             | ± 20%                    | 0.30 ± 0.03       |



## Capacitance Range Table

## C0603 [EIA CC0201]

### Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%), Y5V(-30 to +85°C, +22/-82%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C0603X5R1A682K                     | X5R                            | 10V              | 6,800               | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1A682M                     | X5R                            | 10V              | 6,800               | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1A103K                     | X5R                            | 10V              | 10,000              | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1A103M                     | X5R                            | 10V              | 10,000              | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R1A104K                     | X5R                            | 10V              | 100,000             | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1A154K                     | X5R                            | 10V              | 150,000             | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1A224K                     | X5R                            | 10V              | 220,000             | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R1A224M                     | X5R                            | 10V              | 220,000             | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R0J103K                     | X5R                            | 6.3V             | 10,000              | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R0J103M                     | X5R                            | 6.3V             | 10,000              | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R0J153K                     | X5R                            | 6.3V             | 15,000              | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R0J153M                     | X5R                            | 6.3V             | 15,000              | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R0J223K                     | X5R                            | 6.3V             | 22,000              | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R0J223M                     | X5R                            | 6.3V             | 22,000              | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R0J333K                     | X5R                            | 6.3V             | 33,000              | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R0J333M                     | X5R                            | 6.3V             | 33,000              | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R0J473K                     | X5R                            | 6.3V             | 47,000              | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R0J473M                     | X5R                            | 6.3V             | 47,000              | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R0J683K                     | X5R                            | 6.3V             | 68,000              | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R0J683M                     | X5R                            | 6.3V             | 68,000              | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R0J104K                     | X5R                            | 6.3V             | 100,000             | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R0J104M                     | X5R                            | 6.3V             | 100,000             | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R0J154K                     | X5R                            | 6.3V             | 150,000             | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R0J154M                     | X5R                            | 6.3V             | 150,000             | ± 20%                    | 0.30 ± 0.03       |
| C0603X5R0J224K                     | X5R                            | 6.3V             | 220,000             | ± 10%                    | 0.30 ± 0.03       |
| C0603X5R0J224M                     | X5R                            | 6.3V             | 220,000             | ± 20%                    | 0.30 ± 0.03       |
| C0603Y5V1C103Z                     | Y5V                            | 16V              | 10,000              | +80/-20%                 | 0.30 ± 0.03       |



## Capacitance Range Chart

## C1005 [EIA CC0402]

### Capacitance Range Chart

Temperature Characteristics: C0G ( $0 \pm 30\text{ppm}/^\circ\text{C}$ )  
 Rated Voltage: 50V (1H), 25V (1E)

| Capacitance (pF) | Cap Code | Tolerance                                                                  | C0G      | Capacitance (pF) | Cap Code | Tolerance    | C0G      |          |
|------------------|----------|----------------------------------------------------------------------------|----------|------------------|----------|--------------|----------|----------|
|                  |          |                                                                            | 1H (50V) |                  |          |              | 1H (50V) | 1E (25V) |
| 0.1              | 0R1      | B: $\pm 0.10\text{pF}$<br>C: $\pm 0.25\text{pF}$<br>D: $\pm 0.50\text{pF}$ |          | 30               | 300      | J: $\pm 5\%$ |          |          |
| 0.5              | 0R5      |                                                                            |          | 33               | 330      |              |          |          |
| 0.75             | R75      |                                                                            |          | 36               | 360      |              |          |          |
| 1                | 010      |                                                                            |          | 39               | 390      |              |          |          |
| 1.2              | 1R2      |                                                                            |          | 43               | 430      |              |          |          |
| 1.5              | 1R5      |                                                                            |          | 47               | 470      |              |          |          |
| 1.8              | 1R8      |                                                                            |          | 51               | 510      |              |          |          |
| 2.2              | 2R2      |                                                                            |          | 56               | 560      |              |          |          |
| 2.7              | 2R7      |                                                                            |          | 62               | 620      |              |          |          |
| 3.3              | 3R3      |                                                                            |          | 68               | 680      |              |          |          |
| 3.9              | 3R9      |                                                                            |          | 75               | 750      |              |          |          |
| 4.7              | 4R7      |                                                                            |          | 82               | 820      |              |          |          |
| 5.6              | 5R6      | C: $\pm 0.25\text{pF}$<br>D: $\pm 0.50\text{pF}$                           |          | 91               | 910      |              |          |          |
| 6.8              | 6R8      |                                                                            |          | 100              | 101      |              |          |          |
| 8.2              | 8R2      |                                                                            |          | 120              | 121      |              |          |          |
| 10               | 100      |                                                                            |          | 150              | 151      |              |          |          |
| 11               | 110      | J: $\pm 5\%$                                                               |          | 180              | 181      |              |          |          |
| 12               | 120      |                                                                            |          | 220              | 221      |              |          |          |
| 13               | 130      |                                                                            |          | 270              | 271      |              |          |          |
| 15               | 150      |                                                                            |          | 330              | 331      |              |          |          |
| 16               | 160      |                                                                            |          | 390              | 391      |              |          |          |
| 18               | 180      |                                                                            |          | 470              | 471      |              |          |          |
| 20               | 200      |                                                                            |          | 560              | 561      |              |          |          |
| 22               | 220      |                                                                            |          | 680              | 681      |              |          |          |
| 24               | 240      |                                                                            |          | 820              | 821      |              |          |          |
| 27               | 270      |                                                                            |          | 1,000            | 102      |              |          |          |

• Standard capacitance is shown. Please refer to Capacitance Range Table for additional capacitance values.

### Capacitance Range Chart

Temperature Characteristics: X7R ( $\pm 15\%$ )  
 Rated Voltage: 50V (1H), 35V (1V), 25V (1E), 16V(1C), 10V (1A)

| Capacitance (pF) | Cap Code | Tolerance                      | X7R      |          |          |          |          |
|------------------|----------|--------------------------------|----------|----------|----------|----------|----------|
|                  |          |                                | 1H (50V) | 1V (35V) | 1E (25V) | 1C (16V) | 1A (10V) |
| 220              | 221      | K: $\pm 10\%$<br>M: $\pm 20\%$ |          |          |          |          |          |
| 330              | 331      |                                |          |          |          |          |          |
| 470              | 471      |                                |          |          |          |          |          |
| 680              | 681      |                                |          |          |          |          |          |
| 1,000            | 102      |                                |          |          |          |          |          |
| 1,500            | 152      |                                |          |          |          |          |          |
| 2,200            | 222      |                                |          |          |          |          |          |
| 3,300            | 332      |                                |          |          |          |          |          |
| 4,700            | 472      |                                |          |          |          |          |          |
| 6,800            | 682      |                                |          |          |          |          |          |
| 10,000           | 103      |                                |          |          |          |          |          |
| 15,000           | 153      |                                |          |          |          |          |          |
| 22,000           | 223      |                                |          |          |          |          |          |
| 33,000           | 333      |                                |          |          |          |          |          |
| 47,000           | 473      |                                |          |          |          |          |          |
| 68,000           | 683      |                                |          |          |          |          |          |
| 100,000          | 104      |                                |          |          |          |          |          |
| 150,000          | 154      |                                |          |          |          |          |          |
| 220,000          | 224      |                                |          |          |          |          |          |

Standard Thickness

0.50 mm



## Capacitance Range Chart

## C1005 [EIA CC0402]

### Capacitance Range Chart

Temperature Characteristics: X5R ( $\pm 15\%$ ), X6S ( $\pm 22\%$ ), Y5V ( $+22/-82\%$ )

Rated Voltage: 50V (1H), 35V (1V), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J), 4V (0G)

| Capacitance (pF) | Cap Code | Tolerance     | X6S      |          |          |          |          |           |
|------------------|----------|---------------|----------|----------|----------|----------|----------|-----------|
|                  |          |               | 1H (50V) | 1V (35V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) |
| 10,000           | 103      | K: $\pm 10\%$ |          |          |          |          |          |           |
| 22,000           | 223      | M: $\pm 20\%$ |          |          |          |          |          |           |
| 47,000           | 473      |               |          |          |          |          |          |           |
| 100,000          | 104      |               |          |          |          |          |          |           |
| 220,000          | 224      |               |          |          |          |          |          |           |
| 470,000          | 474      |               |          |          |          |          |          |           |
| 1,000,000        | 105      |               |          |          |          |          |          |           |
| 2,200,000        | 225      |               |          |          |          |          |          |           |

| Capacitance (pF) | Cap Code | Tolerance     | X5R      |          |          |          |          |           |
|------------------|----------|---------------|----------|----------|----------|----------|----------|-----------|
|                  |          |               | 1H (50V) | 1V (35V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) |
| 220              | 221      | K: $\pm 10\%$ |          |          |          |          |          |           |
| 330              | 331      | M: $\pm 20\%$ |          |          |          |          |          |           |
| 470              | 471      |               |          |          |          |          |          |           |
| 680              | 681      |               |          |          |          |          |          |           |
| 1,000            | 102      |               |          |          |          |          |          |           |
| 1,500            | 152      |               |          |          |          |          |          |           |
| 2,200            | 222      |               |          |          |          |          |          |           |
| 3,300            | 332      |               |          |          |          |          |          |           |
| 4,700            | 472      |               |          |          |          |          |          |           |
| 6,800            | 682      |               |          |          |          |          |          |           |
| 10,000           | 103      |               |          |          |          |          |          |           |
| 15,000           | 153      |               |          |          |          |          |          |           |
| 22,000           | 223      |               |          |          |          |          |          |           |
| 33,000           | 333      |               |          |          |          |          |          |           |
| 47,000           | 473      |               |          |          |          |          |          |           |
| 68,000           | 683      |               |          |          |          |          |          |           |
| 100,000          | 104      |               |          |          |          |          |          |           |
| 220,000          | 224      |               |          |          |          |          |          |           |
| 330,000          | 334      |               |          |          |          |          |          |           |
| 470,000          | 474      |               |          |          |          |          |          |           |
| 1,000,000        | 105      |               |          |          |          |          |          |           |
| 1,500,000        | 155      |               |          |          |          |          |          |           |
| 2,200,000        | 225      |               |          |          |          |          |          |           |
| 3,300,000        | 335      |               |          |          |          |          |          |           |
| 4,700,000        | 475      |               |          |          |          |          |          |           |

| Capacitance (pF) | Cap Code | Tolerance      | Y5V      |          |          |           |
|------------------|----------|----------------|----------|----------|----------|-----------|
|                  |          |                | 1H (50V) | 1E (25V) | 1C (16V) | 0J (6.3V) |
| 10,000           | 103      | Z: $+80/-20\%$ |          |          |          |           |
| 100,000          | 104      |                |          |          |          |           |
| 220,000          | 224      |                |          |          |          |           |
| 470,000          | 474      |                |          |          |          |           |
| 1,000,000        | 105      |                |          |          |          |           |

Standard Thickness



0.50 mm



## Capacitance Range Table

## C1005 [EIA CC0402]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1005C0G1H0R5B                     | C0G                            | 50V              | 0.5                 | ± 0.10pF                 | 0.50 ± 0.05       |
| C1005C0G1H0R5C                     | C0G                            | 50V              | 0.5                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H0R75C                    | C0G                            | 50V              | 0.75                | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H010B                     | C0G                            | 50V              | 1.0                 | ± 0.10pF                 | 0.50 ± 0.05       |
| C1005C0G1H010C                     | C0G                            | 50V              | 1.0                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H1R2B                     | C0G                            | 50V              | 1.2                 | ± 0.10pF                 | 0.50 ± 0.05       |
| C1005C0G1H1R2C                     | C0G                            | 50V              | 1.2                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H1R5B                     | C0G                            | 50V              | 1.5                 | ± 0.10pF                 | 0.50 ± 0.05       |
| C1005C0G1H1R5C                     | C0G                            | 50V              | 1.5                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H1R8B                     | C0G                            | 50V              | 1.8                 | ± 0.10pF                 | 0.50 ± 0.05       |
| C1005C0G1H1R8C                     | C0G                            | 50V              | 1.8                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H020B                     | C0G                            | 50V              | 2.0                 | ± 0.10pF                 | 0.50 ± 0.05       |
| C1005C0G1H020C                     | C0G                            | 50V              | 2.0                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H2R2B                     | C0G                            | 50V              | 2.2                 | ± 0.10pF                 | 0.50 ± 0.05       |
| C1005C0G1H2R2C                     | C0G                            | 50V              | 2.2                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H2R5C                     | C0G                            | 50V              | 2.5                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H2R7B                     | C0G                            | 50V              | 2.7                 | ± 0.10pF                 | 0.50 ± 0.05       |
| C1005C0G1H2R7C                     | C0G                            | 50V              | 2.7                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H030B                     | C0G                            | 50V              | 3.0                 | ± 0.10pF                 | 0.50 ± 0.05       |
| C1005C0G1H030C                     | C0G                            | 50V              | 3.0                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H3R3B                     | C0G                            | 50V              | 3.3                 | ± 0.10pF                 | 0.50 ± 0.05       |
| C1005C0G1H3R3C                     | C0G                            | 50V              | 3.3                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H3R5C                     | C0G                            | 50V              | 3.5                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H3R9B                     | C0G                            | 50V              | 3.9                 | ± 0.10pF                 | 0.50 ± 0.05       |
| C1005C0G1H3R9C                     | C0G                            | 50V              | 3.9                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H040B                     | C0G                            | 50V              | 4.0                 | ± 0.10pF                 | 0.50 ± 0.05       |
| C1005C0G1H040C                     | C0G                            | 50V              | 4.0                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H4R7B                     | C0G                            | 50V              | 4.7                 | ± 0.10pF                 | 0.50 ± 0.05       |
| C1005C0G1H4R7C                     | C0G                            | 50V              | 4.7                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H050B                     | C0G                            | 50V              | 5.0                 | ± 0.10pF                 | 0.50 ± 0.05       |
| C1005C0G1H050C                     | C0G                            | 50V              | 5.0                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H5R6C                     | C0G                            | 50V              | 5.6                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H5R6D                     | C0G                            | 50V              | 5.6                 | ± 0.50pF                 | 0.50 ± 0.05       |
| C1005C0G1H060C                     | C0G                            | 50V              | 6.0                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H060D                     | C0G                            | 50V              | 6.0                 | ± 0.50pF                 | 0.50 ± 0.05       |
| C1005C0G1H6R8C                     | C0G                            | 50V              | 6.8                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H6R8D                     | C0G                            | 50V              | 6.8                 | ± 0.50pF                 | 0.50 ± 0.05       |
| C1005C0G1H070C                     | C0G                            | 50V              | 7.0                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H070D                     | C0G                            | 50V              | 7.0                 | ± 0.50pF                 | 0.50 ± 0.05       |
| C1005C0G1H080C                     | C0G                            | 50V              | 8.0                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H080D                     | C0G                            | 50V              | 8.0                 | ± 0.50pF                 | 0.50 ± 0.05       |
| C1005C0G1H8R2C                     | C0G                            | 50V              | 8.2                 | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H8R2D                     | C0G                            | 50V              | 8.2                 | ± 0.50pF                 | 0.50 ± 0.05       |
| C1005C0G1H090C                     | C0G                            | 50V              | 9.0                 | ± 0.25pF                 | 0.50 ± 0.05       |



## Capacitance Range Table

## C1005 [EIA CC0402]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1005C0G1H090D                     | C0G                            | 50V              | 9.0                 | ± 0.50pF                 | 0.50 ± 0.05       |
| C1005C0G1H100C                     | C0G                            | 50V              | 10                  | ± 0.25pF                 | 0.50 ± 0.05       |
| C1005C0G1H100D                     | C0G                            | 50V              | 10                  | ± 0.50pF                 | 0.50 ± 0.05       |
| C1005C0G1H110J                     | C0G                            | 50V              | 11                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H120J                     | C0G                            | 50V              | 12                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H130J                     | C0G                            | 50V              | 13                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H150J                     | C0G                            | 50V              | 15                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H160J                     | C0G                            | 50V              | 16                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H180J                     | C0G                            | 50V              | 18                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H200J                     | C0G                            | 50V              | 20                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H220J                     | C0G                            | 50V              | 22                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H240J                     | C0G                            | 50V              | 24                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H270J                     | C0G                            | 50V              | 27                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H300J                     | C0G                            | 50V              | 30                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H330J                     | C0G                            | 50V              | 33                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H360J                     | C0G                            | 50V              | 36                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H390J                     | C0G                            | 50V              | 39                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H430J                     | C0G                            | 50V              | 43                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H470J                     | C0G                            | 50V              | 47                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H510J                     | C0G                            | 50V              | 51                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H560J                     | C0G                            | 50V              | 56                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H620J                     | C0G                            | 50V              | 62                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H680J                     | C0G                            | 50V              | 68                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H750J                     | C0G                            | 50V              | 75                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H820J                     | C0G                            | 50V              | 82                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H910J                     | C0G                            | 50V              | 91                  | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H101J                     | C0G                            | 50V              | 100                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H121J                     | C0G                            | 50V              | 120                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H151J                     | C0G                            | 50V              | 150                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H181J                     | C0G                            | 50V              | 180                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H221J                     | C0G                            | 50V              | 220                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H271J                     | C0G                            | 50V              | 270                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H331J                     | C0G                            | 50V              | 330                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H391J                     | C0G                            | 50V              | 390                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H471J                     | C0G                            | 50V              | 470                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H561J                     | C0G                            | 50V              | 560                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H681J                     | C0G                            | 50V              | 680                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H821J                     | C0G                            | 50V              | 820                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1H102J                     | C0G                            | 50V              | 1,000               | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1E561J                     | C0G                            | 25V              | 560                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1E681J                     | C0G                            | 25V              | 680                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1E821J                     | C0G                            | 25V              | 820                 | ± 5%                     | 0.50 ± 0.05       |
| C1005C0G1E102J                     | C0G                            | 25V              | 1,000               | ± 5%                     | 0.50 ± 0.05       |



## Capacitance Range Table

## C1005 [EIA CC0402]

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1005X7R1H221K                     | X7R                            | 50V              | 220                 | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H221M                     | X7R                            | 50V              | 220                 | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H331K                     | X7R                            | 50V              | 330                 | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H331M                     | X7R                            | 50V              | 330                 | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H471K                     | X7R                            | 50V              | 470                 | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H471M                     | X7R                            | 50V              | 470                 | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H681K                     | X7R                            | 50V              | 680                 | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H681M                     | X7R                            | 50V              | 680                 | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H102K                     | X7R                            | 50V              | 1,000               | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H102M                     | X7R                            | 50V              | 1,000               | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H152K                     | X7R                            | 50V              | 1,500               | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H152M                     | X7R                            | 50V              | 1,500               | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H222K                     | X7R                            | 50V              | 2,200               | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H222M                     | X7R                            | 50V              | 2,200               | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H332K                     | X7R                            | 50V              | 3,300               | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H332M                     | X7R                            | 50V              | 3,300               | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H472K                     | X7R                            | 50V              | 4,700               | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H472M                     | X7R                            | 50V              | 4,700               | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H682K                     | X7R                            | 50V              | 6,800               | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H682M                     | X7R                            | 50V              | 6,800               | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H103K                     | X7R                            | 50V              | 10,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H103M                     | X7R                            | 50V              | 10,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H153K                     | X7R                            | 50V              | 15,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H153M                     | X7R                            | 50V              | 15,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H223K                     | X7R                            | 50V              | 22,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H223M                     | X7R                            | 50V              | 22,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H333K                     | X7R                            | 50V              | 33,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H333M                     | X7R                            | 50V              | 33,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H473K                     | X7R                            | 50V              | 47,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H473M                     | X7R                            | 50V              | 47,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H683K                     | X7R                            | 50V              | 68,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H683M                     | X7R                            | 50V              | 68,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1H104K                     | X7R                            | 50V              | 100,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1H104M                     | X7R                            | 50V              | 100,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1V103K                     | X7R                            | 35V              | 10,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1V103M                     | X7R                            | 35V              | 10,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1V223K                     | X7R                            | 35V              | 22,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1V223M                     | X7R                            | 35V              | 22,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1V473K                     | X7R                            | 35V              | 47,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1V473M                     | X7R                            | 35V              | 47,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1V104K                     | X7R                            | 35V              | 100,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1V104M                     | X7R                            | 35V              | 100,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1E102K                     | X7R                            | 25V              | 1,000               | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1E102M                     | X7R                            | 25V              | 1,000               | ± 20%                    | 0.50 ± 0.05       |



## Capacitance Range Table

## C1005 [EIA CC0402]

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1005X7R1E152K                     | X7R                            | 25V              | 1,500               | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1E152M                     | X7R                            | 25V              | 1,500               | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1E222K                     | X7R                            | 25V              | 2,200               | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1E222M                     | X7R                            | 25V              | 2,200               | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1E332K                     | X7R                            | 25V              | 3,300               | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1E332M                     | X7R                            | 25V              | 3,300               | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1E472K                     | X7R                            | 25V              | 4,700               | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1E472M                     | X7R                            | 25V              | 4,700               | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1E682K                     | X7R                            | 25V              | 6,800               | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1E682M                     | X7R                            | 25V              | 6,800               | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1E103J                     | X7R                            | 25V              | 10,000              | ± 5%                     | 0.50 ± 0.05       |
| C1005X7R1E103K                     | X7R                            | 25V              | 10,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1E103M                     | X7R                            | 25V              | 10,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1E153K                     | X7R                            | 25V              | 15,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1E153M                     | X7R                            | 25V              | 15,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1E223K                     | X7R                            | 25V              | 22,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1E223M                     | X7R                            | 25V              | 22,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1E333K                     | X7R                            | 25V              | 33,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1E333M                     | X7R                            | 25V              | 33,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1E473K                     | X7R                            | 25V              | 47,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1E473M                     | X7R                            | 25V              | 47,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1E683K                     | X7R                            | 25V              | 68,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1E683M                     | X7R                            | 25V              | 68,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1E104K                     | X7R                            | 25V              | 100,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1E104M                     | X7R                            | 25V              | 100,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1C103K                     | X7R                            | 16V              | 10,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1C103M                     | X7R                            | 16V              | 10,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1C153K                     | X7R                            | 16V              | 15,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1C153M                     | X7R                            | 16V              | 15,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1C223K                     | X7R                            | 16V              | 22,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1C223M                     | X7R                            | 16V              | 22,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1C333K                     | X7R                            | 16V              | 33,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1C333M                     | X7R                            | 16V              | 33,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1C473K                     | X7R                            | 16V              | 47,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1C473M                     | X7R                            | 16V              | 47,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1C683K                     | X7R                            | 16V              | 68,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1C683M                     | X7R                            | 16V              | 68,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1C104K                     | X7R                            | 16V              | 100,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1C104M                     | X7R                            | 16V              | 100,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1C154K                     | X7R                            | 16V              | 150,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1C154M                     | X7R                            | 16V              | 150,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1C224K                     | X7R                            | 16V              | 220,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1C224M                     | X7R                            | 16V              | 220,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1A473K                     | X7R                            | 10V              | 47,000              | ± 10%                    | 0.50 ± 0.05       |



## Capacitance Range Table

## C1005 [EIA CC0402]

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%), X6S(-55 to 105°C, ±22%), X5R (-55 to +85°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1005X7R1A473M                     | X7R                            | 10V              | 47,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1A683K                     | X7R                            | 10V              | 68,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1A683M                     | X7R                            | 10V              | 68,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1A104K                     | X7R                            | 10V              | 100,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1A104M                     | X7R                            | 10V              | 100,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X7R1A224K                     | X7R                            | 10V              | 220,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X7R1A224M                     | X7R                            | 10V              | 220,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X6S1H103K                     | X6S                            | 50V              | 10,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X6S1H103M                     | X6S                            | 50V              | 10,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X6S1H223K                     | X6S                            | 50V              | 22,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X6S1H223M                     | X6S                            | 50V              | 22,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X6S1H473K                     | X6S                            | 50V              | 47,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X6S1H473M                     | X6S                            | 50V              | 47,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X6S1H104K                     | X6S                            | 50V              | 100,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X6S1H104M                     | X6S                            | 50V              | 100,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X6S1V104K                     | X6S                            | 35V              | 100,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X6S1V104M                     | X6S                            | 35V              | 100,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X6S1E104K                     | X6S                            | 25V              | 100,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X6S1E104M                     | X6S                            | 25V              | 100,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X6S1E224K                     | X6S                            | 25V              | 220,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X6S1E224M                     | X6S                            | 25V              | 220,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X6S1C224K                     | X6S                            | 16V              | 220,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X6S1C224M                     | X6S                            | 16V              | 220,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X6S1A474K                     | X6S                            | 10V              | 470,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X6S1A474M                     | X6S                            | 10V              | 470,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X6S1A105K                     | X6S                            | 10V              | 1,000,000           | ± 10%                    | 0.50 ± 0.05       |
| C1005X6S1A105M                     | X6S                            | 10V              | 1,000,000           | ± 20%                    | 0.50 ± 0.05       |
| C1005X6S0J474K                     | X6S                            | 6.3V             | 470,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X6S0J474M                     | X6S                            | 6.3V             | 470,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X6S0J105K                     | X6S                            | 6.3V             | 1,000,000           | ± 10%                    | 0.50 ± 0.05       |
| C1005X6S0J105M                     | X6S                            | 6.3V             | 1,000,000           | ± 20%                    | 0.50 ± 0.05       |
| C1005X6S0G105K                     | X6S                            | 4V               | 1,000,000           | ± 10%                    | 0.50 ± 0.05       |
| C1005X6S0G105M                     | X6S                            | 4V               | 1,000,000           | ± 20%                    | 0.50 ± 0.05       |
| C1005X6S0G225M                     | X6S                            | 4V               | 2,200,000           | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1H221K                     | X5R                            | 50V              | 220                 | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1H331K                     | X5R                            | 50V              | 330                 | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1H471K                     | X5R                            | 50V              | 470                 | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1H681K                     | X5R                            | 50V              | 680                 | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1H102K                     | X5R                            | 50V              | 1,000               | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1H152K                     | X5R                            | 50V              | 1,500               | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1H222K                     | X5R                            | 50V              | 2,200               | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1H332K                     | X5R                            | 50V              | 3,300               | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1H472K                     | X5R                            | 50V              | 4,700               | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1H682K                     | X5R                            | 50V              | 6,800               | ± 10%                    | 0.50 ± 0.05       |



## Capacitance Range Table

## C1005 [EIA CC0402]

### Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1005X5R1H473K                     | X5R                            | 50V              | 47,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1H473M                     | X5R                            | 50V              | 47,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1H683K                     | X5R                            | 50V              | 68,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1H683M                     | X5R                            | 50V              | 68,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1H104K                     | X5R                            | 50V              | 100,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1H104M                     | X5R                            | 50V              | 100,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1V104K                     | X5R                            | 35V              | 100,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1V104M                     | X5R                            | 35V              | 100,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1E103K                     | X5R                            | 25V              | 10,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1E153K                     | X5R                            | 25V              | 15,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1E223K                     | X5R                            | 25V              | 22,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1E333K                     | X5R                            | 25V              | 33,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1E473K                     | X5R                            | 25V              | 47,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1E473M                     | X5R                            | 25V              | 47,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1E683K                     | X5R                            | 25V              | 68,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1E683M                     | X5R                            | 25V              | 68,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1E104K                     | X5R                            | 25V              | 100,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1E104M                     | X5R                            | 25V              | 100,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1E224K                     | X5R                            | 25V              | 220,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1E224M                     | X5R                            | 25V              | 220,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1C473K                     | X5R                            | 16V              | 47,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1C473M                     | X5R                            | 16V              | 47,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1C683K                     | X5R                            | 16V              | 68,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1C683M                     | X5R                            | 16V              | 68,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1C104K                     | X5R                            | 16V              | 100,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1C104M                     | X5R                            | 16V              | 100,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1C224K                     | X5R                            | 16V              | 220,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1C224M                     | X5R                            | 16V              | 220,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1C334K                     | X5R                            | 16V              | 330,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1C334M                     | X5R                            | 16V              | 330,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1C474K                     | X5R                            | 16V              | 470,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1C474M                     | X5R                            | 16V              | 470,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1C105K                     | X5R                            | 16V              | 1,000,000           | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1C105M                     | X5R                            | 16V              | 1,000,000           | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1A473K                     | X5R                            | 10V              | 47,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1A473M                     | X5R                            | 10V              | 47,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1A683K                     | X5R                            | 10V              | 68,000              | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1A683M                     | X5R                            | 10V              | 68,000              | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1A104K                     | X5R                            | 10V              | 100,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1A104M                     | X5R                            | 10V              | 100,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1A224K                     | X5R                            | 10V              | 220,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1A224M                     | X5R                            | 10V              | 220,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1A334K                     | X5R                            | 10V              | 330,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1A334M                     | X5R                            | 10V              | 330,000             | ± 20%                    | 0.50 ± 0.05       |



## Capacitance Range Table

## C1005 [EIA CC0402]

### Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%), Y5V(-30 to +85°C, +22/-82%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1005X5R1A474K                     | X5R                            | 10V              | 470,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1A474M                     | X5R                            | 10V              | 470,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1A105K                     | X5R                            | 10V              | 1,000,000           | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1A105M                     | X5R                            | 10V              | 1,000,000           | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1A155K                     | X5R                            | 10V              | 1,500,000           | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1A155M                     | X5R                            | 10V              | 1,500,000           | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R1A225K                     | X5R                            | 10V              | 2,200,000           | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R1A225M                     | X5R                            | 10V              | 2,200,000           | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R0J104K                     | X5R                            | 6.3V             | 100,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R0J104M                     | X5R                            | 6.3V             | 100,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R0J224K                     | X5R                            | 6.3V             | 220,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R0J224M                     | X5R                            | 6.3V             | 220,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R0J334K                     | X5R                            | 6.3V             | 330,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R0J334M                     | X5R                            | 6.3V             | 330,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R0J474K                     | X5R                            | 6.3V             | 470,000             | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R0J474M                     | X5R                            | 6.3V             | 470,000             | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R0J105K                     | X5R                            | 6.3V             | 1,000,000           | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R0J105M                     | X5R                            | 6.3V             | 1,000,000           | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R0J225K                     | X5R                            | 6.3V             | 2,200,000           | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R0J225M                     | X5R                            | 6.3V             | 2,200,000           | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R0J335K                     | X5R                            | 6.3V             | 3,300,000           | ± 10%                    | 0.50 ± 0.15       |
| C1005X5R0J335M                     | X5R                            | 6.3V             | 3,300,000           | ± 20%                    | 0.50 ± 0.15       |
| C1005X5R0J475K                     | X5R                            | 6.3V             | 4,700,000           | ± 10%                    | 0.50 ± 0.15       |
| C1005X5R0J475M                     | X5R                            | 6.3V             | 4,700,000           | ± 20%                    | 0.50 ± 0.15       |
| C1005X5R0G225K                     | X5R                            | 4V               | 2,200,000           | ± 10%                    | 0.50 ± 0.05       |
| C1005X5R0G225M                     | X5R                            | 4V               | 2,200,000           | ± 20%                    | 0.50 ± 0.05       |
| C1005X5R0G335K                     | X5R                            | 4V               | 3,300,000           | ± 10%                    | 0.50 ± 0.15       |
| C1005X5R0G335M                     | X5R                            | 4V               | 3,300,000           | ± 20%                    | 0.50 ± 0.15       |
| C1005X5R0G475K                     | X5R                            | 4V               | 4,700,000           | ± 10%                    | 0.50 ± 0.15       |
| C1005X5R0G475M                     | X5R                            | 4V               | 4,700,000           | ± 20%                    | 0.50 ± 0.15       |
| C1005Y5V1H103Z                     | Y5V                            | 50V              | 10,000              | +80/-20%                 | 0.50 ± 0.05       |
| C1005Y5V1E104Z                     | Y5V                            | 25V              | 100,000             | +80/-20%                 | 0.50 ± 0.05       |
| C1005Y5V1E224Z                     | Y5V                            | 25V              | 220,000             | +80/-20%                 | 0.50 ± 0.05       |
| C1005Y5V1C104Z                     | Y5V                            | 16V              | 100,000             | +80/-20%                 | 0.50 ± 0.05       |
| C1005Y5V1C224Z                     | Y5V                            | 16V              | 220,000             | +80/-20%                 | 0.50 ± 0.05       |
| C1005Y5V1A224Z                     | Y5V                            | 10V              | 220,000             | +80/-20%                 | 0.50 ± 0.05       |
| C1005Y5V1A474Z                     | Y5V                            | 10V              | 470,000             | +80/-20%                 | 0.50 ± 0.05       |
| C1005Y5V0J105Z                     | Y5V                            | 6.3V             | 1,000,000           | +80/-20%                 | 0.50 ± 0.05       |



## Capacitance Range Chart

## C1608 [EIA CC0603]

### Capacitance Range Chart

Temperature Characteristics: C0G ( $0 \pm 30\text{ppm}/^\circ\text{C}$ )  
 Rated Voltage: 50V (1H), 25V (1E)

| Capacitance (pF) | Cap Code | Tolerance                                        | C0G      |
|------------------|----------|--------------------------------------------------|----------|
|                  |          |                                                  | 1H (50V) |
| 0.1              | 0R1      | B: $\pm 0.10\text{pF}$<br>C: $\pm 0.25\text{pF}$ |          |
| 0.5              | 0R5      |                                                  |          |
| 0.75             | R75      |                                                  |          |
| 1                | 010      |                                                  |          |
| 1.2              | 1R2      |                                                  |          |
| 1.5              | 1R5      |                                                  |          |
| 1.8              | 1R8      |                                                  |          |
| 2.2              | 2R2      |                                                  |          |
| 2.7              | 2R7      |                                                  |          |
| 3.3              | 3R3      |                                                  |          |
| 3.9              | 3R9      |                                                  |          |
| 4.7              | 4R7      | C: $\pm 0.25\text{pF}$<br>D: $\pm 0.50\text{pF}$ |          |
| 5.6              | 5R6      |                                                  |          |
| 6.8              | 6R8      |                                                  |          |
| 8.2              | 8R2      |                                                  |          |
| 10               | 100      |                                                  |          |
| 11               | 110      | J: $\pm 5\%$                                     |          |
| 12               | 120      |                                                  |          |
| 13               | 130      |                                                  |          |
| 15               | 150      |                                                  |          |
| 16               | 160      |                                                  |          |
| 18               | 180      |                                                  |          |
| 20               | 200      |                                                  |          |
| 22               | 220      |                                                  |          |
| 24               | 240      |                                                  |          |
| 27               | 270      |                                                  |          |
| 30               | 300      |                                                  |          |
| 33               | 330      |                                                  |          |
| 36               | 360      |                                                  |          |
| 39               | 390      |                                                  |          |
| 43               | 430      |                                                  |          |
| 47               | 470      |                                                  |          |
| 51               | 510      |                                                  |          |
| 56               | 560      |                                                  |          |
| 62               | 620      |                                                  |          |
| 68               | 680      |                                                  |          |
| 75               | 750      |                                                  |          |
| 82               | 820      |                                                  |          |

| Capacitance (pF) | Cap Code | Tolerance    | C0G      |          |
|------------------|----------|--------------|----------|----------|
|                  |          |              | 1H (50V) | 1E (25V) |
| 91               | 910      | J: $\pm 5\%$ |          |          |
| 100              | 101      |              |          |          |
| 110              | 111      |              |          |          |
| 120              | 121      |              |          |          |
| 130              | 131      |              |          |          |
| 150              | 151      |              |          |          |
| 160              | 161      |              |          |          |
| 180              | 181      |              |          |          |
| 200              | 201      |              |          |          |
| 220              | 221      |              |          |          |
| 240              | 241      |              |          |          |
| 270              | 271      |              |          |          |
| 300              | 301      |              |          |          |
| 330              | 331      |              |          |          |
| 360              | 361      |              |          |          |
| 390              | 391      |              |          |          |
| 430              | 431      |              |          |          |
| 470              | 471      |              |          |          |
| 510              | 511      |              |          |          |
| 560              | 561      |              |          |          |
| 620              | 621      |              |          |          |
| 680              | 681      |              |          |          |
| 750              | 751      |              |          |          |
| 820              | 821      |              |          |          |
| 910              | 911      |              |          |          |
| 1,000            | 102      |              |          |          |
| 1,200            | 122      |              |          |          |
| 1,500            | 152      |              |          |          |
| 1,800            | 182      |              |          |          |
| 2,200            | 222      |              |          |          |
| 2,700            | 272      |              |          |          |
| 3,300            | 332      |              |          |          |
| 3,900            | 392      |              |          |          |
| 4,700            | 472      |              |          |          |
| 5,600            | 562      |              |          |          |
| 6,800            | 682      |              |          |          |
| 8,200            | 822      |              |          |          |
| 10,000           | 103      |              |          |          |

• Standard capacitance is shown. Please refer to Capacitance Range Table for additional capacitance values.

### Capacitance Range Chart

Temperature Characteristics: X6S ( $\pm 22\%$ )  
 Rated Voltage: 50V (1H), 35V (1V), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J), 4V (0G)

| Capacitance (pF) | Cap Code | Tolerance                      | X6S      |          |          |          |          |           |
|------------------|----------|--------------------------------|----------|----------|----------|----------|----------|-----------|
|                  |          |                                | 1H (50V) | 1V (35V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) |
| 220,000          | 224      | K: $\pm 10\%$<br>M: $\pm 20\%$ |          |          |          |          |          |           |
| 470,000          | 474      |                                |          |          |          |          |          |           |
| 1,000,000        | 105      |                                |          |          |          |          |          |           |
| 2,200,000        | 225      |                                |          |          |          |          |          |           |
| 4,700,000        | 475      |                                |          |          |          |          |          |           |
| 10,000,000       | 106      |                                |          |          |          |          |          |           |

Standard Thickness





## Capacitance Range Chart

## C1608 [EIA CC0603]

### Capacitance Range Chart

Temperature Characteristics: X7R ( $\pm 15\%$ ), X5R ( $\pm 15\%$ ), Y5V (+22/-82%)

Rated Voltage: 50V (1H), 35V (1V), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J), 4V (0G)

| Capacitance (pF) | Cap Code | Tolerance                      | X5R      |          |          |          |          |           |         |
|------------------|----------|--------------------------------|----------|----------|----------|----------|----------|-----------|---------|
|                  |          |                                | 1H (50V) | 1V (35V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) | 0G (4V) |
| 100,000          | 104      | K: $\pm 10\%$<br>M: $\pm 20\%$ | ■        |          |          |          |          |           |         |
| 150,000          | 154      |                                | ■        |          | ■        |          |          |           |         |
| 220,000          | 224      |                                | ■        |          | ■        | ■        | ■        |           |         |
| 330,000          | 334      |                                | ■        |          | ■        | ■        | ■        |           |         |
| 470,000          | 474      |                                | ■        |          | ■        | ■        | ■        |           |         |
| 680,000          | 684      |                                | ■        |          | ■        | ■        | ■        |           |         |
| 1,000,000        | 105      |                                | ■        | ■        | ■        | ■        | ■        | ■         |         |
| 1,500,000        | 155      |                                | ■        | ■        | ■        | ■        | ■        | ■         |         |
| 2,200,000        | 225      |                                | ■        | ■        | ■        | ■        | ■        | ■         |         |
| 3,300,000        | 335      |                                | ■        | ■        | ■        | ■        | ■        | ■         |         |
| 4,700,000        | 475      |                                | ■        | ■        | ■        | ■        | ■        | ■         |         |
| 6,800,000        | 685      |                                | ■        | ■        | ■        | ■        | ■        | ■         |         |
| 10,000,000       | 106      |                                | ■        | ■        | ■        | ■        | ■        | ■         | ■       |

| Capacitance (pF) | Cap Code | Tolerance                      | X7R      |          |          |          |          |           |
|------------------|----------|--------------------------------|----------|----------|----------|----------|----------|-----------|
|                  |          |                                | 1H (50V) | 1V (35V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) |
| 100              | 101      | K: $\pm 10\%$<br>M: $\pm 20\%$ | ■        |          |          |          |          |           |
| 220              | 221      |                                | ■        |          |          |          |          |           |
| 330              | 331      |                                | ■        |          |          |          |          |           |
| 470              | 471      |                                | ■        |          |          |          |          |           |
| 680              | 681      |                                | ■        |          |          |          |          |           |
| 1,000            | 102      |                                | ■        |          |          |          |          |           |
| 1,500            | 152      |                                | ■        |          |          |          |          |           |
| 2,200            | 222      |                                | ■        |          |          |          |          |           |
| 3,300            | 332      |                                | ■        |          |          |          |          |           |
| 4,700            | 472      |                                | ■        |          |          |          |          |           |
| 6,800            | 682      |                                | ■        |          |          |          |          |           |
| 10,000           | 103      |                                | ■        |          | ■        |          |          |           |
| 15,000           | 153      |                                | ■        |          | ■        |          |          |           |
| 22,000           | 223      |                                | ■        |          | ■        | ■        |          |           |
| 33,000           | 333      |                                | ■        |          | ■        | ■        |          |           |
| 47,000           | 473      |                                | ■        |          | ■        | ■        |          |           |
| 68,000           | 683      |                                | ■        |          | ■        | ■        |          |           |
| 100,000          | 104      |                                | ■        |          | ■        | ■        |          |           |
| 150,000          | 154      |                                | ■        |          | ■        | ■        |          |           |
| 220,000          | 224      |                                | ■        | ■        | ■        | ■        | ■        |           |
| 330,000          | 334      |                                | ■        | ■        | ■        | ■        | ■        |           |
| 470,000          | 474      |                                | ■        | ■        | ■        | ■        | ■        |           |
| 680,000          | 684      |                                | ■        | ■        | ■        | ■        | ■        |           |
| 1,000,000        | 105      |                                | ■        | ■        | ■        | ■        | ■        | ■         |
| 2,200,000        | 225      |                                | ■        | ■        | ■        | ■        | ■        | ■         |

| Capacitance (pF) | Cap Code | Tolerance   | Y5V      |          |          |          |           |
|------------------|----------|-------------|----------|----------|----------|----------|-----------|
|                  |          |             | 1H (50V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) |
| 100,000          | 104      | Z: +80/-20% | ■        | ■        | ■        |          |           |
| 220,000          | 224      |             | ■        | ■        | ■        |          |           |
| 470,000          | 474      |             | ■        | ■        | ■        |          |           |
| 1,000,000        | 105      |             | ■        | ■        | ■        | ■        |           |
| 2,200,000        | 225      |             | ■        | ■        | ■        | ■        |           |
| 4,700,000        | 475      |             | ■        | ■        | ■        | ■        | ■         |
| 10,000,000       | 106      |             | ■        | ■        | ■        | ■        | ■         |

Standard Thickness

■ 0.80 mm



## Capacitance Range Table

## C1608 [EIA CC0603]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1608C0G1H0R5B                     | C0G                            | 50V              | 0.5                 | ± 0.10pF                 | 0.80 ± 0.10       |
| C1608C0G1H0R5C                     | C0G                            | 50V              | 0.5                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1HR75C                     | C0G                            | 50V              | 0.75                | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H010B                     | C0G                            | 50V              | 1.0                 | ± 0.10pF                 | 0.80 ± 0.10       |
| C1608C0G1H010C                     | C0G                            | 50V              | 1.0                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H1R2B                     | C0G                            | 50V              | 1.2                 | ± 0.10pF                 | 0.80 ± 0.10       |
| C1608C0G1H1R2C                     | C0G                            | 50V              | 1.2                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H1R5B                     | C0G                            | 50V              | 1.5                 | ± 0.10pF                 | 0.80 ± 0.10       |
| C1608C0G1H1R5C                     | C0G                            | 50V              | 1.5                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H1R8B                     | C0G                            | 50V              | 1.8                 | ± 0.10pF                 | 0.80 ± 0.10       |
| C1608C0G1H1R8C                     | C0G                            | 50V              | 1.8                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H020B                     | C0G                            | 50V              | 2.0                 | ± 0.10pF                 | 0.80 ± 0.10       |
| C1608C0G1H020C                     | C0G                            | 50V              | 2.0                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H2R2B                     | C0G                            | 50V              | 2.2                 | ± 0.10pF                 | 0.80 ± 0.10       |
| C1608C0G1H2R2C                     | C0G                            | 50V              | 2.2                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H2R7B                     | C0G                            | 50V              | 2.7                 | ± 0.10pF                 | 0.80 ± 0.10       |
| C1608C0G1H2R7C                     | C0G                            | 50V              | 2.7                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H030B                     | C0G                            | 50V              | 3.0                 | ± 0.10pF                 | 0.80 ± 0.10       |
| C1608C0G1H030C                     | C0G                            | 50V              | 3.0                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H3R3B                     | C0G                            | 50V              | 3.3                 | ± 0.10pF                 | 0.80 ± 0.10       |
| C1608C0G1H3R3C                     | C0G                            | 50V              | 3.3                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H3R9B                     | C0G                            | 50V              | 3.9                 | ± 0.10pF                 | 0.80 ± 0.10       |
| C1608C0G1H3R9C                     | C0G                            | 50V              | 3.9                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H040B                     | C0G                            | 50V              | 4.0                 | ± 0.10pF                 | 0.80 ± 0.10       |
| C1608C0G1H040C                     | C0G                            | 50V              | 4.0                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H4R7B                     | C0G                            | 50V              | 4.7                 | ± 0.10pF                 | 0.80 ± 0.10       |
| C1608C0G1H4R7C                     | C0G                            | 50V              | 4.7                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H050B                     | C0G                            | 50V              | 5.0                 | ± 0.10pF                 | 0.80 ± 0.10       |
| C1608C0G1H050C                     | C0G                            | 50V              | 5.0                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H5R6C                     | C0G                            | 50V              | 5.6                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H5R6D                     | C0G                            | 50V              | 5.6                 | ± 0.50pF                 | 0.80 ± 0.10       |
| C1608C0G1H060C                     | C0G                            | 50V              | 6.0                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H060D                     | C0G                            | 50V              | 6.0                 | ± 0.50pF                 | 0.80 ± 0.10       |
| C1608C0G1H6R8C                     | C0G                            | 50V              | 6.8                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H6R8D                     | C0G                            | 50V              | 6.8                 | ± 0.50pF                 | 0.80 ± 0.10       |
| C1608C0G1H070C                     | C0G                            | 50V              | 7.0                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H070D                     | C0G                            | 50V              | 7.0                 | ± 0.50pF                 | 0.80 ± 0.10       |
| C1608C0G1H080C                     | C0G                            | 50V              | 8.0                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H080D                     | C0G                            | 50V              | 8.0                 | ± 0.50pF                 | 0.80 ± 0.10       |
| C1608C0G1H8R2C                     | C0G                            | 50V              | 8.2                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H8R2D                     | C0G                            | 50V              | 8.2                 | ± 0.50pF                 | 0.80 ± 0.10       |
| C1608C0G1H090C                     | C0G                            | 50V              | 9.0                 | ± 0.25pF                 | 0.80 ± 0.10       |
| C1608C0G1H090D                     | C0G                            | 50V              | 9.0                 | ± 0.50pF                 | 0.80 ± 0.10       |
| C1608C0G1H100C                     | C0G                            | 50V              | 10                  | ± 0.25pF                 | 0.80 ± 0.10       |



## Capacitance Range Table

## C1608 [EIA CC0603]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1608C0G1H100D                     | C0G                            | 50V              | 10                  | ± 0.50pF                 | 0.80 ± 0.10       |
| C1608C0G1H110J                     | C0G                            | 50V              | 11                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H120J                     | C0G                            | 50V              | 12                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H130J                     | C0G                            | 50V              | 13                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H150J                     | C0G                            | 50V              | 15                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H160J                     | C0G                            | 50V              | 16                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H180J                     | C0G                            | 50V              | 18                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H200J                     | C0G                            | 50V              | 20                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H220J                     | C0G                            | 50V              | 22                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H240J                     | C0G                            | 50V              | 24                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H270J                     | C0G                            | 50V              | 27                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H300J                     | C0G                            | 50V              | 30                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H330J                     | C0G                            | 50V              | 33                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H360J                     | C0G                            | 50V              | 36                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H390J                     | C0G                            | 50V              | 39                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H430J                     | C0G                            | 50V              | 43                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H470J                     | C0G                            | 50V              | 47                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H510J                     | C0G                            | 50V              | 51                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H560J                     | C0G                            | 50V              | 56                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H620J                     | C0G                            | 50V              | 62                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H680J                     | C0G                            | 50V              | 68                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H750J                     | C0G                            | 50V              | 75                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H820J                     | C0G                            | 50V              | 82                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H910J                     | C0G                            | 50V              | 91                  | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H101J                     | C0G                            | 50V              | 100                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H111J                     | C0G                            | 50V              | 110                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H121J                     | C0G                            | 50V              | 120                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H131J                     | C0G                            | 50V              | 130                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H151J                     | C0G                            | 50V              | 150                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H161J                     | C0G                            | 50V              | 160                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H181J                     | C0G                            | 50V              | 180                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H201J                     | C0G                            | 50V              | 200                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H221J                     | C0G                            | 50V              | 220                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H241J                     | C0G                            | 50V              | 240                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H271J                     | C0G                            | 50V              | 270                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H301J                     | C0G                            | 50V              | 300                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H331J                     | C0G                            | 50V              | 330                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H361J                     | C0G                            | 50V              | 360                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H391J                     | C0G                            | 50V              | 390                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H431J                     | C0G                            | 50V              | 430                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H471J                     | C0G                            | 50V              | 470                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H511J                     | C0G                            | 50V              | 510                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H561J                     | C0G                            | 50V              | 560                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H621J                     | C0G                            | 50V              | 620                 | ± 5%                     | 0.80 ± 0.10       |



## Capacitance Range Table

## C1608 [EIA CC0603]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1608C0G1H681J                     | C0G                            | 50V              | 680                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H751J                     | C0G                            | 50V              | 750                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H821J                     | C0G                            | 50V              | 820                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H911J                     | C0G                            | 50V              | 910                 | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H102J                     | C0G                            | 50V              | 1,000               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H122J                     | C0G                            | 50V              | 1,200               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H152J                     | C0G                            | 50V              | 1,500               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H182J                     | C0G                            | 50V              | 1,800               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H222J                     | C0G                            | 50V              | 2,200               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H272J                     | C0G                            | 50V              | 2,700               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H332J                     | C0G                            | 50V              | 3,300               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H392J                     | C0G                            | 50V              | 3,900               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H472J                     | C0G                            | 50V              | 4,700               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H562J                     | C0G                            | 50V              | 5,600               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H682J                     | C0G                            | 50V              | 6,800               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H822J                     | C0G                            | 50V              | 8,200               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1H103J                     | C0G                            | 50V              | 10,000              | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1E392J                     | C0G                            | 25V              | 3,900               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1E472J                     | C0G                            | 25V              | 4,700               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1E562J                     | C0G                            | 25V              | 5,600               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1E682J                     | C0G                            | 25V              | 6,800               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1E822J                     | C0G                            | 25V              | 8,200               | ± 5%                     | 0.80 ± 0.10       |
| C1608C0G1E103J                     | C0G                            | 25V              | 10,000              | ± 5%                     | 0.80 ± 0.10       |

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1608X7R1H101K                     | X7R                            | 50V              | 100                 | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H101M                     | X7R                            | 50V              | 100                 | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H221K                     | X7R                            | 50V              | 220                 | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H221M                     | X7R                            | 50V              | 220                 | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H331K                     | X7R                            | 50V              | 330                 | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H331M                     | X7R                            | 50V              | 330                 | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H471K                     | X7R                            | 50V              | 470                 | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H471M                     | X7R                            | 50V              | 470                 | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H681K                     | X7R                            | 50V              | 680                 | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H681M                     | X7R                            | 50V              | 680                 | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H102J                     | X7R                            | 50V              | 1,000               | ± 5%                     | 0.80 ± 0.10       |
| C1608X7R1H102K                     | X7R                            | 50V              | 1,000               | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H102M                     | X7R                            | 50V              | 1,000               | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H152K                     | X7R                            | 50V              | 1,500               | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H152M                     | X7R                            | 50V              | 1,500               | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H222K                     | X7R                            | 50V              | 2,200               | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H222M                     | X7R                            | 50V              | 2,200               | ± 20%                    | 0.80 ± 0.10       |



## Capacitance Range Table

## C1608 [EIA CC0603]

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1608X7R1H332K                     | X7R                            | 50V              | 3,300               | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H332M                     | X7R                            | 50V              | 3,300               | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H472K                     | X7R                            | 50V              | 4,700               | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H472M                     | X7R                            | 50V              | 4,700               | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H682K                     | X7R                            | 50V              | 6,800               | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H682M                     | X7R                            | 50V              | 6,800               | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H103J                     | X7R                            | 50V              | 10,000              | ± 5%                     | 0.80 ± 0.10       |
| C1608X7R1H103K                     | X7R                            | 50V              | 10,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H103M                     | X7R                            | 50V              | 10,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H153K                     | X7R                            | 50V              | 15,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H153M                     | X7R                            | 50V              | 15,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H223K                     | X7R                            | 50V              | 22,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H223M                     | X7R                            | 50V              | 22,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H333K                     | X7R                            | 50V              | 33,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H333M                     | X7R                            | 50V              | 33,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H473K                     | X7R                            | 50V              | 47,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H473M                     | X7R                            | 50V              | 47,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H683K                     | X7R                            | 50V              | 68,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H683M                     | X7R                            | 50V              | 68,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H104K                     | X7R                            | 50V              | 100,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H104M                     | X7R                            | 50V              | 100,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H154K                     | X7R                            | 50V              | 150,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H154M                     | X7R                            | 50V              | 150,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H224K                     | X7R                            | 50V              | 220,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H224M                     | X7R                            | 50V              | 220,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H334K                     | X7R                            | 50V              | 330,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H334M                     | X7R                            | 50V              | 330,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1H474K                     | X7R                            | 50V              | 470,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1H474M                     | X7R                            | 50V              | 470,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1V334K                     | X7R                            | 35V              | 330,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1V334M                     | X7R                            | 35V              | 330,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1V474K                     | X7R                            | 35V              | 470,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1V474M                     | X7R                            | 35V              | 470,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1V105K                     | X7R                            | 35V              | 1,000,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1V105M                     | X7R                            | 35V              | 1,000,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1E103J                     | X7R                            | 25V              | 10,000              | ± 5%                     | 0.80 ± 0.10       |
| C1608X7R1E103K                     | X7R                            | 25V              | 10,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1E103M                     | X7R                            | 25V              | 10,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1E153K                     | X7R                            | 25V              | 15,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1E153M                     | X7R                            | 25V              | 15,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1E223K                     | X7R                            | 25V              | 22,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1E223M                     | X7R                            | 25V              | 22,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1E333K                     | X7R                            | 25V              | 33,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1E333M                     | X7R                            | 25V              | 33,000              | ± 20%                    | 0.80 ± 0.10       |



## Capacitance Range Table

## C1608 [EIA CC0603]

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1608X7R1E473K                     | X7R                            | 25V              | 47,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1E473M                     | X7R                            | 25V              | 47,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1E683K                     | X7R                            | 25V              | 68,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1E683M                     | X7R                            | 25V              | 68,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1E104K                     | X7R                            | 25V              | 100,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1E104M                     | X7R                            | 25V              | 100,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1E154K                     | X7R                            | 25V              | 150,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1E154M                     | X7R                            | 25V              | 150,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1E224K                     | X7R                            | 25V              | 220,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1E224M                     | X7R                            | 25V              | 220,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1E334K                     | X7R                            | 25V              | 330,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1E334M                     | X7R                            | 25V              | 330,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1E474K                     | X7R                            | 25V              | 470,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1E474M                     | X7R                            | 25V              | 470,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1E684K                     | X7R                            | 25V              | 680,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1E684M                     | X7R                            | 25V              | 680,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1E105K                     | X7R                            | 25V              | 1,000,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1E105M                     | X7R                            | 25V              | 1,000,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1C223K                     | X7R                            | 16V              | 22,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1C223M                     | X7R                            | 16V              | 22,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1C333K                     | X7R                            | 16V              | 33,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1C333M                     | X7R                            | 16V              | 33,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1C473K                     | X7R                            | 16V              | 47,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1C473M                     | X7R                            | 16V              | 47,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1C683K                     | X7R                            | 16V              | 68,000              | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1C683M                     | X7R                            | 16V              | 68,000              | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1C104K                     | X7R                            | 16V              | 100,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1C104M                     | X7R                            | 16V              | 100,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1C154K                     | X7R                            | 16V              | 150,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1C154M                     | X7R                            | 16V              | 150,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1C224K                     | X7R                            | 16V              | 220,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1C224M                     | X7R                            | 16V              | 220,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1C334K                     | X7R                            | 16V              | 330,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1C334M                     | X7R                            | 16V              | 330,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1C474K                     | X7R                            | 16V              | 470,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1C474M                     | X7R                            | 16V              | 470,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1C684K                     | X7R                            | 16V              | 680,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1C684M                     | X7R                            | 16V              | 680,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1C105K                     | X7R                            | 16V              | 1,000,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1C105M                     | X7R                            | 16V              | 1,000,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1A224K                     | X7R                            | 10V              | 220,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1A224M                     | X7R                            | 10V              | 220,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1A334K                     | X7R                            | 10V              | 330,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1A334M                     | X7R                            | 10V              | 330,000             | ± 20%                    | 0.80 ± 0.10       |



## Capacitance Range Table

## C1608 [EIA CC0603]

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%), X6S (-55 to +105°C, ±22%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1608X7R1A474K                     | X7R                            | 10V              | 470,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1A474M                     | X7R                            | 10V              | 470,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1A105K                     | X7R                            | 10V              | 1,000,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1A105M                     | X7R                            | 10V              | 1,000,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R1A225K                     | X7R                            | 10V              | 2,200,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R1A225M                     | X7R                            | 10V              | 2,200,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X7R0J225K                     | X7R                            | 6.3V             | 2,200,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X7R0J225M                     | X7R                            | 6.3V             | 2,200,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S1H224K                     | X6S                            | 50V              | 220,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S1H224M                     | X6S                            | 50V              | 220,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S1H474K                     | X6S                            | 50V              | 470,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S1H474M                     | X6S                            | 50V              | 470,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S1H105K                     | X6S                            | 50V              | 1,000,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S1H105M                     | X6S                            | 50V              | 1,000,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S1V224K                     | X6S                            | 35V              | 220,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S1V224M                     | X6S                            | 35V              | 220,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S1V474K                     | X6S                            | 35V              | 470,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S1V474M                     | X6S                            | 35V              | 470,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S1V105K                     | X6S                            | 35V              | 1,000,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S1V105M                     | X6S                            | 35V              | 1,000,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S1E474K                     | X6S                            | 25V              | 470,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S1E474M                     | X6S                            | 25V              | 470,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S1E105K                     | X6S                            | 25V              | 1,000,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S1E105M                     | X6S                            | 25V              | 1,000,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S1C105K                     | X6S                            | 16V              | 1,000,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S1C105M                     | X6S                            | 16V              | 1,000,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S1C225K                     | X6S                            | 16V              | 2,200,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S1C225M                     | X6S                            | 16V              | 2,200,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S1A225K/0.50                | X6S                            | 10V              | 2,200,000           | ± 10%                    | 0.50 ± 0.05       |
| C1608X6S1A225M/0.50                | X6S                            | 10V              | 2,200,000           | ± 20%                    | 0.50 ± 0.05       |
| C1608X6S1A475K                     | X6S                            | 10V              | 4,700,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S1A475M                     | X6S                            | 10V              | 4,700,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S0J225K                     | X6S                            | 6.3V             | 2,200,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S0J225M                     | X6S                            | 6.3V             | 2,200,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S0J475K                     | X6S                            | 6.3V             | 4,700,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S0J475M                     | X6S                            | 6.3V             | 4,700,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S0G225K/0.50                | X6S                            | 4V               | 2,200,000           | ± 10%                    | 0.50 ± 0.05       |
| C1608X6S0G225M/0.50                | X6S                            | 4V               | 2,200,000           | ± 20%                    | 0.50 ± 0.05       |
| C1608X6S0G475K/0.50                | X6S                            | 4V               | 4,700,000           | ± 10%                    | 0.50 ± 0.05       |
| C1608X6S0G475M/0.50                | X6S                            | 4V               | 4,700,000           | ± 20%                    | 0.50 ± 0.05       |
| C1608X6S0G475K/0.80                | X6S                            | 4V               | 4,700,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S0G475M/0.80                | X6S                            | 4V               | 4,700,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X6S0G106K                     | X6S                            | 4V               | 10,000,000          | ± 10%                    | 0.80 ± 0.10       |
| C1608X6S0G106M                     | X6S                            | 4V               | 10,000,000          | ± 20%                    | 0.80 ± 0.10       |



## Capacitance Range Table

## C1608 [EIA CC0603]

### Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1608X5R1H104K                     | X5R                            | 50V              | 100,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1H104M                     | X5R                            | 50V              | 100,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1H154K                     | X5R                            | 50V              | 150,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1H154M                     | X5R                            | 50V              | 150,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1H224K                     | X5R                            | 50V              | 220,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1H224M                     | X5R                            | 50V              | 220,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1H334K                     | X5R                            | 50V              | 330,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1H334M                     | X5R                            | 50V              | 330,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1H474K                     | X5R                            | 50V              | 470,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1H474M                     | X5R                            | 50V              | 470,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1H684K                     | X5R                            | 50V              | 680,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1H684M                     | X5R                            | 50V              | 680,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1H105K                     | X5R                            | 50V              | 1,000,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1H105M                     | X5R                            | 50V              | 1,000,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1V105K                     | X5R                            | 35V              | 1,000,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1V105M                     | X5R                            | 35V              | 1,000,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1E154K                     | X5R                            | 25V              | 150,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1E154M                     | X5R                            | 25V              | 150,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1E224K                     | X5R                            | 25V              | 220,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1E224M                     | X5R                            | 25V              | 220,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1E334K                     | X5R                            | 25V              | 330,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1E334M                     | X5R                            | 25V              | 330,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1E474K                     | X5R                            | 25V              | 470,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1E474M                     | X5R                            | 25V              | 470,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1E105K                     | X5R                            | 25V              | 1,000,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1E105M                     | X5R                            | 25V              | 1,000,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1E155K                     | X5R                            | 25V              | 1,500,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1E155M                     | X5R                            | 25V              | 1,500,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1E225K                     | X5R                            | 25V              | 2,200,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1E225M                     | X5R                            | 25V              | 2,200,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1C224K                     | X5R                            | 16V              | 220,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1C224M                     | X5R                            | 16V              | 220,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1C334K                     | X5R                            | 16V              | 330,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1C334M                     | X5R                            | 16V              | 330,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1C474K                     | X5R                            | 16V              | 470,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1C474M                     | X5R                            | 16V              | 470,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1C684K                     | X5R                            | 16V              | 680,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1C684M                     | X5R                            | 16V              | 680,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1C105K                     | X5R                            | 16V              | 1,000,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1C105M                     | X5R                            | 16V              | 1,000,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1C225K/0.50                | X5R                            | 16V              | 2,200,000           | ± 10%                    | 0.50 ± 0.05       |
| C1608X5R1C225M/0.50                | X5R                            | 16V              | 2,200,000           | ± 20%                    | 0.50 ± 0.05       |
| C1608X5R1C225K/0.80                | X5R                            | 16V              | 2,200,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1C225M/0.80                | X5R                            | 16V              | 2,200,000           | ± 20%                    | 0.80 ± 0.10       |



## Capacitance Range Table

## C1608 [EIA CC0603]

### Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1608X5R1C335K                     | X5R                            | 16V              | 3,300,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1C335M                     | X5R                            | 16V              | 3,300,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1C475K                     | X5R                            | 16V              | 4,700,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1C475M                     | X5R                            | 16V              | 4,700,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1A224K                     | X5R                            | 10V              | 220,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1A224M                     | X5R                            | 10V              | 220,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1A334K                     | X5R                            | 10V              | 330,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1A334M                     | X5R                            | 10V              | 330,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1A474K                     | X5R                            | 10V              | 470,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1A474M                     | X5R                            | 10V              | 470,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1A684K                     | X5R                            | 10V              | 680,000             | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1A684M                     | X5R                            | 10V              | 680,000             | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1A105K                     | X5R                            | 10V              | 1,000,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1A105M                     | X5R                            | 10V              | 1,000,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1A225K/0.50                | X5R                            | 10V              | 2,200,000           | ± 10%                    | 0.50 ± 0.05       |
| C1608X5R1A225M/0.50                | X5R                            | 10V              | 2,200,000           | ± 20%                    | 0.50 ± 0.05       |
| C1608X5R1A225K/0.80                | X5R                            | 10V              | 2,200,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1A225M/0.80                | X5R                            | 10V              | 2,200,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1A335K                     | X5R                            | 10V              | 3,300,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1A335M                     | X5R                            | 10V              | 3,300,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1A475K/0.50                | X5R                            | 10V              | 4,700,000           | ± 10%                    | 0.50 ± 0.05       |
| C1608X5R1A475M/0.50                | X5R                            | 10V              | 4,700,000           | ± 20%                    | 0.50 ± 0.05       |
| C1608X5R1A475K/0.80                | X5R                            | 10V              | 4,700,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1A475M/0.80                | X5R                            | 10V              | 4,700,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1A685K                     | X5R                            | 10V              | 6,800,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1A685M                     | X5R                            | 10V              | 6,800,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R1A106K                     | X5R                            | 10V              | 10,000,000          | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R1A106M                     | X5R                            | 10V              | 10,000,000          | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R0J105K                     | X5R                            | 6.3V             | 1,000,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R0J105M                     | X5R                            | 6.3V             | 1,000,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R0J155K                     | X5R                            | 6.3V             | 1,500,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R0J155M                     | X5R                            | 6.3V             | 1,500,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R0J225K                     | X5R                            | 6.3V             | 2,200,000           | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R0J225M                     | X5R                            | 6.3V             | 2,200,000           | ± 20%                    | 0.80 ± 0.10       |
| C1608X5R0J335K                     | X5R                            | 6.3V             | 3,300,000           | ± 10%                    | 0.80 ± 0.15       |
| C1608X5R0J335M                     | X5R                            | 6.3V             | 3,300,000           | ± 20%                    | 0.80 ± 0.15       |
| C1608X5R0J475K/0.50                | X5R                            | 6.3V             | 4,700,000           | ± 10%                    | 0.50 ± 0.05       |
| C1608X5R0J475M/0.50                | X5R                            | 6.3V             | 4,700,000           | ± 20%                    | 0.50 ± 0.05       |
| C1608X5R0J475K/0.80                | X5R                            | 6.3V             | 4,700,000           | ± 10%                    | 0.80 ± 0.15       |
| C1608X5R0J475M/0.80                | X5R                            | 6.3V             | 4,700,000           | ± 20%                    | 0.80 ± 0.15       |
| C1608X5R0J685K                     | X5R                            | 6.3V             | 6,800,000           | ± 10%                    | 0.80 ± 0.15       |
| C1608X5R0J685M                     | X5R                            | 6.3V             | 6,800,000           | ± 20%                    | 0.80 ± 0.15       |
| C1608X5R0J106K                     | X5R                            | 6.3V             | 10,000,000          | ± 10%                    | 0.80 ± 0.10       |
| C1608X5R0J106M                     | X5R                            | 6.3V             | 10,000,000          | ± 20%                    | 0.80 ± 0.20       |



## Capacitance Range Table

## C1608 [EIA CC0603]

### Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%), Y5V(-30 to +85°C, +22/-82%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C1608X5R0G106M                     | X5R                            | 4V               | 10,000,000          | ± 20%                    | 0.80 ± 0.20       |
| C1608Y5V1H104Z                     | Y5V                            | 50V              | 100,000             | +80/-20%                 | 0.80 ± 0.10       |
| C1608Y5V1H224Z                     | Y5V                            | 50V              | 220,000             | +80/-20%                 | 0.80 ± 0.10       |
| C1608Y5V1H474Z                     | Y5V                            | 50V              | 470,000             | +80/-20%                 | 0.80 ± 0.10       |
| C1608Y5V1E104Z                     | Y5V                            | 25V              | 100,000             | +80/-20%                 | 0.80 ± 0.10       |
| C1608Y5V1E224Z                     | Y5V                            | 25V              | 220,000             | +80/-20%                 | 0.80 ± 0.10       |
| C1608Y5V1E474Z                     | Y5V                            | 25V              | 470,000             | +80/-20%                 | 0.80 ± 0.10       |
| C1608Y5V1E105Z                     | Y5V                            | 25V              | 1,000,000           | +80/-20%                 | 0.80 ± 0.10       |
| C1608Y5V1C104Z                     | Y5V                            | 16V              | 100,000             | +80/-20%                 | 0.80 ± 0.10       |
| C1608Y5V1C105Z                     | Y5V                            | 16V              | 1,000,000           | +80/-20%                 | 0.80 ± 0.10       |
| C1608Y5V1C225Z                     | Y5V                            | 16V              | 2,200,000           | +80/-20%                 | 0.80 ± 0.10       |
| C1608Y5V1A105Z                     | Y5V                            | 10V              | 1,000,000           | +80/-20%                 | 0.80 ± 0.10       |
| C1608Y5V1A225Z                     | Y5V                            | 10V              | 2,200,000           | +80/-20%                 | 0.80 ± 0.10       |
| C1608Y5V0J475Z                     | Y5V                            | 6.3V             | 4,700,000           | +80/-20%                 | 0.80 ± 0.10       |
| C1608Y5V0J106Z                     | Y5V                            | 6.3V             | 10,000,000          | +80/-20%                 | 0.80 ± 0.15       |



## Capacitance Range Chart

## C2012 [EIA CC0805]

### Capacitance Range Chart

Temperature Characteristics: C0G ( $0 \pm 30\text{ppm}/^\circ\text{C}$ )  
 Rated Voltage: 50V (1H), 25V (1E)

| Capacitance (pF) | Cap Code | Tolerance    | C0G      |          |
|------------------|----------|--------------|----------|----------|
|                  |          |              | 1H (50V) | 1E (25V) |
| 10               | 100      | J: $\pm 5\%$ |          |          |
| 100              | 101      |              |          |          |
| 120              | 121      |              |          |          |
| 150              | 151      |              |          |          |
| 180              | 181      |              |          |          |
| 220              | 221      |              |          |          |
| 270              | 271      |              |          |          |
| 330              | 331      |              |          |          |
| 390              | 391      |              |          |          |
| 470              | 471      |              |          |          |
| 560              | 561      |              |          |          |
| 680              | 681      |              |          |          |
| 820              | 821      |              |          |          |
| 1,000            | 102      |              |          |          |
| 1,200            | 122      |              |          |          |
| 1,500            | 152      |              |          |          |
| 1,800            | 182      |              |          |          |
| 2,200            | 222      |              |          |          |
| 2,700            | 272      |              |          |          |
| 3,300            | 332      |              |          |          |
| 3,900            | 392      |              |          |          |
| 4,700            | 472      |              |          |          |
| 5,600            | 562      |              |          |          |
| 6,800            | 682      |              |          |          |
| 8,200            | 822      |              |          |          |
| 10,000           | 103      |              |          |          |
| 15,000           | 153      |              |          |          |
| 22,000           | 223      |              |          |          |
| 33,000           | 333      |              |          |          |

• Standard capacitance is shown. Please refer to Capacitance Range Table for additional capacitance values.

### Capacitance Range Chart

Temperature Characteristics: X6S ( $\pm 22\%$ )  
 Rated Voltage: 50V (1H), 35V (1V), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J), 4V(0G)

| Capacitance (pF) | Cap Code | Tolerance                      | X6S      |          |          |          |          |           |
|------------------|----------|--------------------------------|----------|----------|----------|----------|----------|-----------|
|                  |          |                                | 1H (50V) | 1V (35V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) |
| 1,000,000        | 105      | K: $\pm 10\%$<br>M: $\pm 20\%$ |          |          |          |          |          |           |
| 2,200,000        | 225      |                                |          |          |          |          |          |           |
| 4,700,000        | 475      |                                |          |          |          |          |          |           |
| 10,000,000       | 106      |                                |          |          |          |          |          |           |
| 22,000,000       | 226      |                                |          |          |          |          |          |           |
| 47,000,000       | 476      |                                |          |          |          |          |          |           |

• Standard thickness is shown. Please refer to Capacitance Range Table for additional thicknesses.

#### Standard Thickness

|  |         |
|--|---------|
|  | 0.60 mm |
|  | 0.85 mm |
|  | 1.25 mm |



## Capacitance Range Chart

## C2012 [EIA CC0805]

### Capacitance Range Chart

Temperature Characteristics: X7R ( $\pm 15\%$ ), X5R ( $\pm 15\%$ ), Y5V (+22/-82%)

Rated Voltage: 50V (1H), 35V (1V), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J), 4V (0G)

| Capacitance (pF) | Cap Code | Tolerance                      | X5R      |          |          |          |           |         |
|------------------|----------|--------------------------------|----------|----------|----------|----------|-----------|---------|
|                  |          |                                | 1H (50V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) | 0G (4V) |
| 1,000,000        | 105      | K: $\pm 10\%$<br>M: $\pm 20\%$ |          |          |          |          |           |         |
| 1,500,000        | 155      |                                |          |          |          |          |           |         |
| 2,200,000        | 225      |                                |          |          |          |          |           |         |
| 3,300,000        | 335      |                                |          |          |          |          |           |         |
| 4,700,000        | 475      |                                |          |          |          |          |           |         |
| 6,800,000        | 685      |                                |          |          |          |          |           |         |
| 10,000,000       | 106      |                                |          |          |          |          |           |         |
| 15,000,000       | 156      |                                |          |          |          |          |           |         |
| 22,000,000       | 226      |                                |          |          |          |          |           |         |
| 33,000,000       | 336      |                                |          |          |          |          |           |         |
| 47,000,000       | 476      |                                |          |          |          |          |           |         |

| Capacitance (pF) | Cap Code | Tolerance                      | X7R      |          |          |          |          |           |
|------------------|----------|--------------------------------|----------|----------|----------|----------|----------|-----------|
|                  |          |                                | 1H (50V) | 1V (35V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) |
| 1,000            | 102      | K: $\pm 10\%$<br>M: $\pm 20\%$ |          |          |          |          |          |           |
| 2,200            | 222      |                                |          |          |          |          |          |           |
| 4,700            | 472      |                                |          |          |          |          |          |           |
| 10,000           | 103      |                                |          |          |          |          |          |           |
| 22,000           | 223      |                                |          |          |          |          |          |           |
| 47,000           | 473      |                                |          |          |          |          |          |           |
| 100,000          | 104      |                                |          |          |          |          |          |           |
| 150,000          | 154      |                                |          |          |          |          |          |           |
| 220,000          | 224      |                                |          |          |          |          |          |           |
| 330,000          | 334      |                                |          |          |          |          |          |           |
| 470,000          | 474      |                                |          |          |          |          |          |           |
| 680,000          | 684      |                                |          |          |          |          |          |           |
| 1,000,000        | 105      |                                |          |          |          |          |          |           |
| 1,500,000        | 155      |                                |          |          |          |          |          |           |
| 2,200,000        | 225      |                                |          |          |          |          |          |           |
| 3,300,000        | 335      |                                |          |          |          |          |          |           |
| 4,700,000        | 475      |                                |          |          |          |          |          |           |
| 10,000,000       | 106      |                                |          |          |          |          |          |           |

| Capacitance (pF) | Cap Code | Tolerance   | Y5V      |          |          |          |           |
|------------------|----------|-------------|----------|----------|----------|----------|-----------|
|                  |          |             | 1H (50V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) |
| 100,000          | 104      | Z: +80/-20% |          |          |          |          |           |
| 470,000          | 474      |             |          |          |          |          |           |
| 1,000,000        | 105      |             |          |          |          |          |           |
| 2,200,000        | 225      |             |          |          |          |          |           |
| 4,700,000        | 475      |             |          |          |          |          |           |
| 10,000,000       | 106      |             |          |          |          |          |           |
| 22,000,000       | 226      |             |          |          |          |          |           |

#### Standard Thickness

|  |         |
|--|---------|
|  | 0.60 mm |
|  | 0.85 mm |
|  | 1.25 mm |

• Standard thickness is shown. Please refer to Capacitance Range Table for additional thicknesses.



## Capacitance Range Table

## C2012 [EIA CC0805]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C2012C0G1H100D                     | C0G                            | 50V              | 10                  | ± 0.50pF                 | 0.60 ± 0.10       |
| C2012C0G1H101J                     | C0G                            | 50V              | 100                 | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H121J                     | C0G                            | 50V              | 120                 | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H151J                     | C0G                            | 50V              | 150                 | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H181J                     | C0G                            | 50V              | 180                 | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H221J                     | C0G                            | 50V              | 220                 | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H271J                     | C0G                            | 50V              | 270                 | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H331J                     | C0G                            | 50V              | 330                 | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H391J                     | C0G                            | 50V              | 390                 | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H471J                     | C0G                            | 50V              | 470                 | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H561J                     | C0G                            | 50V              | 560                 | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H681J                     | C0G                            | 50V              | 680                 | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H821J                     | C0G                            | 50V              | 820                 | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H102J                     | C0G                            | 50V              | 1,000               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H122J                     | C0G                            | 50V              | 1,200               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H152J                     | C0G                            | 50V              | 1,500               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H182J/0.60                | C0G                            | 50V              | 1,800               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H182J/0.85                | C0G                            | 50V              | 1,800               | ± 5%                     | 0.85 ± 0.10       |
| C2012C0G1H222J/0.60                | C0G                            | 50V              | 2,200               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H222J/0.85                | C0G                            | 50V              | 2,200               | ± 5%                     | 0.85 ± 0.10       |
| C2012C0G1H272J/0.60                | C0G                            | 50V              | 2,700               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H272J/1.25                | C0G                            | 50V              | 2,700               | ± 5%                     | 1.25 ± 0.20       |
| C2012C0G1H332J/0.60                | C0G                            | 50V              | 3,300               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H332J/1.25                | C0G                            | 50V              | 3,300               | ± 5%                     | 1.25 ± 0.20       |
| C2012C0G1H392J/0.60                | C0G                            | 50V              | 3,900               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H392J/0.85                | C0G                            | 50V              | 3,900               | ± 5%                     | 0.85 ± 0.10       |
| C2012C0G1H472J/0.60                | C0G                            | 50V              | 4,700               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H472J/0.85                | C0G                            | 50V              | 4,700               | ± 5%                     | 0.85 ± 0.10       |
| C2012C0G1H562J/0.60                | C0G                            | 50V              | 5,600               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H562J/0.85                | C0G                            | 50V              | 5,600               | ± 5%                     | 0.85 ± 0.10       |
| C2012C0G1H682J/0.60                | C0G                            | 50V              | 6,800               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H682J/1.25                | C0G                            | 50V              | 6,800               | ± 5%                     | 1.25 ± 0.20       |
| C2012C0G1H822J/0.60                | C0G                            | 50V              | 8,200               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H822J/1.25                | C0G                            | 50V              | 8,200               | ± 5%                     | 1.25 ± 0.20       |
| C2012C0G1H103J/0.60                | C0G                            | 50V              | 10,000              | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1H103J/1.25                | C0G                            | 50V              | 10,000              | ± 5%                     | 1.25 ± 0.20       |
| C2012C0G1H153J                     | C0G                            | 50V              | 15,000              | ± 5%                     | 0.85 ± 0.10       |
| C2012C0G1H223J                     | C0G                            | 50V              | 22,000              | ± 5%                     | 1.25 ± 0.20       |
| C2012C0G1H333J                     | C0G                            | 50V              | 33,000              | ± 5%                     | 1.25 ± 0.20       |
| C2012C0G1E392J                     | C0G                            | 25V              | 3,900               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1E472J                     | C0G                            | 25V              | 4,700               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1E562J                     | C0G                            | 25V              | 5,600               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1E682J                     | C0G                            | 25V              | 6,800               | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1E822J                     | C0G                            | 25V              | 8,200               | ± 5%                     | 0.60 ± 0.10       |



## Capacitance Range Table

## C2012 [EIA CC0805]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C2012C0G1E103J                     | C0G                            | 25V              | 10,000              | ± 5%                     | 0.60 ± 0.10       |
| C2012C0G1E153J                     | C0G                            | 25V              | 15,000              | ± 5%                     | 0.85 ± 0.10       |
| C2012C0G1E223J                     | C0G                            | 25V              | 22,000              | ± 5%                     | 1.25 ± 0.20       |
| C2012C0G1E333J                     | C0G                            | 25V              | 33,000              | ± 5%                     | 1.25 ± 0.20       |

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C2012X7R1H102K                     | X7R                            | 50V              | 1,000               | ± 10%                    | 0.60 ± 0.10       |
| C2012X7R1H102M                     | X7R                            | 50V              | 1,000               | ± 20%                    | 0.60 ± 0.10       |
| C2012X7R1H222K                     | X7R                            | 50V              | 2,200               | ± 10%                    | 0.60 ± 0.10       |
| C2012X7R1H222M                     | X7R                            | 50V              | 2,200               | ± 20%                    | 0.60 ± 0.10       |
| C2012X7R1H472K                     | X7R                            | 50V              | 4,700               | ± 10%                    | 0.60 ± 0.10       |
| C2012X7R1H472M                     | X7R                            | 50V              | 4,700               | ± 20%                    | 0.60 ± 0.10       |
| C2012X7R1H103K                     | X7R                            | 50V              | 10,000              | ± 10%                    | 0.60 ± 0.10       |
| C2012X7R1H103M                     | X7R                            | 50V              | 10,000              | ± 20%                    | 0.60 ± 0.10       |
| C2012X7R1H223K/0.60                | X7R                            | 50V              | 22,000              | ± 10%                    | 0.60 ± 0.10       |
| C2012X7R1H223M/0.60                | X7R                            | 50V              | 22,000              | ± 20%                    | 0.60 ± 0.10       |
| C2012X7R1H473K/1.25                | X7R                            | 50V              | 47,000              | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1H473M/1.25                | X7R                            | 50V              | 47,000              | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1H104K/0.85                | X7R                            | 50V              | 100,000             | ± 10%                    | 0.85 ± 0.10       |
| C2012X7R1H104M/0.85                | X7R                            | 50V              | 100,000             | ± 20%                    | 0.85 ± 0.10       |
| C2012X7R1H104K/1.25                | X7R                            | 50V              | 100,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1H104M/1.25                | X7R                            | 50V              | 100,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1H154K                     | X7R                            | 50V              | 150,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1H154M                     | X7R                            | 50V              | 150,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1H224K                     | X7R                            | 50V              | 220,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1H224M                     | X7R                            | 50V              | 220,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1H334K                     | X7R                            | 50V              | 330,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1H334M                     | X7R                            | 50V              | 330,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1H474K                     | X7R                            | 50V              | 470,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1H474M                     | X7R                            | 50V              | 470,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1H684K                     | X7R                            | 50V              | 680,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1H684M                     | X7R                            | 50V              | 680,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1H105K                     | X7R                            | 50V              | 1,000,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1H105M                     | X7R                            | 50V              | 1,000,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1H155K                     | X7R                            | 50V              | 1,500,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1H155M                     | X7R                            | 50V              | 1,500,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1H225K                     | X7R                            | 50V              | 2,200,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1H225M                     | X7R                            | 50V              | 2,200,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1V105K                     | X7R                            | 35V              | 1,000,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1V105M                     | X7R                            | 35V              | 1,000,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1V225K                     | X7R                            | 35V              | 2,200,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1V225M                     | X7R                            | 35V              | 2,200,000           | ± 20%                    | 1.25 ± 0.20       |



## Capacitance Range Table

## C2012 [EIA CC0805]

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C2012X7R1V335K                     | X7R                            | 35V              | 3,300,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1V335M                     | X7R                            | 35V              | 3,300,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1V475K                     | X7R                            | 35V              | 4,700,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1V475M                     | X7R                            | 35V              | 4,700,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1E104K/0.85                | X7R                            | 25V              | 100,000             | ± 10%                    | 0.85 ± 0.10       |
| C2012X7R1E104M/0.85                | X7R                            | 25V              | 100,000             | ± 20%                    | 0.85 ± 0.10       |
| C2012X7R1E104K/1.25                | X7R                            | 25V              | 100,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1E104M/1.25                | X7R                            | 25V              | 100,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1E224K                     | X7R                            | 25V              | 220,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1E224M                     | X7R                            | 25V              | 220,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1E334K                     | X7R                            | 25V              | 330,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1E334M                     | X7R                            | 25V              | 330,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1E474K                     | X7R                            | 25V              | 470,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1E474M                     | X7R                            | 25V              | 470,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1E684K                     | X7R                            | 25V              | 680,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1E684M                     | X7R                            | 25V              | 680,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1E105K                     | X7R                            | 25V              | 1,000,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1E105M                     | X7R                            | 25V              | 1,000,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1E155K                     | X7R                            | 25V              | 1,500,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1E155M                     | X7R                            | 25V              | 1,500,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1E225K                     | X7R                            | 25V              | 2,200,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1E225M                     | X7R                            | 25V              | 2,200,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1E335K                     | X7R                            | 25V              | 3,300,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1E335M                     | X7R                            | 25V              | 3,300,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1E475K                     | X7R                            | 25V              | 4,700,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1E475M                     | X7R                            | 25V              | 4,700,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1C224K                     | X7R                            | 16V              | 220,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1C224M                     | X7R                            | 16V              | 220,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1C334K/1.25                | X7R                            | 16V              | 330,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1C334M/1.25                | X7R                            | 16V              | 330,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1C474K                     | X7R                            | 16V              | 470,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1C474M                     | X7R                            | 16V              | 470,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1C684K                     | X7R                            | 16V              | 680,000             | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1C684M                     | X7R                            | 16V              | 680,000             | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1C105K/0.85                | X7R                            | 16V              | 1,000,000           | ± 10%                    | 0.85 ± 0.10       |
| C2012X7R1C105M/0.85                | X7R                            | 16V              | 1,000,000           | ± 20%                    | 0.85 ± 0.10       |
| C2012X7R1C105K/1.25                | X7R                            | 16V              | 1,000,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1C105M/1.25                | X7R                            | 16V              | 1,000,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1C155K                     | X7R                            | 16V              | 1,500,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1C155M                     | X7R                            | 16V              | 1,500,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1C225K                     | X7R                            | 16V              | 2,200,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1C225M                     | X7R                            | 16V              | 2,200,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1C335K                     | X7R                            | 16V              | 3,300,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1C335M                     | X7R                            | 16V              | 3,300,000           | ± 20%                    | 1.25 ± 0.20       |



## Capacitance Range Table

## C2012 [EIA CC0805]

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%), X6S(-55 to 105°C, ±22%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C2012X7R1C475K                     | X7R                            | 16V              | 4,700,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1C475M                     | X7R                            | 16V              | 4,700,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1A105K                     | X7R                            | 10V              | 1,000,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1A105M                     | X7R                            | 10V              | 1,000,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1A155K                     | X7R                            | 10V              | 1,500,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1A155M                     | X7R                            | 10V              | 1,500,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1A225K                     | X7R                            | 10V              | 2,200,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1A225M                     | X7R                            | 10V              | 2,200,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1A335K                     | X7R                            | 10V              | 3,300,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1A335M                     | X7R                            | 10V              | 3,300,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1A475K                     | X7R                            | 10V              | 4,700,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1A475M                     | X7R                            | 10V              | 4,700,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R1A106K                     | X7R                            | 10V              | 10,000,000          | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R1A106M                     | X7R                            | 10V              | 10,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X7R0J106K                     | X7R                            | 6.3V             | 10,000,000          | ± 10%                    | 1.25 ± 0.20       |
| C2012X7R0J106M                     | X7R                            | 6.3V             | 10,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X6S1H105K                     | X6S                            | 50V              | 1,000,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X6S1H105M                     | X6S                            | 50V              | 1,000,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X6S1H225K                     | X6S                            | 50V              | 2,200,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X6S1H225M                     | X6S                            | 50V              | 2,200,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X6S1H475K                     | X6S                            | 50V              | 4,700,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X6S1H475M                     | X6S                            | 50V              | 4,700,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X6S1V475K                     | X6S                            | 35V              | 4,700,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X6S1V475M                     | X6S                            | 35V              | 4,700,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X6S1E225K                     | X6S                            | 25V              | 2,200,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X6S1E225M                     | X6S                            | 25V              | 2,200,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X6S1E475K                     | X6S                            | 25V              | 4,700,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X6S1E475M                     | X6S                            | 25V              | 4,700,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X6S1C225K                     | X6S                            | 16V              | 2,200,000           | ± 10%                    | 0.90 +0.05,-0.10  |
| C2012X6S1C225M                     | X6S                            | 16V              | 2,200,000           | ± 20%                    | 0.90 +0.05,-0.10  |
| C2012X6S1C475K                     | X6S                            | 16V              | 4,700,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X6S1C475M                     | X6S                            | 16V              | 4,700,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X6S1C106K                     | X6S                            | 16V              | 10,000,000          | ± 10%                    | 1.25 ± 0.20       |
| C2012X6S1C106M                     | X6S                            | 16V              | 10,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X6S1A106K/0.85                | X6S                            | 10V              | 10,000,000          | ± 10%                    | 0.85 ± 0.10       |
| C2012X6S1A106M/0.85                | X6S                            | 10V              | 10,000,000          | ± 20%                    | 0.85 ± 0.10       |
| C2012X6S1A226K                     | X6S                            | 10V              | 22,000,000          | ± 10%                    | 1.25 ± 0.20       |
| C2012X6S1A226M                     | X6S                            | 10V              | 22,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X6S0J106K                     | X6S                            | 6.3V             | 10,000,000          | ± 10%                    | 0.85 ± 0.10       |
| C2012X6S0J106M                     | X6S                            | 6.3V             | 10,000,000          | ± 20%                    | 0.85 ± 0.10       |
| C2012X6S0J226K                     | X6S                            | 6.3V             | 22,000,000          | ± 10%                    | 1.25 ± 0.20       |
| C2012X6S0J226M                     | X6S                            | 6.3V             | 22,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X6S0G226M                     | X6S                            | 4V               | 22,000,000          | ± 20%                    | 0.85 ± 0.10       |
| C2012X6S0G476M                     | X6S                            | 4V               | 47,000,000          | ± 20%                    | 1.25 ± 0.20       |



## Capacitance Range Table

## C2012 [EIA CC0805]

### Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C2012X5R1H105K                     | X5R                            | 50V              | 1,000,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1H105M                     | X5R                            | 50V              | 1,000,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1H155K                     | X5R                            | 50V              | 1,500,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1H155M                     | X5R                            | 50V              | 1,500,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1H225K                     | X5R                            | 50V              | 2,200,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1H225M                     | X5R                            | 50V              | 2,200,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1H335K                     | X5R                            | 50V              | 3,300,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1H335M                     | X5R                            | 50V              | 3,300,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1H475K                     | X5R                            | 50V              | 4,700,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1H475M                     | X5R                            | 50V              | 4,700,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1E105K/0.85                | X5R                            | 25V              | 1,000,000           | ± 10%                    | 0.85 ± 0.10       |
| C2012X5R1E105M/0.85                | X5R                            | 25V              | 1,000,000           | ± 20%                    | 0.85 ± 0.10       |
| C2012X5R1E105K/1.25                | X5R                            | 25V              | 1,000,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1E105M/1.25                | X5R                            | 25V              | 1,000,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1E155K                     | X5R                            | 25V              | 1,500,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1E155M                     | X5R                            | 25V              | 1,500,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1E225K                     | X5R                            | 25V              | 2,200,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1E225M                     | X5R                            | 25V              | 2,200,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1E475K                     | X5R                            | 25V              | 4,700,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1E475M                     | X5R                            | 25V              | 4,700,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1E685K                     | X5R                            | 25V              | 6,800,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1E685M                     | X5R                            | 25V              | 6,800,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1E106K                     | X5R                            | 25V              | 10,000,000          | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1E106M                     | X5R                            | 25V              | 10,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1C105K/0.85                | X5R                            | 16V              | 1,000,000           | ± 10%                    | 0.85 ± 0.10       |
| C2012X5R1C105M/0.85                | X5R                            | 16V              | 1,000,000           | ± 20%                    | 0.85 ± 0.10       |
| C2012X5R1C105K/1.25                | X5R                            | 16V              | 1,000,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1C105M/1.25                | X5R                            | 16V              | 1,000,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1C225K/0.85                | X5R                            | 16V              | 2,200,000           | ± 10%                    | 0.85 ± 0.10       |
| C2012X5R1C225M/0.85                | X5R                            | 16V              | 2,200,000           | ± 20%                    | 0.85 ± 0.10       |
| C2012X5R1C225K/1.25                | X5R                            | 16V              | 2,200,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1C225M/1.25                | X5R                            | 16V              | 2,200,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1C475K/1.25                | X5R                            | 16V              | 4,700,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1C475M/1.25                | X5R                            | 16V              | 4,700,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1C685K                     | X5R                            | 16V              | 6,800,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1C685M                     | X5R                            | 16V              | 6,800,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1C106K/0.85                | X5R                            | 16V              | 10,000,000          | ± 10%                    | 0.85 ± 0.10       |
| C2012X5R1C106M/0.85                | X5R                            | 16V              | 10,000,000          | ± 20%                    | 0.85 ± 0.10       |
| C2012X5R1C106K/1.25                | X5R                            | 16V              | 10,000,000          | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1C106M/1.25                | X5R                            | 16V              | 10,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1C226K                     | X5R                            | 16V              | 22,000,000          | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1C226M                     | X5R                            | 16V              | 22,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1A105K/0.85                | X5R                            | 10V              | 1,000,000           | ± 10%                    | 0.85 ± 0.10       |
| C2012X5R1A105M/0.85                | X5R                            | 10V              | 1,000,000           | ± 20%                    | 0.85 ± 0.10       |



## Capacitance Range Table

## C2012 [EIA CC0805]

### Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C2012X5R1A105K/1.25                | X5R                            | 10V              | 1,000,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1A105M/1.25                | X5R                            | 10V              | 1,000,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1A225K/0.85                | X5R                            | 10V              | 2,200,000           | ± 10%                    | 0.85 ± 0.10       |
| C2012X5R1A225M/0.85                | X5R                            | 10V              | 2,200,000           | ± 20%                    | 0.85 ± 0.10       |
| C2012X5R1A225K/1.25                | X5R                            | 10V              | 2,200,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1A225M/1.25                | X5R                            | 10V              | 2,200,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1A335K                     | X5R                            | 10V              | 3,300,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1A335M                     | X5R                            | 10V              | 3,300,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1A475K/0.85                | X5R                            | 10V              | 4,700,000           | ± 10%                    | 0.85 ± 0.10       |
| C2012X5R1A475M/0.85                | X5R                            | 10V              | 4,700,000           | ± 20%                    | 0.85 ± 0.10       |
| C2012X5R1A475K/1.25                | X5R                            | 10V              | 4,700,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1A475M/1.25                | X5R                            | 10V              | 4,700,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1A106K/0.85                | X5R                            | 10V              | 10,000,000          | ± 10%                    | 0.85 ± 0.10       |
| C2012X5R1A106M/0.85                | X5R                            | 10V              | 10,000,000          | ± 20%                    | 0.85 ± 0.10       |
| C2012X5R1A106K/1.25                | X5R                            | 10V              | 10,000,000          | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1A106M/1.25                | X5R                            | 10V              | 10,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1A156M                     | X5R                            | 10V              | 15,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R1A226M/0.85                | X5R                            | 10V              | 22,000,000          | ± 20%                    | 0.85 ± 0.10       |
| C2012X5R1A226K/1.25                | X5R                            | 10V              | 22,000,000          | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R1A226M/1.25                | X5R                            | 10V              | 22,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R0J225K/0.85                | X5R                            | 6.3V             | 2,200,000           | ± 10%                    | 0.85 ± 0.10       |
| C2012X5R0J225M/0.85                | X5R                            | 6.3V             | 2,200,000           | ± 20%                    | 0.85 ± 0.10       |
| C2012X5R0J225K/1.25                | X5R                            | 6.3V             | 2,200,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R0J225M/1.25                | X5R                            | 6.3V             | 2,200,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R0J335K/1.25                | X5R                            | 6.3V             | 3,300,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R0J335M/1.25                | X5R                            | 6.3V             | 3,300,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R0J475K/0.85                | X5R                            | 6.3V             | 4,700,000           | ± 10%                    | 0.85 ± 0.10       |
| C2012X5R0J475M/0.85                | X5R                            | 6.3V             | 4,700,000           | ± 20%                    | 0.85 ± 0.10       |
| C2012X5R0J475K/1.25                | X5R                            | 6.3V             | 4,700,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R0J475M/1.25                | X5R                            | 6.3V             | 4,700,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R0J685K/1.25                | X5R                            | 6.3V             | 6,800,000           | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R0J685M/1.25                | X5R                            | 6.3V             | 6,800,000           | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R0J106K/0.85                | X5R                            | 6.3V             | 10,000,000          | ± 10%                    | 0.85 ± 0.10       |
| C2012X5R0J106M/0.85                | X5R                            | 6.3V             | 10,000,000          | ± 20%                    | 0.85 ± 0.10       |
| C2012X5R0J106K/1.25                | X5R                            | 6.3V             | 10,000,000          | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R0J106M/1.25                | X5R                            | 6.3V             | 10,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R0J156M/0.85                | X5R                            | 6.3V             | 15,000,000          | ± 20%                    | 0.85 ± 0.10       |
| C2012X5R0J156M/1.25                | X5R                            | 6.3V             | 15,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R0J226M/0.85                | X5R                            | 6.3V             | 22,000,000          | ± 20%                    | 0.85 ± 0.10       |
| C2012X5R0J226K/1.25                | X5R                            | 6.3V             | 22,000,000          | ± 10%                    | 1.25 ± 0.20       |
| C2012X5R0J226M/1.25                | X5R                            | 6.3V             | 22,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R0J336M                     | X5R                            | 6.3V             | 33,000,000          | ± 20%                    | 1.25 ± 0.20       |



## Capacitance Range Table

## C2012 [EIA CC0805]

### Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%), Y5V(-30 to +85°C, +22/-82%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C2012X5R0J476M                     | X5R                            | 6.3V             | 47,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012X5R0G476M                     | X5R                            | 4V               | 47,000,000          | ± 20%                    | 1.25 ± 0.20       |
| C2012Y5V1H104Z/0.60                | Y5V                            | 50V              | 100,000             | +80/-20%                 | 0.60 ± 0.10       |
| C2012Y5V1H104Z/0.85                | Y5V                            | 50V              | 100,000             | +80/-20%                 | 0.85 ± 0.10       |
| C2012Y5V1H474Z/0.85                | Y5V                            | 50V              | 470,000             | +80/-20%                 | 0.85 ± 0.10       |
| C2012Y5V1H105Z/0.85                | Y5V                            | 50V              | 1,000,000           | +80/-20%                 | 0.85 ± 0.10       |
| C2012Y5V1H105Z/1.25                | Y5V                            | 50V              | 1,000,000           | +80/-20%                 | 1.25 ± 0.20       |
| C2012Y5V1H225Z                     | Y5V                            | 50V              | 2,200,000           | +80/-20%                 | 1.25 ± 0.20       |
| C2012Y5V1E105Z/0.85                | Y5V                            | 25V              | 1,000,000           | +80/-20%                 | 0.85 ± 0.10       |
| C2012Y5V1E105Z/1.25                | Y5V                            | 25V              | 1,000,000           | +80/-20%                 | 1.25 ± 0.20       |
| C2012Y5V1E225Z                     | Y5V                            | 25V              | 2,200,000           | +80/-20%                 | 1.25 ± 0.20       |
| C2012Y5V1E475Z                     | Y5V                            | 25V              | 4,700,000           | +80/-20%                 | 1.25 ± 0.20       |
| C2012Y5V1C105Z/0.85                | Y5V                            | 16V              | 1,000,000           | +80/-20%                 | 0.85 ± 0.10       |
| C2012Y5V1C105Z/1.25                | Y5V                            | 16V              | 1,000,000           | +80/-20%                 | 1.25 ± 0.20       |
| C2012Y5V1C225Z/0.85                | Y5V                            | 16V              | 2,200,000           | +80/-20%                 | 0.85 ± 0.10       |
| C2012Y5V1C225Z/1.25                | Y5V                            | 16V              | 2,200,000           | +80/-20%                 | 1.25 ± 0.20       |
| C2012Y5V1C475Z/0.85                | Y5V                            | 16V              | 4,700,000           | +80/-20%                 | 0.85 ± 0.10       |
| C2012Y5V1C475Z/1.25                | Y5V                            | 16V              | 4,700,000           | +80/-20%                 | 1.25 ± 0.20       |
| C2012Y5V1C106Z                     | Y5V                            | 16V              | 10,000,000          | +80/-20%                 | 1.25 ± 0.20       |
| C2012Y5V1A475Z/0.85                | Y5V                            | 10V              | 4,700,000           | +80/-20%                 | 0.85 ± 0.10       |
| C2012Y5V1A475Z/1.25                | Y5V                            | 10V              | 4,700,000           | +80/-20%                 | 1.25 ± 0.20       |
| C2012Y5V1A106Z                     | Y5V                            | 10V              | 10,000,000          | +80/-20%                 | 1.25 ± 0.20       |
| C2012Y5V0J106Z                     | Y5V                            | 6.3V             | 10,000,000          | +80/-20%                 | 1.25 ± 0.20       |
| C2012Y5V0J226Z                     | Y5V                            | 6.3V             | 22,000,000          | +80/-20%                 | 1.25 ± 0.20       |



## Capacitance Range Chart

## C3216 [EIA CC1206]

### Capacitance Range Chart

Temperature Characteristics: C0G ( $0 \pm 30\text{ppm}/^\circ\text{C}$ )  
 Rated Voltage: 50V (1H), 25V (1E), 10V (1A)

| Capacitance (pF) | Cap Code | Tolerance    | C0G      |          | SL       |
|------------------|----------|--------------|----------|----------|----------|
|                  |          |              | 1H (50V) | 1E (25V) | 1A (10V) |
| 3,900            | 392      | J: $\pm 5\%$ |          |          |          |
| 4,700            | 472      |              |          |          |          |
| 5,600            | 562      |              |          |          |          |
| 6,800            | 682      |              |          |          |          |
| 8,200            | 822      |              |          |          |          |
| 10,000           | 103      |              |          |          |          |
| 15,000           | 153      |              |          |          |          |
| 22,000           | 223      |              |          |          |          |
| 33,000           | 333      |              |          |          |          |
| 47,000           | 473      |              |          |          |          |
| 68,000           | 683      |              |          |          |          |
| 100,000          | 104      |              |          |          |          |
| 220,000          | 224      |              |          |          |          |

### Capacitance Range Chart

Temperature Characteristics: X7R ( $\pm 15\%$ ), X6S ( $\pm 22\%$ ), X5R ( $\pm 15\%$ ), Y5V ( $+22/-82$ )  
 Rated Voltage: 50V (1H), 35V (1V), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J), 4V (0G)

| Capacitance (pF) | Cap Code | Tolerance                      | X5R      |          |          |          |           |         | X6S      |           |         |
|------------------|----------|--------------------------------|----------|----------|----------|----------|-----------|---------|----------|-----------|---------|
|                  |          |                                | 1H (50V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) | 0G (4V) | 1A (10V) | 0J (6.3V) | 0G (4V) |
| 1,000,000        | 105      | K: $\pm 10\%$<br>M: $\pm 20\%$ |          |          |          |          |           |         |          |           |         |
| 2,200,000        | 225      |                                |          |          |          |          |           |         |          |           |         |
| 3,300,000        | 335      |                                |          |          |          |          |           |         |          |           |         |
| 4,700,000        | 475      |                                |          |          |          |          |           |         |          |           |         |
| 6,800,000        | 685      |                                |          |          |          |          |           |         |          |           |         |
| 10,000,000       | 106      |                                |          |          |          |          |           |         |          |           |         |
| 15,000,000       | 156      |                                |          |          |          |          |           |         |          |           |         |
| 22,000,000       | 226      |                                |          |          |          |          |           |         |          |           |         |
| 33,000,000       | 336      |                                |          |          |          |          |           |         |          |           |         |
| 47,000,000       | 476      |                                |          |          |          |          |           |         |          |           |         |
| 100,000,000      | 107      |                                |          |          |          |          |           |         |          |           |         |

| Capacitance (pF) | Cap Code | Tolerance                                        | X7R      |          |          |          |          | Y5V      |          |          |          |           |
|------------------|----------|--------------------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
|                  |          |                                                  | 1H (50V) | 1V (35V) | 1E (25V) | 1C (16V) | 1A (10V) | 1H (50V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) |
| 100,000          | 104      | K: $\pm 10\%$<br>M: $\pm 20\%$<br>Z: $+80/-20\%$ |          |          |          |          |          |          |          |          |          |           |
| 220,000          | 224      |                                                  |          |          |          |          |          |          |          |          |          |           |
| 330,000          | 334      |                                                  |          |          |          |          |          |          |          |          |          |           |
| 470,000          | 474      |                                                  |          |          |          |          |          |          |          |          |          |           |
| 680,000          | 684      |                                                  |          |          |          |          |          |          |          |          |          |           |
| 1,000,000        | 105      |                                                  |          |          |          |          |          |          |          |          |          |           |
| 1,500,000        | 155      |                                                  |          |          |          |          |          |          |          |          |          |           |
| 2,200,000        | 225      |                                                  |          |          |          |          |          |          |          |          |          |           |
| 3,300,000        | 335      |                                                  |          |          |          |          |          |          |          |          |          |           |
| 4,700,000        | 475      |                                                  |          |          |          |          |          |          |          |          |          |           |
| 6,800,000        | 685      |                                                  |          |          |          |          |          |          |          |          |          |           |
| 10,000,000       | 106      |                                                  |          |          |          |          |          |          |          |          |          |           |
| 22,000,000       | 226      |                                                  |          |          |          |          |          |          |          |          |          |           |
| 47,000,000       | 476      |                                                  |          |          |          |          |          |          |          |          |          |           |

### Standard Thickness

0.60 mm 
 0.85 mm 
 1.15 mm 
 1.30 mm 
 1.60 mm

• Standard capacitance and thickness is shown. Please refer to Capacitance Range Table for additional capacitance values and thicknesses.



## Capacitance Range Table

## C3216 [EIA CC1206]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C), SL (-25 to +85°C, +350/-1000 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C3216C0G1H392J                     | C0G                            | 50V              | 3,900               | ± 5%                     | 0.60 ± 0.10       |
| C3216C0G1H472J/0.60                | C0G                            | 50V              | 4,700               | ± 5%                     | 0.60 ± 0.10       |
| C3216C0G1H472J/0.85                | C0G                            | 50V              | 4,700               | ± 5%                     | 0.85 ± 0.10       |
| C3216C0G1H562J/0.60                | C0G                            | 50V              | 5,600               | ± 5%                     | 0.60 ± 0.10       |
| C3216C0G1H562J/0.85                | C0G                            | 50V              | 5,600               | ± 5%                     | 0.85 ± 0.10       |
| C3216C0G1H682J/0.60                | C0G                            | 50V              | 6,800               | ± 5%                     | 0.60 ± 0.10       |
| C3216C0G1H822J/0.60                | C0G                            | 50V              | 8,200               | ± 5%                     | 0.60 ± 0.10       |
| C3216C0G1H822J/0.85                | C0G                            | 50V              | 8,200               | ± 5%                     | 0.85 ± 0.10       |
| C3216C0G1H822J/1.15                | C0G                            | 50V              | 8,200               | ± 5%                     | 1.15 ± 0.10       |
| C3216C0G1H103J/0.60                | C0G                            | 50V              | 10,000              | ± 5%                     | 0.60 ± 0.10       |
| C3216C0G1H103J/1.15                | C0G                            | 50V              | 10,000              | ± 5%                     | 1.15 ± 0.10       |
| C3216C0G1H153J/0.60                | C0G                            | 50V              | 15,000              | ± 5%                     | 0.60 ± 0.10       |
| C3216C0G1H153J/1.15                | C0G                            | 50V              | 15,000              | ± 5%                     | 1.15 ± 0.10       |
| C3216C0G1H223J/0.60                | C0G                            | 50V              | 22,000              | ± 5%                     | 0.60 ± 0.10       |
| C3216C0G1H223J/1.15                | C0G                            | 50V              | 22,000              | ± 5%                     | 1.15 ± 0.10       |
| C3216C0G1H333J/0.85                | C0G                            | 50V              | 33,000              | ± 5%                     | 0.85 ± 0.10       |
| C3216C0G1H333J/1.60                | C0G                            | 50V              | 33,000              | ± 5%                     | 1.60 ± 0.30       |
| C3216C0G1H473J                     | C0G                            | 50V              | 47,000              | ± 5%                     | 1.15 ± 0.10       |
| C3216C0G1H683J                     | C0G                            | 50V              | 68,000              | ± 5%                     | 1.60 ± 0.30       |
| C3216C0G1H104J                     | C0G                            | 50V              | 100,000             | ± 5%                     | 1.60 ± 0.30       |
| C3216C0G1E822J                     | C0G                            | 25V              | 8,200               | ± 5%                     | 0.60 ± 0.20       |
| C3216C0G1E103J                     | C0G                            | 25V              | 10,000              | ± 5%                     | 0.60 ± 0.20       |
| C3216C0G1E153J                     | C0G                            | 25V              | 15,000              | ± 5%                     | 0.60 ± 0.20       |
| C3216C0G1E223J                     | C0G                            | 25V              | 22,000              | ± 5%                     | 0.60 ± 0.10       |
| C3216C0G1E333J                     | C0G                            | 25V              | 33,000              | ± 5%                     | 0.85 ± 0.10       |
| C3216C0G1E473J                     | C0G                            | 25V              | 47,000              | ± 5%                     | 1.15 ± 0.10       |
| C3216C0G1E683J                     | C0G                            | 25V              | 68,000              | ± 5%                     | 1.60 ± 0.30       |
| C3216C0G1E104J                     | C0G                            | 25V              | 100,000             | ± 5%                     | 1.60 ± 0.30       |
| C3216SL1A224J                      | SL                             | 10V              | 220,000             | ± 5%                     | 1.60 ± 0.30       |

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C3216X7R1H104K                     | X7R                            | 50V              | 100,000             | ± 10%                    | 0.85 ± 0.10       |
| C3216X7R1H104M                     | X7R                            | 50V              | 100,000             | ± 20%                    | 0.85 ± 0.10       |
| C3216X7R1H224K                     | X7R                            | 50V              | 220,000             | ± 10%                    | 1.15 ± 0.10       |
| C3216X7R1H224M                     | X7R                            | 50V              | 220,000             | ± 20%                    | 1.15 ± 0.10       |
| C3216X7R1H334K                     | X7R                            | 50V              | 330,000             | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1H334M                     | X7R                            | 50V              | 330,000             | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1H474K                     | X7R                            | 50V              | 470,000             | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1H474M                     | X7R                            | 50V              | 470,000             | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1H684K                     | X7R                            | 50V              | 680,000             | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1H684M                     | X7R                            | 50V              | 680,000             | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1H105K                     | X7R                            | 50V              | 1,000,000           | ± 10%                    | 1.60 ± 0.30       |



## Capacitance Range Table

## C3216 [EIA CC1206]

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C3216X7R1H105M                     | X7R                            | 50V              | 1,000,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1H155K                     | X7R                            | 50V              | 1,500,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1H155M                     | X7R                            | 50V              | 1,500,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1H225K                     | X7R                            | 50V              | 2,200,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1H225M                     | X7R                            | 50V              | 2,200,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1H335K                     | X7R                            | 50V              | 3,300,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1H335M                     | X7R                            | 50V              | 3,300,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1V335K                     | X7R                            | 35V              | 3,300,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1V475K                     | X7R                            | 35V              | 4,700,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1E224K                     | X7R                            | 25V              | 220,000             | ± 10%                    | 1.15 ± 0.10       |
| C3216X7R1E224M                     | X7R                            | 25V              | 220,000             | ± 20%                    | 1.15 ± 0.10       |
| C3216X7R1E334K                     | X7R                            | 25V              | 330,000             | ± 10%                    | 1.15 ± 0.10       |
| C3216X7R1E334M                     | X7R                            | 25V              | 330,000             | ± 20%                    | 1.15 ± 0.10       |
| C3216X7R1E474K/0.85                | X7R                            | 25V              | 470,000             | ± 10%                    | 0.85 ± 0.10       |
| C3216X7R1E474M/0.85                | X7R                            | 25V              | 470,000             | ± 20%                    | 0.85 ± 0.10       |
| C3216X7R1E684K/0.85                | X7R                            | 25V              | 680,000             | ± 10%                    | 0.85 ± 0.10       |
| C3216X7R1E684M/0.85                | X7R                            | 25V              | 680,000             | ± 20%                    | 0.85 ± 0.10       |
| C3216X7R1E105K/0.85                | X7R                            | 25V              | 1,000,000           | ± 10%                    | 0.85 ± 0.10       |
| C3216X7R1E105M/0.85                | X7R                            | 25V              | 1,000,000           | ± 20%                    | 0.85 ± 0.10       |
| C3216X7R1E105K/1.60                | X7R                            | 25V              | 1,000,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1E105M/1.60                | X7R                            | 25V              | 1,000,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1E155K                     | X7R                            | 25V              | 1,500,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1E155M                     | X7R                            | 25V              | 1,500,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1E225K                     | X7R                            | 25V              | 2,200,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1E225M                     | X7R                            | 25V              | 2,200,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1E335K                     | X7R                            | 25V              | 3,300,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1E335M                     | X7R                            | 25V              | 3,300,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1E475K                     | X7R                            | 25V              | 4,700,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1E475M                     | X7R                            | 25V              | 4,700,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1E685K                     | X7R                            | 25V              | 6,800,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1E685M                     | X7R                            | 25V              | 6,800,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1E106K                     | X7R                            | 25V              | 10,000,000          | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1E106M                     | X7R                            | 25V              | 10,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1C474K                     | X7R                            | 16V              | 470,000             | ± 10%                    | 1.15 ± 0.10       |
| C3216X7R1C474M                     | X7R                            | 16V              | 470,000             | ± 20%                    | 1.15 ± 0.10       |
| C3216X7R1C105K/0.85                | X7R                            | 16V              | 1,000,000           | ± 10%                    | 0.85 ± 0.10       |
| C3216X7R1C105M/0.85                | X7R                            | 16V              | 1,000,000           | ± 20%                    | 0.85 ± 0.10       |
| C3216X7R1C105K/1.15                | X7R                            | 16V              | 1,000,000           | ± 10%                    | 1.15 ± 0.10       |
| C3216X7R1C105K/1.30                | X7R                            | 16V              | 1,000,000           | ± 10%                    | 1.30 ± 0.15       |
| C3216X7R1C225K/1.60                | X7R                            | 16V              | 2,200,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1C225M/1.60                | X7R                            | 16V              | 2,200,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1C335K/1.60                | X7R                            | 16V              | 3,300,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1C335M/1.60                | X7R                            | 16V              | 3,300,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1C475K/1.60                | X7R                            | 16V              | 4,700,000           | ± 10%                    | 1.60 ± 0.30       |



## Capacitance Range Table

## C3216 [EIA CC1206]

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%), X6S(-55 to 105°C, ±22%), X5R (-55 to +85°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C3216X7R1C475M/1.60                | X7R                            | 16V              | 4,700,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1C685K                     | X7R                            | 16V              | 6,800,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1C685M                     | X7R                            | 16V              | 6,800,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1C106K                     | X7R                            | 16V              | 10,000,000          | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1C106M                     | X7R                            | 16V              | 10,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X7R1A106K                     | X7R                            | 10V              | 10,000,000          | ± 10%                    | 1.60 ± 0.30       |
| C3216X7R1A106M                     | X7R                            | 10V              | 10,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X6S1A476M                     | X6S                            | 10V              | 47,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X6S0J476M                     | X6S                            | 6.3V             | 47,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X6S0G107M                     | X6S                            | 4V               | 100,000,000         | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1H105K                     | X5R                            | 50V              | 1,000,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1H105M                     | X5R                            | 50V              | 1,000,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1H335K                     | X5R                            | 50V              | 3,300,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1H335M                     | X5R                            | 50V              | 3,300,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1H475K                     | X5R                            | 50V              | 4,700,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1H475M                     | X5R                            | 50V              | 4,700,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1H685K                     | X5R                            | 50V              | 6,800,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1H685M                     | X5R                            | 50V              | 6,800,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1H106K                     | X5R                            | 50V              | 10,000,000          | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1H106M                     | X5R                            | 50V              | 10,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1E225K                     | X5R                            | 25V              | 2,200,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1E225M                     | X5R                            | 25V              | 2,200,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1E335K/1.60                | X5R                            | 25V              | 3,300,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1E335M/1.60                | X5R                            | 25V              | 3,300,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1E475K                     | X5R                            | 25V              | 4,700,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1E475M                     | X5R                            | 25V              | 4,700,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1E106K                     | X5R                            | 25V              | 10,000,000          | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1E106M                     | X5R                            | 25V              | 10,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1E226M                     | X5R                            | 25V              | 22,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1C225K/1.60                | X5R                            | 16V              | 2,200,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1C225M/1.60                | X5R                            | 16V              | 2,200,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1C335K/1.60                | X5R                            | 16V              | 3,300,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1C335M/1.60                | X5R                            | 16V              | 3,300,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1C475K/1.15                | X5R                            | 16V              | 4,700,000           | ± 10%                    | 1.15 ± 0.10       |
| C3216X5R1C475M/1.15                | X5R                            | 16V              | 4,700,000           | ± 20%                    | 1.15 ± 0.10       |
| C3216X5R1C475K/1.60                | X5R                            | 16V              | 4,700,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1C475M/1.60                | X5R                            | 16V              | 4,700,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1C685K                     | X5R                            | 16V              | 6,800,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1C685M                     | X5R                            | 16V              | 6,800,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1C106K                     | X5R                            | 16V              | 10,000,000          | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1C106M                     | X5R                            | 16V              | 10,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1C226M                     | X5R                            | 16V              | 22,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1C336M                     | X5R                            | 16V              | 33,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1C476M                     | X5R                            | 16V              | 47,000,000          | ± 20%                    | 1.60 ± 0.30       |



## Capacitance Range Table

## C3216 [EIA CC1206]

### Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%), Y5V (-30 to +85°C, +22/-82%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C3216X5R1A225K/0.85                | X5R                            | 10V              | 2,200,000           | ± 10%                    | 0.85 ± 0.10       |
| C3216X5R1A225M/0.85                | X5R                            | 10V              | 2,200,000           | ± 20%                    | 0.85 ± 0.10       |
| C3216X5R1A335K/0.85                | X5R                            | 10V              | 3,300,000           | ± 10%                    | 0.85 ± 0.10       |
| C3216X5R1A335M/0.85                | X5R                            | 10V              | 3,300,000           | ± 20%                    | 0.85 ± 0.10       |
| C3216X5R1A335K/1.15                | X5R                            | 10V              | 3,300,000           | ± 10%                    | 1.15 ± 0.10       |
| C3216X5R1A335M/1.15                | X5R                            | 10V              | 3,300,000           | ± 20%                    | 1.15 ± 0.10       |
| C3216X5R1A475K                     | X5R                            | 10V              | 4,700,000           | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1A475M                     | X5R                            | 10V              | 4,700,000           | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1A106K                     | X5R                            | 10V              | 10,000,000          | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R1A106M                     | X5R                            | 10V              | 10,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1A226M                     | X5R                            | 10V              | 22,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1A336M                     | X5R                            | 10V              | 33,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1A476M                     | X5R                            | 10V              | 47,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R1A107M                     | X5R                            | 10V              | 100,000,000         | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R0J106K/0.85                | X5R                            | 6.3V             | 10,000,000          | ± 10%                    | 0.85 ± 0.10       |
| C3216X5R0J106M/0.85                | X5R                            | 6.3V             | 10,000,000          | ± 20%                    | 0.85 ± 0.10       |
| C3216X5R0J106K/1.60                | X5R                            | 6.3V             | 10,000,000          | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R0J106M/1.60                | X5R                            | 6.3V             | 10,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R0J156M                     | X5R                            | 6.3V             | 15,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R0J226M/0.85                | X5R                            | 6.3V             | 22,000,000          | ± 20%                    | 0.85 ± 0.10       |
| C3216X5R0J226K/1.60                | X5R                            | 6.3V             | 22,000,000          | ± 10%                    | 1.60 ± 0.30       |
| C3216X5R0J226M/1.60                | X5R                            | 6.3V             | 22,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R0J336M                     | X5R                            | 6.3V             | 33,000,000          | ± 20%                    | 1.30 ± 0.15       |
| C3216X5R0J476M                     | X5R                            | 6.3V             | 47,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R0J107M                     | X5R                            | 6.3V             | 100,000,000         | ± 20%                    | 1.60 ± 0.30       |
| C3216X5R0G107M                     | X5R                            | 4V               | 100,000,000         | ± 20%                    | 1.60 ± 0.30       |
| C3216Y5V1H225Z/0.85                | Y5V                            | 50V              | 2,200,000           | +80/-20%                 | 0.85 ± 0.10       |
| C3216Y5V1H225Z/1.15                | Y5V                            | 50V              | 2,200,000           | +80/-20%                 | 1.15 ± 0.10       |
| C3216Y5V1H475Z                     | Y5V                            | 50V              | 4,700,000           | +80/-20%                 | 1.60 ± 0.30       |
| C3216Y5V1E475Z/0.85                | Y5V                            | 25V              | 4,700,000           | +80/-20%                 | 0.85 ± 0.10       |
| C3216Y5V1E475Z/1.15                | Y5V                            | 25V              | 4,700,000           | +80/-20%                 | 1.15 ± 0.10       |
| C3216Y5V1E106Z                     | Y5V                            | 25V              | 10,000,000          | +80/-20%                 | 1.60 ± 0.30       |
| C3216Y5V1C475Z/0.85                | Y5V                            | 16V              | 4,700,000           | +80/-20%                 | 0.85 ± 0.10       |
| C3216Y5V1C475Z/1.15                | Y5V                            | 16V              | 4,700,000           | +80/-20%                 | 1.15 ± 0.10       |
| C3216Y5V1C475Z/1.30                | Y5V                            | 16V              | 4,700,000           | +80/-20%                 | 1.30 ± 0.15       |
| C3216Y5V1C106Z                     | Y5V                            | 16V              | 10,000,000          | +80/-20%                 | 1.60 ± 0.30       |
| C3216Y5V1C226Z                     | Y5V                            | 16V              | 22,000,000          | +80/-20%                 | 1.60 ± 0.30       |
| C3216Y5V1A106Z/0.85                | Y5V                            | 10V              | 10,000,000          | +80/-20%                 | 0.85 ± 0.10       |
| C3216Y5V1A106Z/1.15                | Y5V                            | 10V              | 10,000,000          | +80/-20%                 | 1.15 ± 0.10       |
| C3216Y5V1A226Z                     | Y5V                            | 10V              | 22,000,000          | +80/-20%                 | 1.60 ± 0.30       |
| C3216Y5V0J476Z                     | Y5V                            | 6.3V             | 47,000,000          | +80/-20%                 | 1.60 ± 0.30       |



## Capacitance Range Chart

## C3225 [EIA CC1210]

### Capacitance Range Chart

Temperature Characteristics: C0G (0 ± 30ppm/°C)  
Rated Voltage: 50V (1H)

| Capacitance (pF) | Cap Code | Tolerance | C0G<br>1H<br>(50V) |
|------------------|----------|-----------|--------------------|
| 22,000           | 223      | J: ± 5%   |                    |
| 33,000           | 333      |           |                    |
| 47,000           | 473      |           |                    |
| 68,000           | 683      |           |                    |
| 100,000          | 104      |           |                    |

### Capacitance Range Chart

Temperature Characteristics: X7R (±15%), X7S (±22%), X5R (±15%), X6S (±22%), Y5V (+22/-82%)  
Rated Voltage: 50V (1H), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J), 4V (0G)

| Capacitance (pF) | Cap Code | Tolerance | X5R         |             |             |             |              | X6S         |              |            |
|------------------|----------|-----------|-------------|-------------|-------------|-------------|--------------|-------------|--------------|------------|
|                  |          |           | 1H<br>(50V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 1H<br>(50V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 4,700,000        | 475      | K: ± 10%  |             |             |             |             |              |             |              |            |
| 10,000,000       | 106      | M: ± 20%  |             |             |             |             |              |             |              |            |
| 15,000,000       | 156      |           |             |             |             |             |              |             |              |            |
| 22,000,000       | 226      |           |             |             |             |             |              |             |              |            |
| 33,000,000       | 336      |           |             |             |             |             |              |             |              |            |
| 47,000,000       | 476      |           |             |             |             |             |              |             |              |            |
| 68,000,000       | 686      |           |             |             |             |             |              |             |              |            |
| 100,000,000      | 107      |           |             |             |             |             |              |             |              |            |

| Capacitance (pF) | Cap Code | Tolerance | X7R         |             |             |             | X7S         |
|------------------|----------|-----------|-------------|-------------|-------------|-------------|-------------|
|                  |          |           | 1H<br>(50V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 1H<br>(50V) |
| 470,000          | 474      | K: ± 10%  |             |             |             |             |             |
| 1,000,000        | 105      | M: ± 20%  |             |             |             |             |             |
| 1,500,000        | 155      |           |             |             |             |             |             |
| 2,200,000        | 225      |           |             |             |             |             |             |
| 3,300,000        | 335      |           |             |             |             |             |             |
| 4,700,000        | 475      |           |             |             |             |             |             |
| 6,800,000        | 685      |           |             |             |             |             |             |
| 10,000,000       | 106      |           |             |             |             |             |             |
| 15,000,000       | 156      |           |             |             |             |             |             |
| 22,000,000       | 226      |           |             |             |             |             |             |

| Capacitance (pF) | Cap Code | Tolerance   | Y5V         |             |             |             |              |
|------------------|----------|-------------|-------------|-------------|-------------|-------------|--------------|
|                  |          |             | 1H<br>(50V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) |
| 4,700,000        | 475      | Z: +80/-20% |             |             |             |             |              |
| 10,000,000       | 106      |             |             |             |             |             |              |
| 22,000,000       | 226      |             |             |             |             |             |              |
| 47,000,000       | 476      |             |             |             |             |             |              |
| 100,000,000      | 107      |             |             |             |             |             |              |

### Standard Thickness

1.15 mm 1.25 mm 1.30 mm 1.60 mm 2.00 mm 2.50 mm 2.30 mm

• Standard capacitance and thickness is shown. Please refer to Capacitance Range Table for additional capacitance values and thicknesses.



## Capacitance Range Table

## C3225 [EIA CC1210]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C3225C0G1H223J                     | C0G                            | 50V              | 22,000              | ± 5%                     | 1.30 ± 0.15       |
| C3225C0G1H333J                     | C0G                            | 50V              | 33,000              | ± 5%                     | 1.60 ± 0.30       |
| C3225C0G1H473J                     | C0G                            | 50V              | 47,000              | ± 5%                     | 2.00 ± 0.20       |
| C3225C0G1H683J                     | C0G                            | 50V              | 68,000              | ± 5%                     | 2.00 ± 0.20       |
| C3225C0G1H104J                     | C0G                            | 50V              | 100,000             | ± 5%                     | 2.50 ± 0.30       |

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%), X7S (-55 to +125°C, ±22%), X6S (-55 to +105°C, ±22%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C3225X7R1H474K/1.30                | X7R                            | 50V              | 470,000             | ± 10%                    | 1.30 ± 0.15       |
| C3225X7R1H474M/1.30                | X7R                            | 50V              | 470,000             | ± 20%                    | 1.30 ± 0.15       |
| C3225X7R1H105K/1.60                | X7R                            | 50V              | 1,000,000           | ± 10%                    | 1.60 ± 0.30       |
| C3225X7R1H105M/1.60                | X7R                            | 50V              | 1,000,000           | ± 20%                    | 1.60 ± 0.30       |
| C3225X7R1H105K/2.00                | X7R                            | 50V              | 1,000,000           | ± 10%                    | 2.00 ± 0.20       |
| C3225X7R1H105M/2.00                | X7R                            | 50V              | 1,000,000           | ± 20%                    | 2.00 ± 0.20       |
| C3225X7R1H155K                     | X7R                            | 50V              | 1,500,000           | ± 10%                    | 2.00 ± 0.20       |
| C3225X7R1H155M                     | X7R                            | 50V              | 1,500,000           | ± 20%                    | 2.00 ± 0.20       |
| C3225X7R1H225K/2.00                | X7R                            | 50V              | 2,200,000           | ± 10%                    | 2.00 ± 0.20       |
| C3225X7R1H225M/2.00                | X7R                            | 50V              | 2,200,000           | ± 20%                    | 2.00 ± 0.20       |
| C3225X7R1H225K/2.50                | X7R                            | 50V              | 2,200,000           | ± 10%                    | 2.50 ± 0.30       |
| C3225X7R1H225M/2.50                | X7R                            | 50V              | 2,200,000           | ± 20%                    | 2.50 ± 0.30       |
| C3225X7R1H335K                     | X7R                            | 50V              | 3,300,000           | ± 10%                    | 2.50 ± 0.30       |
| C3225X7R1H335M                     | X7R                            | 50V              | 3,300,000           | ± 20%                    | 2.50 ± 0.30       |
| C3225X7R1H475K                     | X7R                            | 50V              | 4,700,000           | ± 10%                    | 2.50 ± 0.30       |
| C3225X7R1H475M                     | X7R                            | 50V              | 4,700,000           | ± 20%                    | 2.50 ± 0.30       |
| C3225X6S1H475K                     | X6S                            | 50V              | 4,700,000           | ± 10%                    | 2.50 ± 0.30       |
| C3225X6S1H475M                     | X6S                            | 50V              | 4,700,000           | ± 20%                    | 2.50 ± 0.30       |
| C3225X7S1H685K                     | X7S                            | 50V              | 6,800,000           | ± 10%                    | 2.50 ± 0.30       |
| C3225X7S1H685M                     | X7S                            | 50V              | 6,800,000           | ± 20%                    | 2.50 ± 0.30       |
| C3225X7S1H106K                     | X7S                            | 50V              | 10,000,000          | ± 10%                    | 2.50 ± 0.30       |
| C3225X7S1H106M                     | X7S                            | 50V              | 10,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C3225X7R1E225K/1.60                | X7R                            | 25V              | 2,200,000           | ± 10%                    | 1.60 ± 0.30       |
| C3225X7R1E225M/1.60                | X7R                            | 25V              | 2,200,000           | ± 20%                    | 1.60 ± 0.30       |
| C3225X7R1E335K                     | X7R                            | 25V              | 3,300,000           | ± 10%                    | 1.60 ± 0.30       |
| C3225X7R1E335M                     | X7R                            | 25V              | 3,300,000           | ± 20%                    | 1.60 ± 0.30       |
| C3225X7R1E475K                     | X7R                            | 25V              | 4,700,000           | ± 10%                    | 2.00 ± 0.20       |
| C3225X7R1E475M                     | X7R                            | 25V              | 4,700,000           | ± 20%                    | 2.00 ± 0.20       |
| C3225X7R1E685K/2.50                | X7R                            | 25V              | 6,800,000           | ± 10%                    | 2.50 ± 0.30       |
| C3225X7R1E685M/2.50                | X7R                            | 25V              | 6,800,000           | ± 20%                    | 2.50 ± 0.30       |
| C3225X7R1E106K                     | X7R                            | 25V              | 10,000,000          | ± 10%                    | 2.50 ± 0.30       |
| C3225X7R1E106M                     | X7R                            | 25V              | 10,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C3225X7R1C106K                     | X7R                            | 16V              | 10,000,000          | ± 10%                    | 2.00 ± 0.20       |
| C3225X7R1C106M                     | X7R                            | 16V              | 10,000,000          | ± 20%                    | 2.00 ± 0.20       |
| C3225X7R1C156M                     | X7R                            | 16V              | 15,000,000          | ± 20%                    | 2.50 ± 0.30       |



## Capacitance Range Table

## C3225 [EIA CC1210]

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%), X6S (-55 to +105°C, ±22%), X5R (-55 to +85°C, ±15%), Y5V(-30 to +85°C, +22/-82%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C3225X7R1C226K                     | X7R                            | 16V              | 22,000,000          | ± 10%                    | 2.50 ± 0.30       |
| C3225X7R1C226M                     | X7R                            | 16V              | 22,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C3225X7R1A226K/2.30                | X7R                            | 10V              | 22,000,000          | ± 10%                    | 2.30 ± 0.20       |
| C3225X7R1A226M/2.30                | X7R                            | 10V              | 22,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C3225X5R1H475K                     | X5R                            | 50V              | 4,700,000           | ± 10%                    | 2.50 ± 0.30       |
| C3225X5R1H475M                     | X5R                            | 50V              | 4,700,000           | ± 20%                    | 2.50 ± 0.30       |
| C3225X5R1E106K                     | X5R                            | 25V              | 10,000,000          | ± 10%                    | 2.50 ± 0.30       |
| C3225X5R1E106M                     | X5R                            | 25V              | 10,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C3225X5R1C106K                     | X5R                            | 16V              | 10,000,000          | ± 10%                    | 2.00 ± 0.20       |
| C3225X5R1C106M                     | X5R                            | 16V              | 10,000,000          | ± 20%                    | 2.00 ± 0.20       |
| C3225X5R1C156M                     | X5R                            | 16V              | 15,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C3225X5R1C226K                     | X5R                            | 16V              | 22,000,000          | ± 10%                    | 2.50 ± 0.30       |
| C3225X5R1C226M                     | X5R                            | 16V              | 22,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C3225X5R1A106K                     | X5R                            | 10V              | 10,000,000          | ± 10%                    | 2.00 ± 0.20       |
| C3225X5R1A106M                     | X5R                            | 10V              | 10,000,000          | ± 20%                    | 2.00 ± 0.20       |
| C3225X5R1A156M/2.30                | X5R                            | 10V              | 15,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C3225X5R1A226M                     | X5R                            | 10V              | 22,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C3225X5R1A336M                     | X5R                            | 10V              | 33,000,000          | ± 20%                    | 2.00 ± 0.20       |
| C3225X5R1A476M                     | X5R                            | 10V              | 47,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C3225X5R0J226M/1.60                | X5R                            | 6.3V             | 22,000,000          | ± 20%                    | 1.60 ± 0.30       |
| C3225X5R0J226K/2.00                | X5R                            | 6.3V             | 22,000,000          | ± 10%                    | 2.00 ± 0.20       |
| C3225X5R0J226M/2.00                | X5R                            | 6.3V             | 22,000,000          | ± 20%                    | 2.00 ± 0.20       |
| C3225X5R0J226K/2.50                | X5R                            | 6.3V             | 22,000,000          | ± 10%                    | 2.50 ± 0.30       |
| C3225X5R0J226M/2.50                | X5R                            | 6.3V             | 22,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C3225X5R0J336M/2.00                | X5R                            | 6.3V             | 33,000,000          | ± 20%                    | 2.00 ± 0.20       |
| C3225X5R0J336M/2.50                | X5R                            | 6.3V             | 33,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C3225X5R0J476M                     | X5R                            | 6.3V             | 47,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C3225X5R0J686M                     | X5R                            | 6.3V             | 68,000,000          | ± 20%                    | 2.00 ± 0.20       |
| C3225X5R0J107M                     | X5R                            | 6.3V             | 100,000,000         | ± 20%                    | 2.50 ± 0.30       |
| C3225X6S0J476M                     | X6S                            | 6.3V             | 47,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C3225X6S0J107M                     | X6S                            | 6.3V             | 100,000,000         | ± 20%                    | 2.50 ± 0.30       |
| C3225X6S0G107M                     | X6S                            | 4V               | 100,000,000         | ± 20%                    | 2.50 ± 0.30       |
| C3225Y5V1H475Z/1.15                | Y5V                            | 50V              | 4,700,000           | +80/-20%                 | 1.15 ± 0.10       |
| C3225Y5V1H475Z/1.60                | Y5V                            | 50V              | 4,700,000           | +80/-20%                 | 1.60 ± 0.30       |
| C3225Y5V1H106Z                     | Y5V                            | 50V              | 10,000,000          | +80/-20%                 | 1.60 ± 0.30       |
| C3225Y5V1E106Z/1.30                | Y5V                            | 25V              | 10,000,000          | +80/-20%                 | 1.30 ± 0.15       |
| C3225Y5V1E106Z/1.60                | Y5V                            | 25V              | 10,000,000          | +80/-20%                 | 1.60 ± 0.30       |
| C3225Y5V1E226Z                     | Y5V                            | 25V              | 22,000,000          | +80/-20%                 | 2.00 ± 0.20       |
| C3225Y5V1C106Z/1.15                | Y5V                            | 16V              | 10,000,000          | +80/-20%                 | 1.15 ± 0.10       |
| C3225Y5V1C106Z/1.60                | Y5V                            | 16V              | 10,000,000          | +80/-20%                 | 1.60 ± 0.30       |
| C3225Y5V1C226Z/1.30                | Y5V                            | 16V              | 22,000,000          | +80/-20%                 | 1.30 ± 0.15       |
| C3225Y5V1C226Z/2.00                | Y5V                            | 16V              | 22,000,000          | +80/-20%                 | 2.00 ± 0.20       |
| C3225Y5V1C476Z                     | Y5V                            | 16V              | 47,000,000          | +80/-20%                 | 2.30 ± 0.20       |
| C3225Y5V1A226Z/1.15                | Y5V                            | 10V              | 22,000,000          | +80/-20%                 | 1.15 ± 0.10       |



## Capacitance Range Table

## C3225 [EIA CC1210]

### Class 2 (Temperature Stable)

Temperature Characteristics: Y5V(-30 to +85°C, +22/-82%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C3225Y5V1A476Z                     | Y5V                            | 10V              | 47,000,000          | +80/-20%                 | 2.00 ± 0.20       |
| C3225Y5V0J107Z                     | Y5V                            | 6.3V             | 100,000,000         | +80/-20%                 | 2.50 ± 0.30       |



## Capacitance Range Chart

## C4532 [EIA CC1812]

### Capacitance Range Chart

Temperature Characteristics: C0G ( $0 \pm 30\text{ppm}/^\circ\text{C}$ )  
Rated Voltage: 50V (1H)

| Capacitance (pF) | Cap Code | Tolerance    | C0G<br>1H<br>(50V) |
|------------------|----------|--------------|--------------------|
| 47,000           | 473      | J: $\pm 5\%$ |                    |
| 68,000           | 683      |              |                    |
| 100,000          | 104      |              |                    |
| 150,000          | 154      |              |                    |
| 220,000          | 224      |              |                    |

### Capacitance Range Chart

Temperature Characteristics: X7R ( $\pm 15\%$ ), X5R ( $\pm 15\%$ ), Y5V ( $+22/-82\%$ )  
Rated Voltage: 50V (1H), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J)

| Capacitance (pF) | Cap Code | Tolerance                      | X7R         |             |             | X5R         |             |             |              |
|------------------|----------|--------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
|                  |          |                                | 1H<br>(50V) | 1E<br>(25V) | 1C<br>(16V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) |
| 1,000,000        | 105      | K: $\pm 10\%$<br>M: $\pm 20\%$ |             |             |             |             |             |             |              |
| 1,500,000        | 155      |                                |             |             |             |             |             |             |              |
| 2,200,000        | 225      |                                |             |             |             |             |             |             |              |
| 3,300,000        | 335      |                                |             |             |             |             |             |             |              |
| 4,700,000        | 475      |                                |             |             |             |             |             |             |              |
| 6,800,000        | 685      |                                |             |             |             |             |             |             |              |
| 10,000,000       | 106      |                                |             |             |             |             |             |             |              |
| 15,000,000       | 156      |                                |             |             |             |             |             |             |              |
| 22,000,000       | 226      |                                |             |             |             |             |             |             |              |
| 33,000,000       | 336      |                                |             |             |             |             |             |             |              |
| 47,000,000       | 476      |                                |             |             |             |             |             |             |              |
| 68,000,000       | 686      |                                |             |             |             |             |             |             |              |
| 100,000,000      | 107      |                                |             |             |             |             |             |             |              |

| Capacitance (pF) | Cap Code | Tolerance      | Y5V         |             |             |             |
|------------------|----------|----------------|-------------|-------------|-------------|-------------|
|                  |          |                | 1H<br>(50V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) |
| 10,000,000       | 106      | Z: $+80/-20\%$ |             |             |             |             |
| 22,000,000       | 226      |                |             |             |             |             |
| 47,000,000       | 476      |                |             |             |             |             |
| 100,000,000      | 107      |                |             |             |             |             |

### Standard Thickness

1.60 mm 2.00 mm 2.30 mm 2.50 mm 2.80 mm 3.20 mm

• Standard capacitance and thickness is shown. Please refer to Capacitance Range Table for additional capacitance values and thicknesses.



## Capacitance Range Table

## C4532 [EIA CC1812]

### Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C4532C0G1H473J                     | C0G                            | 50V              | 47,000              | ± 5%                     | 1.60 ± 0.30       |
| C4532C0G1H683J                     | C0G                            | 50V              | 68,000              | ± 5%                     | 1.60 ± 0.30       |
| C4532C0G1H104J                     | C0G                            | 50V              | 100,000             | ± 5%                     | 2.00 ± 0.20       |
| C4532C0G1H154J                     | C0G                            | 50V              | 150,000             | ± 5%                     | 2.50 ± 0.30       |
| C4532C0G1H224J                     | C0G                            | 50V              | 220,000             | ± 5%                     | 3.20 ± 0.30       |

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%), X5R (-55 to +85°C, ±15%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C4532X7R1H105K                     | X7R                            | 50V              | 1,000,000           | ± 10%                    | 1.60 ± 0.30       |
| C4532X7R1H105M                     | X7R                            | 50V              | 1,000,000           | ± 20%                    | 1.60 ± 0.30       |
| C4532X7R1H155K/1.60                | X7R                            | 50V              | 1,500,000           | ± 10%                    | 1.60 ± 0.30       |
| C4532X7R1H155M/1.60                | X7R                            | 50V              | 1,500,000           | ± 20%                    | 1.60 ± 0.30       |
| C4532X7R1H225K                     | X7R                            | 50V              | 2,200,000           | ± 10%                    | 1.60 ± 0.30       |
| C4532X7R1H225M                     | X7R                            | 50V              | 2,200,000           | ± 20%                    | 1.60 ± 0.30       |
| C4532X7R1H335K                     | X7R                            | 50V              | 3,300,000           | ± 10%                    | 2.00 ± 0.20       |
| C4532X7R1H335M                     | X7R                            | 50V              | 3,300,000           | ± 20%                    | 2.00 ± 0.20       |
| C4532X7R1H475K/2.00                | X7R                            | 50V              | 4,700,000           | ± 10%                    | 2.00 ± 0.20       |
| C4532X7R1H475M/2.00                | X7R                            | 50V              | 4,700,000           | ± 20%                    | 2.00 ± 0.20       |
| C4532X7R1H685K                     | X7R                            | 50V              | 6,800,000           | ± 10%                    | 2.50 ± 0.30       |
| C4532X7R1H685M                     | X7R                            | 50V              | 6,800,000           | ± 20%                    | 2.50 ± 0.30       |
| C4532X7R1E475M/2.00                | X7R                            | 25V              | 4,700,000           | ± 20%                    | 2.00 ± 0.20       |
| C4532X7R1E106K                     | X7R                            | 25V              | 10,000,000          | ± 10%                    | 2.50 ± 0.30       |
| C4532X7R1E106M                     | X7R                            | 25V              | 10,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C4532X7R1E156M/2.80                | X7R                            | 25V              | 15,000,000          | ± 20%                    | 2.80 ± 0.30       |
| C4532X7R1E226M                     | X7R                            | 25V              | 22,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C4532X7R1C106K                     | X7R                            | 16V              | 10,000,000          | ± 10%                    | 2.30 ± 0.20       |
| C4532X7R1C106M                     | X7R                            | 16V              | 10,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C4532X7R1C226M/2.00                | X7R                            | 16V              | 22,000,000          | ± 20%                    | 2.00 ± 0.20       |
| C4532X7R1C226M/2.30                | X7R                            | 16V              | 22,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C4532X7R1C336M                     | X7R                            | 16V              | 33,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C4532X5R1E106K                     | X5R                            | 25V              | 10,000,000          | ± 10%                    | 2.50 ± 0.30       |
| C4532X5R1E106M                     | X5R                            | 25V              | 10,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C4532X5R1E156M/2.80                | X5R                            | 25V              | 15,000,000          | ± 20%                    | 2.80 ± 0.30       |
| C4532X5R1E226M                     | X5R                            | 25V              | 22,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C4532X5R1C226M/2.00                | X5R                            | 16V              | 22,000,000          | ± 20%                    | 2.00 ± 0.20       |
| C4532X5R1C226M/2.30                | X5R                            | 16V              | 22,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C4532X5R1C336M                     | X5R                            | 16V              | 33,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C4532X5R1A226M                     | X5R                            | 10V              | 22,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C4532X5R1A336M                     | X5R                            | 10V              | 33,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C4532X5R1A476M                     | X5R                            | 10V              | 47,000,000          | ± 20%                    | 2.80 ± 0.30       |
| C4532X5R1A107M                     | X5R                            | 10V              | 100,000,000         | ± 20%                    | 2.80 ± 0.30       |
| C4532X5R0J476M                     | X5R                            | 6.3V             | 47,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C4532X5R0J686M                     | X5R                            | 6.3V             | 68,000,000          | ± 20%                    | 2.80 ± 0.30       |



## Capacitance Range Table

## C4532 [EIA CC1812]

### Class 2 (Temperature Stable)

Temperature Characteristics: X5R (-55 to +85°C, ±15%), Y5V(-30 to +85°C, +22/-82%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C4532X5R0J107M                     | X5R                            | 6.3V             | 100,000,000         | ± 20%                    | 2.80 ± 0.30       |
| C4532Y5V1H106Z                     | Y5V                            | 50V              | 10,000,000          | +80/-20%                 | 2.00 ± 0.20       |
| C4532Y5V1E226Z                     | Y5V                            | 25V              | 22,000,000          | +80/-20%                 | 2.00 ± 0.20       |
| C4532Y5V1C476Z                     | Y5V                            | 16V              | 47,000,000          | +80/-20%                 | 2.50 ± 0.30       |
| C4532Y5V1A107Z                     | Y5V                            | 10V              | 100,000,000         | +80/-20%                 | 2.50 ± 0.30       |



## Capacitance Range Chart

## C5750 [EIA CC2220]

### Capacitance Range Chart

Temperature Characteristics: X7R ( $\pm 15\%$ ), X5R ( $\pm 15\%$ ), Y5V (+22/-82%)  
 Rated Voltage: 50V (1H), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J)

| Capacitance (pF) | Cap Code | Tolerance                      | X7R      |          |          | X5R      |          |          |          |           |
|------------------|----------|--------------------------------|----------|----------|----------|----------|----------|----------|----------|-----------|
|                  |          |                                | 1H (50V) | 1E (25V) | 1C (16V) | 1H (50V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) |
| 4,700,000        | 475      | K: $\pm 10\%$<br>M: $\pm 20\%$ |          |          |          |          |          |          |          |           |
| 6,800,000        | 685      |                                |          |          |          |          |          |          |          |           |
| 10,000,000       | 106      |                                |          |          |          |          |          |          |          |           |
| 15,000,000       | 156      |                                |          |          |          |          |          |          |          |           |
| 22,000,000       | 226      |                                |          |          |          |          |          |          |          |           |
| 33,000,000       | 336      |                                |          |          |          |          |          |          |          |           |
| 47,000,000       | 476      |                                |          |          |          |          |          |          |          |           |
| 68,000,000       | 686      |                                |          |          |          |          |          |          |          |           |
| 100,000,000      | 107      |                                |          |          |          |          |          |          |          |           |
|                  |          |                                |          |          |          |          |          |          |          |           |

| Capacitance (pF) | Cap Code | Tolerance   | Y5V      |          |          |          |
|------------------|----------|-------------|----------|----------|----------|----------|
|                  |          |             | 1H (50V) | 1E (25V) | 1C (16V) | 1A (10V) |
| 10,000,000       | 106      | Z: +80/-20% |          |          |          |          |
| 22,000,000       | 226      |             |          |          |          |          |
| 47,000,000       | 476      |             |          |          |          |          |
| 100,000,000      | 107      |             |          |          |          |          |

### Standard Thickness

2.00 mm 
 2.30 mm 
 2.50 mm 
 2.80 mm



## Capacitance Range Table

## C5750 [EIA CC2220]

### Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%), X5R (-55 to +85°C, ±15%), Y5V (-30 to +85°C, +22/-82%)

| TDK Part Number<br>(Ordering Code) | Temperature<br>Characteristics | Rated<br>Voltage | Capacitance<br>(pF) | Capacitance<br>Tolerance | Thickness<br>(mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| C5750X7R1H475K/2.00                | X7R                            | 50V              | 4,700,000           | ± 10%                    | 2.00 ± 0.20       |
| C5750X7R1H475M/2.00                | X7R                            | 50V              | 4,700,000           | ± 20%                    | 2.00 ± 0.20       |
| C5750X7R1H475M/2.80                | X7R                            | 50V              | 4,700,000           | ± 20%                    | 2.80 ± 0.20       |
| C5750X7R1H685K                     | X7R                            | 50V              | 6,800,000           | ± 10%                    | 2.50 ± 0.30       |
| C5750X7R1H685M                     | X7R                            | 50V              | 6,800,000           | ± 20%                    | 2.50 ± 0.30       |
| C5750X7R1H106K                     | X7R                            | 50V              | 10,000,000          | ± 10%                    | 2.30 ± 0.20       |
| C5750X7R1H106M                     | X7R                            | 50V              | 10,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C5750X7R1E106M                     | X7R                            | 25V              | 10,000,000          | ± 20%                    | 2.00 ± 0.20       |
| C5750X7R1E156M                     | X7R                            | 25V              | 15,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C5750X7R1E226M                     | X7R                            | 25V              | 22,000,000          | ± 20%                    | 2.50 ± 0.30       |
| C5750X7R1C226M                     | X7R                            | 16V              | 22,000,000          | ± 20%                    | 2.80 ± 0.20       |
| C5750X7R1C476M                     | X7R                            | 16V              | 47,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C5750X5R1H106K                     | X5R                            | 50V              | 10,000,000          | ± 10%                    | 2.30 ± 0.20       |
| C5750X5R1H106M                     | X5R                            | 50V              | 10,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C5750X5R1E226M                     | X5R                            | 25V              | 22,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C5750X5R1C336M                     | X5R                            | 16V              | 33,000,000          | ± 20%                    | 2.00 ± 0.20       |
| C5750X5R1C476M                     | X5R                            | 16V              | 47,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C5750X5R1A686M                     | X5R                            | 10V              | 68,000,000          | ± 20%                    | 2.30 ± 0.20       |
| C5750X5R1A107M                     | X5R                            | 10V              | 100,000,000         | ± 20%                    | 2.80 ± 0.20       |
| C5750X5R0J107M                     | X5R                            | 6.3V             | 100,000,000         | ± 20%                    | 2.80 ± 0.20       |
| C5750Y5V1H226Z                     | Y5V                            | 50V              | 22,000,000          | +80/-20%                 | 2.00 ± 0.20       |
| C5750Y5V1E476Z                     | Y5V                            | 25V              | 47,000,000          | +80/-20%                 | 2.00 ± 0.20       |
| C5750Y5V1C107Z                     | Y5V                            | 16V              | 100,000,000         | +80/-20%                 | 2.50 ± 0.30       |
| C5750Y5V1A107Z                     | Y5V                            | 10V              | 100,000,000         | +80/-20%                 | 2.50 ± 0.30       |



## General Specifications

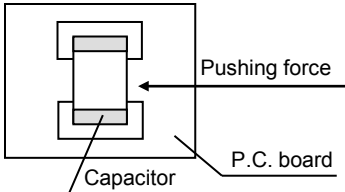
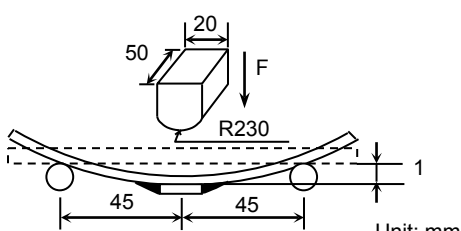
## C Series – General Application

| No.        | Item                            | Performance                                                                                                                              | Test or Inspection Method                                                                        |                     |                                                 |                                                 |
|------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------|-------------------------------------------------|-------------------------------------------------|
| 1          | External Appearance             | No defects which may affect performance.                                                                                                 | Inspect with magnifying glass (3×), in case of C0603 type, with magnifying glass (10×).          |                     |                                                 |                                                 |
| 2          | Insulation Resistance           | 10,000MΩ or 500MΩ•μF min.<br>(As for the capacitors of rated voltage 16, 10 and 6.3V DC, 10,000 MΩ or 100MΩ•μF min.,) whichever smaller. | Apply rated voltage for 60s. As for the rated voltage 630V DC, apply 500V DC.                    |                     |                                                 |                                                 |
| 3          | Voltage Proof                   | Withstand test voltage without insulation breakdown or other damage.                                                                     | Class                                                                                            | Apply voltage       |                                                 |                                                 |
|            |                                 |                                                                                                                                          | Class 1                                                                                          | 3 × rated voltage   |                                                 |                                                 |
|            |                                 |                                                                                                                                          | Class 2                                                                                          | 2.5 × rated voltage |                                                 |                                                 |
|            |                                 |                                                                                                                                          | Above DC voltage shall be applied for 1 to 5s. Charge / discharge current shall not exceed 50mA. |                     |                                                 |                                                 |
| 4          | Capacitance                     | Within the specified tolerance.                                                                                                          | Class                                                                                            | Rated Capacitance   | Measuring Frequency                             | Measuring voltage                               |
|            |                                 |                                                                                                                                          | Class 1                                                                                          | C ≤ 1000pF          | 1MHz±10%                                        | 0.5 - 5 V <sub>rms</sub>                        |
|            |                                 |                                                                                                                                          |                                                                                                  | C >1000pF           | 1kHz±10%                                        |                                                 |
|            |                                 |                                                                                                                                          | Class 2                                                                                          | C ≤ 10uF            | 1kHz±10%                                        | 0.5±0.2V <sub>rms</sub>                         |
|            |                                 |                                                                                                                                          |                                                                                                  |                     |                                                 | 1.0±0.2V <sub>rms</sub>                         |
|            |                                 |                                                                                                                                          |                                                                                                  | C > 10uF            | 120Hz±20%                                       | 0.5±0.2 V <sub>rms</sub>                        |
| 5          | Q<br>(Class 1)                  | Rated Capacitance                                                                                                                        | Q                                                                                                |                     | See No.4 in this table for measuring condition. |                                                 |
|            |                                 | 30pF and over                                                                                                                            | 1,000 min.                                                                                       |                     |                                                 |                                                 |
|            |                                 | Under 30pF                                                                                                                               | 400+20×C min.                                                                                    |                     |                                                 |                                                 |
|            |                                 | C : Rated capacitance (pF)                                                                                                               |                                                                                                  |                     |                                                 |                                                 |
| 6          | Dissipation Factor<br>(Class 2) | T.C.                                                                                                                                     | Rated Voltage                                                                                    | D.F.                |                                                 | See No.4 in this table for measuring condition. |
|            |                                 | X5R<br>X7R                                                                                                                               | -                                                                                                | 0.03 max.           |                                                 |                                                 |
|            |                                 |                                                                                                                                          |                                                                                                  | 0.05 max.           |                                                 |                                                 |
|            |                                 |                                                                                                                                          |                                                                                                  | 0.75 max.           |                                                 |                                                 |
|            |                                 |                                                                                                                                          |                                                                                                  | 0.1 max.            |                                                 |                                                 |
|            |                                 |                                                                                                                                          |                                                                                                  | 0.125 max.          |                                                 |                                                 |
|            |                                 | Y5V                                                                                                                                      | 50VDC                                                                                            | 0.15 max.           |                                                 |                                                 |
|            |                                 |                                                                                                                                          |                                                                                                  | 0.05 max.           |                                                 |                                                 |
|            |                                 |                                                                                                                                          |                                                                                                  | 0.075 max.          |                                                 |                                                 |
|            |                                 |                                                                                                                                          |                                                                                                  | 0.10 max.           |                                                 |                                                 |
| 0.125 max. |                                 |                                                                                                                                          |                                                                                                  |                     |                                                 |                                                 |
| 6.3VDC     |                                 | 0.20 max.                                                                                                                                |                                                                                                  |                     |                                                 |                                                 |

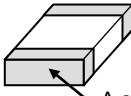


## General Specifications

## C Series – General Application

| No.                | Item                                                 | Performance                                                                                                                                                                                                                                                  | Test or Inspection Method                                                                                                                                                                                                                                                          |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
|--------------------|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------|---|---------------------|---|--------------------------|---|---------------------|---|--------------------------|
| 7                  | Temperature Characteristics of Capacitance (Class 1) | <table><tr><th>T.C.</th><th>Temperature Coefficient</th></tr><tr><td>C0G</td><td>0 ± 30 (ppm/°C)</td></tr></table> Capacitance drift<br>Within ± 0.2% or ±0.05pF, whichever larger.                                                                          | T.C.                                                                                                                                                                                                                                                                               | Temperature Coefficient | C0G        | 0 ± 30 (ppm/°C) | Temperature coefficient shall be calculated based on values at 25°C and 85°C temperature.<br><br>Measuring temperature below 20°C shall be -10°C and -25°C. |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| T.C.               | Temperature Coefficient                              |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                    |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| C0G                | 0 ± 30 (ppm/°C)                                      |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                    |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| 8                  | Temperature Characteristics of Capacitance (Class 2) | Capacitance Change (%)<br><table><tr><th>No Voltage Applied</th></tr><tr><td>X5R: ± 15%</td></tr><tr><td>X7R: ± 15%</td></tr><tr><td>X6S: ± 22%</td></tr><tr><td>X7S: ± 22%</td></tr><tr><td>X7T: +22/-33%</td></tr><tr><td>Y5V: + 22/-82%</td></tr></table> | No Voltage Applied                                                                                                                                                                                                                                                                 | X5R: ± 15%              | X7R: ± 15% | X6S: ± 22%      | X7S: ± 22%                                                                                                                                                  | X7T: +22/-33% | Y5V: + 22/-82% | Capacitance shall be measured by the steps shown in the following table after thermal equilibrium is obtained for each step.<br><br>ΔC be calculated ref. STEP 3 reading<br><table><tr><th>Step</th><th>Temperature (°C)</th></tr><tr><td>1</td><td>Reference temp. ± 2</td></tr><tr><td>2</td><td>Min. operating temp. ± 2</td></tr><tr><td>3</td><td>Reference temp. ± 2</td></tr><tr><td>4</td><td>Max. operating temp. ± 2</td></tr></table><br>Measuring voltage: 0.1, 0.2, 0.5, 1.0V <sub>rms</sub> . | Step | Temperature (°C) | 1 | Reference temp. ± 2 | 2 | Min. operating temp. ± 2 | 3 | Reference temp. ± 2 | 4 | Max. operating temp. ± 2 |
| No Voltage Applied |                                                      |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                    |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| X5R: ± 15%         |                                                      |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                    |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| X7R: ± 15%         |                                                      |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                    |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| X6S: ± 22%         |                                                      |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                    |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| X7S: ± 22%         |                                                      |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                    |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| X7T: +22/-33%      |                                                      |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                    |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| Y5V: + 22/-82%     |                                                      |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                    |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| Step               | Temperature (°C)                                     |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                    |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| 1                  | Reference temp. ± 2                                  |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                    |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| 2                  | Min. operating temp. ± 2                             |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                    |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| 3                  | Reference temp. ± 2                                  |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                    |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| 4                  | Max. operating temp. ± 2                             |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                    |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| 9                  | Robustness of Terminations                           | No sign of termination coming off, breakage of ceramic, or other abnormal signs.                                                                                                                                                                             | Reflow solder the capacitor on P.C. board (shown in Appendix 1a or Appendix 1b) and apply a pushing force of 2N (C0603, C1005) or 5N (C1608, C2012, C3216, C3225, C4532, C5750) for 10± 1s.<br> |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |
| 10                 | Bending                                              | No mechanical damage.                                                                                                                                                                                                                                        | Reflow solder the capacitor on P.C. board (shown in Appendix 2a or Appendix 2b) and bend it for 1mm.<br><br>Unit: mm                                                                           |                         |            |                 |                                                                                                                                                             |               |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |                  |   |                     |   |                          |   |                     |   |                          |



| No.                  | Item                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Performance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Test or Inspection Method                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |            |                                                                                 |                          |     |                                                                                 |         |     |             |  |     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |
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| 11                   | Solderability                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>New solder to cover over 75% of termination.</p> <p>25% may have pinholes or rough spots but not concentrated in one spot.</p> <p>Ceramic surface of A sections shall not be exposed due to melting or shifting of termination material.</p> <div><p>A section</p></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>Completely soak both terminations in solder at <math>235 \pm 5^{\circ}\text{C}</math> for <math>2 \pm 0.5\text{s}</math>.</p> <p>Solder: H63A (JIS Z 3282)</p> <p>Flux: Isopropyl alcohol (JIS K 8839)<br/>Rosin (JIS K 5902) 25% solid solution.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |            |                                                                                 |                          |     |                                                                                 |         |     |             |  |     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |
| 12                   | Resistance to solder heat                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>External appearance</p> <p>No cracks are allowed and terminations shall be covered at least 60% with new solder.</p> <table><tr><td>Capacitance</td><td><table><tr><th colspan="2">Characteristics</th><th>Change from the value before test</th></tr><tr><td>Class 1</td><td>C0G</td><td>Capacitance drift within <math>\pm 2.5\%</math> or <math>\pm 0.25\text{pF}</math>, whichever larger.</td></tr><tr><td>Class 2</td><td>X5R</td><td><math>\pm 7.5\%</math></td></tr><tr><td></td><td>X7R</td><td><math>\pm 7.5\%</math></td></tr><tr><td></td><td>Y5V</td><td><math>\pm 20\%</math></td></tr></table></td><td><p>Completely soak both terminations in solder at <math>260 \pm 5^{\circ}\text{C}</math> for <math>5 \pm 1\text{s}</math>.</p><p>Preheating condition</p><p>Temp.: <math>150 \pm 10^{\circ}\text{C}</math></p><p>Time: 1 to 2min.</p><p>Flux: Isopropyl alcohol (JIS K 8839)<br/>Rosin (JIS K 5902) 25% solid solution.</p><p>Solder: H63A (JIS Z 3282)</p><p>Leave the capacitor in ambient conditions for 6 to 24h (Class 1) or <math>24 \pm 2\text{h}</math> (Class 2) before measurement.</p></td></tr><tr><td></td><td>Q (Class 1)</td><td><table><tr><th>Rated Capacitance</th><th>Q</th></tr><tr><td><math>C \geq 30\text{pF}</math></td><td>1,000 min.</td></tr><tr><td><math>C &lt; 30\text{pF}</math></td><td><math>400 + 20 \times C</math> min.</td></tr></table><p>C : Rated capacitance (pF)</p></td><td></td></tr><tr><td></td><td>D.F. (Class 2)</td><td>Meet the initial spec.</td><td></td></tr><tr><td></td><td>Insulation Resistance</td><td>Meet the initial spec.</td><td></td></tr><tr><td></td><td>Voltage Proof</td><td>No insulation breakdown or other damage.</td><td></td></tr></table> | Capacitance                                                                                                                                                                                                                                              | <table><tr><th colspan="2">Characteristics</th><th>Change from the value before test</th></tr><tr><td>Class 1</td><td>C0G</td><td>Capacitance drift within <math>\pm 2.5\%</math> or <math>\pm 0.25\text{pF}</math>, whichever larger.</td></tr><tr><td>Class 2</td><td>X5R</td><td><math>\pm 7.5\%</math></td></tr><tr><td></td><td>X7R</td><td><math>\pm 7.5\%</math></td></tr><tr><td></td><td>Y5V</td><td><math>\pm 20\%</math></td></tr></table> | Characteristics      |            | Change from the value before test                                               | Class 1                  | C0G | Capacitance drift within $\pm 2.5\%$ or $\pm 0.25\text{pF}$ , whichever larger. | Class 2 | X5R | $\pm 7.5\%$ |  | X7R | $\pm 7.5\%$ |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Y5V | $\pm 20\%$ | <p>Completely soak both terminations in solder at <math>260 \pm 5^{\circ}\text{C}</math> for <math>5 \pm 1\text{s}</math>.</p> <p>Preheating condition</p> <p>Temp.: <math>150 \pm 10^{\circ}\text{C}</math></p> <p>Time: 1 to 2min.</p> <p>Flux: Isopropyl alcohol (JIS K 8839)<br/>Rosin (JIS K 5902) 25% solid solution.</p> <p>Solder: H63A (JIS Z 3282)</p> <p>Leave the capacitor in ambient conditions for 6 to 24h (Class 1) or <math>24 \pm 2\text{h}</math> (Class 2) before measurement.</p> |  | Q (Class 1) | <table><tr><th>Rated Capacitance</th><th>Q</th></tr><tr><td><math>C \geq 30\text{pF}</math></td><td>1,000 min.</td></tr><tr><td><math>C &lt; 30\text{pF}</math></td><td><math>400 + 20 \times C</math> min.</td></tr></table> <p>C : Rated capacitance (pF)</p> | Rated Capacitance | Q | $C \geq 30\text{pF}$ | 1,000 min. | $C < 30\text{pF}$ | $400 + 20 \times C$ min. |  |  | D.F. (Class 2) | Meet the initial spec. |  |  | Insulation Resistance | Meet the initial spec. |  |  | Voltage Proof | No insulation breakdown or other damage. |  |
| Capacitance          | <table><tr><th colspan="2">Characteristics</th><th>Change from the value before test</th></tr><tr><td>Class 1</td><td>C0G</td><td>Capacitance drift within <math>\pm 2.5\%</math> or <math>\pm 0.25\text{pF}</math>, whichever larger.</td></tr><tr><td>Class 2</td><td>X5R</td><td><math>\pm 7.5\%</math></td></tr><tr><td></td><td>X7R</td><td><math>\pm 7.5\%</math></td></tr><tr><td></td><td>Y5V</td><td><math>\pm 20\%</math></td></tr></table> | Characteristics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                          | Change from the value before test                                                                                                                                                                                                                                                                                                                                                                                                                     | Class 1              | C0G        | Capacitance drift within $\pm 2.5\%$ or $\pm 0.25\text{pF}$ , whichever larger. | Class 2                  | X5R | $\pm 7.5\%$                                                                     |         | X7R | $\pm 7.5\%$ |  | Y5V | $\pm 20\%$  | <p>Completely soak both terminations in solder at <math>260 \pm 5^{\circ}\text{C}</math> for <math>5 \pm 1\text{s}</math>.</p> <p>Preheating condition</p> <p>Temp.: <math>150 \pm 10^{\circ}\text{C}</math></p> <p>Time: 1 to 2min.</p> <p>Flux: Isopropyl alcohol (JIS K 8839)<br/>Rosin (JIS K 5902) 25% solid solution.</p> <p>Solder: H63A (JIS Z 3282)</p> <p>Leave the capacitor in ambient conditions for 6 to 24h (Class 1) or <math>24 \pm 2\text{h}</math> (Class 2) before measurement.</p> |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |
| Characteristics      |                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Change from the value before test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |            |                                                                                 |                          |     |                                                                                 |         |     |             |  |     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |
| Class 1              | C0G                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Capacitance drift within $\pm 2.5\%$ or $\pm 0.25\text{pF}$ , whichever larger.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |            |                                                                                 |                          |     |                                                                                 |         |     |             |  |     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |
| Class 2              | X5R                                                                                                                                                                                                                                                                                                                                                                                                                                                   | $\pm 7.5\%$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |            |                                                                                 |                          |     |                                                                                 |         |     |             |  |     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |
|                      | X7R                                                                                                                                                                                                                                                                                                                                                                                                                                                   | $\pm 7.5\%$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |            |                                                                                 |                          |     |                                                                                 |         |     |             |  |     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |
|                      | Y5V                                                                                                                                                                                                                                                                                                                                                                                                                                                   | $\pm 20\%$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |            |                                                                                 |                          |     |                                                                                 |         |     |             |  |     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |
|                      | Q (Class 1)                                                                                                                                                                                                                                                                                                                                                                                                                                           | <table><tr><th>Rated Capacitance</th><th>Q</th></tr><tr><td><math>C \geq 30\text{pF}</math></td><td>1,000 min.</td></tr><tr><td><math>C &lt; 30\text{pF}</math></td><td><math>400 + 20 \times C</math> min.</td></tr></table> <p>C : Rated capacitance (pF)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Rated Capacitance                                                                                                                                                                                                                                        | Q                                                                                                                                                                                                                                                                                                                                                                                                                                                     | $C \geq 30\text{pF}$ | 1,000 min. | $C < 30\text{pF}$                                                               | $400 + 20 \times C$ min. |     |                                                                                 |         |     |             |  |     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |
| Rated Capacitance    | Q                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |            |                                                                                 |                          |     |                                                                                 |         |     |             |  |     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |
| $C \geq 30\text{pF}$ | 1,000 min.                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |            |                                                                                 |                          |     |                                                                                 |         |     |             |  |     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |
| $C < 30\text{pF}$    | $400 + 20 \times C$ min.                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |            |                                                                                 |                          |     |                                                                                 |         |     |             |  |     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |
|                      | D.F. (Class 2)                                                                                                                                                                                                                                                                                                                                                                                                                                        | Meet the initial spec.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |            |                                                                                 |                          |     |                                                                                 |         |     |             |  |     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |
|                      | Insulation Resistance                                                                                                                                                                                                                                                                                                                                                                                                                                 | Meet the initial spec.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |            |                                                                                 |                          |     |                                                                                 |         |     |             |  |     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |
|                      | Voltage Proof                                                                                                                                                                                                                                                                                                                                                                                                                                         | No insulation breakdown or other damage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |            |                                                                                 |                          |     |                                                                                 |         |     |             |  |     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |                                                                                                                                                                                                                                                                 |                   |   |                      |            |                   |                          |  |  |                |                        |  |  |                       |                        |  |  |               |                                          |  |



| No.                        | Item                                     | Performance                                                                                                                                                                                                                                                                                                                         | Test or Inspection Method                                                                       |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|----------------------------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------|---|-----------------------------------|------------|----------|---------------------------------------|---------------------------------------------------------------------------------------------------------|-----|---------|-----|---------|-----|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13                         | Vibration                                |                                                                                                                                                                                                                                                                                                                                     |                                                                                                 |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            | External appearance                      | No mechanical damage.                                                                                                                                                                                                                                                                                                               | Reflow solder the capacitor on P.C. board (shown in Appendix 1a or Appendix 1b) before testing. |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            | Capacitance                              | <table><tr><th colspan="2">Characteristics</th><th>Change from the value before test</th></tr><tr><td>Class 1</td><td>C0G</td><td>± 2.5% or ± 0.25pF, whichever larger.</td></tr><tr><td rowspan="3">Class 2</td><td>X5R</td><td>± 7.5 %</td></tr><tr><td>X7R</td><td>± 7.5 %</td></tr><tr><td>Y5V</td><td>± 20 %</td></tr></table> |                                                                                                 | Characteristics                       |   | Change from the value before test | Class 1    | C0G      | ± 2.5% or ± 0.25pF, whichever larger. | Class 2                                                                                                 | X5R | ± 7.5 % | X7R | ± 7.5 % | Y5V | ± 20 % | Vibrate the capacitor with amplitude of 1.5mm P-P changing the frequencies from 10Hz to 55Hz and back to 10Hz after 1min. Repeat this for 2h each in 3 perpendicular directions. |
|                            |                                          | Characteristics                                                                                                                                                                                                                                                                                                                     |                                                                                                 | Change from the value before test     |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            |                                          | Class 1                                                                                                                                                                                                                                                                                                                             | C0G                                                                                             | ± 2.5% or ± 0.25pF, whichever larger. |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            |                                          | Class 2                                                                                                                                                                                                                                                                                                                             | X5R                                                                                             | ± 7.5 %                               |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            |                                          |                                                                                                                                                                                                                                                                                                                                     | X7R                                                                                             | ± 7.5 %                               |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            | Y5V                                      |                                                                                                                                                                                                                                                                                                                                     | ± 20 %                                                                                          |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            | Q (Class 1)                              | <table><tr><th>Rated Capacitance</th><th>Q</th></tr><tr><td>C ≥ 30pF</td><td>1,000 min.</td></tr><tr><td>C &lt; 30pF</td><td>400+20×C min.</td></tr></table>                                                                                                                                                                        |                                                                                                 | Rated Capacitance                     | Q | C ≥ 30pF                          | 1,000 min. | C < 30pF | 400+20×C min.                         |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            |                                          | Rated Capacitance                                                                                                                                                                                                                                                                                                                   | Q                                                                                               |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
| C ≥ 30pF                   |                                          | 1,000 min.                                                                                                                                                                                                                                                                                                                          |                                                                                                 |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
| C < 30pF                   | 400+20×C min.                            |                                                                                                                                                                                                                                                                                                                                     |                                                                                                 |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
| C : Rated capacitance (pF) |                                          |                                                                                                                                                                                                                                                                                                                                     |                                                                                                 |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
| D.F. (Class 2)             | Meet the initial spec.                   |                                                                                                                                                                                                                                                                                                                                     |                                                                                                 |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
| 14                         | Temperature cycle                        |                                                                                                                                                                                                                                                                                                                                     |                                                                                                 |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            | External appearance                      | No mechanical damage.                                                                                                                                                                                                                                                                                                               | Reflow solder the capacitor on P.C. board (shown in Appendix 1a or Appendix 1b) before testing. |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            | Capacitance                              | <table><tr><th colspan="2">Characteristics</th><th>Change from the value before test</th></tr><tr><td>Class 1</td><td>C0G</td><td>± 2.5% or ± 0.25pF, whichever larger.</td></tr><tr><td rowspan="3">Class 2</td><td>X5R</td><td>± 15 %</td></tr><tr><td>X7R</td><td>± 15 %</td></tr><tr><td>Y5V</td><td>± 20 %</td></tr></table>   |                                                                                                 | Characteristics                       |   | Change from the value before test | Class 1    | C0G      | ± 2.5% or ± 0.25pF, whichever larger. | Class 2                                                                                                 | X5R | ± 15 %  | X7R | ± 15 %  | Y5V | ± 20 % | Expose the capacitor in the condition step1 through step 4 and repeat 5 times consecutively.                                                                                     |
|                            |                                          | Characteristics                                                                                                                                                                                                                                                                                                                     |                                                                                                 | Change from the value before test     |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            |                                          | Class 1                                                                                                                                                                                                                                                                                                                             | C0G                                                                                             | ± 2.5% or ± 0.25pF, whichever larger. |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            |                                          | Class 2                                                                                                                                                                                                                                                                                                                             | X5R                                                                                             | ± 15 %                                |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            |                                          |                                                                                                                                                                                                                                                                                                                                     | X7R                                                                                             | ± 15 %                                |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            | Y5V                                      |                                                                                                                                                                                                                                                                                                                                     | ± 20 %                                                                                          |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            | Q (Class 1)                              | <table><tr><th>Rated Capacitance</th><th>Q</th></tr><tr><td>C ≥ 30pF</td><td>1,000 min.</td></tr><tr><td>C &lt; 30pF</td><td>400+20×C min.</td></tr></table>                                                                                                                                                                        |                                                                                                 | Rated Capacitance                     | Q | C ≥ 30pF                          | 1,000 min. | C < 30pF | 400+20×C min.                         | Leave the capacitor in ambient conditions for 6 to 24h (Class 1) or 24±2h (Class 2) before measurement. |     |         |     |         |     |        |                                                                                                                                                                                  |
|                            |                                          | Rated Capacitance                                                                                                                                                                                                                                                                                                                   | Q                                                                                               |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
| C ≥ 30pF                   |                                          | 1,000 min.                                                                                                                                                                                                                                                                                                                          |                                                                                                 |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
| C < 30pF                   | 400+20×C min.                            |                                                                                                                                                                                                                                                                                                                                     |                                                                                                 |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
| C : Rated capacitance (pF) |                                          |                                                                                                                                                                                                                                                                                                                                     |                                                                                                 |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
| D.F. (Class 2)             | Meet the initial spec.                   |                                                                                                                                                                                                                                                                                                                                     |                                                                                                 |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
| Insulation Resistance      | Meet the initial spec.                   |                                                                                                                                                                                                                                                                                                                                     |                                                                                                 |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |
| Voltage Proof              | No insulation breakdown or other damage. |                                                                                                                                                                                                                                                                                                                                     |                                                                                                 |                                       |   |                                   |            |          |                                       |                                                                                                         |     |         |     |         |     |        |                                                                                                                                                                                  |

| Step | Temperature (°C)             | Time (min.) |
|------|------------------------------|-------------|
| 1    | Min. operating temp. $\pm 3$ | $30 \pm 3$  |
| 2    | Reference Temp.              | 2 – 5       |
| 3    | Max. operating temp. $\pm 2$ | $30 \pm 2$  |
| 4    | Reference Temp.              | 2 – 5       |



| No.                                | Item                                                                                                                   | Performance                                                                                                                                                                                                                                                                                                                                                                                                       | Test or Inspection Method                                                                                                                                                                                                                                                                                        |                                   |                                                     |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------|-----------------------------------|----------|------------------------------------|-----------------------------------------------------|-------------------|------------------------|----------------------------|-----|------------|-----|------------|
| 15                                 | <b>Moisture Resistance (Steady State)</b>                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                   | Reflow solder the capacitor on P.C. board (shown in Appendix 1a or Appendix 1b) before testing.<br><br>Leave at temperature $40 \pm 2^{\circ}\text{C}$ , 90 to 95%RH for 500 +24,0h.<br><br>Leave the capacitor in ambient conditions for 6 to 24h (Class 1) or $24 \pm 2\text{h}$ (Class 2) before measurement. |                                   |                                                     |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |
|                                    | External appearance                                                                                                    | No mechanical damage.                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                  |                                   |                                                     |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |
|                                    | Capacitance                                                                                                            | <table><tr><th colspan="2">Characteristics</th><th>Change from the value before test</th></tr><tr><td>Class 1</td><td>C0G</td><td><math>\pm 5\%</math> or <math>\pm 0.5\text{pF}</math>, whichever larger.</td></tr><tr><td rowspan="3">Class 2</td><td>X5R</td><td><math>\pm 25\%</math></td></tr><tr><td>X7R</td><td><math>\pm 25\%</math></td></tr><tr><td>Y5V</td><td><math>\pm 30\%</math></td></tr></table> |                                                                                                                                                                                                                                                                                                                  | Characteristics                   |                                                     | Change from the value before test | Class 1  | C0G                                | $\pm 5\%$ or $\pm 0.5\text{pF}$ , whichever larger. | Class 2           | X5R                    | $\pm 25\%$                 | X7R | $\pm 25\%$ | Y5V | $\pm 30\%$ |
|                                    |                                                                                                                        | Characteristics                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                  | Change from the value before test |                                                     |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |
|                                    |                                                                                                                        | Class 1                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                  | C0G                               | $\pm 5\%$ or $\pm 0.5\text{pF}$ , whichever larger. |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |
|                                    |                                                                                                                        | Class 2                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                  | X5R                               | $\pm 25\%$                                          |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |
|                                    | X7R                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                  | $\pm 25\%$                        |                                                     |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |
|                                    | Y5V                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                  | $\pm 30\%$                        |                                                     |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |
|                                    | Q (Class 1)                                                                                                            | <table><tr><th>Rated Capacitance</th><th>Q</th></tr><tr><td><math>C \geq 30\text{pF}</math></td><td>350 min.</td></tr><tr><td><math>10\text{pF} \leq C &lt; 30\text{pF}</math></td><td><math>275+5/2 \times C</math> min.</td></tr><tr><td><math>C &lt; 10\text{pF}</math></td><td><math>200+10 \times C</math> min.</td></tr><tr><td colspan="2">C : Rated capacitance (pF)</td></tr></table>                    |                                                                                                                                                                                                                                                                                                                  | Rated Capacitance                 | Q                                                   | $C \geq 30\text{pF}$              | 350 min. | $10\text{pF} \leq C < 30\text{pF}$ | $275+5/2 \times C$ min.                             | $C < 10\text{pF}$ | $200+10 \times C$ min. | C : Rated capacitance (pF) |     |            |     |            |
|                                    |                                                                                                                        | Rated Capacitance                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                  | Q                                 |                                                     |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |
| $C \geq 30\text{pF}$               |                                                                                                                        | 350 min.                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                  |                                   |                                                     |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |
| $10\text{pF} \leq C < 30\text{pF}$ |                                                                                                                        | $275+5/2 \times C$ min.                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                  |                                   |                                                     |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |
| $C < 10\text{pF}$                  |                                                                                                                        | $200+10 \times C$ min.                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                  |                                   |                                                     |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |
| C : Rated capacitance (pF)         |                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                  |                                   |                                                     |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |
| D.F. (Class 2)                     | Characteristics<br>X5R: 200% of initial spec. max.<br>X7R: 200% of initial spec. max<br>Y5V: 150% of initial spec. max |                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                  |                                   |                                                     |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |
|                                    | Insulation Resistance                                                                                                  | 1,000M $\Omega$ or 50M $\Omega \cdot \mu\text{F}$ min.<br>(As for the capacitors of rated voltage 16, 10 and 6.3V DC, 1,000 M $\Omega$ or 10M $\Omega \cdot \mu\text{F}$ min.,) whichever smaller.                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                  |                                   |                                                     |                                   |          |                                    |                                                     |                   |                        |                            |     |            |     |            |



| No.                   | Item                                                                                                                                                                                                                                                                                       | Performance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Test or Inspection Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |                                   |                   |                         |                                                        |         |     |            |     |            |     |                             |  |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------|-------------------|-------------------------|--------------------------------------------------------|---------|-----|------------|-----|------------|-----|-----------------------------|--|
| 16                    | Moisture Resistance                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                      |                                   |                   |                         |                                                        |         |     |            |     |            |     |                             |  |
|                       | External appearance                                                                                                                                                                                                                                                                        | No mechanical damage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Reflow solder the capacitor on P.C. board (shown in Appendix 1a or Appendix 1b) before testing.<br><br>Apply the rated voltage at temperature $40\pm2^{\circ}\text{C}$ and 90 to 95%RH for 500 +24,0h.<br><br>Charge/discharge current shall not exceed 50mA.<br><br>Leave the capacitor in ambient conditions for 6 to 24h (Class 1) or $24\pm2\text{h}$ (Class 2) before measurement.<br><br>Voltage conditioning (only for Class 2):<br>Voltage treat the capacitor under testing temperature and voltage for 1 hour.<br><br>Leave the capacitor in ambient conditions for $24\pm2\text{h}$ before measurement.<br><br>Use this measurement for initial value. |                      |                                   |                   |                         |                                                        |         |     |            |     |            |     |                             |  |
|                       | Capacitance                                                                                                                                                                                                                                                                                | <table><thead><tr><th colspan="2">Characteristics</th><th>Change from the value before test</th></tr></thead><tbody><tr><td>Class 1</td><td>C0G</td><td><math>\pm 7.5\%</math> or <math>\pm 0.75\text{pF}</math>, whichever larger.</td></tr><tr><td rowspan="3">Class 2</td><td>X5R</td><td><math>\pm 25\%</math></td></tr><tr><td>X7R</td><td><math>\pm 25\%</math></td></tr><tr><td>Y5V</td><td><math>\pm 30\%</math> * (<math>\pm 40\%</math>)</td></tr></tbody></table> <p>* Inside ( ) is applied to Y5V 6.3V product.</p> | Characteristics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                      | Change from the value before test | Class 1           | C0G                     | $\pm 7.5\%$ or $\pm 0.75\text{pF}$ , whichever larger. | Class 2 | X5R | $\pm 25\%$ | X7R | $\pm 25\%$ | Y5V | $\pm 30\%$ * ( $\pm 40\%$ ) |  |
|                       | Characteristics                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Change from the value before test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                      |                                   |                   |                         |                                                        |         |     |            |     |            |     |                             |  |
|                       | Class 1                                                                                                                                                                                                                                                                                    | C0G                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | $\pm 7.5\%$ or $\pm 0.75\text{pF}$ , whichever larger.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                                   |                   |                         |                                                        |         |     |            |     |            |     |                             |  |
| Class 2               | X5R                                                                                                                                                                                                                                                                                        | $\pm 25\%$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                      |                                   |                   |                         |                                                        |         |     |            |     |            |     |                             |  |
|                       | X7R                                                                                                                                                                                                                                                                                        | $\pm 25\%$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                      |                                   |                   |                         |                                                        |         |     |            |     |            |     |                             |  |
|                       | Y5V                                                                                                                                                                                                                                                                                        | $\pm 30\%$ * ( $\pm 40\%$ )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                      |                                   |                   |                         |                                                        |         |     |            |     |            |     |                             |  |
| Q (Class 1)           | <table><thead><tr><th>Rated Capacitance</th><th>Q</th></tr></thead><tbody><tr><td><math>C \geq 30\text{pF}</math></td><td>200 min.</td></tr><tr><td><math>C &lt; 30\text{pF}</math></td><td><math>100+10/3\times C</math> min.</td></tr></tbody></table> <p>C : Rated capacitance (pF)</p> | Rated Capacitance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Q                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | $C \geq 30\text{pF}$ | 200 min.                          | $C < 30\text{pF}$ | $100+10/3\times C$ min. |                                                        |         |     |            |     |            |     |                             |  |
| Rated Capacitance     | Q                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                      |                                   |                   |                         |                                                        |         |     |            |     |            |     |                             |  |
| $C \geq 30\text{pF}$  | 200 min.                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                      |                                   |                   |                         |                                                        |         |     |            |     |            |     |                             |  |
| $C < 30\text{pF}$     | $100+10/3\times C$ min.                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                      |                                   |                   |                         |                                                        |         |     |            |     |            |     |                             |  |
| D.F. (Class 2)        | Characteristics<br>X5R: 200% of initial spec. max.<br>X7R: 200% of initial spec. max<br>Y5V: 150% of initial spec. max                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                      |                                   |                   |                         |                                                        |         |     |            |     |            |     |                             |  |
| Insulation Resistance | 500MΩor 25MΩ•μF min., whichever smaller.<br><br>(As for the capacitors of rated voltage 16, 10 and 6.3V DC, 500 MΩ or 5MΩ•μF min.,)                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                      |                                   |                   |                         |                                                        |         |     |            |     |            |     |                             |  |



## General Specifications

## C Series – General Application

| No.                        | Item                                                                                                                   | Performance                                                                                                                                                                                                                                                                                                                              | Test or Inspection Method                                                                                                                                                                                                                                                                              |                                   |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
|----------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------|----------|-----------------|----------------------------------|----------|---------------|------------------------------------------------------------------------------------------------------------------------|-----|--------|-----|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17                         | Life                                                                                                                   |                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                        |                                   |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
|                            | External appearance                                                                                                    | No mechanical damage.                                                                                                                                                                                                                                                                                                                    | Reflow solder the capacitor on P.C. board (shown in Appendix 1a or Appendix 1b) before testing.<br><br>Apply voltage at 125±2°C for 1,000 +48, 0h.<br>Applied voltage is 1xRV. Some items may be tested at higher voltage (1.2x, 1.5x or 2xRV).<br><br>Charge/discharge current shall not exceed 50mA. |                                   |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
|                            | Capacitance                                                                                                            | <table><tr><th colspan="2">Characteristics</th><th>Change from the value before test</th></tr><tr><td>Class 1</td><td>C0G</td><td>±3% or ±0.3pF, whichever larger.</td></tr><tr><td rowspan="3">Class 2</td><td>X5R</td><td>± 25 %</td></tr><tr><td>X7R</td><td>± 25 %</td></tr><tr><td>Y5V</td><td>± 30 %   *(± 40 %)</td></tr></table> | Characteristics                                                                                                                                                                                                                                                                                        |                                   | Change from the value before test | Class 1  | C0G             | ±3% or ±0.3pF, whichever larger. | Class 2  | X5R           | ± 25 %                                                                                                                 | X7R | ± 25 % | Y5V | ± 30 %   *(± 40 %) | Leave the capacitors in ambient condition for 6 to 24h (Class 1) or 24±2h (Class 2) before measurement.<br><br>Voltage conditioning (only for class 2) Voltage treat the capacitor under testing temperature and voltage for 1 hour. |
|                            |                                                                                                                        | Characteristics                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                        | Change from the value before test |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
|                            |                                                                                                                        | Class 1                                                                                                                                                                                                                                                                                                                                  | C0G                                                                                                                                                                                                                                                                                                    | ±3% or ±0.3pF, whichever larger.  |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
|                            |                                                                                                                        | Class 2                                                                                                                                                                                                                                                                                                                                  | X5R                                                                                                                                                                                                                                                                                                    | ± 25 %                            |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
|                            |                                                                                                                        |                                                                                                                                                                                                                                                                                                                                          | X7R                                                                                                                                                                                                                                                                                                    | ± 25 %                            |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
|                            | Y5V                                                                                                                    |                                                                                                                                                                                                                                                                                                                                          | ± 30 %   *(± 40 %)                                                                                                                                                                                                                                                                                     |                                   |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
|                            | * Inside ( ) is applied to Y5V 6.3V product.                                                                           |                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                        |                                   |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
|                            | Q<br>(Class 1)                                                                                                         | <table><tr><th>Rated Capacitance</th><th>Q</th></tr><tr><td>C ≥ 30pF</td><td>350 min.</td></tr><tr><td>10pF ≤ C &lt; 30pF</td><td>275+5/2×C min.</td></tr><tr><td>C &lt; 10pF</td><td>200+10×C min.</td></tr></table>                                                                                                                    | Rated Capacitance                                                                                                                                                                                                                                                                                      | Q                                 | C ≥ 30pF                          | 350 min. | 10pF ≤ C < 30pF | 275+5/2×C min.                   | C < 10pF | 200+10×C min. | Leave the capacitor in ambient conditions for 24±2h before measurement.<br><br>Use this measurement for initial value. |     |        |     |                    |                                                                                                                                                                                                                                      |
| Rated Capacitance          |                                                                                                                        | Q                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                        |                                   |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
| C ≥ 30pF                   |                                                                                                                        | 350 min.                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                        |                                   |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
| 10pF ≤ C < 30pF            |                                                                                                                        | 275+5/2×C min.                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                        |                                   |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
| C < 10pF                   |                                                                                                                        | 200+10×C min.                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                        |                                   |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
| C : Rated capacitance (pF) |                                                                                                                        |                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                        |                                   |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
| D.F.<br>(Class 2)          | Characteristics<br>X5R: 200% of initial spec. max.<br>X7R: 200% of initial spec. max<br>Y5V: 150% of initial spec. max |                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                        |                                   |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |
|                            | Insulation Resistance                                                                                                  | 1,000MΩ or 50MΩ•μF min. , whichever smaller.<br><br>(As for the capacitors of rated voltage 16, 10 and 6.3V DC, 1,000 MΩ or 10MΩ•μF min.,)                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                        |                                   |                                   |          |                 |                                  |          |               |                                                                                                                        |     |        |     |                    |                                                                                                                                                                                                                                      |

**\*As for the initial measurement of capacitors (Class2) on number 8,12,13,14 and 15, leave capacitor at  $150 - 10, 0^\circ\text{C}$  for 1 hour and measure the value after leaving capacitor for  $24 \pm 2\text{h}$  in ambient conditions.**



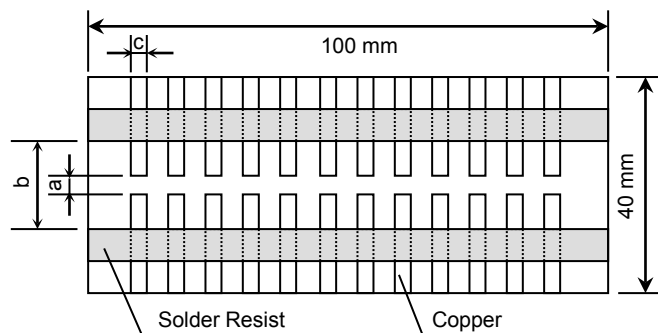
## General Specifications

## C Series – General Application

### Appendix - 1a

#### P.C. Board for reliability test

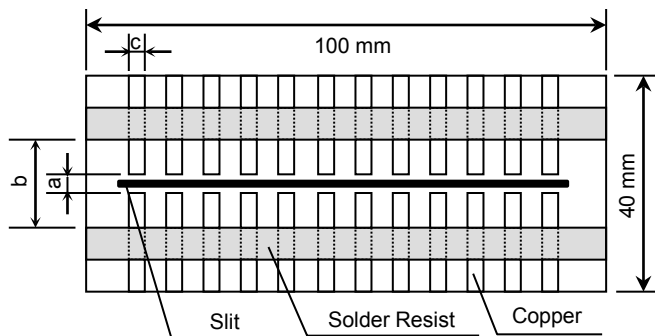
Applied for C0603, C1005, C1608, C2012, C3216



### Appendix - 1b

#### P.C. Board for reliability test

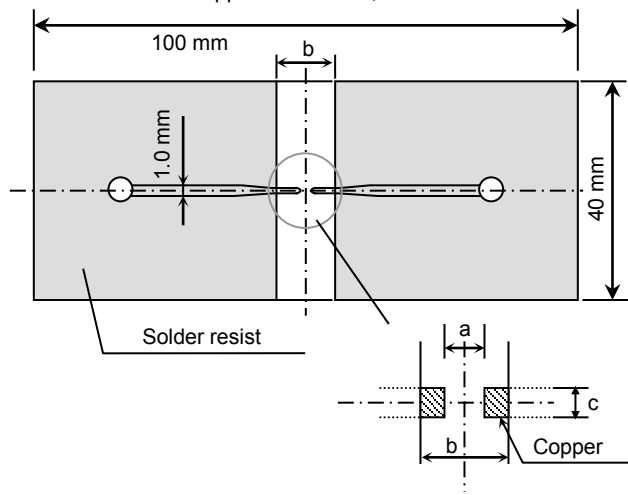
Applied for C3225, C4532, C5750



### Appendix - 2a

#### P.C. Board for bending test

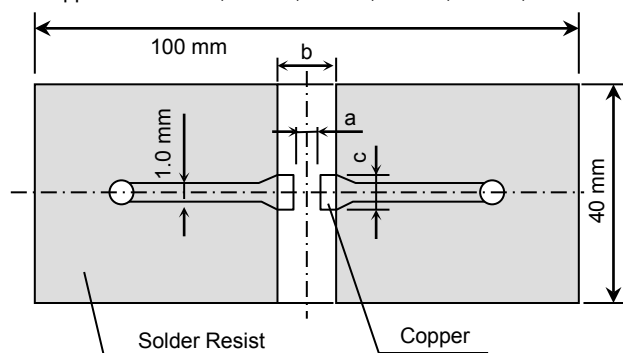
Applied for C0603, C1005



### Appendix - 2b

#### P.C. Board for bending test

Applied for C1608, C2012, C3216, C3225, C4532, C5750



Material: Glass Epoxy (As per JIS C6484 GE4)

P.C. Board thickness: Appendix-2a 0.8mm  
Appendix-1a, 1b, 2b 1.6mm



Copper (thickness 0.035mm)  
Solder resist

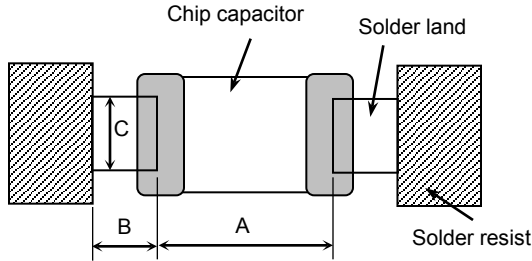
| Case Code |        | Dimensions (mm) |     |      |
|-----------|--------|-----------------|-----|------|
| JIS       | EIA    | a               | b   | c    |
| C0603     | CC0201 | 0.3             | 0.8 | 0.3  |
| C1005     | CC0402 | 0.4             | 1.5 | 0.5  |
| C1608     | CC0603 | 1.0             | 3.0 | 1.2  |
| C2012     | CC0805 | 1.2             | 4.0 | 1.65 |
| C3216     | CC1206 | 2.2             | 5.0 | 2.0  |
| C3225     | CC1210 | 2.2             | 5.0 | 2.9  |
| C4532     | CC1812 | 3.5             | 7.0 | 3.7  |
| C5750     | CC2220 | 4.5             | 8.0 | 5.6  |



## Soldering Information

## C Series – General Application

### Recommended Soldering Land Pattern



#### Wave Soldering

Unit: mm

| Type   | C1608<br>[CC0603] | C2012<br>[CC0805] | C3216<br>[CC1206] |
|--------|-------------------|-------------------|-------------------|
| Symbol |                   |                   |                   |
| A      | 0.7 - 1.0         | 1.0 - 1.3         | 2.1 - 2.5         |
| B      | 0.8 - 1.0         | 1.0 - 1.2         | 1.1 - 1.3         |
| C      | 0.6 - 0.8         | 0.8 - 1.1         | 1.0 - 1.3         |

#### Reflow Soldering

Unit: mm

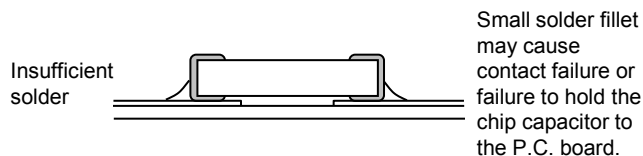
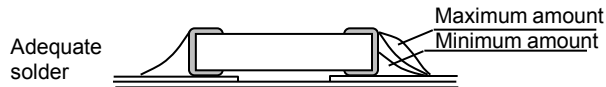
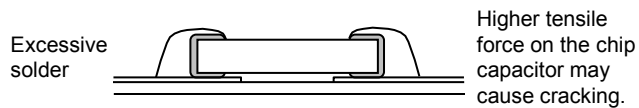
| Type   | C0603<br>[CC0201] | C1005<br>[CC0402] | C1608<br>[CC0603] | C2012<br>[CC0805] |
|--------|-------------------|-------------------|-------------------|-------------------|
| Symbol |                   |                   |                   |                   |
| A      | 0.25 - 0.35       | 0.3 - 0.5         | 0.6 - 0.8         | 0.9 - 1.2         |
| B      | 0.2 - 0.3         | 0.35 - 0.45       | 0.6 - 0.8         | 0.7 - 0.9         |
| C      | 0.25 - 0.35       | 0.4 - 0.6         | 0.6 - 0.8         | 0.9 - 1.2         |

#### Reflow Soldering

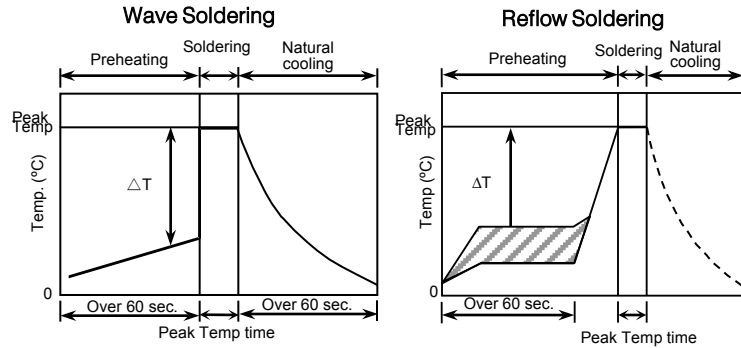
Unit: mm

| Type   | C3216<br>[CC1206] | C3225<br>[CC1210] | C4532<br>[CC1812] | C5750<br>[CC2220] |
|--------|-------------------|-------------------|-------------------|-------------------|
| Symbol |                   |                   |                   |                   |
| A      | 2.0 - 2.4         | 2.0 - 2.4         | 3.1 - 3.7         | 4.1 - 4.8         |
| B      | 1.0 - 1.2         | 1.0 - 1.2         | 1.2 - 1.4         | 1.2 - 1.4         |
| C      | 1.1 - 1.6         | 1.9 - 2.5         | 2.4 - 3.2         | 4.0 - 5.0         |

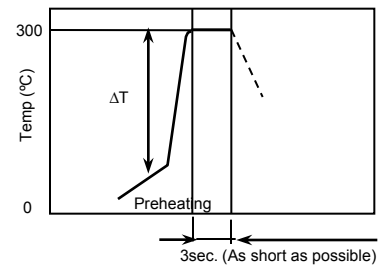
### Recommended Solder Amount



### Recommended Soldering Profile



#### Manual soldering (Solder iron)



### Recommended soldering duration

| Solder           | Temp./<br>Dura. | Wave Soldering    |                    | Reflow Soldering  |                    |
|------------------|-----------------|-------------------|--------------------|-------------------|--------------------|
|                  |                 | Peak temp<br>(°C) | Duration<br>(sec.) | Peak temp<br>(°C) | Duration<br>(sec.) |
| Sn-Pb Solder     |                 | 250 max.          | 3 max.             | 230 max.          | 20 max.            |
| Lead-Free Solder |                 | 260 max.          | 5 max.             | 260 max.          | 10 max.            |

#### Recommended solder compositions

Sn-37Pb (Sn-Pb solder)  
Sn-3.0Ag-0.5Cu (Lead Free Solder)

### Preheating Condition

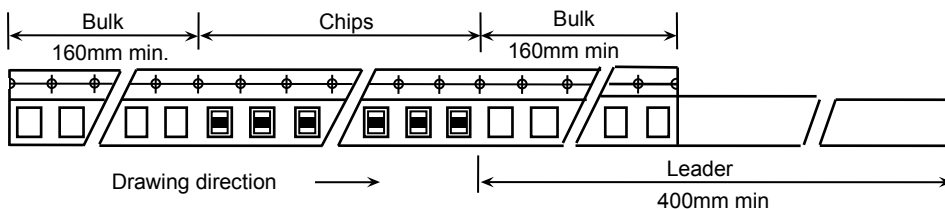
| Soldering        | Case Size - JIS (EIA)                                                     | Temp. (°C)          |
|------------------|---------------------------------------------------------------------------|---------------------|
| Wave soldering   | C1608(CC0603), C2012(CC0805), C3216(CC1206)                               | $\Delta T \leq 150$ |
| Reflow soldering | C0603(CC0201), C1005(CC0402), C1608(CC0603), C2012(CC0805), C3216(CC1206) | $\Delta T \leq 150$ |
|                  | C3225(CC1210), C4532(CC1812), C5750(CC2220)                               | $\Delta T \leq 130$ |
| Manual soldering | C0603(CC0201), C1005(CC0402), C1608(CC0603), C2012(CC0805), C3216(CC1206) | $\Delta T \leq 150$ |
|                  | C3225(CC1210), C4532(CC1812), C5750(CC2220)                               | $\Delta T \leq 130$ |



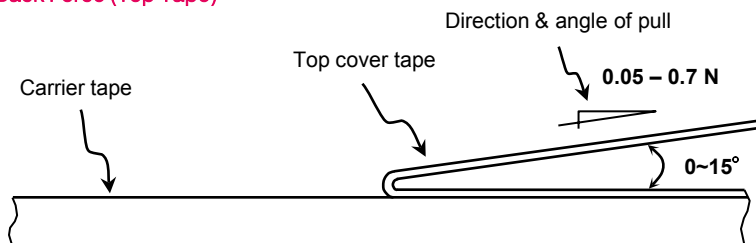
## Packaging Information

## C Series – General Application

### Carrier Tape Configuration

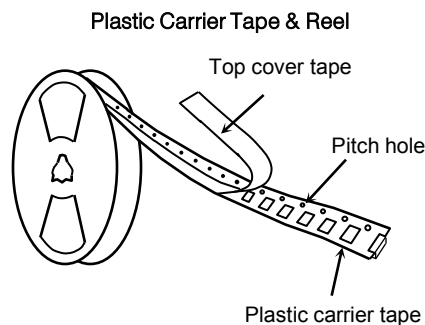
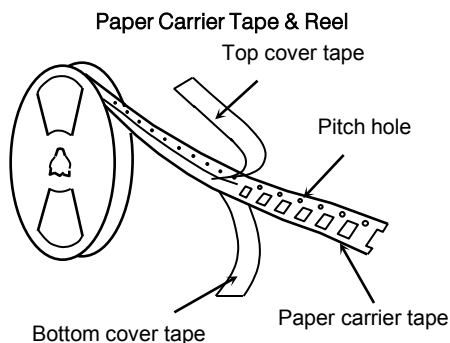


### Peel Back Force (Top Tape)



- Carrier tape shall be flexible enough to be wound around a minimum radius of 30mm with components in tape.
- The missing of components shall be less than 0.1%
- Components shall not stick to the cover tape.
- The cover tape shall not protrude beyond the edges of the carrier tape not shall cover the sprocket holes.

### Chip Quantity Per Reel and Structure of Reel (Paper & Plastic)



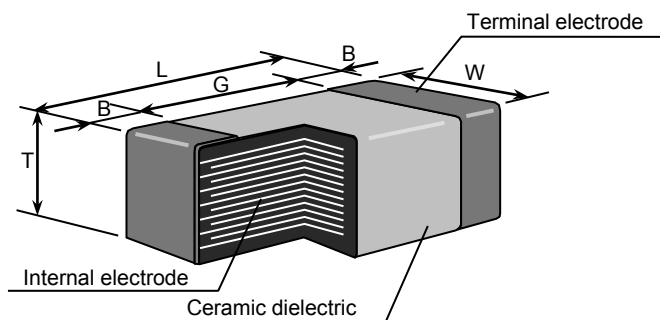
| Case Code |         | Chip Thickness | Taping Material | Chip quantity (pcs.) |                   |
|-----------|---------|----------------|-----------------|----------------------|-------------------|
| JIS       | EIA     |                |                 | φ178mm (7") reel     | φ330mm (13") reel |
| C0402     | CC01005 | 0.20 mm        | Paper           | 20,000               | -                 |
| C0603     | CC0201  | 0.30 mm        | Paper           | 15,000               | -                 |
| C1005     | CC0402  | 0.50 mm        | Paper           | 10,000               | 50,000            |
| C1608     | CC0603  | 0.80 mm        | Paper           | 4,000                | 10,000            |
| C2012     | CC0805  | 0.60 mm        | Paper/Plastic   | 4,000                | 20,000            |
|           |         | 0.85 mm        |                 |                      | 10,000            |
|           |         | 1.25 mm        | Plastic         | 2,000                |                   |
| C3216     | CC1206  | 0.60 mm        | Paper           | 4,000                | 10,000            |
|           |         | 0.85 mm        | Paper/Plastic   |                      |                   |
|           |         | 1.15 mm        | Plastic         | 2,000                |                   |
|           |         | 1.30 mm        |                 |                      |                   |
|           |         | 1.60 mm        |                 |                      |                   |
| C3225     | CC1210  | 1.15 mm        | Plastic         | 2,000                | 10,000            |
|           |         | 1.25 mm        |                 | 2,000                | 8,000             |
|           |         | 1.30 mm        |                 |                      |                   |
|           |         | 1.60 mm        |                 | 1,000                | 5,000             |
|           |         | 2.00 mm        |                 |                      |                   |
|           |         | 2.30 mm        |                 |                      |                   |
|           |         | 2.50 mm        |                 |                      |                   |
| C4532     | CC1812  | 1.60 mm        | Plastic         | 1,000                | 3,000             |
|           |         | 2.00 mm        |                 | 500                  |                   |
|           |         | 2.30 mm        |                 |                      |                   |
|           |         | 2.50 mm        |                 |                      | 2,000             |
|           |         | 2.80 mm        |                 |                      |                   |
| C5750     | CC2220  | 3.20 mm        | Plastic         | 500                  | 3,000             |
|           |         | 2.00 mm        |                 |                      |                   |
|           |         | 2.30 mm        |                 |                      |                   |
|           |         | 2.50 mm        |                 |                      |                   |
|           |         | 2.80 mm        |                 |                      | 2,000             |



## Additional Information

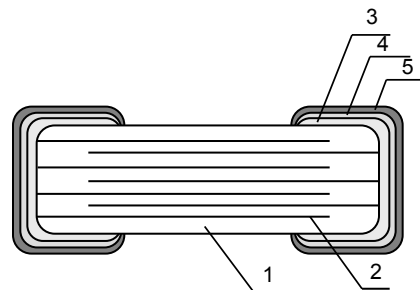
# C Series – General Application

### • Shape & Dimensions



| Case Code |         | Dimensions (mm) |      |      |           |           |
|-----------|---------|-----------------|------|------|-----------|-----------|
| JIS       | EIA     | L               | W    | T    | B         | G         |
| C0402     | CC01005 | 0.40            | 0.20 | 0.20 | 0.10      | 0.13 min. |
| C0603     | CC0201  | 0.60            | 0.30 | 0.30 | 0.15      | 0.20 min. |
| C1005     | CC0402  | 1.00            | 0.50 | 0.50 | 0.25      | 0.35 min. |
| C1608     | CC0603  | 1.60            | 0.80 | 0.50 | 0.30      | 0.50 min. |
|           |         |                 |      | 0.80 | 0.20 min. |           |
| C2012     | CC0805  | 2.00            | 1.20 | 0.60 | 0.20 min. | 0.50 min. |
|           |         |                 |      | 0.80 |           |           |
|           |         |                 |      | 0.85 |           |           |
|           |         |                 |      | 1.25 |           |           |
| C3216     | CC1206  | 3.20            | 1.60 | 0.60 | 0.20 min. | 1.00 min. |
|           |         |                 |      | 0.85 |           |           |
|           |         |                 |      | 1.15 |           |           |
|           |         |                 |      | 1.30 |           |           |
|           |         |                 |      | 1.60 |           |           |
| C3225     | CC1210  | 3.20            | 2.50 | 1.15 | 0.20 min. | 1.00 min  |
|           |         |                 |      | 1.25 | 0.30 min. |           |
|           |         |                 |      | 1.30 | 0.20 min. |           |
|           |         |                 |      | 1.60 |           |           |
|           |         |                 |      | 2.00 |           |           |
|           |         |                 |      | 2.30 | 0.30 min. |           |
| 2.50      |         |                 |      |      |           |           |
| C4532     | CC1812  | 4.50            | 3.20 | 1.30 | 0.30 min. | 2.00 min  |
|           |         |                 |      | 1.60 | 0.20 min  |           |
|           |         |                 |      | 2.00 |           |           |
|           |         |                 |      | 2.30 |           |           |
|           |         |                 |      | 2.50 | 0.30 min. |           |
|           |         |                 |      | 2.80 |           |           |
| 3.20      |         |                 |      |      |           |           |
| C5750     | CC2220  | 5.70            | 5.0  | 1.60 | 0.20 min. | 2.00 min. |
|           |         |                 |      | 2.00 |           |           |
|           |         |                 |      | 2.30 |           |           |
|           |         |                 |      | 2.50 |           |           |
|           |         |                 |      | 2.80 |           |           |

### • Inside Structure & Material System



| No. | NAME               | MATERIAL           |                    |
|-----|--------------------|--------------------|--------------------|
|     |                    | Class 1            | Class 2            |
| (1) | Ceramic Dielectric | CaZrO <sub>3</sub> | BaTiO <sub>3</sub> |
| (2) | Internal Electrode | Nickel (Ni)        |                    |
| (3) | Termination        | Copper (Cu)        |                    |
| (4) |                    | Nickel (Ni)        |                    |
| (5) |                    | Tin (Sn)           |                    |

### • Environmental Information

TDK Corporation established internal product environmental assurance standards that include the six hazardous substances banned by the EU RoHS Directive<sup>1</sup> enforced on July 1, 2006 along with additional substances independently banned by TDK and has successfully completed making general purpose electronic components conform to the RoHS Directive<sup>2</sup>.

1. Abbreviation for Restriction on Hazardous Substances, which refers to the regulation EU Directive 2002/95/EC on hazardous substances by the European Union (EU) effective from July 1, 2006. The Directive bans the use of six specific hazardous substances in electric and electronic devices and products handled within the EU. The six substances are lead, mercury, cadmium, hexavalent chromium, PBB (polybrominated biphenyls), and PBDE (polybrominated diphenyl ethers).
2. This means that, in conformity with the EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

For REACH (SVHC : 15 substances according to ECHA / October 2008) : All TDK MLCC do not contain these 15 substances.

For European Directive 2000/53/CE and 2005/673/CE : Cadmium, Hexavalent Chromium, Mercury, Lead are not contained in all TDK MLCC.

For European Directive 2003/11/CE : Pentabromodiphenyl-ether, Octabromodiphenyl-ether are not contained in all TDK MLCC.