

## MULTILAYER CERAMIC CHIP CAPACITORS



### **CGJ Series High Reliability Grade Mid Voltage (100 to 630V)**

**Type:**

**CGJ3 [EIA CC0603]  
CGJ4 [EIA CC0805]  
CGJ5 [EIA CC1206]  
CGJ6 [EIA CC1210]**



# REMINDERS

Please read before using this product

## SAFETY REMINDERS

### REMINDERS

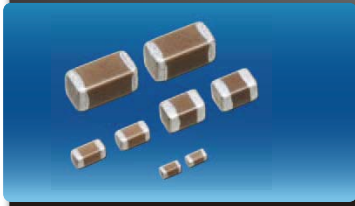
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Notice: Effective January 2013, TDK will use a new catalog number which adds product thickness and packaging specification detail. This new catalog number should be referenced on all catalog orders going forward, and is not applicable for OEM part number orders. Please be aware the last five digits of the catalog number will differ from the item description (internal control number) on the product label. Contact your local TDK Sales representative for more information.

(Example)

| Catalog Issued date    | Catalog Number        | Item Description (On Delivery Label) |
|------------------------|-----------------------|--------------------------------------|
| Prior to January 2013  | C1608C0G1E103J(080AA) | C1608C0G1E103JT000N                  |
| January 2013 and Later | C1608C0G1E103J080AA   | C1608C0G1E103JT000N                  |

# MULTILAYER CERAMIC CHIP CAPACITORS



## CGJ Series Mid Voltage (100 to 630V)

Type: CGJ3 [EIA CC0603], CGJ4 [EIA CC0805], CGJ5 [EIA CC1206], CGJ6 [EIA CC1210]

### Features

- Highly reliable products with long lifespans.
- Reliability tests based on AEC-Q200 requirements.
- Guaranteed TC Bias.
- UHF (Ultra High Frequency) RFID tag to allow integration with customer RFID programs such as inventory management is available by option.
- Tamper proof seal to assist in the identification of authentic TDK CGJ products.
- CGJ customer priority backed by TDK factory support.

### Applications

- Smart Meter, Smart Grid, LED Lighting
- Industrial Application, Telecom Base Station
- Solar Micro-inverters, Charging station
- Military Communication Equipment
- Class 1 & 2 Medical Equipment
- Applications that require extended life performance

### Shape & Dimensions



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

### Catalog Number Construction

CGJ • 6 • M • 3 • X7S • 2A • 475 • K • 200 • A • A

#### Series Name

#### Dimensions L x W (mm)

| Code | Length      | Width       | Terminal  |
|------|-------------|-------------|-----------|
| 3    | 1.60 ± 0.10 | 0.80 ± 0.10 | 0.20 min. |
| 4    | 2.00 ± 0.20 | 1.25 ± 0.20 | 0.20 min. |
| 5    | 3.20 ± 0.20 | 1.60 ± 0.20 | 0.20 min. |
| 6    | 3.20 ± 0.40 | 2.50 ± 0.30 | 0.20 min. |

\* Standard dimensions

#### Thickness T Code (mm)

| Code | Thickness |
|------|-----------|
| C    | 0.60 mm   |
| E    | 0.80 mm   |
| F    | 0.85 mm   |
| H    | 1.15 mm   |
| J    | 1.25 mm   |
| K    | 1.30 mm   |
| L    | 1.60 mm   |
| M    | 2.00 mm   |

#### Voltage Condition for Life Test

| Symbol | Condition  |
|--------|------------|
| 1      | 1 × R.V.   |
| 2      | 2 × R.V.   |
| 3      | 1.5 × R.V. |
| 4      | 1.2 × R.V. |

#### Temperature Characteristics

| Temperature Characteristics | Temperature Coefficient or Capacitance Change | Temperature Range |
|-----------------------------|---|-------------------|
| C0G                         | 0±30 ppm/°C                                   | -55 to +125°C     |
| X7R                         | ±15%  | -55 to +125°C     |
| X7S                         | ±22%  | -55 to +125°C     |
| X7T                         | +22/-33%                                      | -55 to +125°C     |

#### Rated Voltage (DC)

| Code | Voltage (DC) |
|------|--------------|
| 2A   | 100V         |
| 2D   | 200V         |
| 2H   | 500V         |

#### 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.  
Ex. 0R2 = 0.2pF; 103 = 10,000pF; 105 = 1,000,000pF = 100nF = 1μF

#### Capacitance Tolerance

| Code | Tolerance |
|------|-----------|
| J    | ± 5%      |
| K    | ± 10%     |

#### Nominal Thickness

| Code | Thickness |
|------|-----------|
| 060  | 0.60 mm   |
| 080  | 0.80 mm   |
| 085  | 0.85 mm   |
| 115  | 1.15 mm   |
| 125  | 1.25 mm   |
| 130  | 1.30 mm   |
| 160  | 1.60 mm   |
| 200  | 2.00 mm   |

#### Packaging Style

| Code | Style                   |
|------|-------------------------|
| A    | 178 mm Reel, 4 mm Pitch |

#### Special Reserved Code

| Code | Description       |
|------|-------------------|
| A    | TDK Internal Code |

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# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## CGJ3(1608) [EIA CC0603]

### Capacitance Range Chart

Temperature Characteristics: C0G ( $0 \pm 30\text{ppm}/^\circ\text{C}$ ), X7R ( $\pm 15\%$ ), X7S ( $\pm 22\%$ )

Rated Voltage: 200V (2D), 100V (2A)

| Capacitance |      | Tolerance                  | C0G                  |              | X7R          | X7S          |   |
|-------------|------|----------------------------|----------------------|--------------|--------------|--------------|---|
| (pF)        | Code |                            | 2D<br>(200V)         | 2A<br>(100V) | 2A<br>(100V) | 2A<br>(100V) |   |
| 100         | 101  | J: $\pm 5\%$               | ■                    | ■            |              |              |   |
| 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  |                            | C0G;<br>J: $\pm 5\%$ |              | ■            | ■            |   |
| 1,200       | 122  |                            |                      |              |              |              |   |
| 1,500       | 152  |                            |                      |              |              |              |   |
| 2,200       | 222  | X7R, X7S;<br>K: $\pm 10\%$ |                      |              | ■            |              |   |
| 3,300       | 332  |                            |                      |              |              |              |   |
| 4,700       | 472  |                            |                      |              |              |              |   |
| 6,800       | 682  |                            |                      |              |              |              |   |
| 10,000      | 103  |                            |                      |              |              |              |   |
| 33,000      | 333  |                            |                      |              |              |              | ■ |
| 47,000      | 473  |                            |                      |              |              |              |   |
| 68,000      | 683  |                            |                      |              |              |              |   |
| 100,000     | 104  |                            |                      |              | ■            |              |   |

Standard Thickness  
 0.80 mm

# MULTILAYER CERAMIC CHIP CAPACITORS



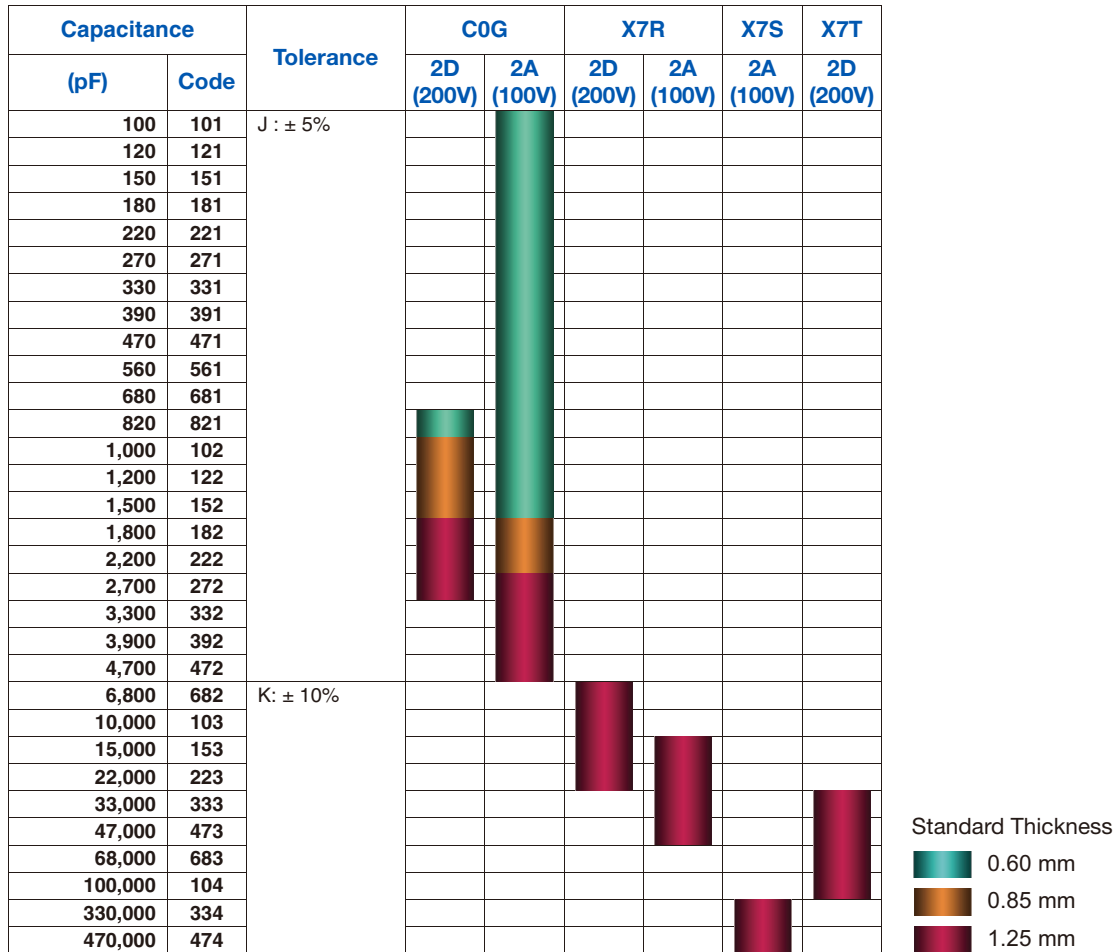
## Capacitance Range Chart

## CGJ4(2012) [EIA CC0805]

### Capacitance Range Chart

Temperature Characteristics: C0G ( $0 \pm 30\text{ppm}/^\circ\text{C}$ ), X7R ( $\pm 15\%$ ), X7S ( $\pm 22\%$ ), X7T ( $+22\%/-33\%$ )

Rated Voltage: 200V (2D), 100V (2A)



# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## CGJ5(3216) [EIA CC1206]

### Capacitance Range Chart

Temperature Characteristics: C0G (0 ± 30ppm/°C), X7R (±15%), X7S (±22%), X7T (+22%/-33%)

Rated Voltage: 500V (2H), 200V (2D), 100V (2A)



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# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

# CGJ6(3225) [EIA CC1210]

### Capacitance Range Chart

Temperature Characteristics: X7R ( $\pm 15\%$ ), X7S ( $\pm 22\%$ ), X7T ( $+22\%/-33\%$ )

Rated Voltage: 500V (2H), 200V (2D), 100V (2A)

| Capacitance |      | Tolerance     | X7R          |              |              | X7S          | X7T          |              |
|-------------|------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| (pF)        | Code |               | 2H<br>(500V) | 2D<br>(200V) | 2A<br>(100V) | 2A<br>(100V) | 2H<br>(500V) | 2D<br>(200V) |
| 47,000      | 473  | K: $\pm 10\%$ | ■            |              |              |              |              |              |
| 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  |               |              |              | ■            |              |              |              |
| 3,300,000   | 335  |               |              |              |              | ■            |              |              |
| 4,700,000   | 475  |               |              |              |              |              |              |              |

Standard Thickness

■ 1.60 mm

■ 2.00 mm

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 1 (Temperature Compensating)

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

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number          |                         |                         |
|-------------|------|----------------|-----------------------|-------------------------|-------------------------|-------------------------|
|             |      |                |                       | Rated Voltage Edc: 500V | Rated Voltage Edc: 200V | Rated Voltage Edc: 100V |
| 100 pF      | 1608 | 0.80 ± 0.10    | ± 5%                  |                         | CGJ3E3C0G2D101J080AA    | CGJ3E2C0G2A101J080AA    |
|             | 2012 | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A101J060AA    |
|             | 3216 | 0.60 ± 0.15    | ± 5%                  | CGJ5C4C0G2H101J060AA    |                         |                         |
| 120 pF      | 1608 | 0.80 ± 0.10    | ± 5%                  |                         | CGJ3E3C0G2D121J080AA    | CGJ3E2C0G2A121J080AA    |
|             | 2012 | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A121J060AA    |
|             | 3216 | 0.60 ± 0.15    | ± 5%                  | CGJ5C4C0G2H121J060AA    |                         |                         |
| 150 pF      | 1608 | 0.80 ± 0.10    | ± 5%                  |                         | CGJ3E3C0G2D151J080AA    | CGJ3E2C0G2A151J080AA    |
|             | 2012 | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A151J060AA    |
|             | 3216 | 0.60 ± 0.15    | ± 5%                  | CGJ5C4C0G2H151J060AA    |                         |                         |
| 180 pF      | 1608 | 0.80 ± 0.10    | ± 5%                  |                         | CGJ3E3C0G2D181J080AA    | CGJ3E2C0G2A181J080AA    |
|             | 2012 | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A181J060AA    |
|             | 3216 | 0.60 ± 0.15    | ± 5%                  | CGJ5C4C0G2H181J060AA    |                         |                         |
| 220 pF      | 1608 | 0.80 ± 0.10    | ± 5%                  |                         | CGJ3E3C0G2D221J080AA    | CGJ3E2C0G2A221J080AA    |
|             | 2012 | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A221J060AA    |
|             | 3216 | 0.60 ± 0.15    | ± 5%                  | CGJ5C4C0G2H221J060AA    |                         |                         |
| 270 pF      | 1608 | 0.80 ± 0.10    | ± 5%                  |                         | CGJ3E3C0G2D271J080AA    | CGJ3E2C0G2A271J080AA    |
|             | 2012 | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A271J060AA    |
|             | 3216 | 0.60 ± 0.15    | ± 5%                  | CGJ5C4C0G2H271J060AA    |                         |                         |
| 330 pF      | 1608 | 0.80 ± 0.10    | ± 5%                  |                         | CGJ3E3C0G2D331J080AA    | CGJ3E2C0G2A331J080AA    |
|             | 2012 | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A331J060AA    |
|             | 3216 | 0.60 ± 0.15    | ± 5%                  | CGJ5C4C0G2H331J060AA    |                         |                         |
| 390 pF      | 1608 | 0.80 ± 0.10    | ± 5%                  |                         | CGJ3E3C0G2D391J080AA    | CGJ3E2C0G2A391J080AA    |
|             | 2012 | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A391J060AA    |
|             | 3216 | 0.60 ± 0.15    | ± 5%                  | CGJ5C4C0G2H391J060AA    |                         |                         |
| 470 pF      | 1608 | 0.80 ± 0.10    | ± 5%                  |                         | CGJ3E3C0G2D471J080AA    | CGJ3E2C0G2A471J080AA    |
|             | 2012 | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A471J060AA    |
|             | 3216 | 0.85 ± 0.15    | ± 5%                  | CGJ5F4C0G2H471J085AA    |                         |                         |
| 560 pF      | 1608 | 0.80 ± 0.10    | ± 5%                  |                         | CGJ3E3C0G2D561J080AA    | CGJ3E2C0G2A561J080AA    |
|             | 2012 | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A561J060AA    |
|             | 3216 | 0.85 ± 0.15    | ± 5%                  | CGJ5F4C0G2H561J085AA    |                         |                         |
| 680 pF      | 1608 | 0.80 ± 0.10    | ± 5%                  |                         | CGJ3E3C0G2D681J080AA    | CGJ3E2C0G2A681J080AA    |
|             | 2012 | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A681J060AA    |
|             | 3216 | 0.85 ± 0.15    | ± 5%                  | CGJ5F4C0G2H681J085AA    |                         |                         |
| 820 pF      | 1608 | 0.80 ± 0.10    | ± 5%                  |                         |                         | CGJ3E2C0G2A821J080AA    |
|             | 2012 | 0.60 ± 0.15    | ± 5%                  |                         | CGJ4C3C0G2D821J060AA    | CGJ4C2C0G2A821J060AA    |
|             | 3216 | 0.85 ± 0.15    | ± 5%                  | CGJ5F4C0G2H821J085AA    |                         |                         |
| 1 nF        | 1608 | 0.80 ± 0.10    | ± 5%                  |                         |                         | CGJ3E2C0G2A102J080AA    |
|             | 2012 | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A102J060AA    |
|             | 3216 | 0.85 ± 0.15    | ± 5%                  |                         | CGJ4F3C0G2D102J085AA    |                         |
| 1.2 nF      | 1608 | 0.80 ± 0.10    | ± 5%                  |                         |                         | CGJ3E2C0G2A122J080AA    |
|             | 2012 | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A122J060AA    |
|             | 3216 | 0.85 ± 0.15    | ± 5%                  | CGJ5F4C0G2H122J085AA    |                         |                         |
| 1.5 nF      | 2012 | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A152J060AA    |
|             | 3216 | 0.85 ± 0.15    | ± 5%                  |                         | CGJ4F3C0G2D152J085AA    |                         |
|             | 3216 | 1.15 ± 0.15    | ± 5%                  | CGJ5H4C0G2H152J115AA    |                         |                         |
| 1.8 nF      | 2012 | 0.85 ± 0.15    | ± 5%                  |                         |                         | CGJ4F2C0G2A182J085AA    |
|             | 3216 | 1.25 ± 0.20    | ± 5%                  |                         | CGJ4J3C0G2D182J125AA    |                         |
|             | 3216 | 1.15 ± 0.15    | ± 5%                  | CGJ5H4C0G2H182J115AA    |                         |                         |
| 2.2 nF      | 2012 | 0.85 ± 0.15    | ± 5%                  |                         |                         | CGJ4F2C0G2A222J085AA    |
|             | 3216 | 1.25 ± 0.20    | ± 5%                  |                         | CGJ4J3C0G2D222J125AA    |                         |
|             | 3216 | 1.15 ± 0.15    | ± 5%                  | CGJ5H4C0G2H222J115AA    |                         |                         |
| 2.7 nF      | 2012 | 1.25 ± 0.20    | ± 5%                  |                         | CGJ4J3C0G2D272J125AA    | CGJ4J2C0G2A272J125AA    |
|             | 3216 | 1.60 ± 0.20    | ± 5%                  | CGJ5L4C0G2H272J160AA    |                         |                         |
|             | 2012 | 1.25 ± 0.20    | ± 5%                  |                         |                         | CGJ4J2C0G2A332J125AA    |
| 3.3 nF      | 3216 | 0.85 ± 0.15    | ± 5%                  |                         | CGJ5F3C0G2D332J085AA    |                         |
|             | 3216 | 1.60 ± 0.20    | ± 5%                  | CGJ5L4C0G2H332J160AA    |                         |                         |

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## Capacitance Range Table

### Class 1 (Temperature Compensating)

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

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number          |                         |                         |
|-------------|------|----------------|-----------------------|-------------------------|-------------------------|-------------------------|
|             |      |                |                       | Rated Voltage Edc: 500V | Rated Voltage Edc: 200V | Rated Voltage Edc: 100V |
| 3.9 nF      | 2012 | 1.25 ± 0.20    | ± 5%                  |                         |                         | CGJ4J2C0G2A392J125AA    |
|             |      | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ5C2C0G2A392J060AA    |
|             | 3216 | 0.85 ± 0.15    | ± 5%                  | CGJ5F4C0G2H392J085AA    |                         |                         |
|             |      | 1.15 ± 0.15    | ± 5%                  |                         | CGJ5H3C0G2D392J115AA    |                         |
| 4.7 nF      | 2012 | 1.25 ± 0.20    | ± 5%                  |                         |                         | CGJ4J2C0G2A472J125AA    |
|             | 3216 | 0.85 ± 0.15    | ± 5%                  | CGJ5F4C0G2H472J085AA    |                         | CGJ5F2C0G2A472J085AA    |
|             |      | 1.15 ± 0.15    | ± 5%                  |                         | CGJ5H3C0G2D472J115AA    |                         |
| 5.6 nF      | 3216 | 0.85 ± 0.15    | ± 5%                  |                         |                         | CGJ5F2C0G2A562J085AA    |
|             |      | 1.15 ± 0.15    | ± 5%                  | CGJ5H4C0G2H562J115AA    | CGJ5H3C0G2D562J115AA    |                         |
| 6.8 nF      | 3216 | 1.15 ± 0.15    | ± 5%                  | CGJ5H4C0G2H682J115AA    |                         | CGJ5H2C0G2A682J115AA    |
|             |      | 1.60 ± 0.20    | ± 5%                  |                         | CGJ5L3C0G2D682J160AA    |                         |
| 8.2 nF      | 3216 | 1.15 ± 0.15    | ± 5%                  |                         |                         | CGJ5H2C0G2A822J115AA    |
|             |      | 1.60 ± 0.20    | ± 5%                  | CGJ5L4C0G2H822J160AA    | CGJ5L3C0G2D822J160AA    |                         |
| 10 nF       | 3216 | 1.15 ± 0.15    | ± 5%                  |                         |                         | CGJ5H2C0G2A103J115AA    |
|             |      | 1.60 ± 0.20    | ± 5%                  | CGJ5L4C0G2H103J160AA    |                         |                         |

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number          |                         |                         |
|-------------|------|----------------|-----------------------|-------------------------|-------------------------|-------------------------|
|             |      |                |                       | Rated Voltage Edc: 500V | Rated Voltage Edc: 200V | Rated Voltage Edc: 100V |
| 1 nF        | 1608 | 0.80 ± 0.10    | ± 10%                 |                         |                         | CGJ3E2X7R2A102K080AA    |
|             | 3216 | 1.15 ± 0.15    | ± 10%                 | CGJ5H4X7R2H102K115AA    |                         |                         |
| 1.5 nF      | 1608 | 0.80 ± 0.10    | ± 10%                 |                         |                         | CGJ3E2X7R2A152K080AA    |
|             | 3216 | 1.15 ± 0.15    | ± 10%                 | CGJ5H4X7R2H152K115AA    |                         |                         |
| 2.2 nF      | 1608 | 0.80 ± 0.10    | ± 10%                 |                         |                         | CGJ3E2X7R2A222K080AA    |
|             | 3216 | 1.15 ± 0.15    | ± 10%                 | CGJ5H4X7R2H222K115AA    |                         |                         |
| 3.3 nF      | 1608 | 0.80 ± 0.10    | ± 10%                 |                         |                         | CGJ3E2X7R2A332K080AA    |
|             | 3216 | 1.15 ± 0.15    | ± 10%                 | CGJ5H4X7R2H332K115AA    |                         |                         |
| 4.7 nF      | 1608 | 0.80 ± 0.10    | ± 10%                 |                         |                         | CGJ3E2X7R2A472K080AA    |
|             | 3216 | 1.15 ± 0.15    | ± 10%                 | CGJ5H4X7R2H472K115AA    |                         |                         |
| 6.8 nF      | 1608 | 0.80 ± 0.10    | ± 10%                 |                         |                         | CGJ3E2X7R2A682K080AA    |
|             | 2012 | 1.25 ± 0.20    | ± 10%                 |                         | CGJ4J3X7R2D682K125AA    |                         |
|             |      | 1.15 ± 0.15    | ± 10%                 | CGJ5H4X7R2H682K115AA    |                         |                         |
| 10 nF       | 1608 | 0.80 ± 0.10    | ± 10%                 |                         |                         | CGJ3E2X7R2A103K080AA    |
|             | 3216 | 1.25 ± 0.20    | ± 10%                 |                         | CGJ4J3X7R2D103K125AA    |                         |
|             |      | 1.15 ± 0.15    | ± 10%                 | CGJ5H4X7R2H103K115AA    |                         |                         |
| 15 nF       | 2012 | 1.25 ± 0.20    | ± 10%                 |                         | CGJ4J3X7R2D153K125AA    | CGJ4J2X7R2A153K125AA    |
|             |      | 1.15 ± 0.15    | ± 10%                 |                         | CGJ5H3X7R2D153K115AA    |                         |
|             | 3216 | 1.30 ± 0.20    | ± 10%                 | CGJ5K4X7R2H153K130AA    |                         |                         |
| 22 nF       | 2012 | 1.25 ± 0.20    | ± 10%                 |                         | CGJ4J3X7R2D223K125AA    | CGJ4J2X7R2A223K125AA    |
|             |      | 1.15 ± 0.15    | ± 10%                 |                         | CGJ5H3X7R2D223K115AA    |                         |
|             | 3216 | 1.30 ± 0.20    | ± 10%                 | CGJ5K4X7R2H223K130AA    |                         |                         |
| 33 nF       | 2012 | 1.25 ± 0.20    | ± 10%                 |                         |                         | CGJ4J2X7R2A333K125AA    |
|             |      | 1.15 ± 0.15    | ± 10%                 |                         |                         | CGJ5H2X7R2A333K115AA    |
|             | 3216 | 1.60 ± 0.20    | ± 10%                 | CGJ5L4X7R2H333K160AA    | CGJ5L3X7R2D333K160AA    |                         |
| 47 nF       | 2012 | 1.25 ± 0.20    | ± 10%                 |                         |                         | CGJ4J2X7R2A473K125AA    |
|             |      | 1.15 ± 0.15    | ± 10%                 |                         |                         | CGJ5H2X7R2A473K115AA    |
|             | 3216 | 1.60 ± 0.20    | ± 10%                 |                         | CGJ5L3X7R2D473K160AA    |                         |
| 68 nF       | 3225 | 2.00 ± 0.20    | ± 10%                 | CGJ6M4X7R2H473K200AA    |                         |                         |
|             | 3216 | 1.60 ± 0.20    | ± 10%                 |                         | CGJ5L3X7R2D683K160AA    | CGJ5L2X7R2A683K160AA    |
| 100 nF      | 3225 | 2.00 ± 0.20    | ± 10%                 | CGJ6M4X7R2H683K200AA    |                         |                         |
|             | 3216 | 1.60 ± 0.20    | ± 10%                 |                         | CGJ5L3X7R2D104K160AA    | CGJ5L2X7R2A104K160AA    |
| 150 nF      | 3225 | 2.00 ± 0.20    | ± 10%                 |                         | CGJ6M3X7R2D104K200AA    |                         |
|             | 3216 | 1.60 ± 0.20    | ± 10%                 |                         | CGJ5L2X7R2A154K160AA    |                         |
| 220 nF      | 3225 | 2.00 ± 0.20    | ± 10%                 |                         | CGJ6M3X7R2D224K200AA    |                         |
|             | 3216 | 1.15 ± 0.15    | ± 10%                 |                         |                         | CGJ5H2X7R2A224K115AA    |
| 330 nF      | 3225 | 2.00 ± 0.20    | ± 10%                 |                         |                         | CGJ5K2X7R2A334K130AA    |
|             | 3216 | 1.30 ± 0.20    | ± 10%                 |                         |                         | CGJ6M2X7R2A334K200AA    |

⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number                       |                                      |
|-------------|------|----------------|-----------------------|--------------------------------------|--------------------------------------|
|             |      |                |                       | Rated Voltage Edc: 500V              | Rated Voltage Edc: 100V              |
| 470 nF      | 3216 | 1.60 ± 0.20    | ± 10%                 |                                      | <a href="#">CGJ5L2X7R2A474K160AA</a> |
|             | 3225 | 2.00 ± 0.20    | ± 10%                 |                                      | <a href="#">CGJ6M2X7R2A474K200AA</a> |
| 680 nF      | 3225 | 1.60 ± 0.20    | ± 10%                 | <a href="#">CGJ6L2X7R2H684K160AA</a> |                                      |
| 1 µF        | 3225 | 2.00 ± 0.20    | ± 10%                 |                                      | <a href="#">CGJ6M2X7R2A105K200AA</a> |

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number                       |  |
|-------------|------|----------------|-----------------------|--------------------------------------|--|
|             |      |                |                       | Rated Voltage Edc: 100V              |  |
| 33 nF       | 1608 | 0.80 ± 0.10    | ± 10%                 | <a href="#">CGJ3E3X7S2A333K080AA</a> |  |
| 47 nF       | 1608 | 0.80 ± 0.10    | ± 10%                 | <a href="#">CGJ3E3X7S2A473K080AA</a> |  |
| 68 nF       | 1608 | 0.80 ± 0.10    | ± 10%                 | <a href="#">CGJ3E3X7S2A683K080AA</a> |  |
| 100 nF      | 1608 | 0.80 ± 0.10    | ± 10%                 | <a href="#">CGJ3E3X7S2A104K080AA</a> |  |
| 330 nF      | 2012 | 1.25 ± 0.20    | ± 10%                 | <a href="#">CGJ4J3X7S2A334K125AA</a> |  |
| 470 nF      | 2012 | 1.25 ± 0.20    | ± 10%                 | <a href="#">CGJ4J3X7S2A474K125AA</a> |  |
| 1.5 µF      | 3216 | 1.60 ± 0.20    | ± 10%                 | <a href="#">CGJ5L3X7S2A155K160AA</a> |  |
| 3.3 µF      | 3225 | 2.00 ± 0.20    | ± 10%                 | <a href="#">CGJ6M3X7S2A335K200AA</a> |  |
| 4.7 µF      | 3225 | 2.00 ± 0.20    | ± 10%                 | <a href="#">CGJ6M3X7S2A475K200AA</a> |  |

### Class 2 (Temperature Stable)

Temperature Characteristics: X7T(-55 to +125°C, +22/-33%)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number                       |                                      |
|-------------|------|----------------|-----------------------|--------------------------------------|--------------------------------------|
|             |      |                |                       | Rated Voltage Edc: 500V              | Rated Voltage Edc: 200V              |
| 22 nF       | 3216 | 1.15 ± 0.15    | ± 10%                 | <a href="#">CGJ5H4X7T2H223K115AA</a> |                                      |
| 33 nF       | 2012 | 1.25 ± 0.20    | ± 10%                 |                                      | <a href="#">CGJ4J3X7T2D333K125AA</a> |
|             | 3216 | 1.15 ± 0.15    | ± 10%                 | <a href="#">CGJ5H4X7T2H333K115AA</a> |                                      |
| 47 nF       | 2012 | 1.25 ± 0.20    | ± 10%                 |                                      | <a href="#">CGJ4J3X7T2D473K125AA</a> |
|             | 3216 | 1.60 ± 0.20    | ± 10%                 | <a href="#">CGJ5L4X7T2H473K160AA</a> |                                      |
| 68 nF       | 2012 | 1.25 ± 0.20    | ± 10%                 |                                      | <a href="#">CGJ4J3X7T2D683K125AA</a> |
|             | 2012 | 1.25 ± 0.20    | ± 10%                 | <a href="#">CGJ4J3X7T2D104K125AA</a> |                                      |
| 100 nF      | 3225 | 1.60 ± 0.20    | ± 10%                 | <a href="#">CGJ6L4X7T2H104K160AA</a> |                                      |
|             | 3216 | 1.30 ± 0.20    | ± 10%                 |                                      | <a href="#">CGJ5K9X7T2D154K130AA</a> |
| 150 nF      | 3225 | 2.00 ± 0.20    | ± 10%                 | <a href="#">CGJ6M4X7T2H154K200AA</a> |                                      |
| 220 nF      | 3216 | 1.60 ± 0.20    | ± 10%                 |                                      | <a href="#">CGJ5L3X7T2D224K160AA</a> |
| 330 nF      | 3225 | 2.00 ± 0.20    | ± 10%                 |                                      | <a href="#">CGJ6M3X7T2D334K200AA</a> |

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