

## 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

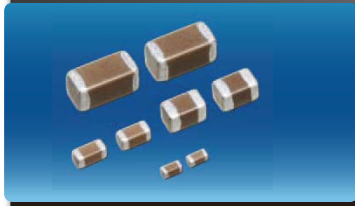
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(Example)

| 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]

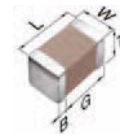
### Features

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

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## CGJ3(1608) [EIA CC0603]

### Capacitance Range Chart

Temperature Characteristics: C0G (0 ±30ppm/°C), X7R (±15%), X7S (±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: ± 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 : ± 5%       |              |              |              |              |
| 1,200       | 122  |                        |              |              |              |              |
| 1,500       | 152  |                        |              |              |              |              |
| 2,200       | 222  |                        |              |              |              |              |
| 3,300       | 332  |                        |              |              |              |              |
| 4,700       | 472  |                        |              |              |              |              |
| 6,800       | 682  |                        |              |              |              |              |
| 10,000      | 103  |                        |              |              |              |              |
| 33,000      | 333  |                        |              |              |              |              |
| 47,000      | 473  |                        |              |              |              |              |
| 68,000      | 683  | X7R, X7S;<br>K : ± 10% |              |              |              |              |
| 100,000     | 104  |                        |              |              |              |              |

Standard Thickness

 0.80 mm

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## CGJ4(2012) [EIA CC0805]

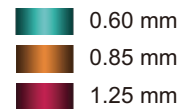
### Capacitance Range Chart

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)

| Capacitance |      | Tolerance     | C0G          |              | X7R          |              | X7S          | X7T          |
|-------------|------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| (pF)        | Code |               | 2D<br>(200V) | 2A<br>(100V) | 2D<br>(200V) | 2A<br>(100V) | 2A<br>(100V) | 2D<br>(200V) |
| 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  |               |              |              |              |              |              |              |
| 1,200       | 122  |               |              |              |              |              |              |              |
| 1,500       | 152  |               |              |              |              |              |              |              |
| 1,800       | 182  |               |              |              |              |              |              |              |
| 2,200       | 222  |               |              |              |              |              |              |              |
| 2,700       | 272  |               |              |              |              |              |              |              |
| 3,300       | 332  |               |              |              |              |              |              |              |
| 3,900       | 392  |               |              |              |              |              |              |              |
| 4,700       | 472  |               |              |              |              |              |              |              |
| 6,800       | 682  | K: $\pm 10\%$ |              |              |              |              |              |              |
| 10,000      | 103  |               |              |              |              |              |              |              |
| 15,000      | 153  |               |              |              |              |              |              |              |
| 22,000      | 223  |               |              |              |              |              |              |              |
| 33,000      | 333  |               |              |              |              |              |              |              |
| 47,000      | 473  |               |              |              |              |              |              |              |
| 68,000      | 683  |               |              |              |              |              |              |              |
| 100,000     | 104  |               |              |              |              |              |              |              |
| 330,000     | 334  |               |              |              |              |              |              |              |
| 470,000     | 474  |               |              |              |              |              |              |              |

Standard Thickness



# MULTILAYER CERAMIC CHIP CAPACITORS



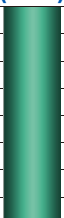
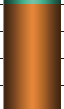
## Capacitance Range Chart

## CGJ5(3216) [EIA CC1206]

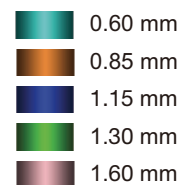
### Capacitance Range Chart

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

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

| Capacitance |      | Tolerance                   | C0G                                                                                 |                                                                                     |                                                                                     | X7R                                                                                 |                                                                                     |                                                                                      | X7S          | X7T                                                                                   |                                                                                       |
|-------------|------|-----------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| (pF)        | Code |                             | 2H<br>(500V)                                                                        | 2D<br>(200V)                                                                        | 2A<br>(100V)                                                                        | 2H<br>(500V)                                                                        | 2D<br>(200V)                                                                        | 2A<br>(100V)                                                                         | 2A<br>(100V) | 2H<br>(500V)                                                                          | 2D<br>(200V)                                                                          |
| 100         | 101  | J: ± 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 : ± 5%            |                                                                                     |                                                                                     |                                                                                     |    |                                                                                     |                                                                                      |              |                                                                                       |                                                                                       |
| 1,200       | 122  |                             |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                      |              |                                                                                       |                                                                                       |
| 1,500       | 152  | X7R, X7S, X7T;<br>K : ± 10% |    |                                                                                     |                                                                                     |    |                                                                                     |                                                                                      |              |                                                                                       |                                                                                       |
| 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  |                             |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |   |              |  |                                                                                       |
| 47,000      | 473  |                             |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |   |              |                                                                                       |                                                                                       |
| 68,000      | 683  |                             |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |   |              |                                                                                       |                                                                                       |
| 100,000     | 104  |                             |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |   |              |                                                                                       |                                                                                       |
| 150,000     | 154  |                             |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                      |              |                                                                                       |  |
| 220,000     | 224  |                             |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |   |              |  |                                                                                       |
| 330,000     | 334  |                             |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |                                                                                      |              |                                                                                       |                                                                                       |
| 470,000     | 474  |                             |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |                                                                                      |              |                                                                                       |                                                                                       |
| 1,500,000   | 155  |                             |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |              |                                                                                       |                                                                                       |

Standard Thickness



# 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    |
|             |      | 0.85 ± 0.15    | ± 5%                  |                         | CGJ4F3C0G2D102J085AA    |                         |
| 1.2 nF      | 3216 | 0.85 ± 0.15    | ± 5%                  | CGJ5F4C0G2H102J085AA    |                         |                         |
|             | 1608 | 0.80 ± 0.10    | ± 5%                  |                         |                         | CGJ3E2C0G2A122J080AA    |
|             |      | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A122J060AA    |
| 1.5 nF      | 2012 | 0.85 ± 0.15    | ± 5%                  |                         | CGJ4F3C0G2D122J085AA    |                         |
|             | 3216 | 0.85 ± 0.15    | ± 5%                  | CGJ5F4C0G2H122J085AA    |                         |                         |
|             |      | 0.60 ± 0.15    | ± 5%                  |                         |                         | CGJ4C2C0G2A152J060AA    |
| 1.8 nF      | 2012 | 0.85 ± 0.15    | ± 5%                  |                         | CGJ4F3C0G2D152J085AA    |                         |
|             | 3216 | 1.15 ± 0.15    | ± 5%                  | CGJ5H4C0G2H152J115AA    |                         |                         |
|             |      | 0.85 ± 0.15    | ± 5%                  |                         |                         | CGJ4F2C0G2A182J085AA    |
| 2.2 nF      | 2012 | 1.25 ± 0.20    | ± 5%                  |                         | CGJ4J3C0G2D182J125AA    |                         |
|             | 3216 | 1.15 ± 0.15    | ± 5%                  | CGJ5H4C0G2H182J115AA    |                         |                         |
|             |      | 0.85 ± 0.15    | ± 5%                  |                         |                         | CGJ4F2C0G2A222J085AA    |
| 2.7 nF      | 2012 | 1.25 ± 0.20    | ± 5%                  |                         | CGJ4J3C0G2D222J125AA    |                         |
|             | 3216 | 1.15 ± 0.15    | ± 5%                  | CGJ5H4C0G2H222J115AA    |                         |                         |
|             |      | 1.25 ± 0.20    | ± 5%                  |                         | CGJ4J3C0G2D272J125AA    | CGJ4J2C0G2A272J125AA    |
| 3.3 nF      | 2012 | 1.25 ± 0.20    | ± 5%                  |                         |                         | CGJ4J2C0G2A332J125AA    |
|             | 3216 | 0.85 ± 0.15    | ± 5%                  |                         | CGJ5F3C0G2D332J085AA    |                         |
|             |      | 1.60 ± 0.20    | ± 5%                  | CGJ5L4C0G2H332J160AA    |                         |                         |

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# 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 |
| 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    |                         |
|             | 3216 | 1.15 ± 0.15    | ± 10%                 | CGJ5H4X7R2H682K115AA    |                         |                         |
| 10 nF       | 1608 | 0.80 ± 0.10    | ± 10%                 |                         |                         | CGJ3E2X7R2A103K080AA    |
|             | 2012 | 1.25 ± 0.20    | ± 10%                 |                         | CGJ4J3X7R2D103K125AA    |                         |
|             | 3216 | 1.15 ± 0.15    | ± 10%                 | CGJ5H4X7R2H103K115AA    |                         |                         |
| 15 nF       | 2012 | 1.25 ± 0.20    | ± 10%                 |                         | CGJ4J3X7R2D153K125AA    | CGJ4J2X7R2A153K125AA    |
|             | 3216 | 1.15 ± 0.15    | ± 10%                 |                         | CGJ5H3X7R2D153K115AA    |                         |
|             |      | 1.30 ± 0.20    | ± 10%                 | CGJ5K4X7R2H153K130AA    |                         |                         |
| 22 nF       | 2012 | 1.25 ± 0.20    | ± 10%                 |                         | CGJ4J3X7R2D223K125AA    | CGJ4J2X7R2A223K125AA    |
|             | 3216 | 1.15 ± 0.15    | ± 10%                 |                         | CGJ5H3X7R2D223K115AA    |                         |
|             |      | 1.30 ± 0.20    | ± 10%                 | CGJ5K4X7R2H223K130AA    |                         |                         |
| 33 nF       | 2012 | 1.25 ± 0.20    | ± 10%                 |                         |                         | CGJ4J2X7R2A333K125AA    |
|             | 3216 | 1.15 ± 0.15    | ± 10%                 |                         |                         | CGJ5H2X7R2A333K115AA    |
|             |      | 1.60 ± 0.20    | ± 10%                 | CGJ5L4X7R2H333K160AA    | CGJ5L3X7R2D333K160AA    |                         |
| 47 nF       | 2012 | 1.25 ± 0.20    | ± 10%                 |                         |                         | CGJ4J2X7R2A473K125AA    |
|             | 3216 | 1.15 ± 0.15    | ± 10%                 |                         |                         | CGJ5H2X7R2A473K115AA    |
|             |      | 1.60 ± 0.20    | ± 10%                 |                         | CGJ5L3X7R2D473K160AA    |                         |
| 68 nF       | 3225 | 2.00 ± 0.20    | ± 10%                 | CGJ6M4X7R2H473K200AA    |                         |                         |
|             | 3216 | 1.60 ± 0.20    | ± 10%                 |                         | CGJ5L3X7R2D683K160AA    | CGJ5L2X7R2A683K160AA    |
|             | 3225 | 2.00 ± 0.20    | ± 10%                 | CGJ6M4X7R2H683K200AA    |                         |                         |
| 100 nF      | 3216 | 1.60 ± 0.20    | ± 10%                 |                         | CGJ5L3X7R2D104K160AA    | CGJ5L2X7R2A104K160AA    |
|             | 3225 | 2.00 ± 0.20    | ± 10%                 |                         | CGJ6M3X7R2D104K200AA    |                         |
| 150 nF      | 3216 | 1.60 ± 0.20    | ± 10%                 |                         |                         | CGJ5L2X7R2A154K160AA    |
|             | 3225 | 2.00 ± 0.20    | ± 10%                 |                         | CGJ6M3X7R2D154K200AA    |                         |
| 220 nF      | 3216 | 1.15 ± 0.15    | ± 10%                 |                         |                         | CGJ5H2X7R2A224K115AA    |
|             | 3225 | 2.00 ± 0.20    | ± 10%                 |                         | CGJ6M3X7R2D224K200AA    |                         |
| 330 nF      | 3216 | 1.30 ± 0.20    | ± 10%                 |                         |                         | CGJ5K2X7R2A334K130AA    |
|             | 3225 | 2.00 ± 0.20    | ± 10%                 |                         |                         | CGJ6M2X7R2A334K200AA    |

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# 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> |
| 100 nF      | 2012 | 1.25 ± 0.20    | ± 10%                 |                                      | <a href="#">CGJ4J3X7T2D104K125AA</a> |
|             | 3225 | 1.60 ± 0.20    | ± 10%                 | <a href="#">CGJ6L4X7T2H104K160AA</a> |                                      |
| 150 nF      | 3216 | 1.30 ± 0.20    | ± 10%                 |                                      | <a href="#">CGJ5K3X7T2D154K130AA</a> |
|             | 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> |