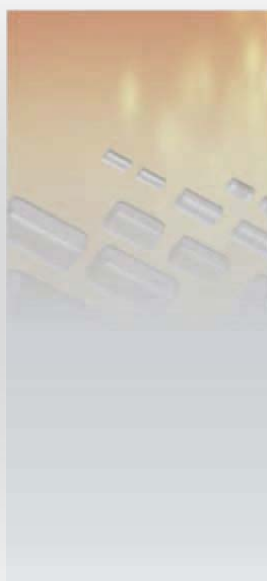


## MULTILAYER CERAMIC CHIP CAPACITORS

### **C Series Commercial Grade General (Up to 50V)**

**Type:**

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



## REMINDERS

Please read before using this product

### SAFETY REMINDERS



### REMINDERS

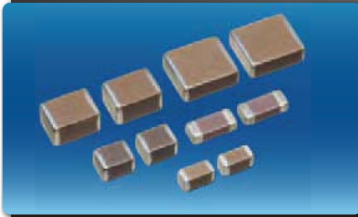
1. If you intend to use a product listed in this catalog for a purpose that may cause loss of life or other damage, you must contact our company's sales window.
2. We may modify products or discontinue production of a product listed in this catalog without prior notification.
3. We provide "Delivery Specification" that explain precautions for the specifications and safety of each product listed in this catalog. We strongly recommend that you exchange these delivery specifications with customers that use one of these products.
4. If you plan to export a product listed in this catalog, keep in mind that it may be a restricted item according to the "Foreign Exchange and Foreign Trade Control Law". In such cases, it is necessary to acquire export permission in harmony with this law.
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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



## C Series General (Up to 50V)

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

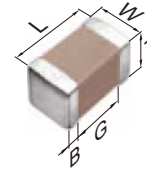
### Features

- High capacitance has been achieved through precision technologies that enable the use of multiple thinner ceramic dielectric layers.
- A monolithic structure ensures superior mechanical strength and reliability.
- Low ESL and excellent frequency characteristics allow for a circuit design that closely conforms to theoretical values.
- Low self-heating and high ripple resistance due to low ESR.

### Applications

- General electronic equipment
- Mobile communication equipment
- Power supply circuit
- Office automation equipment
- TV, LED displays
- Servers, PCs, Notebooks, Tablets

### Shape & Dimensions



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

### Catalog Number Construction

C • 3225 • X7R • 1H • 106 • M • 250 • A • C

#### Series Name

#### Dimensions L x W (mm)

| Code  | Length      | Width       | Terminal  |
|-------|-------------|-------------|-----------|
| C0402 | 0.40 ± 0.02 | 0.20 ± 0.02 | 0.07 min. |
| C0603 | 0.60 ± 0.03 | 0.30 ± 0.03 | 0.10 min. |
| C1005 | 1.00 ± 0.05 | 0.50 ± 0.05 | 0.10 min. |
| C1608 | 1.60 ± 0.10 | 0.80 ± 0.10 | 0.20 min. |
| C2012 | 2.00 ± 0.20 | 1.25 ± 0.20 | 0.20 min. |
| C3216 | 3.20 ± 0.20 | 1.60 ± 0.20 | 0.20 min. |
| C3225 | 3.20 ± 0.40 | 2.50 ± 0.30 | 0.20 min. |
| C4532 | 4.50 ± 0.40 | 3.20 ± 0.40 | 0.20 min. |
| C5750 | 5.70 ± 0.40 | 5.00 ± 0.40 | 0.20 min. |

\*Dimension tolerance are typical values

#### Temperature Characteristics

| Temperature Characteristics | Temperature Coefficient or Capacitance Change | Temperature Range |
|-----------------------------|-----------------------------------------------|-------------------|
| CH                          | 0±60 ppm/°C                                   | -25 to +85°C      |
| C0G                         | 0±30 ppm/°C                                   | -55 to +125°C     |
| JB                          | ±10%                                          | -25 to +85°C      |
| X5R                         | ±15%                                          | -55 to +85°C      |
| X6S                         | ±22%                                          | -55 to +105°C     |
| X7R                         | ±15%                                          | -55 to +125°C     |
| X7S                         | ±22%                                          | -55 to +125°C     |

#### Rated Voltage (DC)

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

#### 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 = 1,000nF = 1μF

#### Capacitance Tolerance

| Code | Tolerance |
|------|-----------|
| B    | ± 0.10pF  |
| C    | ± 0.25pF  |
| D    | ± 0.50pF  |
| F    | ± 1%      |
| G    | ± 2%      |
| J    | ± 5%      |
| K    | ± 10%     |
| M    | ± 20%     |

#### Nominal Thickness

| Code | Thickness | Code | Thickness |
|------|-----------|------|-----------|
| 020  | 0.20 mm   | 130  | 1.30 mm   |
| 030  | 0.30 mm   | 160  | 1.60 mm   |
| 050  | 0.50 mm   | 200  | 2.00 mm   |
| 060  | 0.60 mm   | 230  | 2.30 mm   |
| 080  | 0.80 mm   | 250  | 2.50 mm   |
| 085  | 0.85 mm   | 280  | 2.80 mm   |
| 115  | 1.15 mm   | 320  | 3.20 mm   |
| 125  | 1.25 mm   |      |           |

#### Packaging Style

| Code | Style                   |
|------|-------------------------|
| A    | 178 mm Reel, 4 mm Pitch |
| B    | 178 mm Reel, 2 mm Pitch |
| K    | 178 mm Reel, 8 mm Pitch |

#### Special Reserved Code

| Code    | Description       |
|---------|-------------------|
| A, B, C | TDK Internal Code |

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC01005 [C0402]

### Capacitance Range Chart

Temperature Characteristics: C0G (0±30ppm/°C), CH (0±60ppm/°C), JB (±10%)

Rated Voltage: 16V (1C), 10V (1A), 6.3V (0J), 4.0V (0G)

| Capacitance |      | Tolerance                 | C0G         | CH          | JB          |             |              |            |
|-------------|------|---------------------------|-------------|-------------|-------------|-------------|--------------|------------|
| (pF)        | Code |                           | 1C<br>(16V) | 1C<br>(16V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 0.5         | 0R5  | C:±0.25pF                 |             |             |             |             |              |            |
| 0.75        | R75  |                           |             |             |             |             |              |            |
| 1           | 010  |                           |             |             |             |             |              |            |
| 1.5         | 1R5  |                           |             |             |             |             |              |            |
| 2           | 020  |                           |             |             |             |             |              |            |
| 2.2         | 2R2  |                           |             |             |             |             |              |            |
| 3           | 030  |                           |             |             |             |             |              |            |
| 3.3         | 3R3  |                           |             |             |             |             |              |            |
| 4           | 040  |                           |             |             |             |             |              |            |
| 4.7         | 4R7  |                           |             |             |             |             |              |            |
| 5           | 050  | D:±0.50pF                 |             |             |             |             |              |            |
| 6           | 060  |                           |             |             |             |             |              |            |
| 6.8         | 6R8  |                           |             |             |             |             |              |            |
| 7           | 070  |                           |             |             |             |             |              |            |
| 8           | 080  |                           |             |             |             |             |              |            |
| 9           | 090  | J:±5%<br>K:±10%<br>M:±20% |             |             |             |             |              |            |
| 10          | 100  |                           |             |             |             |             |              |            |
| 12          | 120  |                           |             |             |             |             |              |            |
| 15          | 150  |                           |             |             |             |             |              |            |
| 18          | 180  |                           |             |             |             |             |              |            |
| 22          | 220  |                           |             |             |             |             |              |            |
| 27          | 270  |                           |             |             |             |             |              |            |
| 33          | 330  |                           |             |             |             |             |              |            |
| 39          | 390  |                           |             |             |             |             |              |            |
| 47          | 470  |                           |             |             |             |             |              |            |
| 56          | 560  | K:±10%<br>M:±20%          |             |             |             |             |              |            |
| 68          | 680  |                           |             |             |             |             |              |            |
| 82          | 820  |                           |             |             |             |             |              |            |
| 100         | 101  |                           |             |             |             |             |              |            |
| 150         | 151  |                           |             |             |             |             |              |            |
| 220         | 221  |                           |             |             |             |             |              |            |
| 330         | 331  |                           |             |             |             |             |              |            |
| 470         | 471  |                           |             |             |             |             |              |            |
| 680         | 681  |                           |             |             |             |             |              |            |
| 1,000       | 102  |                           |             |             |             |             |              |            |
| 1,500       | 152  |                           |             |             |             |             |              |            |
| 2,200       | 222  |                           |             |             |             |             |              |            |
| 3,300       | 332  |                           |             |             |             |             |              |            |
| 4,700       | 472  |                           |             |             |             |             |              |            |
| 6,800       | 682  |                           |             |             |             |             |              |            |
| 10,000      | 103  |                           |             |             |             |             |              |            |

Standard Thickness

0.20 mm

Background gray: The product which is not recommended to a new design

Background red: The product which is planning to stop production \* Please confirm the schedule on product details information.

■ Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC01005 [C0402]

### Capacitance Range Chart

Temperature Characteristics: X5R ( $\pm 15\%$ ), X6S ( $\pm 22\%$ ), X7R ( $\pm 15\%$ )

Rated Voltage: 16V (1C), 10V (1A), 6.3V (0J), 4V (0G)

| Capacitance |      | Tolerance                      | X5R         |             |              |            | X6S         |              |            | X7R         |              |            |
|-------------|------|--------------------------------|-------------|-------------|--------------|------------|-------------|--------------|------------|-------------|--------------|------------|
| (pF)        | Code |                                | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 100         | 101  | K: $\pm 10\%$<br>M: $\pm 20\%$ |             |             |              |            |             |              |            |             |              |            |
| 150         | 151  |                                |             |             |              |            |             |              |            |             |              |            |
| 220         | 221  |                                |             |             |              |            |             |              |            |             |              |            |
| 330         | 331  |                                |             |             |              |            |             |              |            |             |              |            |
| 470         | 471  |                                |             |             |              |            |             |              |            |             |              |            |
| 680         | 681  |                                |             |             |              |            |             |              |            |             |              |            |
| 1,000       | 102  | M: $\pm 20\%$                  |             |             |              |            |             |              |            |             |              |            |
| 1,500       | 152  |                                |             |             |              |            |             |              |            |             |              |            |
| 2,200       | 222  |                                |             |             |              |            |             |              |            |             |              |            |
| 3,300       | 332  |                                |             |             |              |            |             |              |            |             |              |            |
| 4,700       | 472  |                                |             |             |              |            |             |              |            |             |              |            |
| 6,800       | 682  |                                |             |             |              |            |             |              |            |             |              |            |
| 10,000      | 103  |                                |             |             |              |            |             |              |            |             |              |            |
| 22,000      | 223  |                                |             |             |              |            |             |              |            |             |              |            |
| 47,000      | 473  |                                |             |             |              |            |             |              |            |             |              |            |
| 100,000     | 104  |                                |             |             |              |            |             |              |            |             |              |            |
| 220,000     | 224  |                                |             |             |              |            |             |              |            |             |              |            |

Standard  
Thickness  
0.20 mm

Background gray: The product which is not recommended to a new design

Background red: The product which is planning to stop production \* Please confirm the schedule on product details information.

Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC0201 [C0603]

### Capacitance Range Chart

Temperature Characteristics: C0G (0±30ppm/°C), CH (0±60ppm/°C), JB (±10%), X5R (±15%)

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

| Capacitance |      | Tolerance                 | C0G         |             | CH          |             | JB          |             |             |              | X5R         |             |             |              |            |
|-------------|------|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|--------------|------------|
| (pF)        | Code |                           | 1H<br>(50V) | 1E<br>(25V) | 1H<br>(50V) | 1E<br>(25V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 0.5         | 0R5  | C:±0.25pF                 |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 0.75        | R75  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 1           | 010  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 1.5         | 1R5  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 2           | 020  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 2.2         | 2R2  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 3           | 030  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 3.3         | 3R3  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 4           | 040  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 4.7         | 4R7  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 5           | 050  | D:±0.50pF                 |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 6           | 060  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 6.8         | 6R8  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 7           | 070  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 8           | 080  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 9           | 090  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 10          | 100  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 12          | 120  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 15          | 150  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 18          | 180  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 22          | 220  | J:±5%<br>K:±10%<br>M:±20% |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 27          | 270  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 33          | 330  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 39          | 390  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 47          | 470  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 56          | 560  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 68          | 680  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 82          | 820  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 100         | 101  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 150         | 151  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 220         | 221  | K:±10%<br>M:±20%          |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 330         | 331  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 470         | 471  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 680         | 681  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 1,000       | 102  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 1,500       | 152  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 2,200       | 222  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 3,300       | 332  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 4,700       | 472  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 6,800       | 682  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 10,000      | 103  | M:±20%                    |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 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  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 1,000,000   | 105  | M:±20%                    |             |             |             |             |             |             |             |              |             |             |             |              |            |
| 2,200,000   | 225  |                           |             |             |             |             |             |             |             |              |             |             |             |              |            |

Standard Thickness  0.30 mm

 Background gray: The product which is not recommended to a new design

 Background red: The product which is planning to stop production \* Please confirm the schedule on product details information.

 Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

⚠ 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 Chart

## EIA CC0201 [C0603]

### Capacitance Range Chart

Temperature Characteristics: X6S ( $\pm 22\%$ ), X7R ( $\pm 15\%$ ), X7S ( $\pm 22\%$ )

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

| Capacitance |      | Tolerance                      | X6S         |             |             |              |            | X7R         |             |             |              | X7S         |              |            |
|-------------|------|--------------------------------|-------------|-------------|-------------|--------------|------------|-------------|-------------|-------------|--------------|-------------|--------------|------------|
| (pF)        | Code |                                | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 100         | 101  | K: $\pm 10\%$<br>M: $\pm 20\%$ |             |             |             |              |            |             |             |             |              |             |              |            |
| 150         | 151  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 220         | 221  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 330         | 331  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 470         | 471  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 680         | 681  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 1,000       | 102  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 1,500       | 152  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 2,200       | 222  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 3,300       | 332  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 4,700       | 472  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 10,000      | 103  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 22,000      | 223  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 47,000      | 473  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 68,000      | 683  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 100,000     | 104  | M: $\pm 20\%$                  |             |             |             |              |            |             |             |             |              |             |              |            |
| 150,000     | 154  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 220,000     | 224  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 330,000     | 334  |                                |             |             |             |              |            |             |             |             |              |             |              |            |
| 470,000     | 474  |                                |             |             |             |              |            |             |             |             |              |             |              |            |

Standard Thickness  0.30 mm

 Background gray: The product which is not recommended to a new design

 Background red: The product which is planning to stop production \* Please confirm the schedule on product details information.

■ Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC0402 [C1005]

### Capacitance Range Chart

Temperature Characteristics: C0G (0±30ppm/°C), CH (0±60ppm/°C)

Rated Voltage: 50V (1H), 25V (1E)

| Capacitance |      | Tolerance                         | C0G         |             | CH          |
|-------------|------|-----------------------------------|-------------|-------------|-------------|
| (pF)        | Code |                                   | 1H<br>(50V) | 1E<br>(25V) | 1H<br>(50V) |
| 0.5         | 0R5  | B:±0.10pF<br>C:±0.25pF            |             |             |             |
| 0.75        | R75  |                                   |             |             |             |
| 1           | 010  |                                   |             |             |             |
| 1.5         | 1R5  |                                   |             |             |             |
| 2           | 020  |                                   |             |             |             |
| 3           | 030  | C:±0.25pF<br>D:±0.50pF            |             |             |             |
| 4           | 040  |                                   |             |             |             |
| 5           | 050  |                                   |             |             |             |
| 6           | 060  |                                   |             |             |             |
| 7           | 070  |                                   |             |             |             |
| 8           | 080  | F:±1%<br>G:±2%<br>J:±5%           |             |             |             |
| 9           | 090  |                                   |             |             |             |
| 10          | 100  |                                   |             |             |             |
| 12          | 120  |                                   |             |             |             |
| 15          | 150  |                                   |             |             |             |
| 18          | 180  |                                   |             |             |             |
| 22          | 220  |                                   |             |             |             |
| 27          | 270  |                                   |             |             |             |
| 33          | 330  |                                   |             |             |             |
| 39          | 390  |                                   |             |             |             |
| 47          | 470  | F:±1%<br>G:±2%<br>J:±5%<br>K:±10% |             |             |             |
| 56          | 560  |                                   |             |             |             |
| 68          | 680  |                                   |             |             |             |
| 82          | 820  |                                   |             |             |             |
| 100         | 101  |                                   |             |             |             |
| 120         | 121  |                                   |             |             |             |
| 150         | 151  |                                   |             |             |             |
| 180         | 181  |                                   |             |             |             |
| 220         | 221  |                                   |             |             |             |
| 270         | 271  |                                   |             |             |             |
| 330         | 331  | Standard Thickness<br>0.50 mm     |             |             |             |
| 390         | 391  |                                   |             |             |             |
| 470         | 471  |                                   |             |             |             |
| 560         | 561  |                                   |             |             |             |
| 680         | 681  |                                   |             |             |             |
| 820         | 821  |                                   |             |             |             |
| 1,000       | 102  |                                   |             |             |             |

Background gray: The product which is not recommended to a new design

Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



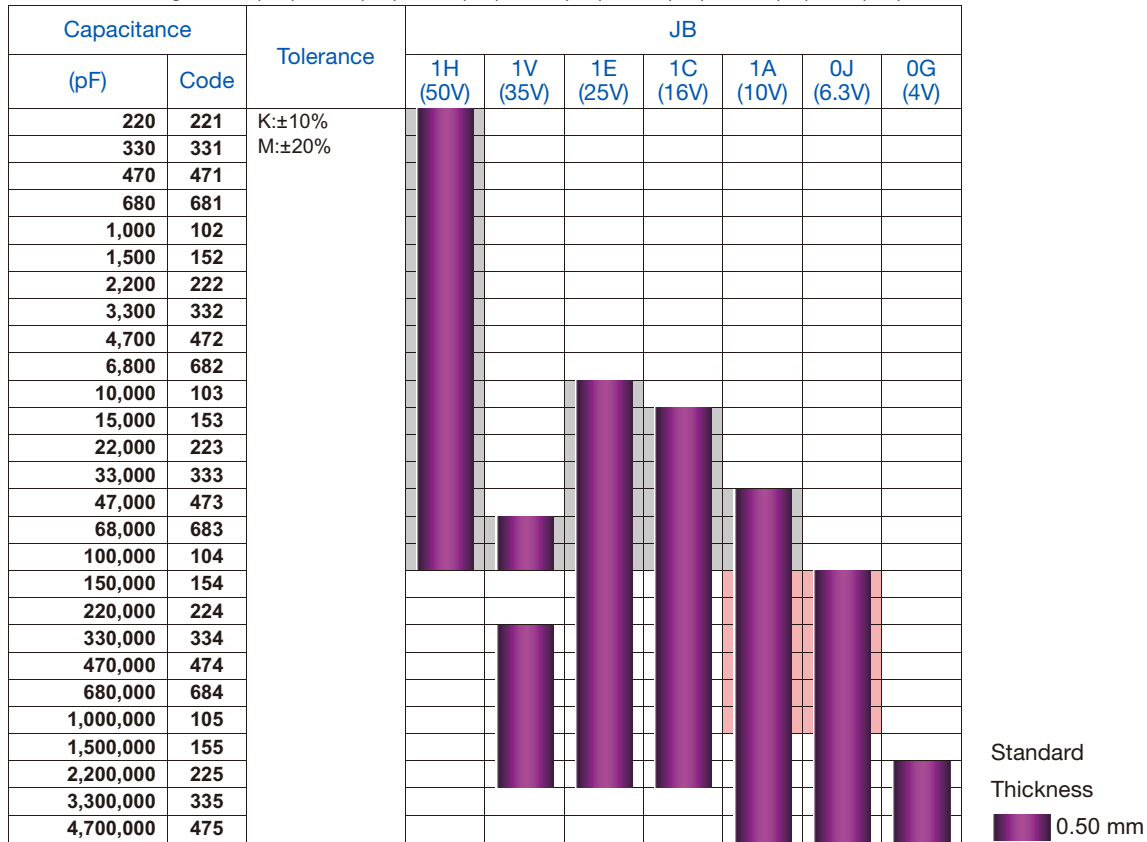
## Capacitance Range Chart

## EIA CC0402 [C1005]

### Capacitance Range Chart

Temperature Characteristics: JB ( $\pm 10\%$ )

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



■ Background gray: The product which is not recommended to a new design

■ Background red: The product which is planning to stop production \* Please confirm the schedule on product details information.

■ Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC0402 [C1005]

### Capacitance Range Chart

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

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

| Capacitance |      | Tolerance                      | X5R         |             |             |             |             |              |            |
|-------------|------|--------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|------------|
| (pF)        | Code |                                | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 220         | 221  | K: $\pm 10\%$<br>M: $\pm 20\%$ |             |             |             |             |             |              |            |
| 330         | 331  |                                |             |             |             |             |             |              |            |
| 470         | 471  |                                |             |             |             |             |             |              |            |
| 680         | 681  |                                |             |             |             |             |             |              |            |
| 1,000       | 102  |                                |             |             |             |             |             |              |            |
| 1,500       | 152  |                                |             |             |             |             |             |              |            |
| 2,200       | 222  |                                |             |             |             |             |             |              |            |
| 3,300       | 332  |                                |             |             |             |             |             |              |            |
| 4,700       | 472  |                                |             |             |             |             |             |              |            |
| 6,800       | 682  |                                |             |             |             |             |             |              |            |
| 10,000      | 103  |                                |             |             |             |             |             |              |            |
| 15,000      | 153  |                                |             |             |             |             |             |              |            |
| 22,000      | 223  |                                |             |             |             |             |             |              |            |
| 33,000      | 333  |                                |             |             |             |             |             |              |            |
| 47,000      | 473  |                                |             |             |             |             |             |              |            |
| 68,000      | 683  |                                |             |             |             |             |             |              |            |
| 100,000     | 104  | M: $\pm 20\%$                  |             |             |             |             |             |              |            |
| 150,000     | 154  |                                |             |             |             |             |             |              |            |
| 220,000     | 224  |                                |             |             |             |             |             |              |            |
| 330,000     | 334  |                                |             |             |             |             |             |              |            |
| 470,000     | 474  |                                |             |             |             |             |             |              |            |
| 680,000     | 684  |                                |             |             |             |             |             |              |            |
| 1,000,000   | 105  |                                |             |             |             |             |             |              |            |
| 1,500,000   | 155  |                                |             |             |             |             |             |              |            |
| 2,200,000   | 225  |                                |             |             |             |             |             |              |            |
| 3,300,000   | 335  |                                |             |             |             |             |             |              |            |
| 4,700,000   | 475  |                                |             |             |             |             |             |              |            |
| 10,000,000  | 106  |                                |             |             |             |             |             |              |            |

Standard Thickness

0.50 mm

### Capacitance Range Chart

Temperature Characteristics: X6S ( $\pm 22\%$ )

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

| Capacitance |      | Tolerance                      | X6S         |             |             |             |             |              |            |
|-------------|------|--------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|------------|
| (pF)        | Code |                                | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 10,000      | 103  | K: $\pm 10\%$<br>M: $\pm 20\%$ |             |             |             |             |             |              |            |
| 15,000      | 153  |                                |             |             |             |             |             |              |            |
| 22,000      | 223  |                                |             |             |             |             |             |              |            |
| 33,000      | 333  |                                |             |             |             |             |             |              |            |
| 47,000      | 473  |                                |             |             |             |             |             |              |            |
| 68,000      | 683  |                                |             |             |             |             |             |              |            |
| 100,000     | 104  |                                |             |             |             |             |             |              |            |
| 150,000     | 154  |                                |             |             |             |             |             |              |            |
| 220,000     | 224  |                                |             |             |             |             |             |              |            |
| 330,000     | 334  |                                |             |             |             |             |             |              |            |
| 470,000     | 474  |                                |             |             |             |             |             |              |            |
| 680,000     | 684  |                                |             |             |             |             |             |              |            |
| 1,000,000   | 105  |                                |             |             |             |             |             |              |            |
| 1,500,000   | 155  |                                |             |             |             |             |             |              |            |
| 2,200,000   | 225  |                                |             |             |             |             |             |              |            |
| 3,300,000   | 335  |                                |             |             |             |             |             |              |            |
| 4,700,000   | 475  | M: $\pm 20\%$                  |             |             |             |             |             |              |            |

Standard Thickness

0.50 mm

Background gray: The product which is not recommended to a new design

Background red: The product which is planning to stop production \* Please confirm the schedule on product details information.

Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

⚠ 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 Chart

## EIA CC0402 [C1005]

### Capacitance Range Chart

Temperature Characteristics: X7R( $\pm 15\%$ ), X7S( $\pm 22\%$ )

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

| Capacitance |      | Tolerance                      | X7R         |             |             |             |             | X7S         |             |              |            |
|-------------|------|--------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|------------|
| (pF)        | Code |                                | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 220         | 221  | K: $\pm 10\%$<br>M: $\pm 20\%$ |             |             |             |             |             |             |             |              |            |
| 330         | 331  |                                |             |             |             |             |             |             |             |              |            |
| 470         | 471  |                                |             |             |             |             |             |             |             |              |            |
| 680         | 681  |                                |             |             |             |             |             |             |             |              |            |
| 1,000       | 102  |                                |             |             |             |             |             |             |             |              |            |
| 1,500       | 152  |                                |             |             |             |             |             |             |             |              |            |
| 2,200       | 222  |                                |             |             |             |             |             |             |             |              |            |
| 3,300       | 332  |                                |             |             |             |             |             |             |             |              |            |
| 4,700       | 472  |                                |             |             |             |             |             |             |             |              |            |
| 6,800       | 682  |                                |             |             |             |             |             |             |             |              |            |
| 10,000      | 103  |                                |             |             |             |             |             |             |             |              |            |
| 15,000      | 153  |                                |             |             |             |             |             |             |             |              |            |
| 22,000      | 223  |                                |             |             |             |             |             |             |             |              |            |
| 33,000      | 333  |                                |             |             |             |             |             |             |             |              |            |
| 47,000      | 473  |                                |             |             |             |             |             |             |             |              |            |
| 68,000      | 683  |                                |             |             |             |             |             |             |             |              |            |
| 100,000     | 104  |                                |             |             |             |             |             |             |             |              |            |
| 150,000     | 154  |                                |             |             |             |             |             |             |             |              |            |
| 220,000     | 224  |                                |             |             |             |             |             |             |             |              |            |
| 330,000     | 334  |                                |             |             |             |             |             |             |             |              |            |
| 470,000     | 474  |                                |             |             |             |             |             |             |             |              |            |
| 680,000     | 684  |                                |             |             |             |             |             |             |             |              |            |
| 1,000,000   | 105  |                                |             |             |             |             |             |             |             |              |            |
| 1,500,000   | 155  |                                |             |             |             |             |             |             |             |              |            |
| 2,200,000   | 225  |                                |             |             |             |             |             |             |             |              |            |

Standard Thickness

0.50 mm

Background gray: The product which is not recommended to a new design

Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC0603 [C1608]

### Capacitance Range Chart

Temperature Characteristics: C0G (0±30ppm/°C), CH(0±60ppm/°C)

Rated Voltage: 50V (1H), 35V (1V), 25V (1E)

| Capacitance |      | Tolerance                         | C0G         |             |             | CH          |             |
|-------------|------|-----------------------------------|-------------|-------------|-------------|-------------|-------------|
| (pF)        | Code |                                   | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1H<br>(50V) | 1V<br>(35V) |
| 0.5         | 0R5  | C:±0.25pF                         |             |             |             |             |             |
| 0.75        | R75  |                                   |             |             |             |             |             |
| 1           | 010  |                                   |             |             |             |             |             |
| 1.5         | 1R5  |                                   |             |             |             |             |             |
| 2           | 020  |                                   |             |             |             |             |             |
| 3           | 030  | C:±0.25pF<br>D:±0.50pF            |             |             |             |             |             |
| 4           | 040  |                                   |             |             |             |             |             |
| 5           | 050  |                                   |             |             |             |             |             |
| 6           | 060  |                                   |             |             |             |             |             |
| 7           | 070  |                                   |             |             |             |             |             |
| 8           | 080  | F:±1%<br>G:±2%<br>J:±5%<br>K:±10% |             |             |             |             |             |
| 9           | 090  |                                   |             |             |             |             |             |
| 10          | 100  |                                   |             |             |             |             |             |
| 12          | 120  |                                   |             |             |             |             |             |
| 15          | 150  |                                   |             |             |             |             |             |
| 18          | 180  |                                   |             |             |             |             |             |
| 22          | 220  |                                   |             |             |             |             |             |
| 27          | 270  |                                   |             |             |             |             |             |
| 33          | 330  |                                   |             |             |             |             |             |
| 39          | 390  |                                   |             |             |             |             |             |
| 47          | 470  |                                   |             |             |             |             |             |
| 56          | 560  |                                   |             |             |             |             |             |
| 68          | 680  |                                   |             |             |             |             |             |
| 82          | 820  |                                   |             |             |             |             |             |
| 100         | 101  |                                   |             |             |             |             |             |
| 120         | 121  |                                   |             |             |             |             |             |
| 150         | 151  |                                   |             |             |             |             |             |
| 180         | 181  |                                   |             |             |             |             |             |
| 220         | 221  |                                   |             |             |             |             |             |
| 270         | 271  |                                   |             |             |             |             |             |
| 330         | 331  |                                   |             |             |             |             |             |
| 390         | 391  |                                   |             |             |             |             |             |
| 470         | 471  |                                   |             |             |             |             |             |
| 560         | 561  |                                   |             |             |             |             |             |
| 680         | 681  |                                   |             |             |             |             |             |
| 820         | 821  |                                   |             |             |             |             |             |
| 1,000       | 102  | J:±5%<br>K:±10%                   |             |             |             |             |             |
| 1,200       | 122  |                                   |             |             |             |             |             |
| 1,500       | 152  |                                   |             |             |             |             |             |
| 1,800       | 182  |                                   |             |             |             |             |             |
| 2,200       | 222  |                                   |             |             |             |             |             |
| 2,700       | 272  |                                   |             |             |             |             |             |
| 3,300       | 332  |                                   |             |             |             |             |             |
| 3,900       | 392  |                                   |             |             |             |             |             |
| 4,700       | 472  |                                   |             |             |             |             |             |
| 5,600       | 562  |                                   |             |             |             |             |             |
| 6,800       | 682  |                                   |             |             |             |             |             |
| 8,200       | 822  |                                   |             |             |             |             |             |
| 10,000      | 103  |                                   |             |             |             |             |             |
| 15,000      | 153  |                                   |             |             |             |             |             |
| 18,000      | 183  |                                   |             |             |             |             |             |

Standard Thickness

0.80 mm

Background gray: The product which is not recommended to a new design

Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC0603 [C1608]

### Capacitance Range Chart

Temperature Characteristics: JB(±10%)

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

| Capacitance |      | Tolerance        | JB          |             |             |             |             |              |            |
|-------------|------|------------------|-------------|-------------|-------------|-------------|-------------|--------------|------------|
| (pF)        | Code |                  | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 10,000      | 103  | K:±10%<br>M:±20% |             |             |             |             |             |              |            |
| 15,000      | 153  |                  |             |             |             |             |             |              |            |
| 22,000      | 223  |                  |             |             |             |             |             |              |            |
| 33,000      | 333  |                  |             |             |             |             |             |              |            |
| 47,000      | 473  |                  |             |             |             |             |             |              |            |
| 68,000      | 683  |                  |             |             |             |             |             |              |            |
| 100,000     | 104  |                  |             |             |             |             |             |              |            |
| 150,000     | 154  |                  |             |             |             |             |             |              |            |
| 220,000     | 224  |                  |             |             |             |             |             |              |            |
| 330,000     | 334  |                  |             |             |             |             |             |              |            |
| 470,000     | 474  |                  |             |             |             |             |             |              |            |
| 680,000     | 684  |                  |             |             |             |             |             |              |            |
| 1,000,000   | 105  |                  |             |             |             |             |             |              |            |
| 1,500,000   | 155  |                  |             |             |             |             |             |              |            |
| 2,200,000   | 225  |                  |             |             |             |             |             |              |            |
| 3,300,000   | 335  |                  |             |             |             |             |             |              |            |
| 4,700,000   | 475  |                  |             |             |             |             |             |              |            |
| 6,800,000   | 685  |                  |             |             |             |             |             |              |            |
| 10,000,000  | 106  | M:±20%           |             |             |             |             |             |              |            |
| 15,000,000  | 156  |                  |             |             |             |             |             |              |            |
| 22,000,000  | 226  |                  |             |             |             |             |             |              |            |

Standard Thickness

0.80 mm

### Capacitance Range Chart

Temperature Characteristics: X5R (±15%)

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

| Capacitance |      | Tolerance        | X5R         |             |             |             |             |              |            |
|-------------|------|------------------|-------------|-------------|-------------|-------------|-------------|--------------|------------|
| (pF)        | Code |                  | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 10,000      | 103  | K:±10%<br>M:±20% |             |             |             |             |             |              |            |
| 15,000      | 153  |                  |             |             |             |             |             |              |            |
| 22,000      | 223  |                  |             |             |             |             |             |              |            |
| 33,000      | 333  |                  |             |             |             |             |             |              |            |
| 47,000      | 473  |                  |             |             |             |             |             |              |            |
| 68,000      | 683  |                  |             |             |             |             |             |              |            |
| 100,000     | 104  |                  |             |             |             |             |             |              |            |
| 150,000     | 154  |                  |             |             |             |             |             |              |            |
| 220,000     | 224  |                  |             |             |             |             |             |              |            |
| 330,000     | 334  |                  |             |             |             |             |             |              |            |
| 470,000     | 474  |                  |             |             |             |             |             |              |            |
| 680,000     | 684  |                  |             |             |             |             |             |              |            |
| 1,000,000   | 105  |                  |             |             |             |             |             |              |            |
| 1,500,000   | 155  |                  |             |             |             |             |             |              |            |
| 2,200,000   | 225  |                  |             |             |             |             |             |              |            |
| 3,300,000   | 335  |                  |             |             |             |             |             |              |            |
| 4,700,000   | 475  |                  |             |             |             |             |             |              |            |
| 6,800,000   | 685  |                  |             |             |             |             |             |              |            |
| 10,000,000  | 106  | M:±20%           |             |             |             |             |             |              |            |
| 15,000,000  | 156  |                  |             |             |             |             |             |              |            |
| 22,000,000  | 226  |                  |             |             |             |             |             |              |            |

Standard Thickness

0.80 mm

Background gray: The product which is not recommended to a new design

Background red: The product which is planning to stop production \* Please confirm the schedule on product details information.

Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC0603 [C1608]

### Capacitance Range Chart

Temperature Characteristics: X6S ( $\pm 22\%$ )

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

| Capacitance |      | Tolerance                      | X6S         |             |             |             |             |              |            |
|-------------|------|--------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|------------|
| (pF)        | Code |                                | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 150,000     | 154  | K: $\pm 10\%$<br>M: $\pm 20\%$ |             |             |             |             |             |              |            |
| 220,000     | 224  |                                |             |             |             |             |             |              |            |
| 330,000     | 334  |                                |             |             |             |             |             |              |            |
| 470,000     | 474  |                                |             |             |             |             |             |              |            |
| 680,000     | 684  |                                |             |             |             |             |             |              |            |
| 1,000,000   | 105  |                                |             |             |             |             |             |              |            |
| 1,500,000   | 155  |                                |             |             |             |             |             |              |            |
| 2,200,000   | 225  |                                |             |             |             |             |             |              |            |
| 3,300,000   | 335  |                                |             |             |             |             |             |              |            |
| 4,700,000   | 475  |                                |             |             |             |             |             |              |            |
| 6,800,000   | 685  |                                |             |             |             |             |             |              |            |
| 10,000,000  | 106  |                                |             |             |             |             |             |              |            |

Standard Thickness  
0.80 mm

### Capacitance Range Chart

Temperature Characteristics: X7R ( $\pm 15\%$ ), X7S ( $\pm 22\%$ )

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

| Capacitance |      | Tolerance                      | X7R         |             |             |             |             |              | X7S         |             |              |            |
|-------------|------|--------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|--------------|------------|
| (pF)        | Code |                                | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 10,000      | 103  | K: $\pm 10\%$<br>M: $\pm 20\%$ |             |             |             |             |             |              |             |             |              |            |
| 15,000      | 153  |                                |             |             |             |             |             |              |             |             |              |            |
| 22,000      | 223  |                                |             |             |             |             |             |              |             |             |              |            |
| 33,000      | 333  |                                |             |             |             |             |             |              |             |             |              |            |
| 47,000      | 473  |                                |             |             |             |             |             |              |             |             |              |            |
| 68,000      | 683  |                                |             |             |             |             |             |              |             |             |              |            |
| 100,000     | 104  |                                |             |             |             |             |             |              |             |             |              |            |
| 150,000     | 154  |                                |             |             |             |             |             |              |             |             |              |            |
| 220,000     | 224  |                                |             |             |             |             |             |              |             |             |              |            |
| 330,000     | 334  |                                |             |             |             |             |             |              |             |             |              |            |
| 470,000     | 474  |                                |             |             |             |             |             |              |             |             |              |            |
| 680,000     | 684  | M: $\pm 20\%$                  |             |             |             |             |             |              |             |             |              |            |
| 1,000,000   | 105  |                                |             |             |             |             |             |              |             |             |              |            |
| 1,500,000   | 155  |                                |             |             |             |             |             |              |             |             |              |            |
| 2,200,000   | 225  |                                |             |             |             |             |             |              |             |             |              |            |
| 3,300,000   | 335  |                                |             |             |             |             |             |              |             |             |              |            |
| 4,700,000   | 475  |                                |             |             |             |             |             |              |             |             |              |            |
| 6,800,000   | 685  |                                |             |             |             |             |             |              |             |             |              |            |
| 10,000,000  | 106  |                                |             |             |             |             |             |              |             |             |              |            |

Standard Thickness  
0.80 mm

Background gray: The product which is not recommended to a new design

Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC0805 [C2012]

### Capacitance Range Chart

Temperature Characteristics: C0G (0±30ppm/°C), CH (0±60ppm/°C), JB (±10%)

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

| Capacitance |      | Tolerance        | C0G         |             |             | CH          |             | JB          |             |             |             |             |              |
|-------------|------|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| (pF)        | Code |                  | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1H<br>(50V) | 1V<br>(35V) | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) |
| 1,000       | 102  | J:±5%<br>K:±10%  |             |             |             |             |             |             |             |             |             |             |              |
| 1,200       | 122  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 1,500       | 152  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 1,800       | 182  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 2,200       | 222  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 2,700       | 272  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 3,300       | 332  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 3,900       | 392  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 4,700       | 472  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 5,600       | 562  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 6,800       | 682  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 8,200       | 822  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 10,000      | 103  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 15,000      | 153  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 18,000      | 183  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 22,000      | 223  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 27,000      | 273  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 30,000      | 303  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 33,000      | 333  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 100,000     | 104  | K:±10%<br>M:±20% |             |             |             |             |             |             |             |             |             |             |              |
| 150,000     | 154  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 220,000     | 224  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 330,000     | 334  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 470,000     | 474  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 680,000     | 684  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 1,000,000   | 105  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 1,500,000   | 155  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 2,200,000   | 225  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 3,300,000   | 335  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 4,700,000   | 475  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 6,800,000   | 685  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 10,000,000  | 106  | M:±20%           |             |             |             |             |             |             |             |             |             |             |              |
| 15,000,000  | 156  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 22,000,000  | 226  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 33,000,000  | 336  |                  |             |             |             |             |             |             |             |             |             |             |              |
| 47,000,000  | 476  |                  |             |             |             |             |             |             |             |             |             |             |              |

Standard Thickness 0.60 mm 0.85 mm 1.25 mm

Background gray: The product which is not recommended to a new design

Background red: The product which is planning to stop production \* Please confirm the schedule on product details information.

■ Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC0805 [C2012]

### Capacitance Range Chart

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

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

| Capacitance |      | Tolerance                      | X5R         |             |             |             |             |              |            |
|-------------|------|--------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|------------|
| (pF)        | Code |                                | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 100,000     | 104  | K: $\pm 10\%$<br>M: $\pm 20\%$ |             |             |             |             |             |              |            |
| 150,000     | 154  |                                |             |             |             |             |             |              |            |
| 220,000     | 224  |                                |             |             |             |             |             |              |            |
| 330,000     | 334  |                                |             |             |             |             |             |              |            |
| 470,000     | 474  |                                |             |             |             |             |             |              |            |
| 680,000     | 684  |                                |             |             |             |             |             |              |            |
| 1,000,000   | 105  |                                |             |             |             |             |             |              |            |
| 1,500,000   | 155  |                                |             |             |             |             |             |              |            |
| 2,200,000   | 225  |                                |             |             |             |             |             |              |            |
| 3,300,000   | 335  |                                |             |             |             |             |             |              |            |
| 4,700,000   | 475  |                                |             |             |             |             |             |              |            |
| 6,800,000   | 685  |                                |             |             |             |             |             |              |            |
| 10,000,000  | 106  |                                |             |             |             |             |             |              |            |
| 15,000,000  | 156  |                                |             |             |             |             |             |              |            |
| 22,000,000  | 226  |                                |             |             |             |             |             |              |            |
| 33,000,000  | 336  | M: $\pm 20\%$                  |             |             |             |             |             |              |            |
| 47,000,000  | 476  |                                |             |             |             |             |             |              |            |

Standard Thickness

0.85 mm

1.25 mm

### Capacitance Range Chart

Temperature Characteristics: X6S ( $\pm 22\%$ )

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

| Capacitance |      | Tolerance                      | X6S         |             |             |             |             |              |            |
|-------------|------|--------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|------------|
| (pF)        | Code |                                | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 470,000     | 474  | K: $\pm 10\%$<br>M: $\pm 20\%$ |             |             |             |             |             |              |            |
| 680,000     | 684  |                                |             |             |             |             |             |              |            |
| 1,000,000   | 105  |                                |             |             |             |             |             |              |            |
| 1,500,000   | 155  |                                |             |             |             |             |             |              |            |
| 2,200,000   | 225  |                                |             |             |             |             |             |              |            |
| 3,300,000   | 335  |                                |             |             |             |             |             |              |            |
| 4,700,000   | 475  |                                |             |             |             |             |             |              |            |
| 6,800,000   | 685  | M: $\pm 20\%$                  |             |             |             |             |             |              |            |
| 10,000,000  | 106  |                                |             |             |             |             |             |              |            |
| 15,000,000  | 156  |                                |             |             |             |             |             |              |            |
| 22,000,000  | 226  |                                |             |             |             |             |             |              |            |
| 33,000,000  | 336  |                                |             |             |             |             |             |              |            |
| 47,000,000  | 476  |                                |             |             |             |             |             |              |            |

Standard Thickness

0.85 mm

1.25 mm

Background gray: The product which is not recommended to a new design

Background red: The product which is planning to stop production \* Please confirm the schedule on product details information.

Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC0805 [C2012]

### Capacitance Range Chart

Temperature Characteristics: X7R ( $\pm 15\%$ ), X7S ( $\pm 22\%$ )

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

| Capacitance |      | Tolerance                      | X7R         |             |             |             |             |              | X7S         |             |              |            |
|-------------|------|--------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|--------------|------------|
| (pF)        | Code |                                | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 100,000     | 104  | K: $\pm 10\%$<br>M: $\pm 20\%$ | ■           |             |             |             |             |              |             |             |              |            |
| 150,000     | 154  |                                | ■           |             |             |             |             |              |             |             |              |            |
| 220,000     | 224  |                                | ■           |             |             |             |             |              |             |             |              |            |
| 330,000     | 334  |                                | ■           |             |             |             |             |              |             |             |              |            |
| 470,000     | 474  |                                | ■           | ■           | ■           | ■           |             |              |             |             |              |            |
| 680,000     | 684  |                                | ■           | ■           | ■           | ■           |             |              |             |             |              |            |
| 1,000,000   | 105  |                                | ■           | ■           | ■           | ■           |             |              |             |             |              |            |
| 1,500,000   | 155  |                                | ■           | ■           | ■           | ■           |             |              |             |             |              |            |
| 2,200,000   | 225  |                                | ■           | ■           | ■           | ■           |             |              |             |             |              |            |
| 3,300,000   | 335  |                                | ■           | ■           | ■           | ■           | ■           |              |             |             |              |            |
| 4,700,000   | 475  | M: $\pm 20\%$                  | ■           | ■           | ■           | ■           | ■           | ■            | ■           |             |              |            |
| 6,800,000   | 685  |                                | ■           | ■           | ■           | ■           | ■           | ■            | ■           |             |              |            |
| 10,000,000  | 106  |                                | ■           | ■           | ■           | ■           | ■           | ■            | ■           | ■           |              |            |
| 15,000,000  | 156  |                                | ■           | ■           | ■           | ■           | ■           | ■            | ■           | ■           | ■            |            |
| 22,000,000  | 226  |                                | ■           | ■           | ■           | ■           | ■           | ■            | ■           | ■           | ■            | ■          |

Standard Thickness

■ 0.85 mm  
■ 1.25 mm

Background gray: The product which is not recommended to a new design

■ Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



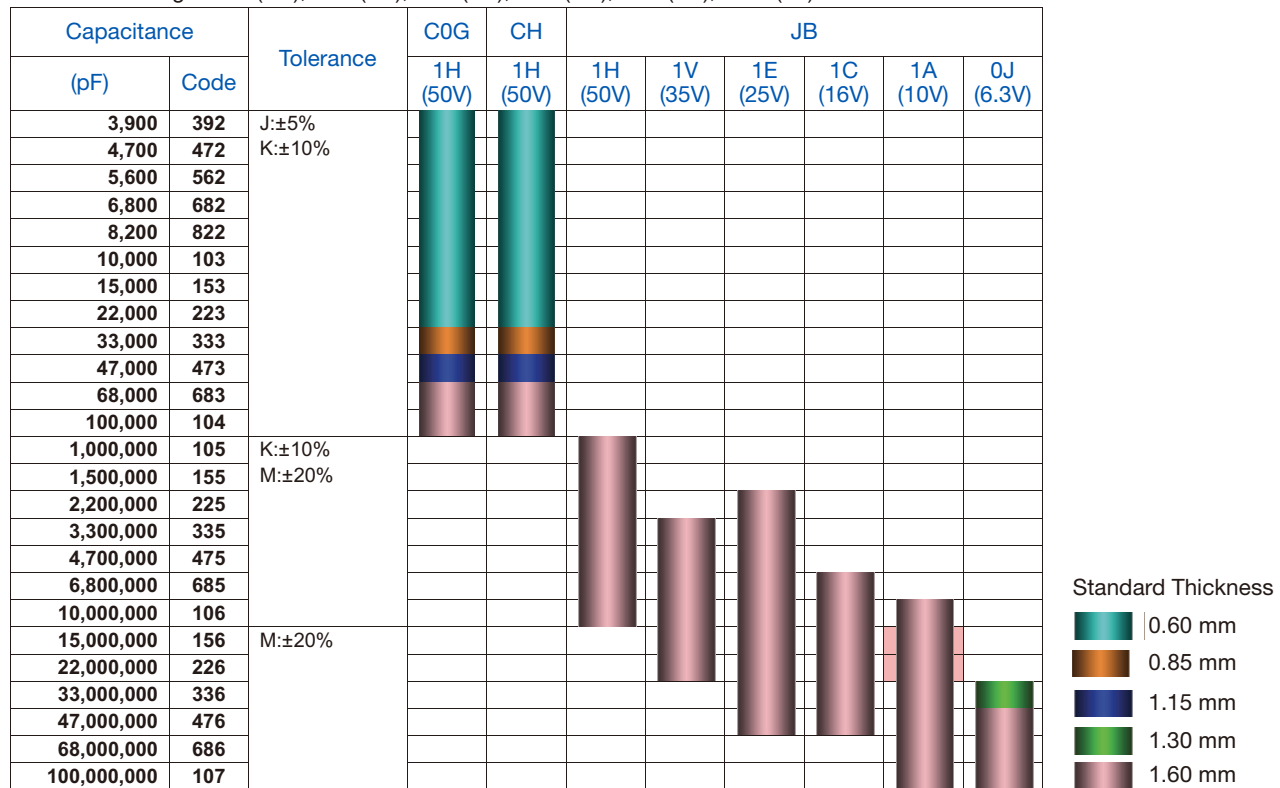
## Capacitance Range Chart

## EIA CC1206 [C3216]

### Capacitance Range Chart

Temperature Characteristics: C0G (0±30ppm/°C), CH (0±60ppm/°C), JB (±10%)

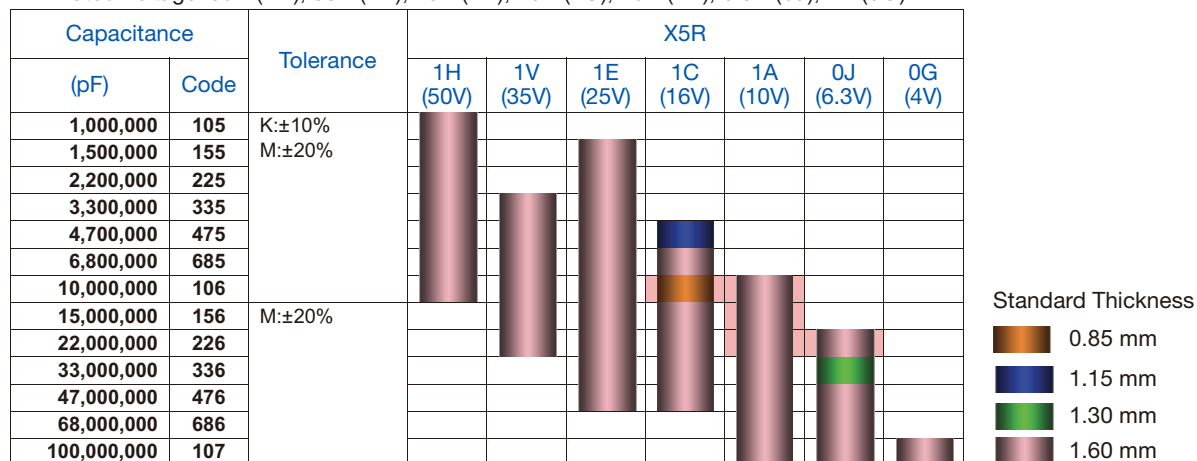
Rated Voltage: 50V (1H), 35V (1V), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J)



### Capacitance Range Chart

Temperature Characteristics: X5R (±15%)

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



Background red: The product which is planning to stop production \* Please confirm the schedule on product details information.

Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC1206 [C3216]

### Capacitance Range Chart

Temperature Characteristics: X6S ( $\pm 22\%$ )

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

| Capacitance |      | Tolerance                      | X6S         |             |             |             |             |              |            |
|-------------|------|--------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|------------|
| (pF)        | Code |                                | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 1,500,000   | 155  | K: $\pm 10\%$<br>M: $\pm 20\%$ |             |             |             |             |             |              |            |
| 2,200,000   | 225  |                                |             |             |             |             |             |              |            |
| 3,300,000   | 335  |                                |             |             |             |             |             |              |            |
| 4,700,000   | 475  |                                |             |             |             |             |             |              |            |
| 6,800,000   | 685  |                                |             |             |             |             |             |              |            |
| 10,000,000  | 106  | M: $\pm 20\%$                  |             |             |             |             |             |              |            |
| 15,000,000  | 156  |                                |             |             |             |             |             |              |            |
| 22,000,000  | 226  |                                |             |             |             |             |             |              |            |
| 33,000,000  | 336  |                                |             |             |             |             |             |              |            |
| 47,000,000  | 476  |                                |             |             |             |             |             |              |            |
| 68,000,000  | 686  |                                |             |             |             |             |             |              |            |
| 100,000,000 | 107  |                                |             |             |             |             |             |              |            |

Standard Thickness



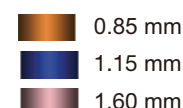
### Capacitance Range Chart

Temperature Characteristics: X7R ( $\pm 15\%$ ), X7S ( $\pm 22\%$ )

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

| Capacitance |      | Tolerance                      | X7R         |             |             |             |             |              | X7S         |              |            |
|-------------|------|--------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|--------------|------------|
| (pF)        | Code |                                | 1H<br>(50V) | 1V<br>(35V) | 1E<br>(25V) | 1C<br>(16V) | 1A<br>(10V) | 0J<br>(6.3V) | 1A<br>(10V) | 0J<br>(6.3V) | 0G<br>(4V) |
| 220,000     | 224  | K: $\pm 10\%$<br>M: $\pm 20\%$ |             |             |             |             |             |              |             |              |            |
| 330,000     | 334  |                                |             |             |             |             |             |              |             |              |            |
| 470,000     | 474  |                                |             |             |             |             |             |              |             |              |            |
| 680,000     | 684  |                                |             |             |             |             |             |              |             |              |            |
| 1,000,000   | 105  |                                |             |             |             |             |             |              |             |              |            |
| 1,500,000   | 155  | M: $\pm 20\%$                  |             |             |             |             |             |              |             |              |            |
| 2,200,000   | 225  |                                |             |             |             |             |             |              |             |              |            |
| 3,300,000   | 335  |                                |             |             |             |             |             |              |             |              |            |
| 4,700,000   | 475  |                                |             |             |             |             |             |              |             |              |            |
| 6,800,000   | 685  |                                |             |             |             |             |             |              |             |              |            |
| 10,000,000  | 106  | M: $\pm 20\%$                  |             |             |             |             |             |              |             |              |            |
| 15,000,000  | 156  |                                |             |             |             |             |             |              |             |              |            |
| 22,000,000  | 226  |                                |             |             |             |             |             |              |             |              |            |
| 33,000,000  | 336  |                                |             |             |             |             |             |              |             |              |            |
| 47,000,000  | 476  |                                |             |             |             |             |             |              |             |              |            |

Standard Thickness



■ Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC1210 [C3225]

### Capacitance Range Chart

Temperature Characteristics: C0G (0±30ppm/°C), CH (0±60ppm/°C), JB (±10%), X5R (±15%)

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

| Capacitance |      | Tolerance        | C0G      | CH       | JB       |          |          |          |           | X5R      |          |          |          |           |
|-------------|------|------------------|----------|----------|----------|----------|----------|----------|-----------|----------|----------|----------|----------|-----------|
| (pF)        | Code |                  | 1H (50V) | 1H (50V) | 1H (50V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) | 1H (50V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) |
| 22,000      | 223  | J:±5%<br>K:±10%  |          |          |          |          |          |          |           |          |          |          |          |           |
| 33,000      | 333  |                  |          |          |          |          |          |          |           |          |          |          |          |           |
| 47,000      | 473  |                  |          |          |          |          |          |          |           |          |          |          |          |           |
| 68,000      | 683  |                  |          |          |          |          |          |          |           |          |          |          |          |           |
| 100,000     | 104  |                  |          |          |          |          |          |          |           |          |          |          |          |           |
| 2,200,000   | 225  | K:±10%<br>M:±20% |          |          |          |          |          |          |           |          |          |          |          |           |
| 3,300,000   | 335  |                  |          |          |          |          |          |          |           |          |          |          |          |           |
| 4,700,000   | 475  |                  |          |          |          |          |          |          |           |          |          |          |          |           |
| 6,800,000   | 685  |                  |          |          |          |          |          |          |           |          |          |          |          |           |
| 10,000,000  | 106  |                  |          |          |          |          |          |          |           |          |          |          |          |           |
| 15,000,000  | 156  | M:±20%           |          |          |          |          |          |          |           |          |          |          |          |           |
| 22,000,000  | 226  |                  |          |          |          |          |          |          |           |          |          |          |          |           |
| 33,000,000  | 336  |                  |          |          |          |          |          |          |           |          |          |          |          |           |
| 47,000,000  | 476  |                  |          |          |          |          |          |          |           |          |          |          |          |           |
| 68,000,000  | 686  |                  |          |          |          |          |          |          |           |          |          |          |          |           |
| 100,000,000 | 107  |                  |          |          |          |          |          |          |           |          |          |          |          |           |

Standard Thickness 1.25 mm 1.60 mm 2.00 mm 2.30 mm 2.50 mm

### Capacitance Range Chart

Temperature Characteristics: X6S (±22%), X7R (±15%), X7S (±22%)

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

| Capacitance |      | Tolerance        | X6S      |          |          |          |           |         | X7R      |          |          |          | X7S      |           |
|-------------|------|------------------|----------|----------|----------|----------|-----------|---------|----------|----------|----------|----------|----------|-----------|
| (pF)        | Code |                  | 1H (50V) | 1V (35V) | 1E (25V) | 1C (16V) | 0J (6.3V) | 0G (4V) | 1H (50V) | 1E (25V) | 1C (16V) | 1A (10V) | 1H (50V) | 0J (6.3V) |
| 1,000,000   | 105  | K:±10%<br>M:±20% |          |          |          |          |           |         |          |          |          |          |          |           |
| 1,500,000   | 155  |                  |          |          |          |          |           |         |          |          |          |          |          |           |
| 2,200,000   | 225  |                  |          |          |          |          |           |         |          |          |          |          |          |           |
| 3,300,000   | 335  |                  |          |          |          |          |           |         |          |          |          |          |          |           |
| 4,700,000   | 475  |                  |          |          |          |          |           |         |          |          |          |          |          |           |
| 6,800,000   | 685  | M:±20%           |          |          |          |          |           |         |          |          |          |          |          |           |
| 10,000,000  | 106  |                  |          |          |          |          |           |         |          |          |          |          |          |           |
| 15,000,000  | 156  |                  |          |          |          |          |           |         |          |          |          |          |          |           |
| 22,000,000  | 226  |                  |          |          |          |          |           |         |          |          |          |          |          |           |
| 47,000,000  | 476  |                  |          |          |          |          |           |         |          |          |          |          |          |           |
| 100,000,000 | 107  |                  |          |          |          |          |           |         |          |          |          |          |          |           |

Standard Thickness 1.60 mm 2.00 mm 2.30 mm 2.50 mm

■ Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC1812 [C4532]

### Capacitance Range Chart

Temperature Characteristics: C0G (0±30ppm/°C), CH (0±60ppm/°C), JB (±10%)

Rated Voltage: 50V (1H), 25V (1E), 16V (1C)

| Capacitance |      | Tolerance        | C0G      | CH       | JB       |          |          |
|-------------|------|------------------|----------|----------|----------|----------|----------|
| (pF)        | Code |                  | 1H (50V) | 1H (50V) | 1H (50V) | 1E (25V) | 1C (16V) |
| 47,000      | 473  | J:±5%<br>K:±10%  |          |          |          |          |          |
| 68,000      | 683  |                  |          |          |          |          |          |
| 100,000     | 104  |                  |          |          |          |          |          |
| 150,000     | 154  |                  |          |          |          |          |          |
| 220,000     | 224  |                  |          |          |          |          |          |
| 6,800,000   | 685  | K:±10%<br>M:±20% |          |          |          |          |          |
| 10,000,000  | 106  |                  |          |          |          |          |          |
| 15,000,000  | 156  |                  |          |          |          |          |          |
| 22,000,000  | 226  |                  |          |          |          |          |          |
| 33,000,000  | 336  |                  |          |          |          |          |          |

Standard Thickness

- 1.60 mm
- 2.00 mm
- 2.50 mm
- 3.20 mm

### Capacitance Range Chart

Temperature Characteristics: X5R (±15%), X6S (±22%), X7R (±15%)

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

| Capacitance |      | Tolerance        | X5R      |          |          |          |           | X6S       | X7R      |          |          |
|-------------|------|------------------|----------|----------|----------|----------|-----------|-----------|----------|----------|----------|
| (pF)        | Code |                  | 1H (50V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) | 0J (6.3V) | 1H (50V) | 1E (25V) | 1C (16V) |
| 1,000,000   | 105  | K:±10%<br>M:±20% |          |          |          |          |           |           |          |          |          |
| 2,200,000   | 225  |                  |          |          |          |          |           |           |          |          |          |
| 3,300,000   | 335  |                  |          |          |          |          |           |           |          |          |          |
| 4,700,000   | 475  |                  |          |          |          |          |           |           |          |          |          |
| 6,800,000   | 685  |                  |          |          |          |          |           |           |          |          |          |
| 10,000,000  | 106  | M:±20%           |          |          |          |          |           |           |          |          |          |
| 15,000,000  | 156  |                  |          |          |          |          |           |           |          |          |          |
| 22,000,000  | 226  |                  |          |          |          |          |           |           |          |          |          |
| 33,000,000  | 336  |                  |          |          |          |          |           |           |          |          |          |
| 47,000,000  | 476  |                  |          |          |          |          |           |           |          |          |          |
| 68,000,000  | 686  |                  |          |          |          |          |           |           |          |          |          |
| 100,000,000 | 107  |                  |          |          |          |          |           |           |          |          |          |

Standard Thickness

- 1.60 mm
- 2.00 mm
- 2.30 mm
- 2.50 mm
- 2.80 mm

■ Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Chart

## EIA CC2220 [C5750]

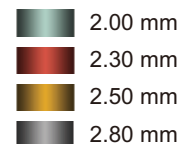
### Capacitance Range Chart

Temperature Characteristics: JB ( $\pm 10\%$ ), X5R ( $\pm 15\%$ ), X7R ( $\pm 15\%$ )

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

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

Standard Thickness



■ Please refer to a capacitance range table after P-21 for the details such as product thickness, a capacitance tolerance.

# 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: 50V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 0.5 pF      | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402C0G1C0R5C020BC    |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603C0G1H0R5C030BA    | C0603C0G1E0R5C030BA    |                        |
|             | 1005 | 0.50±0.05      | ±0.10pF               | C1005C0G1H0R5B050BA    |                        |                        |
|             | 1005 | 0.50±0.05      | ±0.25pF               | C1005C0G1H0R5C050BA    |                        |                        |
| 0.75 pF     | 1608 | 0.80±0.10      | ±0.25pF               | C1608C0G1H0R5C080AA    |                        |                        |
|             | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402C0G1C0R75C020BC   |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603C0G1HR75C030BA    | C0603C0G1ER75C030BA    |                        |
|             | 1005 | 0.50±0.05      | ±0.10pF               | C1005C0G1HR75B050BA    |                        |                        |
| 1 pF        | 1005 | 0.50±0.05      | ±0.25pF               | C1005C0G1HR75C050BA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.25pF               | C1608C0G1HR75C080AA    |                        |                        |
|             | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402C0G1C010C020BC    |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603C0G1H010C030BA    | C0603C0G1E010C030BA    |                        |
| 1.5 pF      | 1005 | 0.50±0.05      | ±0.10pF               | C1005C0G1H010B050BA    |                        |                        |
|             | 1005 | 0.50±0.05      | ±0.25pF               | C1005C0G1H010C050BA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.25pF               | C1608C0G1H010C080AA    |                        |                        |
|             | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402C0G1C1R5C020BC    |
| 2 pF        | 0603 | 0.30±0.03      | ±0.25pF               | C0603C0G1H1R5C030BA    | C0603C0G1E1R5C030BA    |                        |
|             | 1005 | 0.50±0.05      | ±0.10pF               | C1005C0G1H1R5B050BA    |                        |                        |
|             | 1005 | 0.50±0.05      | ±0.25pF               | C1005C0G1H1R5C050BA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.25pF               | C1608C0G1H1R5C080AA    |                        |                        |
| 2.2 pF      | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402C0G1C020C020BC    |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603C0G1H020C030BA    | C0603C0G1E020C030BA    |                        |
|             | 1005 | 0.50±0.05      | ±0.10pF               | C1005C0G1H020B050BA    |                        |                        |
|             | 1005 | 0.50±0.05      | ±0.25pF               | C1005C0G1H020C050BA    |                        |                        |
| 3 pF        | 1608 | 0.80±0.10      | ±0.25pF               | C1608C0G1H020C080AA    |                        |                        |
|             | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402C0G1C2R2C020BC    |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603C0G1H2R2C030BA    | C0603C0G1E2R2C030BA    |                        |
|             | 1005 | 0.50±0.05      | ±0.10pF               | C1005C0G1H030B050BA    |                        |                        |
| 3.3 pF      | 1005 | 0.50±0.05      | ±0.25pF               | C1005C0G1H030C050BA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.25pF               | C1608C0G1H030C080AA    |                        |                        |
|             | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402C0G1C3R3C020BC    |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603C0G1H3R3C030BA    | C0603C0G1E3R3C030BA    |                        |
| 4 pF        | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402C0G1C040C020BC    |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603C0G1H040C030BA    | C0603C0G1E040C030BA    |                        |
|             | 1005 | 0.50±0.05      | ±0.10pF               | C1005C0G1H040B050BA    |                        |                        |
|             | 1005 | 0.50±0.05      | ±0.25pF               | C1005C0G1H040C050BA    |                        |                        |
| 4.7 pF      | 1608 | 0.80±0.10      | ±0.25pF               | C1608C0G1H040C080AA    |                        |                        |
|             | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402C0G1C4R7C020BC    |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603C0G1H4R7C030BA    | C0603C0G1E4R7C030BA    |                        |
|             | 1005 | 0.50±0.05      | ±0.10pF               | C1005C0G1H050B050BA    |                        |                        |
| 5 pF        | 1005 | 0.50±0.05      | ±0.25pF               | C1005C0G1H050C050BA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.25pF               | C1608C0G1H050C080AA    |                        |                        |
|             | 0402 | 0.20±0.02      | ±0.50pF               |                        |                        | C0402C0G1C060D020BC    |
|             | 0603 | 0.30±0.03      | ±0.50pF               | C0603C0G1H060D030BA    | C0603C0G1E060D030BA    |                        |
| 6 pF        | 1005 | 0.50±0.05      | ±0.25pF               | C1005C0G1H060C050BA    |                        |                        |
|             | 1005 | 0.50±0.05      | ±0.50pF               | C1005C0G1H060D050BA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.25pF               | C1608C0G1H060C080AA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.50pF               | C1608C0G1H060D080AA    |                        |                        |
| 6.8 pF      | 0402 | 0.20±0.02      | ±0.50pF               |                        |                        | C0402C0G1C6R8D020BC    |
|             | 0603 | 0.30±0.03      | ±0.50pF               | C0603C0G1H6R8D030BA    | C0603C0G1E6R8D030BA    |                        |
|             | 0402 | 0.20±0.02      | ±0.50pF               |                        |                        | C0402C0G1C070D020BC    |
|             | 0603 | 0.30±0.03      | ±0.50pF               | C0603C0G1H070D030BA    | C0603C0G1E070D030BA    |                        |
| 7 pF        | 1005 | 0.50±0.05      | ±0.25pF               | C1005C0G1H070C050BA    |                        |                        |
|             | 1005 | 0.50±0.05      | ±0.50pF               | C1005C0G1H070D050BA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.25pF               | C1608C0G1H070C080AA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.50pF               | C1608C0G1H070D080AA    |                        |                        |

■ The gray items are non-recommended products in the new design.

# 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: 50V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 8 pF        | 0402 | 0.20±0.02      | ±0.50pF               |                        |                        | C0402C0G1C080D020BC    |
|             | 0603 | 0.30±0.03      | ±0.50pF               | C0603C0G1H080D030BA    | C0603C0G1E080D030BA    |                        |
|             | 1005 | 0.50±0.05      | ±0.25pF               | C1005C0G1H080C050BA    |                        |                        |
|             |      |                | ±0.50pF               | C1005C0G1H080D050BA    |                        |                        |
|             |      |                | ±0.25pF               | C1608C0G1H080C080AA    |                        |                        |
|             |      |                | ±0.50pF               | C1608C0G1H080D080AA    |                        |                        |
| 9 pF        | 0402 | 0.20±0.02      | ±0.50pF               |                        |                        | C0402C0G1C090D020BC    |
|             | 0603 | 0.30±0.03      | ±0.50pF               | C0603C0G1H090D030BA    | C0603C0G1E090D030BA    |                        |
|             | 1005 | 0.50±0.05      | ±0.25pF               | C1005C0G1H090C050BA    |                        |                        |
|             |      |                | ±0.50pF               | C1005C0G1H090D050BA    |                        |                        |
|             |      |                | ±0.25pF               | C1608C0G1H090C080AA    |                        |                        |
|             |      |                | ±0.50pF               | C1608C0G1H090D080AA    |                        |                        |
| 10 pF       | 0402 | 0.20±0.02      | ±0.50pF               |                        |                        | C0402C0G1C100D020BC    |
|             | 0603 | 0.30±0.03      | ±0.50pF               | C0603C0G1H100D030BA    | C0603C0G1E100D030BA    |                        |
|             | 1005 | 0.50±0.05      | ±0.25pF               | C1005C0G1H100C050BA    |                        |                        |
|             |      |                | ±0.50pF               | C1005C0G1H100D050BA    |                        |                        |
|             |      |                | ±0.25pF               | C1608C0G1H100C080AA    |                        |                        |
|             |      |                | ±0.50pF               | C1608C0G1H100D080AA    |                        |                        |
| 12 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402C0G1C120K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C120J020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603C0G1H120K030BA    | C0603C0G1E120K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H120J030BA    | C0603C0G1E120J030BA    |                        |
|             |      |                | ±5%                   | C1005C0G1H120J050BA    |                        |                        |
|             |      |                | ±5%                   | C1608C0G1H120J080AA    |                        |                        |
| 15 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402C0G1C150K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C150J020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603C0G1H150K030BA    | C0603C0G1E150K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H150J030BA    | C0603C0G1E150J030BA    |                        |
|             |      |                | ±1%                   | C1005C0G1H150F050BA    |                        |                        |
|             |      |                | ±2%                   | C1005C0G1H150G050BA    |                        |                        |
| 18 pF       | 1005 | 0.50±0.05      | ±5%                   | C1005C0G1H150J050BA    |                        |                        |
|             |      |                | ±1%                   | C1608C0G1H150F080AA    |                        |                        |
|             |      |                | ±2%                   | C1608C0G1H150G080AA    |                        |                        |
|             |      |                | ±5%                   | C1608C0G1H150J080AA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  |                        |                        | C0402C0G1C180K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C180J020BC    |
| 22 pF       | 0603 | 0.30±0.03      | ±10%                  | C0603C0G1H180K030BA    | C0603C0G1E180K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H180J030BA    | C0603C0G1E180J030BA    |                        |
|             |      |                | ±5%                   | C1005C0G1H180J050BA    |                        |                        |
|             |      |                | ±5%                   | C1608C0G1H180J080AA    |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  |                        |                        | C0402C0G1C220K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C220J020BC    |
| 27 pF       | 0603 | 0.30±0.03      | ±10%                  | C0603C0G1H220K030BA    | C0603C0G1E220K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H220J030BA    | C0603C0G1E220J030BA    |                        |
|             |      |                | ±1%                   | C1005C0G1H220F050BA    |                        |                        |
|             |      |                | ±2%                   | C1005C0G1H220G050BA    |                        |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005C0G1H220J050BA    |                        |                        |
|             |      |                | ±1%                   | C1608C0G1H220F080AA    |                        |                        |
| 33 pF       | 1608 | 0.80±0.10      | ±2%                   | C1608C0G1H220G080AA    |                        |                        |
|             |      |                | ±5%                   | C1608C0G1H220J080AA    |                        |                        |
|             |      |                | ±10%                  |                        |                        | C0402C0G1C270K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C270J020BC    |
|             | 0402 | 0.20±0.02      | ±10%                  |                        |                        |                        |
|             |      |                | ±5%                   |                        |                        |                        |
| 39 pF       | 0603 | 0.30±0.03      | ±10%                  | C0603C0G1H270K030BA    | C0603C0G1E270K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H270J030BA    | C0603C0G1E270J030BA    |                        |
|             |      |                | ±5%                   | C1005C0G1H270J050BA    |                        |                        |
|             |      |                | ±5%                   | C1608C0G1H270J080AA    |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  |                        |                        |                        |
|             |      |                | ±5%                   |                        |                        |                        |

■ The gray items are non-recommended products in the new design.

# 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: 50V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 33 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402C0G1C330K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C330J020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603C0G1H330K030BA    | C0603C0G1E330K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H330J030BA    | C0603C0G1E330J030BA    |                        |
|             | 1005 | 0.50±0.05      | ±1%                   | C1005C0G1H330F050BA    |                        |                        |
|             |      |                | ±2%                   | C1005C0G1H330G050BA    |                        |                        |
|             |      |                | ±5%                   | C1005C0G1H330J050BA    |                        |                        |
|             |      |                | ±1%                   | C1608C0G1H330F080AA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±2%                   | C1608C0G1H330G080AA    |                        |                        |
|             |      |                | ±5%                   | C1608C0G1H330J080AA    |                        |                        |
| 39 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402C0G1C390K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C390J020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603C0G1H390K030BA    | C0603C0G1E390K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H390J030BA    | C0603C0G1E390J030BA    |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005C0G1H390J050BA    |                        |                        |
|             |      |                | ±5%                   | C1608C0G1H390J080AA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  |                        |                        | C0402C0G1C470K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C470J020BC    |
|             |      |                | ±10%                  | C0603C0G1H470K030BA    | C0603C0G1E470K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H470J030BA    | C0603C0G1E470J030BA    |                        |
| 47 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402C0G1C470K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C470J020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603C0G1H470K030BA    | C0603C0G1E470K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H470J030BA    | C0603C0G1E470J030BA    |                        |
|             | 1005 | 0.50±0.05      | ±1%                   | C1005C0G1H470F050BA    |                        |                        |
|             |      |                | ±2%                   | C1005C0G1H470G050BA    |                        |                        |
|             |      |                | ±5%                   | C1005C0G1H470J050BA    |                        |                        |
|             |      |                | ±1%                   | C1608C0G1H470F080AA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±2%                   | C1608C0G1H470G080AA    |                        |                        |
|             |      |                | ±5%                   | C1608C0G1H470J080AA    |                        |                        |
| 56 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402C0G1C560K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C560J020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603C0G1H560K030BA    | C0603C0G1E560K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H560J030BA    | C0603C0G1E560J030BA    |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005C0G1H560J050BA    |                        |                        |
|             |      |                | ±5%                   | C1608C0G1H560J080AA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  |                        |                        | C0402C0G1C680K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C680J020BC    |
|             |      |                | ±10%                  | C0603C0G1H680K030BA    | C0603C0G1E680K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H680J030BA    | C0603C0G1E680J030BA    |                        |
| 68 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402C0G1C680K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C680J020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603C0G1H680K030BA    | C0603C0G1E680K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H680J030BA    | C0603C0G1E680J030BA    |                        |
|             | 1005 | 0.50±0.05      | ±1%                   | C1005C0G1H680F050BA    |                        |                        |
|             |      |                | ±2%                   | C1005C0G1H680G050BA    |                        |                        |
|             |      |                | ±5%                   | C1005C0G1H680J050BA    |                        |                        |
|             |      |                | ±1%                   | C1608C0G1H680F080AA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±2%                   | C1608C0G1H680G080AA    |                        |                        |
|             |      |                | ±5%                   | C1608C0G1H680J080AA    |                        |                        |
| 82 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402C0G1C820K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C820J020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603C0G1H820K030BA    | C0603C0G1E820K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H820J030BA    | C0603C0G1E820J030BA    |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005C0G1H820J050BA    |                        |                        |
|             |      |                | ±5%                   | C1608C0G1H820J080AA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  |                        |                        | C0402C0G1C101K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C101J020BC    |
|             |      |                | ±10%                  | C0603C0G1H101K030BA    | C0603C0G1E101K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H101J030BA    | C0603C0G1E101J030BA    |                        |
| 100 pF      | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402C0G1C101K020BC    |
|             |      |                | ±5%                   |                        |                        | C0402C0G1C101J020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603C0G1H101K030BA    | C0603C0G1E101K030BA    |                        |
|             |      |                | ±5%                   | C0603C0G1H101J030BA    | C0603C0G1E101J030BA    |                        |
|             | 1005 | 0.50±0.05      | ±1%                   | C1005C0G1H101F050BA    |                        |                        |
|             |      |                | ±10%                  | C1005C0G1H101K050BA    |                        |                        |
|             |      |                | ±2%                   | C1005C0G1H101G050BA    |                        |                        |
|             |      |                | ±5%                   | C1005C0G1H101J050BA    |                        |                        |
|             | 1608 | 0.80±0.10      | ±1%                   | C1608C0G1H101F080AA    |                        |                        |
|             |      |                | ±10%                  | C1608C0G1H101K080AA    |                        |                        |
|             |      |                | ±2%                   | C1608C0G1H101G080AA    |                        |                        |
|             |      |                | ±5%                   | C1608C0G1H101J080AA    |                        |                        |

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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<br>Rated Voltage Edc: 50V |
|-------------|------|----------------|-----------------------|------------------------------------------|
| 120 pF      | 1005 | 0.50±0.05      | ±10%                  | C1005C0G1H121K050BA                      |
|             |      |                | ±5%                   | C1005C0G1H121J050BA                      |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608C0G1H121K080AA                      |
|             |      |                | ±5%                   | C1608C0G1H121J080AA                      |
| 150 pF      | 1005 | 0.50±0.05      | ±1%                   | C1005C0G1H151F050BA                      |
|             |      |                | ±10%                  | C1005C0G1H151K050BA                      |
|             |      |                | ±2%                   | C1005C0G1H151G050BA                      |
|             | 1608 | 0.80±0.10      | ±5%                   | C1005C0G1H151J050BA                      |
|             |      |                | ±1%                   | C1608C0G1H151F080AA                      |
|             |      |                | ±10%                  | C1608C0G1H151K080AA                      |
| 180 pF      | 1005 | 0.50±0.05      | ±2%                   | C1608C0G1H151G080AA                      |
|             |      |                | ±5%                   | C1608C0G1H151J080AA                      |
|             | 1608 | 0.80±0.10      | ±10%                  | C1005C0G1H181K050BA                      |
|             |      |                | ±5%                   | C1005C0G1H181J050BA                      |
| 220 pF      | 1005 | 0.50±0.05      | ±10%                  | C1608C0G1H181K080AA                      |
|             |      |                | ±5%                   | C1608C0G1H181J080AA                      |
|             |      |                | ±1%                   | C1005C0G1H221F050BA                      |
|             | 1608 | 0.80±0.10      | ±10%                  | C1005C0G1H221K050BA                      |
|             |      |                | ±2%                   | C1005C0G1H221G050BA                      |
|             |      |                | ±5%                   | C1005C0G1H221J050BA                      |
| 270 pF      | 1005 | 0.50±0.05      | ±1%                   | C1608C0G1H221F080AA                      |
|             |      |                | ±10%                  | C1608C0G1H221K080AA                      |
|             | 1608 | 0.80±0.10      | ±2%                   | C1608C0G1H221G080AA                      |
|             |      |                | ±5%                   | C1608C0G1H221J080AA                      |
| 330 pF      | 1005 | 0.50±0.05      | ±10%                  | C1005C0G1H271K050BA                      |
|             |      |                | ±5%                   | C1005C0G1H271J050BA                      |
|             |      |                | ±1%                   | C1005C0G1H331F050BA                      |
|             | 1608 | 0.80±0.10      | ±10%                  | C1005C0G1H331K050BA                      |
|             |      |                | ±2%                   | C1005C0G1H331G050BA                      |
|             |      |                | ±5%                   | C1005C0G1H331J050BA                      |
| 390 pF      | 1005 | 0.50±0.05      | ±1%                   | C1608C0G1H331F080AA                      |
|             |      |                | ±10%                  | C1608C0G1H331K080AA                      |
|             | 1608 | 0.80±0.10      | ±2%                   | C1608C0G1H331G080AA                      |
|             |      |                | ±5%                   | C1608C0G1H331J080AA                      |
| 470 pF      | 1005 | 0.50±0.05      | ±10%                  | C1005C0G1H391K050BA                      |
|             |      |                | ±5%                   | C1005C0G1H391J050BA                      |
|             |      |                | ±1%                   | C1005C0G1H471F050BA                      |
|             | 1608 | 0.80±0.10      | ±10%                  | C1005C0G1H391K080AA                      |
|             |      |                | ±2%                   | C1005C0G1H471G050BA                      |
|             |      |                | ±5%                   | C1005C0G1H471J050BA                      |
| 560 pF      | 1005 | 0.50±0.05      | ±1%                   | C1608C0G1H471F080AA                      |
|             |      |                | ±10%                  | C1608C0G1H471K080AA                      |
|             | 1608 | 0.80±0.10      | ±2%                   | C1608C0G1H471G080AA                      |
|             |      |                | ±5%                   | C1608C0G1H471J080AA                      |
| 680 pF      | 1005 | 0.50±0.05      | ±10%                  | C1005C0G1H561K050BA                      |
|             |      |                | ±5%                   | C1005C0G1H561J050BA                      |
|             |      |                | ±1%                   | C1005C0G1H681F050BA                      |
|             | 1608 | 0.80±0.10      | ±10%                  | C1005C0G1H681K050BA                      |
|             |      |                | ±2%                   | C1005C0G1H681G050BA                      |
|             |      |                | ±5%                   | C1005C0G1H681J050BA                      |
| 750 pF      | 1005 | 0.50±0.05      | ±1%                   | C1608C0G1H681F080AA                      |
|             |      |                | ±10%                  | C1608C0G1H681K080AA                      |
|             | 1608 | 0.80±0.10      | ±2%                   | C1608C0G1H681G080AA                      |
|             |      |                | ±5%                   | C1608C0G1H681J080AA                      |

■ The gray items are non-recommended products in the new design.

# 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: 50V | Rated Voltage Edc : 25V |
| 820 pF      | 1005 | 0.50±0.05      | ±10%                  | C1005C0G1H821K050BA    |                         |
|             |      |                | ±5%                   | C1005C0G1H821J050BA    |                         |
|             |      |                | ±10%                  | C1608C0G1H821K080AA    |                         |
|             | 1608 | 0.80±0.10      | ±5%                   | C1608C0G1H821J080AA    |                         |
|             |      |                | ±1%                   | C1005C0G1H102F050BA    |                         |
|             |      |                | ±10%                  | C1005C0G1H102K050BA    |                         |
| 1 nF        | 1005 | 0.50±0.05      | ±2%                   | C1005C0G1H102G050BA    |                         |
|             |      |                | ±5%                   | C1005C0G1H102J050BA    | C1005C0G1E102J050BA     |
|             |      |                | ±1%                   | C1608C0G1H102F080AA    |                         |
|             |      |                | ±10%                  | C1608C0G1H102K080AA    |                         |
|             |      |                | ±2%                   | C1608C0G1H102G080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H102J080AA    |                         |
|             | 1608 | 0.80±0.10      | ±10%                  | C2012C0G1H102K060AA    |                         |
|             |      |                | ±5%                   | C2012C0G1H102J060AA    |                         |
|             |      |                | ±10%                  | C1608C0G1H122K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H122J080AA    |                         |
|             |      |                | ±10%                  | C2012C0G1H122K060AA    |                         |
|             |      |                | ±5%                   | C2012C0G1H122J060AA    |                         |
| 1.2 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608C0G1H152K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H152J080AA    |                         |
|             |      |                | ±10%                  | C2012C0G1H152K060AA    |                         |
|             | 2012 | 0.60±0.15      | ±5%                   | C2012C0G1H152J060AA    |                         |
|             |      |                | ±10%                  | C1608C0G1H182K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H182J080AA    |                         |
| 1.5 nF      | 1608 | 0.80±0.10      | ±10%                  | C2012C0G1H182K060AA    |                         |
|             |      |                | ±5%                   | C2012C0G1H182J060AA    |                         |
|             | 2012 | 0.60±0.15      | ±10%                  | C1608C0G1H222K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H222J080AA    |                         |
|             |      |                | ±10%                  | C2012C0G1H222K060AA    |                         |
|             |      |                | ±5%                   | C2012C0G1H222J060AA    |                         |
| 1.8 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608C0G1H272K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H272J080AA    |                         |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012C0G1H272K060AA    |                         |
|             |      |                | ±5%                   | C2012C0G1H272J060AA    |                         |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608C0G1H332K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H332J080AA    |                         |
| 2.2 nF      | 1608 | 0.80±0.10      | ±10%                  | C2012C0G1H332K060AA    |                         |
|             |      |                | ±5%                   | C2012C0G1H332J060AA    |                         |
|             | 2012 | 0.60±0.15      | ±10%                  | C1608C0G1H392K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H392J080AA    |                         |
|             |      |                | ±10%                  | C2012C0G1H392K060AA    |                         |
|             |      |                | ±5%                   | C2012C0G1H392J060AA    |                         |
| 2.7 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608C0G1H472K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H472J080AA    |                         |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012C0G1H472K060AA    |                         |
|             |      |                | ±5%                   | C2012C0G1H472J060AA    |                         |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608C0G1H562K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H562J080AA    |                         |
| 3.3 nF      | 1608 | 0.80±0.10      | ±10%                  | C2012C0G1H562K060AA    |                         |
|             |      |                | ±5%                   | C2012C0G1H562J060AA    |                         |
|             | 2012 | 0.60±0.15      | ±10%                  | C1608C0G1H622K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H622J080AA    |                         |
|             |      |                | ±10%                  | C2012C0G1H622K060AA    |                         |
|             |      |                | ±5%                   | C2012C0G1H622J060AA    |                         |
| 3.9 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608C0G1H622K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H622J080AA    |                         |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012C0G1H622K060AA    |                         |
|             |      |                | ±5%                   | C2012C0G1H622J060AA    |                         |
|             | 3216 | 0.60±0.15      | ±10%                  | C1608C0G1H722K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H722J080AA    |                         |
| 4.7 nF      | 1608 | 0.80±0.10      | ±10%                  | C2012C0G1H722K060AA    |                         |
|             |      |                | ±5%                   | C2012C0G1H722J060AA    |                         |
|             | 3216 | 0.60±0.15      | ±10%                  | C1608C0G1H822K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H822J080AA    |                         |
|             |      |                | ±10%                  | C2012C0G1H822K060AA    |                         |
|             |      |                | ±5%                   | C2012C0G1H822J060AA    |                         |
| 5.6 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608C0G1H822K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H822J080AA    |                         |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012C0G1H822K060AA    |                         |
|             |      |                | ±5%                   | C2012C0G1H822J060AA    |                         |
|             | 3216 | 0.60±0.15      | ±10%                  | C1608C0G1H922K080AA    |                         |
|             |      |                | ±5%                   | C1608C0G1H922J080AA    |                         |

■ The gray items are non-recommended products in the new design.

# 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: 50V | Rated Voltage Edc : 35V | Rated Voltage Edc : 25V |
| 6.8 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608C0G1H682K080AA    |                         |                         |
|             |      |                | ±5%                   | C1608C0G1H682J080AA    |                         | C1608C0G1E682J080AA     |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012C0G1H682K060AA    |                         |                         |
|             |      |                | ±5%                   | C2012C0G1H682J060AA    |                         |                         |
|             | 3216 | 0.60±0.15      | ±10%                  | C3216C0G1H682K060AA    |                         |                         |
|             |      |                | ±5%                   | C3216C0G1H682J060AA    |                         |                         |
| 8.2 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608C0G1H822K080AA    |                         |                         |
|             |      |                | ±5%                   | C1608C0G1H822J080AA    |                         | C1608C0G1E822J080AA     |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012C0G1H822K060AA    |                         |                         |
|             |      |                | ±5%                   | C2012C0G1H822J060AA    |                         |                         |
|             | 3216 | 0.60±0.15      | ±10%                  | C3216C0G1H822K060AA    |                         |                         |
|             |      |                | ±5%                   | C3216C0G1H822J060AA    |                         |                         |
| 10 nF       | 1608 | 0.80±0.10      | ±10%                  | C1608C0G1H103K080AA    | C1608C0G1V103K080AC     |                         |
|             |      |                | ±5%                   | C1608C0G1H103J080AA    | C1608C0G1V103J080AC     | C1608C0G1E103J080AA     |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012C0G1H103K060AA    |                         |                         |
|             |      |                | ±5%                   | C2012C0G1H103J060AA    |                         | C2012C0G1E103J060AA     |
|             | 3216 | 0.60±0.15      | ±10%                  | C3216C0G1H103K060AA    |                         |                         |
|             |      |                | ±5%                   | C3216C0G1H103J060AA    |                         |                         |
| 15 nF       | 1608 | 0.80±0.10      | ±10%                  |                        | C1608C0G1V153K080AC     |                         |
|             |      |                | ±5%                   |                        | C1608C0G1V153J080AC     |                         |
|             | 2012 | 0.85±0.15      | ±10%                  | C2012C0G1H153K085AA    |                         |                         |
|             |      |                | ±5%                   | C2012C0G1H153J085AA    |                         | C2012C0G1E153J085AA     |
|             | 3216 | 0.60±0.15      | ±10%                  | C3216C0G1H153K060AA    |                         |                         |
|             |      |                | ±5%                   | C3216C0G1H153J060AA    |                         |                         |
| 18 nF       | 1608 | 0.80±0.10      | ±10%                  |                        | C1608C0G1V183K080AC     |                         |
|             |      |                | ±5%                   |                        | C1608C0G1V183J080AC     |                         |
|             | 2012 | 0.60±0.15      | ±10%                  |                        | C2012C0G1V183K060AC     |                         |
|             |      |                | ±5%                   |                        | C2012C0G1V183J060AC     |                         |
|             |      | 0.60±0.15      | ±10%                  |                        | C2012C0G1V223K060AC     |                         |
|             |      |                | ±5%                   |                        | C2012C0G1V223J060AC     |                         |
| 22 nF       | 2012 | 1.25±0.20      | ±10%                  | C2012C0G1H223K125AA    |                         |                         |
|             |      |                | ±5%                   | C2012C0G1H223J125AA    |                         | C2012C0G1E223J125AA     |
|             | 3216 | 0.60±0.15      | ±10%                  | C3216C0G1H223K060AA    |                         |                         |
|             |      |                | ±5%                   | C3216C0G1H223J060AA    |                         |                         |
|             | 3225 | 1.25±0.20      | ±10%                  | C3225C0G1H223K125AA    |                         |                         |
|             |      |                | ±5%                   | C3225C0G1H223J125AA    |                         |                         |
| 27 nF       | 2012 | 0.60±0.15      | ±10%                  |                        | C2012C0G1V273K060AC     |                         |
|             |      |                | ±5%                   |                        | C2012C0G1V273J060AC     |                         |
| 30 nF       | 2012 | 0.60±0.15      | ±10%                  |                        | C2012C0G1V303K060AC     |                         |
|             |      |                | ±5%                   |                        | C2012C0G1V303J060AC     |                         |
| 33 nF       | 2012 | 1.25±0.20      | ±10%                  | C2012C0G1H333K125AA    |                         |                         |
|             |      |                | ±5%                   | C2012C0G1H333J125AA    |                         | C2012C0G1E333J125AA     |
|             | 3216 | 0.85±0.15      | ±10%                  | C3216C0G1H333K085AA    |                         |                         |
|             |      |                | ±5%                   | C3216C0G1H333J085AA    |                         |                         |
|             | 3225 | 1.60±0.20      | ±10%                  | C3225C0G1H333K160AA    |                         |                         |
|             |      |                | ±5%                   | C3225C0G1H333J160AA    |                         |                         |
| 47 nF       | 3216 | 1.15±0.15      | ±10%                  | C3216C0G1H473K115AA    |                         |                         |
|             |      |                | ±5%                   | C3216C0G1H473J115AA    |                         |                         |
|             | 3225 | 2.00±0.20      | ±10%                  | C3225C0G1H473K200AA    |                         |                         |
|             |      |                | ±5%                   | C3225C0G1H473J200AA    |                         |                         |
|             | 4532 | 1.60±0.20      | ±10%                  | C4532C0G1H473K160KA    |                         |                         |
|             |      |                | ±5%                   | C4532C0G1H473J160KA    |                         |                         |
| 68 nF       | 3216 | 1.60±0.20      | ±10%                  | C3216C0G1H683K160AA    |                         |                         |
|             |      |                | ±5%                   | C3216C0G1H683J160AA    |                         |                         |
|             | 3225 | 2.00±0.20      | ±10%                  | C3225C0G1H683K200AA    |                         |                         |
|             |      |                | ±5%                   | C3225C0G1H683J200AA    |                         |                         |
|             | 4532 | 1.60±0.20      | ±10%                  | C4532C0G1H683K160KA    |                         |                         |
|             |      |                | ±5%                   | C4532C0G1H683J160KA    |                         |                         |
| 100 nF      | 3216 | 1.60±0.20      | ±10%                  | C3216C0G1H104K160AA    |                         |                         |
|             |      |                | ±5%                   | C3216C0G1H104J160AA    |                         |                         |
|             | 3225 | 2.50±0.30      | ±10%                  | C3225C0G1H104K250AA    |                         |                         |
|             |      |                | ±5%                   | C3225C0G1H104J250AA    |                         |                         |
|             | 4532 | 2.00±0.20      | ±10%                  | C4532C0G1H104K200KA    |                         |                         |
|             |      |                | ±5%                   | C4532C0G1H104J200KA    |                         |                         |
| 150 nF      | 4532 | 2.50±0.30      | ±10%                  | C4532C0G1H154K250KA    |                         |                         |
|             |      |                | ±5%                   | C4532C0G1H154J250KA    |                         |                         |
| 220 nF      | 4532 | 3.20±0.30      | ±10%                  | C4532C0G1H224K320KA    |                         |                         |
|             |      |                | ±5%                   | C4532C0G1H224J320KA    |                         |                         |

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 1 (Temperature Compensating)

Temperature Characteristics: CH(-25 to +85°C, 0±60 ppm/°C)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                        |                        |
|-------------|------|----------------|-----------------------|------------------------|------------------------|------------------------|
|             |      |                |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 0.5 pF      | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402CH1C0R5C020BC     |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603CH1H0R5C030BA     | C0603CH1E0R5C030BA     |                        |
|             | 1005 | 0.50±0.05      | ±0.10pF               | C1005CH1H0R5B050BA     |                        |                        |
|             |      |                | ±0.25pF               | C1005CH1H0R5C050BA     |                        |                        |
| 0.75 pF     | 1608 | 0.80±0.10      | ±0.25pF               | C1608CH1H0R5C080AA     |                        |                        |
|             | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402CH1CR75C020BC     |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603CH1HR75C030BA     | C0603CH1ER75C030BA     |                        |
|             | 1005 | 0.50±0.05      | ±0.10pF               | C1005CH1HR75B050BA     |                        |                        |
| 1 pF        |      |                | ±0.25pF               | C1005CH1HR75C050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.25pF               | C1608CH1HR75C080AA     |                        |                        |
|             | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402CH1C010C020BC     |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603CH1H010C030BA     | C0603CH1E010C030BA     |                        |
| 1.5 pF      | 1005 | 0.50±0.05      | ±0.10pF               | C1005CH1H010B050BA     |                        |                        |
|             |      |                | ±0.25pF               | C1005CH1H010C050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.25pF               | C1608CH1H010C080AA     |                        |                        |
|             | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402CH1C1R5C020BC     |
| 2 pF        | 0603 | 0.30±0.03      | ±0.25pF               | C0603CH1H1R5C030BA     | C0603CH1E1R5C030BA     |                        |
|             | 1005 | 0.50±0.05      | ±0.10pF               | C1005CH1H1R5B050BA     |                        |                        |
|             |      |                | ±0.25pF               | C1005CH1H1R5C050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.25pF               | C1608CH1H1R5C080AA     |                        |                        |
| 2.2 pF      | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402CH1C020C020BC     |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603CH1H020C030BA     | C0603CH1E020C030BA     |                        |
|             | 1005 | 0.50±0.05      | ±0.10pF               | C1005CH1H020B050BA     |                        |                        |
|             |      |                | ±0.25pF               | C1005CH1H020C050BA     |                        |                        |
| 3 pF        | 1608 | 0.80±0.10      | ±0.25pF               | C1608CH1H020C080AA     |                        |                        |
|             | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402CH1C2R2C020BC     |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603CH1H2R2C030BA     | C0603CH1E2R2C030BA     |                        |
|             | 1005 | 0.50±0.05      | ±0.10pF               | C1005CH1H030B050BA     |                        |                        |
| 3.3 pF      |      |                | ±0.25pF               | C1005CH1H030C050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.25pF               | C1608CH1H030C080AA     |                        |                        |
|             | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402CH1C3R3C020BC     |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603CH1H3R3C030BA     | C0603CH1E3R3C030BA     |                        |
| 4 pF        | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402CH1C040C020BC     |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603CH1H040C030BA     | C0603CH1E040C030BA     |                        |
|             | 1005 | 0.50±0.05      | ±0.10pF               | C1005CH1H040B050BA     |                        |                        |
|             |      |                | ±0.25pF               | C1005CH1H040C050BA     |                        |                        |
| 4.7 pF      | 1608 | 0.80±0.10      | ±0.25pF               | C1608CH1H040C080AA     |                        |                        |
|             | 0402 | 0.20±0.02      | ±0.25pF               |                        |                        | C0402CH1C4R7C020BC     |
|             | 0603 | 0.30±0.03      | ±0.25pF               | C0603CH1H4R7C030BA     | C0603CH1E4R7C030BA     |                        |
|             | 1005 | 0.50±0.05      | ±0.10pF               | C1005CH1H050B050BA     |                        |                        |
| 5 pF        |      |                | ±0.25pF               | C1005CH1H050C050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.25pF               | C1608CH1H050C080AA     |                        |                        |
|             | 0402 | 0.20±0.02      | ±0.50pF               |                        |                        | C0402CH1C060D020BC     |
|             | 0603 | 0.30±0.03      | ±0.50pF               | C0603CH1H060D030BA     | C0603CH1E060D030BA     |                        |
| 6 pF        | 1005 | 0.50±0.05      | ±0.25pF               | C1005CH1H060C050BA     |                        |                        |
|             |      |                | ±0.50pF               | C1005CH1H060D050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.25pF               | C1608CH1H060C080AA     |                        |                        |
|             |      |                | ±0.50pF               | C1608CH1H060D080AA     |                        |                        |
| 6.8 pF      | 0402 | 0.20±0.02      | ±0.50pF               |                        |                        | C0402CH1C6R8D020BC     |
|             | 0603 | 0.30±0.03      | ±0.50pF               | C0603CH1H6R8D030BA     | C0603CH1E6R8D030BA     |                        |
|             | 0402 | 0.20±0.02      | ±0.50pF               |                        |                        | C0402CH1C070D020BC     |
|             | 0603 | 0.30±0.03      | ±0.50pF               | C0603CH1H070D030BA     | C0603CH1E070D030BA     |                        |
| 7 pF        | 1005 | 0.50±0.05      | ±0.25pF               | C1005CH1H070C050BA     |                        |                        |
|             |      |                | ±0.50pF               | C1005CH1H070D050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±0.25pF               | C1608CH1H070C080AA     |                        |                        |
|             |      |                | ±0.50pF               | C1608CH1H070D080AA     |                        |                        |

■ The gray items are non-recommended products in the new design.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 1 (Temperature Compensating)

Temperature Characteristics: CH(-25 to +85°C, 0±60 ppm/°C)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                        |                        |
|-------------|------|----------------|-----------------------|------------------------|------------------------|------------------------|
|             |      |                |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 8 pF        | 0402 | 0.20±0.02      | ±0.50pF               |                        |                        | C0402CH1C080D020BC     |
|             | 0603 | 0.30±0.03      | ±0.50pF               | C0603CH1H080D030BA     | C0603CH1E080D030BA     |                        |
|             | 1005 | 0.50±0.05      | ±0.25pF               | C1005CH1H080C050BA     |                        |                        |
|             |      |                | ±0.50pF               | C1005CH1H080D050BA     |                        |                        |
|             |      |                | ±0.25pF               | C1608CH1H080C080AA     |                        |                        |
| 9 pF        | 0402 | 0.20±0.02      | ±0.50pF               |                        |                        | C0402CH1C090D020BC     |
|             | 0603 | 0.30±0.03      | ±0.50pF               | C0603CH1H090D030BA     | C0603CH1E090D030BA     |                        |
|             | 1005 | 0.50±0.05      | ±0.25pF               | C1005CH1H090C050BA     |                        |                        |
|             |      |                | ±0.50pF               | C1005CH1H090D050BA     |                        |                        |
|             |      |                | ±0.25pF               | C1608CH1H090C080AA     |                        |                        |
| 10 pF       | 0402 | 0.20±0.02      | ±0.50pF               |                        |                        | C0402CH1C100D020BC     |
|             | 0603 | 0.30±0.03      | ±0.50pF               | C0603CH1H100D030BA     | C0603CH1E100D030BA     |                        |
|             | 1005 | 0.50±0.05      | ±0.25pF               | C1005CH1H100C050BA     |                        |                        |
|             |      |                | ±0.50pF               | C1005CH1H100D050BA     |                        |                        |
|             |      |                | ±0.25pF               | C1608CH1H100C080AA     |                        |                        |
| 12 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402CH1C120K020BC     |
|             | 0603 | 0.30±0.03      | ±5%                   |                        |                        | C0402CH1C120J020BC     |
|             |      |                | ±10%                  | C0603CH1H120K030BA     | C0603CH1E120K030BA     |                        |
|             |      |                | ±5%                   | C0603CH1H120J030BA     | C0603CH1E120J030BA     |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005CH1H120J050BA     |                        |                        |
| 15 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402CH1C150K020BC     |
|             | 0603 | 0.30±0.03      | ±5%                   |                        |                        | C0402CH1C150J020BC     |
|             |      |                | ±10%                  | C0603CH1H150K030BA     | C0603CH1E150K030BA     |                        |
|             |      |                | ±5%                   | C0603CH1H150J030BA     | C0603CH1E150J030BA     |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005CH1H150J050BA     |                        |                        |
| 18 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402CH1C180K020BC     |
|             | 0603 | 0.30±0.03      | ±5%                   |                        |                        | C0402CH1C180J020BC     |
|             |      |                | ±10%                  | C0603CH1H180K030BA     | C0603CH1E180K030BA     |                        |
|             |      |                | ±5%                   | C0603CH1H180J030BA     | C0603CH1E180J030BA     |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005CH1H180J050BA     |                        |                        |
| 22 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402CH1C220K020BC     |
|             | 0603 | 0.30±0.03      | ±5%                   |                        |                        | C0402CH1C220J020BC     |
|             |      |                | ±10%                  | C0603CH1H220K030BA     | C0603CH1E220K030BA     |                        |
|             |      |                | ±5%                   | C0603CH1H220J030BA     | C0603CH1E220J030BA     |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005CH1H220J050BA     |                        |                        |
| 27 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402CH1C270K020BC     |
|             | 0603 | 0.30±0.03      | ±5%                   |                        |                        | C0402CH1C270J020BC     |
|             |      |                | ±10%                  | C0603CH1H270K030BA     | C0603CH1E270K030BA     |                        |
|             |      |                | ±5%                   | C0603CH1H270J030BA     | C0603CH1E270J030BA     |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005CH1H270J050BA     |                        |                        |
| 33 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402CH1C330K020BC     |
|             | 0603 | 0.30±0.03      | ±5%                   |                        |                        | C0402CH1C330J020BC     |
|             |      |                | ±10%                  | C0603CH1H330K030BA     | C0603CH1E330K030BA     |                        |
|             |      |                | ±5%                   | C0603CH1H330J030BA     | C0603CH1E330J030BA     |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005CH1H330J050BA     |                        |                        |
| 39 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402CH1C390K020BC     |
|             | 0603 | 0.30±0.03      | ±5%                   |                        |                        | C0402CH1C390J020BC     |
|             |      |                | ±10%                  | C0603CH1H390K030BA     | C0603CH1E390K030BA     |                        |
|             |      |                | ±5%                   | C0603CH1H390J030BA     | C0603CH1E390J030BA     |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005CH1H390J050BA     |                        |                        |

■ The gray items are non-recommended products in the new design.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 1 (Temperature Compensating)

Temperature Characteristics: CH(-25 to +85°C, 0±60 ppm/°C)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                        |                        |
|-------------|------|----------------|-----------------------|------------------------|------------------------|------------------------|
|             |      |                |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 47 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402CH1C470K020BC     |
|             |      |                | ±5%                   |                        |                        | C0402CH1C470J020BC     |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603CH1H470K030BA     | C0603CH1E470K030BA     |                        |
|             |      |                | ±5%                   | C0603CH1H470J030BA     | C0603CH1E470J030BA     |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005CH1H470J050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±5%                   | C1608CH1H470J080AA     |                        |                        |
| 56 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402CH1C560K020BC     |
|             |      |                | ±5%                   |                        |                        | C0402CH1C560J020BC     |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603CH1H560K030BA     | C0603CH1E560K030BA     |                        |
|             |      |                | ±5%                   | C0603CH1H560J030BA     | C0603CH1E560J030BA     |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005CH1H560J050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±5%                   | C1608CH1H560J080AA     |                        |                        |
| 68 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402CH1C680K020BC     |
|             |      |                | ±5%                   |                        |                        | C0402CH1C680J020BC     |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603CH1H680K030BA     | C0603CH1E680K030BA     |                        |
|             |      |                | ±5%                   | C0603CH1H680J030BA     | C0603CH1E680J030BA     |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005CH1H680J050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±5%                   | C1608CH1H680J080AA     |                        |                        |
| 82 pF       | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402CH1C820K020BC     |
|             |      |                | ±5%                   |                        |                        | C0402CH1C820J020BC     |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603CH1H820K030BA     | C0603CH1E820K030BA     |                        |
|             |      |                | ±5%                   | C0603CH1H820J030BA     | C0603CH1E820J030BA     |                        |
|             | 1005 | 0.50±0.05      | ±5%                   | C1005CH1H820J050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±5%                   | C1608CH1H820J080AA     |                        |                        |
| 100 pF      | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402CH1C101K020BC     |
|             |      |                | ±5%                   |                        |                        | C0402CH1C101J020BC     |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603CH1H101K030BA     | C0603CH1E101K030BA     |                        |
|             |      |                | ±5%                   | C0603CH1H101J030BA     | C0603CH1E101J030BA     |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005CH1H101K050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±5%                   | C1608CH1H101J080AA     |                        |                        |
| 120 pF      | 1005 | 0.50±0.05      | ±10%                  | C1005CH1H121K050BA     |                        |                        |
|             |      |                | ±5%                   | C1005CH1H121J050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H121K080AA     |                        |                        |
|             |      |                | ±5%                   | C1608CH1H121J080AA     |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005CH1H151K050BA     |                        |                        |
|             |      |                | ±5%                   | C1005CH1H151J050BA     |                        |                        |
| 150 pF      | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H151K080AA     |                        |                        |
|             |      |                | ±5%                   | C1608CH1H151J080AA     |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005CH1H181K050BA     |                        |                        |
|             |      |                | ±5%                   | C1005CH1H181J050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H181K080AA     |                        |                        |
|             |      |                | ±5%                   | C1608CH1H181J080AA     |                        |                        |
| 220 pF      | 1005 | 0.50±0.05      | ±10%                  | C1005CH1H221K050BA     |                        |                        |
|             |      |                | ±5%                   | C1005CH1H221J050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H221K080AA     |                        |                        |
|             |      |                | ±5%                   | C1608CH1H221J080AA     |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005CH1H271K050BA     |                        |                        |
|             |      |                | ±5%                   | C1005CH1H271J050BA     |                        |                        |
| 270 pF      | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H271K080AA     |                        |                        |
|             |      |                | ±5%                   | C1608CH1H271J080AA     |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005CH1H331K050BA     |                        |                        |
|             |      |                | ±5%                   | C1005CH1H331J050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H331K080AA     |                        |                        |
|             |      |                | ±5%                   | C1608CH1H331J080AA     |                        |                        |
| 330 pF      | 1005 | 0.50±0.05      | ±10%                  | C1005CH1H391K050BA     |                        |                        |
|             |      |                | ±5%                   | C1005CH1H391J050BA     |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H391K080AA     |                        |                        |
|             |      |                | ±5%                   | C1608CH1H391J080AA     |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005CH1H391K050BA     |                        |                        |
|             |      |                | ±5%                   | C1005CH1H391J050BA     |                        |                        |
| 390 pF      | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H391K080AA     |                        |                        |
|             |      |                | ±5%                   | C1608CH1H391J080AA     |                        |                        |

■ The gray items are non-recommended products in the new design.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 1 (Temperature Compensating)

Temperature Characteristics: CH(-25 to +85°C, 0±60 ppm/°C)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number<br>Rated Voltage Edc: 50V |
|-------------|------|----------------|-----------------------|------------------------------------------|
| 470 pF      | 1005 | 0.50±0.05      | ±10%                  | C1005CH1H471K050BA                       |
|             |      |                | ±5%                   | C1005CH1H471J050BA                       |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H471K080AA                       |
|             |      |                | ±5%                   | C1608CH1H471J080AA                       |
| 560 pF      | 1005 | 0.50±0.05      | ±10%                  | C1005CH1H561K050BA                       |
|             |      |                | ±5%                   | C1005CH1H561J050BA                       |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H561K080AA                       |
|             |      |                | ±5%                   | C1608CH1H561J080AA                       |
| 680 pF      | 1005 | 0.50±0.05      | ±10%                  | C1005CH1H681K050BA                       |
|             |      |                | ±5%                   | C1005CH1H681J050BA                       |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H681K080AA                       |
|             |      |                | ±5%                   | C1608CH1H681J080AA                       |
| 820 pF      | 1005 | 0.50±0.05      | ±10%                  | C1005CH1H821K050BA                       |
|             |      |                | ±5%                   | C1005CH1H821J050BA                       |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H821K080AA                       |
|             |      |                | ±5%                   | C1608CH1H821J080AA                       |
| 1 nF        | 1005 | 0.50±0.05      | ±10%                  | C1005CH1H102K050BA                       |
|             |      |                | ±5%                   | C1005CH1H102J050BA                       |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H102K080AA                       |
|             |      |                | ±5%                   | C1608CH1H102J080AA                       |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012CH1H102K060AA                       |
|             |      |                | ±5%                   | C2012CH1H102J060AA                       |
| 1.2 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H122K080AA                       |
|             |      |                | ±5%                   | C1608CH1H122J080AA                       |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012CH1H122K060AA                       |
|             |      |                | ±5%                   | C2012CH1H122J060AA                       |
| 1.5 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H152K080AA                       |
|             |      |                | ±5%                   | C1608CH1H152J080AA                       |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012CH1H152K060AA                       |
|             |      |                | ±5%                   | C2012CH1H152J060AA                       |
| 1.8 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H182K080AA                       |
|             |      |                | ±5%                   | C1608CH1H182J080AA                       |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012CH1H182K060AA                       |
|             |      |                | ±5%                   | C2012CH1H182J060AA                       |
| 2.2 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H222K080AA                       |
|             |      |                | ±5%                   | C1608CH1H222J080AA                       |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012CH1H222K060AA                       |
|             |      |                | ±5%                   | C2012CH1H222J060AA                       |
|             |      | 0.85±0.15      | ±10%                  | C2012CH1H222J085AA                       |
|             |      |                | ±5%                   | C2012CH1H222J085AA                       |
| 2.7 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H272K080AA                       |
|             |      |                | ±5%                   | C1608CH1H272J080AA                       |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012CH1H272K060AA                       |
|             |      |                | ±5%                   | C2012CH1H272J060AA                       |
| 3.3 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H332K080AA                       |
|             |      |                | ±5%                   | C1608CH1H332J080AA                       |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012CH1H332K060AA                       |
|             |      |                | ±5%                   | C2012CH1H332J060AA                       |
|             |      | 1.25±0.20      | ±10%                  | C2012CH1H332J125AA                       |
|             |      |                | ±5%                   | C2012CH1H332J125AA                       |
| 3.9 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H392K080AA                       |
|             |      |                | ±5%                   | C1608CH1H392J080AA                       |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012CH1H392K060AA                       |
|             |      |                | ±5%                   | C2012CH1H392J060AA                       |
|             | 3216 | 0.60±0.15      | ±10%                  | C3216CH1H392K060AA                       |
|             |      |                | ±5%                   | C3216CH1H392J060AA                       |
| 4.7 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H472K080AA                       |
|             |      |                | ±5%                   | C1608CH1H472J080AA                       |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012CH1H472K060AA                       |
|             |      |                | ±5%                   | C2012CH1H472J060AA                       |
|             | 3216 | 0.60±0.15      | ±10%                  | C3216CH1H472K060AA                       |
|             |      |                | ±5%                   | C3216CH1H472J060AA                       |

■ The gray items are non-recommended products in the new design.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 1 (Temperature Compensating)

Temperature Characteristics: CH(-25 to +85°C, 0±60 ppm/°C)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                         |
|-------------|------|----------------|-----------------------|------------------------|-------------------------|
|             |      |                |                       | Rated Voltage Edc: 50V | Rated Voltage Edc : 35V |
| 5.6 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H562K080AA     |                         |
|             |      |                | ±5%                   | C1608CH1H562J080AA     |                         |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012CH1H562K060AA     |                         |
|             |      |                | ±5%                   | C2012CH1H562J060AA     |                         |
|             | 3216 | 0.60±0.15      | ±10%                  | C3216CH1H562K060AA     |                         |
|             |      |                | ±5%                   | C3216CH1H562J060AA     |                         |
| 6.8 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H682K080AA     |                         |
|             |      |                | ±5%                   | C1608CH1H682J080AA     |                         |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012CH1H682K060AA     |                         |
|             |      |                | ±5%                   | C2012CH1H682J060AA     |                         |
|             | 3216 | 0.60±0.15      | ±10%                  | C3216CH1H682K060AA     |                         |
|             |      |                | ±5%                   | C3216CH1H682J060AA     |                         |
| 8.2 nF      | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H822K080AA     |                         |
|             |      |                | ±5%                   | C1608CH1H822J080AA     |                         |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012CH1H822K060AA     |                         |
|             |      |                | ±5%                   | C2012CH1H822J060AA     |                         |
|             | 3216 | 0.60±0.15      | ±10%                  | C3216CH1H822K060AA     |                         |
|             |      |                | ±5%                   | C3216CH1H822J060AA     |                         |
| 10 nF       | 1608 | 0.80±0.10      | ±10%                  | C1608CH1H103K080AA     | C1608CH1V103K080AC      |
|             |      |                | ±5%                   | C1608CH1H103J080AA     | C1608CH1V103J080AC      |
|             | 2012 | 0.60±0.15      | ±10%                  | C2012CH1H103K060AA     |                         |
|             |      |                | ±5%                   | C2012CH1H103J060AA     |                         |
|             | 3216 | 0.60±0.15      | ±10%                  | C3216CH1H103K060AA     |                         |
|             |      |                | ±5%                   | C3216CH1H103J060AA     |                         |
| 15 nF       | 1608 | 0.80±0.10      | ±10%                  |                        | C1608CH1V153K080AC      |
|             |      |                | ±5%                   |                        | C1608CH1V153J080AC      |
|             | 2012 | 0.85±0.15      | ±10%                  | C2012CH1H153K085AA     |                         |
|             |      |                | ±5%                   | C2012CH1H153J085AA     |                         |
|             | 3216 | 0.60±0.15      | ±10%                  | C3216CH1H153K060AA     |                         |
|             |      |                | ±5%                   | C3216CH1H153J060AA     |                         |
| 18 nF       | 1608 | 0.80±0.10      | ±10%                  |                        | C1608CH1V183K080AC      |
|             |      |                | ±5%                   |                        | C1608CH1V183J080AC      |
|             | 2012 | 0.60±0.15      | ±10%                  |                        | C2012CH1V183K060AC      |
|             |      |                | ±5%                   |                        | C2012CH1V183J060AC      |
|             |      |                | ±10%                  |                        | C2012CH1V223K060AC      |
|             |      |                | ±5%                   |                        | C2012CH1V223J060AC      |
| 22 nF       | 2012 | 0.60±0.15      | ±10%                  | C2012CH1H223K125AA     |                         |
|             |      |                | ±5%                   | C2012CH1H223J125AA     |                         |
|             | 3216 | 0.60±0.15      | ±10%                  | C3216CH1H223K060AA     |                         |
|             |      |                | ±5%                   | C3216CH1H223J060AA     |                         |
|             | 3225 | 1.25±0.20      | ±10%                  | C3225CH1H223K125AA     |                         |
|             |      |                | ±5%                   | C3225CH1H223J125AA     |                         |
| 27 nF       | 2012 | 0.60±0.15      | ±10%                  |                        | C2012CH1V273K060AC      |
|             |      |                | ±5%                   |                        | C2012CH1V273J060AC      |
| 30 nF       | 2012 | 0.60±0.15      | ±10%                  |                        | C2012CH1V303K060AC      |
|             |      |                | ±5%                   |                        | C2012CH1V303J060AC      |
| 33 nF       | 2012 | 1.25±0.20      | ±10%                  | C2012CH1H333K125AA     |                         |
|             |      |                | ±5%                   | C2012CH1H333J125AA     |                         |
|             | 3216 | 0.85±0.15      | ±10%                  | C3216CH1H333K085AA     |                         |
|             |      |                | ±5%                   | C3216CH1H333J085AA     |                         |
|             | 3225 | 1.60±0.20      | ±10%                  | C3225CH1H333K160AA     |                         |
|             |      |                | ±5%                   | C3225CH1H333J160AA     |                         |
| 47 nF       | 3216 | 1.15±0.15      | ±10%                  | C3216CH1H473K115AA     |                         |
|             |      |                | ±5%                   | C3216CH1H473J115AA     |                         |
|             | 3225 | 2.00±0.20      | ±10%                  | C3225CH1H473K200AA     |                         |
|             |      |                | ±5%                   | C3225CH1H473J200AA     |                         |
|             | 4532 | 1.60±0.20      | ±10%                  | C4532CH1H473K160KA     |                         |
|             |      |                | ±5%                   | C4532CH1H473J160KA     |                         |
| 68 nF       | 3216 | 1.60±0.20      | ±10%                  | C3216CH1H683K160AA     |                         |
|             |      |                | ±5%                   | C3216CH1H683J160AA     |                         |
|             | 3225 | 2.00±0.20      | ±10%                  | C3225CH1H683K200AA     |                         |
|             |      |                | ±5%                   | C3225CH1H683J200AA     |                         |
|             | 4532 | 1.60±0.20      | ±10%                  | C4532CH1H683K160KA     |                         |
|             |      |                | ±5%                   | C4532CH1H683J160KA     |                         |

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 1 (Temperature Compensating)

Temperature Characteristics: CH(-25 to +85°C, 0±60 ppm/°C)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number<br>Rated Voltage Edc: 50V |
|-------------|------|----------------|-----------------------|------------------------------------------|
| 100 nF      | 3216 | 1.60±0.20      | ±10%                  | C3216CH1H104K160AA                       |
|             |      |                | ±5%                   | C3216CH1H104J160AA                       |
|             | 3225 | 2.50±0.30      | ±10%                  | C3225CH1H104K250AA                       |
|             |      |                | ±5%                   | C3225CH1H104J250AA                       |
|             | 4532 | 2.00±0.20      | ±10%                  | C4532CH1H104K200KA                       |
|             |      |                | ±5%                   | C4532CH1H104J200KA                       |
| 150 nF      | 4532 | 2.50±0.30      | ±10%                  | C4532CH1H154K250KA                       |
|             |      |                | ±5%                   | C4532CH1H154J250KA                       |
| 220 nF      | 4532 | 3.20±0.30      | ±10%                  | C4532CH1H224K320KA                       |
|             |      |                | ±5%                   | C4532CH1H224J320KA                       |

### Class 2 (Temperature Stable)

Temperature Characteristics: JB(-25 to +85°C, ±10%)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number<br>Rated Voltage Edc: 50V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
|-------------|------|----------------|-----------------------|------------------------------------------|------------------------|------------------------|
| 100 pF      | 0402 | 0.20±0.02      | ±10%                  |                                          |                        | C0402JB1C101K020BC     |
|             |      |                | ±20%                  |                                          |                        | C0402JB1C101M020BC     |
|             | 0603 | 0.30±0.03      | ±10%                  |                                          | C0603JB1E101K030BA     |                        |
|             |      |                | ±20%                  |                                          | C0603JB1E101M030BA     |                        |
|             | 0402 | 0.20±0.02      | ±10%                  |                                          |                        | C0402JB1C151K020BC     |
|             |      |                | ±20%                  |                                          |                        | C0402JB1C151M020BC     |
| 150 pF      | 0603 | 0.30±0.03      | ±10%                  |                                          | C0603JB1E151K030BA     |                        |
|             |      |                | ±20%                  |                                          | C0603JB1E151M030BA     |                        |
|             | 0402 | 0.20±0.02      | ±10%                  |                                          |                        | C0402JB1C221K020BC     |
|             |      |                | ±20%                  |                                          |                        | C0402JB1C221M020BC     |
|             | 0603 | 0.30±0.03      | ±10%                  |                                          | C0603JB1E221K030BA     |                        |
|             |      |                | ±20%                  |                                          | C0603JB1E221M030BA     |                        |
| 220 pF      | 0402 | 0.20±0.02      | ±10%                  |                                          |                        | C0402JB1C331K020BC     |
|             |      |                | ±20%                  |                                          |                        | C0402JB1C331M020BC     |
|             | 0603 | 0.30±0.03      | ±10%                  |                                          | C0603JB1E331K030BA     |                        |
|             |      |                | ±20%                  |                                          | C0603JB1E331M030BA     |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H221K050BA                       |                        |                        |
|             |      |                | ±20%                  | C1005JB1H221M050BA                       |                        |                        |
| 330 pF      | 0402 | 0.20±0.02      | ±10%                  |                                          |                        | C0402JB1C331K020BC     |
|             |      |                | ±20%                  |                                          |                        | C0402JB1C331M020BC     |
|             | 0603 | 0.30±0.03      | ±10%                  |                                          | C0603JB1E331K030BA     |                        |
|             |      |                | ±20%                  |                                          | C0603JB1E331M030BA     |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H331K050BA                       |                        |                        |
|             |      |                | ±20%                  | C1005JB1H331M050BA                       |                        |                        |
| 470 pF      | 0402 | 0.20±0.02      | ±10%                  |                                          |                        | C0402JB1C471K020BC     |
|             |      |                | ±20%                  |                                          |                        | C0402JB1C471M020BC     |
|             | 0603 | 0.30±0.03      | ±10%                  |                                          | C0603JB1E471K030BA     |                        |
|             |      |                | ±20%                  |                                          | C0603JB1E471M030BA     |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H471K050BA                       |                        |                        |
|             |      |                | ±20%                  | C1005JB1H471M050BA                       |                        |                        |
| 680 pF      | 0402 | 0.20±0.02      | ±10%                  |                                          |                        | C0402JB1C681K020BC     |
|             |      |                | ±20%                  |                                          |                        | C0402JB1C681M020BC     |
|             | 0603 | 0.30±0.03      | ±10%                  |                                          | C0603JB1E681K030BA     |                        |
|             |      |                | ±20%                  |                                          | C0603JB1E681M030BA     |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H681K050BA                       |                        |                        |
|             |      |                | ±20%                  | C1005JB1H681M050BA                       |                        |                        |
| 1 nF        | 0603 | 0.30±0.03      | ±10%                  |                                          | C0603JB1E102K030BA     |                        |
|             |      |                | ±20%                  |                                          | C0603JB1E102M030BA     |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H102K050BA                       |                        |                        |
|             |      |                | ±20%                  | C1005JB1H102M050BA                       |                        |                        |
|             | 0603 | 0.30±0.03      | ±10%                  |                                          | C0603JB1E152K030BA     |                        |
|             |      |                | ±20%                  |                                          | C0603JB1E152M030BA     |                        |
| 1.5 nF      | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H152K050BA                       |                        |                        |
|             |      |                | ±20%                  | C1005JB1H152M050BA                       |                        |                        |
|             | 0603 | 0.30±0.03      | ±10%                  |                                          | C0603JB1E222K030BA     |                        |
|             |      |                | ±20%                  |                                          | C0603JB1E222M030BA     |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H222K050BA                       |                        |                        |
|             |      |                | ±20%                  | C1005JB1H222M050BA                       |                        |                        |
| 2.2 nF      | 0603 | 0.30±0.03      | ±10%                  |                                          | C0603JB1E332K030BA     |                        |
|             |      |                | ±20%                  |                                          | C0603JB1E332M030BA     |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H332K050BA                       |                        |                        |
|             |      |                | ±20%                  | C1005JB1H332M050BA                       |                        |                        |
|             | 0603 | 0.30±0.03      | ±10%                  |                                          | C0603JB1C472K030BA     |                        |
|             |      |                | ±20%                  |                                          | C0603JB1C472M030BA     |                        |
| 3.3 nF      | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H472K050BA                       |                        |                        |
|             |      |                | ±20%                  | C1005JB1H472M050BA                       |                        |                        |
|             | 0603 | 0.30±0.03      | ±10%                  |                                          | C0603JB1C472K030BA     |                        |
|             |      |                | ±20%                  |                                          | C0603JB1C472M030BA     |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H472K050BA                       |                        |                        |
|             |      |                | ±20%                  | C1005JB1H472M050BA                       |                        |                        |

■ The gray items are non-recommended products in the new design.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

Temperature Characteristics: JB(-25 to +85°C, ±10%)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                        |                        |                        |
|-------------|------|----------------|-----------------------|------------------------|------------------------|------------------------|------------------------|
|             |      |                |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 35V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 6.8 nF      | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H682K050BA     |                        |                        |                        |
|             |      |                | ±20%                  | C1005JB1H682M050BA     |                        |                        |                        |
|             |      |                | ±10%                  | C1005JB1H103K050BB     |                        | C1005JB1E103K050BA     |                        |
| 10 nF       | 1005 | 0.50±0.05      | ±20%                  | C1005JB1H103M050BB     |                        | C1005JB1E103M050BA     |                        |
|             |      |                | ±10%                  | C1608JB1H103K080AA     |                        |                        |                        |
|             |      |                | ±20%                  | C1608JB1H103M080AA     |                        |                        |                        |
| 15 nF       | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H153K050BB     |                        | C1005JB1E153K050BA     | C1005JB1C153K050BA     |
|             |      |                | ±20%                  | C1005JB1H153M050BB     |                        | C1005JB1E153M050BA     | C1005JB1C153M050BA     |
|             |      |                | ±10%                  | C1608JB1H153K080AA     |                        |                        |                        |
| 22 nF       | 1005 | 0.50±0.05      | ±20%                  | C1608JB1H153M080AA     |                        |                        |                        |
|             |      |                | ±10%                  | C0603JB1E223K030BB     |                        | C0603JB1E223K030BB     |                        |
|             |      |                | ±20%                  | C0603JB1E223M030BB     |                        | C0603JB1E223M030BB     |                        |
| 33 nF       | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H223K050BB     |                        | C1005JB1E223K050BA     | C1005JB1C223K050BA     |
|             | 1005 | 0.50±0.05      | ±20%                  | C1005JB1H223M050BB     |                        | C1005JB1E223M050BA     | C1005JB1C223M050BA     |
|             |      |                | ±10%                  | C1608JB1H223K080AA     |                        |                        |                        |
| 47 nF       | 1005 | 0.50±0.05      | ±20%                  | C1608JB1H223M080AA     |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H333K050BB     |                        | C1005JB1E333K050BA     | C1005JB1C333K050BA     |
|             | 1005 | 0.50±0.05      | ±20%                  | C1005JB1H333M050BB     |                        | C1005JB1E333M050BA     | C1005JB1C333M050BA     |
| 68 nF       | 1005 | 0.50±0.05      | ±10%                  | C1608JB1H333K080AA     |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±20%                  | C1608JB1H333M080AA     |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C0603JB1E473K030BB     |                        | C0603JB1E473K030BB     |                        |
| 82 nF       | 1005 | 0.50±0.05      | ±20%                  | C0603JB1E473M030BB     |                        | C0603JB1E473M030BB     |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H473K050BB     |                        | C1005JB1E473K050BA     | C1005JB1C473K050BA     |
|             | 1005 | 0.50±0.05      | ±20%                  | C1005JB1H473M050BB     |                        | C1005JB1E473M050BA     | C1005JB1C473M050BA     |
| 100 nF      | 1005 | 0.50±0.05      | ±10%                  | C1608JB1H473K080AA     |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±20%                  | C1608JB1H473M080AA     |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H683K050BB     | C1005JB1V683K050BB     | C1005JB1E683K050BC     | C1005JB1C683K050BA     |
| 150 nF      | 1005 | 0.50±0.05      | ±20%                  | C1005JB1H683M050BB     | C1005JB1V683M050BB     | C1005JB1E683M050BC     | C1005JB1C683M050BA     |
|             | 1005 | 0.50±0.05      | ±10%                  | C1608JB1H683K080AA     |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±20%                  | C1608JB1H683M080AA     |                        |                        |                        |
| 220 nF      | 1005 | 0.50±0.05      | ±10%                  | C0603JB1E104K030BB     |                        | C0603JB1E104K030BB     | C0603JB1C104K030BC     |
|             | 1005 | 0.50±0.05      | ±20%                  | C0603JB1E104M030BB     |                        | C0603JB1E104M030BB     | C0603JB1C104M030BC     |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1H104K050BB     | C1005JB1V104K050BB     | C1005JB1E104K050BC     | C1005JB1C104K050BA     |
| 330 nF      | 1005 | 0.50±0.05      | ±20%                  | C1005JB1H104M050BB     | C1005JB1V104M050BB     | C1005JB1E104M050BC     | C1005JB1C104M050BA     |
|             | 1005 | 0.50±0.05      | ±10%                  | C1608JB1H104K080AA     |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±20%                  | C1608JB1H104M080AA     |                        |                        |                        |
| 470 nF      | 1005 | 0.50±0.05      | ±10%                  | C2012JB1H104K085AA     |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±20%                  | C2012JB1H104M085AA     |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C0603JB1E154K030BC     |                        | C0603JB1E154K030BC     | C0603JB1C154K030BC     |
| 680 nF      | 1005 | 0.50±0.05      | ±20%                  | C0603JB1E154M030BC     |                        | C0603JB1E154M030BC     | C0603JB1C154M030BC     |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1E154K050BC     |                        | C1005JB1E154K050BC     | C1005JB1C154K050BB     |
|             | 1005 | 0.50±0.05      | ±20%                  | C1005JB1E154M050BC     |                        | C1005JB1E154M050BC     | C1005JB1C154M050BB     |
| 1000 nF     | 1005 | 0.50±0.05      | ±10%                  | C1608JB1H154K080AB     | C1608JB1V154K080AB     | C1608JB1E154K080AA     |                        |
|             | 1005 | 0.50±0.05      | ±20%                  | C1608JB1H154M080AB     | C1608JB1V154M080AB     | C1608JB1E154M080AA     |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C2012JB1H154K085AA     |                        |                        |                        |
| 1500 nF     | 1005 | 0.50±0.05      | ±20%                  | C2012JB1H154M085AA     |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C0603JB1C224K030BC     |                        | C0603JB1C224K030BC     |                        |
|             | 1005 | 0.50±0.05      | ±20%                  | C0603JB1C224M030BC     |                        | C0603JB1C224M030BC     |                        |
| 2200 nF     | 1005 | 0.50±0.05      | ±10%                  | C0603JB1E224K030BC     |                        | C0603JB1E224K030BC     |                        |
|             | 1005 | 0.50±0.05      | ±20%                  | C0603JB1E224M030BC     |                        | C0603JB1E224M030BC     |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1E224K050BC     |                        | C1005JB1E224K050BC     | C1005JB1C224K050BB     |
| 3300 nF     | 1005 | 0.50±0.05      | ±20%                  | C1005JB1E224M050BC     |                        | C1005JB1E224M050BC     | C1005JB1C224M050BB     |
|             | 1005 | 0.50±0.05      | ±10%                  | C1608JB1H224K080AB     | C1608JB1V224K080AB     | C1608JB1E224K080AA     |                        |
|             | 1005 | 0.50±0.05      | ±20%                  | C1608JB1H224M080AB     | C1608JB1V224M080AB     | C1608JB1E224M080AA     |                        |
| 4700 nF     | 1005 | 0.50±0.05      | ±10%                  | C2012JB1H224K125AA     |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±20%                  | C2012JB1H224M125AA     |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1V334K050BC     |                        | C1005JB1E334K050BB     | C1005JB1C334K050BC     |
| 6800 nF     | 1005 | 0.50±0.05      | ±20%                  | C1005JB1V334M050BC     |                        | C1005JB1E334M050BB     | C1005JB1C334M050BC     |
|             | 1005 | 0.50±0.05      | ±10%                  | C1608JB1H334K080AB     | C1608JB1V334K080AB     | C1608JB1E334K080AC     | C1608JB1C334K080AA     |
|             | 1005 | 0.50±0.05      | ±20%                  | C1608JB1H334M080AB     | C1608JB1V334M080AB     | C1608JB1E334M080AC     | C1608JB1C334M080AA     |

■ The gray items are non-recommended products in the new design.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

Temperature Characteristics: JB(-25 to +85°C, ±10%)

| Capacitance | Size | Thickness (mm)   | Capacitance Tolerance | Catalog Number         |                        |                        |                        |
|-------------|------|------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|
|             |      |                  |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 35V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 330 nF      | 2012 | 1.25±0.20        | ±10%                  | C2012JB1H334K125AA     |                        |                        |                        |
|             |      |                  | ±20%                  | C2012JB1H334M125AA     |                        |                        |                        |
| 470 nF      | 1005 | 0.50±0.05        | ±10%                  |                        | C1005JB1V474K050BC     | C1005JB1E474K050BB     | C1005JB1C474K050BC     |
|             |      |                  | ±20%                  |                        | C1005JB1V474M050BC     | C1005JB1E474M050BB     | C1005JB1C474M050BC     |
|             | 1608 | 0.80±0.10        | ±10%                  | C1608JB1H474K080AB     | C1608JB1V474K080AB     | C1608JB1E474K080AC     | C1608JB1C474K080AA     |
|             |      |                  | ±20%                  | C1608JB1H474M080AB     | C1608JB1V474M080AB     | C1608JB1E474M080AC     | C1608JB1C474M080AA     |
|             | 2012 | 1.25±0.20        | ±10%                  | C2012JB1H474K125AB     |                        |                        |                        |
|             |      |                  | ±20%                  | C2012JB1H474M125AB     |                        |                        |                        |
| 680 nF      | 1005 | 0.50±0.05        | ±10%                  |                        | C1005JB1V684K050BC     | C1005JB1E684K050BC     | C1005JB1C684K050BC     |
|             |      |                  | ±20%                  |                        | C1005JB1V684M050BC     | C1005JB1E684M050BC     | C1005JB1C684M050BC     |
|             | 1608 | 0.80±0.10        | ±10%                  | C1608JB1H684K080AB     | C1608JB1V684K080AB     | C1608JB1E684K080AC     | C1608JB1C684K080AA     |
|             |      |                  | ±20%                  | C1608JB1H684M080AB     | C1608JB1V684M080AB     | C1608JB1E684M080AC     | C1608JB1C684M080AA     |
|             | 2012 | 1.25±0.20        | ±10%                  | C2012JB1H684K125AB     |                        | C2012JB1E684K125AA     |                        |
|             |      |                  | ±20%                  | C2012JB1H684M125AB     |                        | C2012JB1E684M125AA     |                        |
| 1 µF        | 1005 | 0.50±0.05        | ±10%                  |                        | C1005JB1V105K050BC     | C1005JB1E105K050BC     | C1005JB1C105K050BC     |
|             |      |                  | ±20%                  |                        | C1005JB1V105M050BC     | C1005JB1E105M050BC     | C1005JB1C105M050BC     |
|             | 1608 | 0.80±0.10        | ±10%                  | C1608JB1H105K080AB     | C1608JB1V105K080AB     | C1608JB1E105K080AC     | C1608JB1C105K080AA     |
|             |      |                  | ±20%                  | C1608JB1H105M080AB     | C1608JB1V105M080AB     | C1608JB1E105M080AC     | C1608JB1C105M080AA     |
|             | 2012 | 0.85±0.15        | ±10%                  | C2012JB1H105K085AB     | C2012JB1V105K085AB     | C2012JB1E105K085AC     | C2012JB1C105K085AA     |
|             |      |                  | ±20%                  | C2012JB1H105M085AB     | C2012JB1V105M085AB     | C2012JB1E105M085AC     | C2012JB1C105M085AA     |
|             |      | 1.25±0.20        | ±10%                  | C2012JB1H105K125AB     |                        | C2012JB1E105K125AA     |                        |
|             |      |                  | ±20%                  | C2012JB1H105M125AB     |                        | C2012JB1E105M125AA     |                        |
|             | 3216 | 1.60±0.20        | ±10%                  | C3216JB1H105K160AA     |                        |                        |                        |
|             |      |                  | ±20%                  | C3216JB1H105M160AA     |                        |                        |                        |
| 1.5 µF      | 1005 | 0.50±0.05        | ±10%                  |                        |                        | C1005JB1E155K050BC     | C1005JB1C155K050BC     |
|             |      |                  | ±20%                  |                        |                        | C1005JB1E155M050BC     |                        |
|             |      | 0.50±0.10        | ±10%                  |                        | C1005JB1E155K050BC     |                        |                        |
|             |      |                  | ±20%                  |                        | C1005JB1E155M050BC     |                        |                        |
|             | 1608 | 0.80±0.10        | ±10%                  |                        | C1608JB1V155K080AC     | C1608JB1E155K080AB     | C1608JB1C155K080AB     |
|             |      |                  | ±20%                  |                        | C1608JB1V155M080AC     | C1608JB1E155M080AB     | C1608JB1C155M080AB     |
|             |      | 0.85±0.15        | ±10%                  |                        |                        | C2012JB1E155K085AC     |                        |
|             |      |                  | ±20%                  |                        |                        | C2012JB1E155M085AC     |                        |
|             | 2012 | 1.25±0.20        | ±10%                  | C2012JB1H155K125AB     | C2012JB1V155K125AB     | C2012JB1E155K125AB     | C2012JB1C155K125AA     |
|             |      |                  | ±20%                  | C2012JB1H155M125AB     | C2012JB1V155M125AB     | C2012JB1E155M125AB     | C2012JB1C155M125AA     |
|             | 3216 | 1.60±0.20        | ±10%                  | C3216JB1H155K160AB     |                        | C3216JB1E155K160AA     |                        |
|             |      |                  | ±20%                  | C3216JB1H155M160AB     |                        | C3216JB1E155M160AA     |                        |
| 2.2 µF      | 1005 | 0.50±0.05        | ±10%                  |                        |                        |                        | C1005JB1C225K050BC     |
|             |      |                  | ±20%                  |                        |                        |                        | C1005JB1C225M050BC     |
|             |      | 0.50±0.10        | ±10%                  |                        |                        | C1005JB1E225K050BC     |                        |
|             |      |                  | ±20%                  |                        |                        | C1005JB1E225M050BC     |                        |
|             | 1608 | 0.80±0.10        | ±10%                  |                        | C1005JB1V225K050BC     |                        |                        |
|             |      |                  | ±20%                  |                        | C1005JB1V225M050BC     |                        |                        |
|             |      | 0.85±0.15        | ±10%                  |                        |                        | C1608JB1E225K080AB     | C1608JB1C225K080AB     |
|             |      |                  | ±20%                  |                        |                        | C1608JB1E225M080AB     | C1608JB1C225M080AB     |
|             | 2012 | 1.25±0.20        | ±10%                  | C2012JB1H225K085AB     | C2012JB1V225K085AB     | C2012JB1E225K085AB     | C2012JB1C225K085AC     |
|             |      |                  | ±20%                  | C2012JB1H225M085AB     | C2012JB1V225M085AB     | C2012JB1E225M085AB     | C2012JB1C225M085AC     |
|             |      | 1.25±0.20        | ±10%                  | C2012JB1H225K125AB     | C2012JB1V225K125AB     | C2012JB1E225K125AC     | C2012JB1C225K125AA     |
|             |      |                  | ±20%                  | C2012JB1H225M125AB     | C2012JB1V225M125AB     | C2012JB1E225M125AC     | C2012JB1C225M125AA     |
|             | 3216 | 1.60±0.20        | ±10%                  | C3216JB1H225K160AB     |                        | C3216JB1E225K160AA     |                        |
|             |      |                  | ±20%                  | C3216JB1H225M160AB     |                        | C3216JB1E225M160AA     |                        |
|             | 3225 | 2.00±0.20        | ±10%                  | C3225JB1H225K200AA     |                        |                        |                        |
|             |      |                  | ±20%                  | C3225JB1H225M200AA     |                        |                        |                        |
| 3.3 µF      | 1608 | 0.80±0.10        | ±10%                  |                        |                        | C1608JB1E335K080AC     | C1608JB1C335K080AC     |
|             |      |                  | ±20%                  |                        |                        | C1608JB1E335M080AC     | C1608JB1C335M080AC     |
|             |      | 0.80±0.20, -0.10 | ±10%                  |                        | C1608JB1V335K080AC     |                        |                        |
|             |      |                  | ±20%                  |                        | C1608JB1V335M080AC     |                        |                        |
|             | 2012 | 0.60±0.15        | ±10%                  |                        |                        |                        | C2012JB1C335K060AC     |
|             |      |                  | ±20%                  |                        |                        |                        | C2012JB1C335M060AC     |
|             |      | 0.85±0.15        | ±10%                  |                        |                        | C2012JB1E335K085AC     | C2012JB1C335K085AB     |
|             |      |                  | ±20%                  |                        |                        | C2012JB1E335M085AC     | C2012JB1C335M085AB     |
| 3.3 µF      | 3216 | 1.60±0.20        | ±10%                  | C2012JB1H335K125AB     | C2012JB1V335K125AC     | C2012JB1E335K125AB     | C2012JB1C335K125AC     |
|             |      |                  | ±20%                  | C2012JB1H335M125AB     | C2012JB1V335M125AC     | C2012JB1E335M125AB     | C2012JB1C335M125AC     |
|             |      |                  | ±10%                  | C3216JB1H335K160AB     | C3216JB1V335K160AB     | C3216JB1E335K160AA     |                        |
|             |      |                  | ±20%                  | C3216JB1H335M160AB     | C3216JB1V335M160AB     | C3216JB1E335M160AA     |                        |

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

Temperature Characteristics: JB(-25 to +85°C, ±10%)

| Capacitance | Size | Thickness (mm)   | Capacitance Tolerance | Catalog Number         |                        |                        |                        |
|-------------|------|------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|
|             |      |                  |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 35V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 3.3 µF      | 3225 | 2.50±0.30        | ±10%                  | C3225JB1H335K250AA     |                        |                        |                        |
|             |      |                  | ±20%                  | C3225JB1H335M250AA     |                        |                        |                        |
|             | 1608 | 0.80±0.10        | ±10%                  |                        |                        | C1608JB1E475K080AC     | C1608JB1C475K080AC     |
|             |      |                  | ±20%                  |                        |                        | C1608JB1E475M080AC     | C1608JB1C475M080AC     |
|             |      | 0.80+0.20, -0.10 | ±10%                  |                        | C1608JB1V475K080AC     |                        |                        |
|             |      |                  | ±20%                  |                        | C1608JB1V475M080AC     |                        |                        |
|             | 2012 | 0.60±0.15        | ±10%                  |                        |                        |                        | C2012JB1C475K060AC     |
|             |      |                  | ±20%                  |                        |                        |                        | C2012JB1C475M060AC     |
|             |      | 0.85±0.15        | ±10%                  |                        |                        | C2012JB1E475K085AC     | C2012JB1C475K085AB     |
|             |      |                  | ±20%                  |                        |                        | C2012JB1E475M085AC     | C2012JB1C475M085AB     |
| 4.7 µF      | 1608 | 1.25±0.20        | ±10%                  | C2012JB1H475K125AB     | C2012JB1V475K125AC     | C2012JB1E475K125AB     | C2012JB1C475K125AC     |
|             |      |                  | ±20%                  | C2012JB1H475M125AB     | C2012JB1V475M125AC     | C2012JB1E475M125AB     | C2012JB1C475M125AC     |
|             |      | 0.85±0.10        | ±10%                  | C3216JB1H475K085AB     | C3216JB1V475K085AB     | C3216JB1E475K085AB     |                        |
|             |      |                  | ±20%                  | C3216JB1H475M085AB     | C3216JB1V475M085AB     | C3216JB1E475M085AB     |                        |
|             | 3216 | 1.15±0.10        | ±10%                  |                        |                        | C3216JB1E475K115AB     |                        |
|             |      |                  | ±20%                  |                        |                        | C3216JB1E475M115AB     |                        |
|             |      | 1.60±0.20        | ±10%                  | C3216JB1H475K160AB     | C3216JB1V475K160AB     | C3216JB1E475K160AA     |                        |
|             |      |                  | ±20%                  | C3216JB1H475M160AB     | C3216JB1V475M160AB     | C3216JB1E475M160AA     |                        |
|             | 3225 | 2.50±0.30        | ±10%                  | C3225JB1H475K250AB     |                        |                        |                        |
|             |      |                  | ±20%                  | C3225JB1H475M250AB     |                        |                        |                        |
| 6.8 µF      | 1608 | 0.80+0.20, -0.10 | ±10%                  |                        |                        | C1608JB1E685K080AC     | C1608JB1C685K080AB     |
|             |      |                  | ±20%                  |                        |                        | C1608JB1E685M080AC     | C1608JB1C685M080AB     |
|             | 2012 | 0.85±0.15        | ±10%                  |                        |                        |                        | C2012JB1C685K085AC     |
|             |      |                  | ±20%                  |                        |                        |                        | C2012JB1C685M085AC     |
|             |      | 1.25±0.20        | ±10%                  |                        | C2012JB1V685K125AC     | C2012JB1E685K125AC     | C2012JB1C685K125AC     |
|             |      |                  | ±20%                  |                        | C2012JB1V685M125AC     | C2012JB1E685M125AC     | C2012JB1C685M125AB     |
|             | 3216 | 1.60±0.20        | ±10%                  | C3216JB1H685K160AB     | C3216JB1V685K160AB     | C3216JB1E685K160AB     | C3216JB1C685K160AA     |
|             |      |                  | ±20%                  | C3216JB1H685M160AB     | C3216JB1V685M160AB     | C3216JB1E685M160AB     | C3216JB1C685M160AA     |
|             | 3225 | 2.00±0.20        | ±10%                  |                        |                        | C3225JB1E685K200AA     | C3225JB1C685K200AA     |
|             |      |                  | ±20%                  |                        |                        | C3225JB1E685M200AA     | C3225JB1C685M200AA     |
| 10 µF       | 1608 | 0.80+0.20, -0.10 | ±10%                  |                        |                        |                        |                        |
|             |      |                  | ±20%                  |                        |                        |                        |                        |
|             | 2012 | 0.85±0.15        | ±10%                  |                        | C2012JB1V106K085AC     | C2012JB1E106K085AC     | C2012JB1C106K085AC     |
|             |      |                  | ±20%                  |                        | C2012JB1V106M085AC     | C2012JB1E106M085AC     | C2012JB1C106M085AC     |
|             |      | 1.25±0.20        | ±10%                  |                        | C2012JB1V106K125AC     | C2012JB1E106K125AB     | C2012JB1C106K125AB     |
|             |      |                  | ±20%                  |                        | C2012JB1V106M125AC     | C2012JB1E106M125AB     | C2012JB1C106M125AB     |
|             | 3216 | 0.85±0.10        | ±10%                  |                        |                        | C3216JB1E106K085AC     | C3216JB1C106K085AB     |
|             |      |                  | ±20%                  |                        |                        | C3216JB1E106M085AC     | C3216JB1C106M085AB     |
|             |      | 1.60±0.20        | ±10%                  | C3216JB1H106K160AB     | C3216JB1V106K160AB     | C3216JB1E106K160AB     | C3216JB1C106K160AA     |
|             |      |                  | ±20%                  | C3216JB1H106M160AB     | C3216JB1V106M160AB     | C3216JB1E106M160AB     | C3216JB1C106M160AA     |
| 15 µF       | 1608 | 0.80+0.20, -0.10 | ±10%                  |                        |                        |                        |                        |
|             |      |                  | ±20%                  |                        |                        |                        |                        |
|             | 2012 | 0.85±0.15        | ±10%                  |                        | C2012JB1V106K085AC     | C2012JB1E106K085AC     | C2012JB1C106K085AC     |
|             |      |                  | ±20%                  |                        | C2012JB1V106M085AC     | C2012JB1E106M085AC     | C2012JB1C106M085AC     |
|             |      | 1.25±0.20        | ±10%                  |                        | C2012JB1V106K125AC     | C2012JB1E106K125AB     | C2012JB1C106K125AB     |
|             |      |                  | ±20%                  |                        | C2012JB1V106M125AC     | C2012JB1E106M125AB     | C2012JB1C106M125AB     |
|             | 3216 | 0.85±0.10        | ±10%                  |                        |                        | C3216JB1E106K085AC     | C3216JB1C106K085AB     |
|             |      |                  | ±20%                  |                        |                        | C3216JB1E106M085AC     | C3216JB1C106M085AB     |
|             |      | 1.60±0.20        | ±10%                  | C3216JB1H106K160AB     | C3216JB1V106K160AB     | C3216JB1E106K160AB     | C3216JB1C106K160AA     |
|             |      |                  | ±20%                  | C3216JB1H106M160AB     | C3216JB1V106M160AB     | C3216JB1E106M160AB     | C3216JB1C106M160AA     |
| 22 µF       | 1608 | 0.80+0.20, -0.10 | ±10%                  |                        |                        |                        |                        |
|             |      |                  | ±20%                  |                        |                        |                        |                        |
|             | 2012 | 0.85±0.15        | ±10%                  |                        | C2012JB1V106K085AC     | C2012JB1E106K085AC     | C2012JB1C106K085AC     |
|             |      |                  | ±20%                  |                        | C2012JB1V106M085AC     | C2012JB1E106M085AC     | C2012JB1C106M085AC     |
|             |      | 1.25±0.20        | ±10%                  |                        | C2012JB1V106K125AC     | C2012JB1E106K125AB     | C2012JB1C106K125AB     |
|             |      |                  | ±20%                  |                        | C2012JB1V106M125AC     | C2012JB1E106M125AB     | C2012JB1C106M125AB     |
|             | 3216 | 0.85±0.10        | ±10%                  |                        |                        | C3216JB1E106K085AC     | C3216JB1C106K085AB     |
|             |      |                  | ±20%                  |                        |                        | C3216JB1E106M085AC     | C3216JB1C106M085AB     |
|             |      | 1.60±0.20        | ±10%                  | C3216JB1H106K160AB     | C3216JB1V106K160AB     | C3216JB1E106K160AB     | C3216JB1C106K160AA     |
|             |      |                  | ±20%                  | C3216JB1H106M160AB     | C3216JB1V106M160AB     | C3216JB1E106M160AB     | C3216JB1C106M160AA     |

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

Temperature Characteristics: JB(-25 to +85°C, ±10%)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                        |
|-------------|------|----------------|-----------------------|------------------------|------------------------|
|             |      |                |                       | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 33 µF       | 3216 | 1.60±0.20      | ±20%                  | C3216JB1E336M160AC     | C3216JB1C336M160AB     |
|             | 4532 | 2.50±0.30      | ±20%                  |                        | C4532JB1C336M250KA     |
| 47 µF       | 3216 | 1.60±0.20      | ±20%                  | C3216JB1E476M160AC     | C3216JB1C476M160AB     |

### Class 2 (Temperature Stable)

Temperature Characteristics: JB(-25 to +85°C, ±10%)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                          |                        |
|-------------|------|----------------|-----------------------|------------------------|--------------------------|------------------------|
|             |      |                |                       | Rated Voltage Edc: 10V | Rated Voltage Edc : 6.3V | Rated Voltage Edc : 4V |
| 1 nF        | 0402 | 0.20±0.02      | ±10%                  | C0402JB1A102K020BC     | C0402JB0J102K020BC       | C0402JB0G102K020BC     |
|             |      |                | ±20%                  | C0402JB1A102M020BC     | C0402JB0J102M020BC       | C0402JB0G102M020BC     |
| 1.5 nF      | 0402 | 0.20±0.02      | ±10%                  | C0402JB1A152K020BC     | C0402JB0J152K020BC       | C0402JB0G152K020BC     |
|             |      |                | ±20%                  | C0402JB1A152M020BC     | C0402JB0J152M020BC       | C0402JB0G152M020BC     |
| 2.2 nF      | 0402 | 0.20±0.02      | ±10%                  | C0402JB1A222K020BC     | C0402JB0J222K020BC       | C0402JB0G222K020BC     |
|             |      |                | ±20%                  | C0402JB1A222M020BC     | C0402JB0J222M020BC       | C0402JB0G222M020BC     |
| 3.3 nF      | 0402 | 0.20±0.02      | ±10%                  | C0402JB1A332K020BC     | C0402JB0J332K020BC       | C0402JB0G332K020BC     |
|             |      |                | ±20%                  | C0402JB1A332M020BC     | C0402JB0J332M020BC       | C0402JB0G332M020BC     |
| 4.7 nF      | 0402 | 0.20±0.02      | ±10%                  | C0402JB1A472K020BC     | C0402JB0J472K020BC       | C0402JB0G472K020BC     |
|             |      |                | ±20%                  | C0402JB1A472M020BC     | C0402JB0J472M020BC       | C0402JB0G472M020BC     |
| 6.8 nF      | 0402 | 0.20±0.02      | ±10%                  | C0402JB1A682K020BC     | C0402JB0J682K020BC       | C0402JB0G682K020BC     |
|             |      |                | ±20%                  | C0402JB1A682M020BC     | C0402JB0J682M020BC       | C0402JB0G682M020BC     |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603JB1A682K030BA     |                          |                        |
|             |      |                | ±20%                  | C0603JB1A682M030BA     |                          |                        |
| 10 nF       | 0402 | 0.20±0.02      | ±10%                  | C0402JB1A103K020BC     | C0402JB0J103K020BC       | C0402JB0G103K020BC     |
|             |      |                | ±20%                  | C0402JB1A103M020BC     | C0402JB0J103M020BC       | C0402JB0G103M020BC     |
|             | 0603 | 0.30±0.03      | ±10%                  | C0603JB1A103K030BA     |                          |                        |
|             |      |                | ±20%                  | C0603JB1A103M030BA     |                          |                        |
| 15 nF       | 0603 | 0.30±0.03      | ±10%                  | C0603JB1A153K030BC     | C0603JB0J153K030BA       |                        |
|             |      |                | ±20%                  | C0603JB1A153M030BC     | C0603JB0J153M030BA       |                        |
| 22 nF       | 0603 | 0.30±0.03      | ±10%                  | C0603JB1A223K030BC     | C0603JB0J223K030BC       |                        |
|             |      |                | ±20%                  | C0603JB1A223M030BC     | C0603JB0J223M030BC       |                        |
| 33 nF       | 0603 | 0.30±0.03      | ±10%                  | C0603JB1A333K030BC     | C0603JB0J333K030BC       |                        |
|             |      |                | ±20%                  | C0603JB1A333M030BC     | C0603JB0J333M030BC       |                        |
| 47 nF       | 0603 | 0.30±0.03      | ±10%                  | C0603JB1A473K030BC     | C0603JB0J473K030BC       |                        |
|             |      |                | ±20%                  | C0603JB1A473M030BC     | C0603JB0J473M030BC       |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1A473K050BA     |                          |                        |
|             |      |                | ±20%                  | C1005JB1A473M050BA     |                          |                        |
| 68 nF       | 0603 | 0.30±0.03      | ±10%                  | C0603JB1A683K030BC     | C0603JB0J683K030BC       |                        |
|             |      |                | ±20%                  | C0603JB1A683M030BC     | C0603JB0J683M030BC       |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1A683K050BA     |                          |                        |
|             |      |                | ±20%                  | C1005JB1A683M050BA     |                          |                        |
| 100 nF      | 0603 | 0.30±0.03      | ±10%                  | C0603JB1A104K030BC     | C0603JB0J104K030BC       |                        |
|             |      |                | ±20%                  | C0603JB1A104M030BC     | C0603JB0J104M030BC       |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1A104K050BA     |                          |                        |
|             |      |                | ±20%                  | C1005JB1A104M050BA     |                          |                        |
| 150 nF      | 0603 | 0.30±0.03      | ±10%                  | C0603JB1A154K030BB     | C0603JB0J154K030BB       |                        |
|             |      |                | ±20%                  | C0603JB1A154M030BB     | C0603JB0J154M030BB       |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1A154K050BC     | C1005JB0J154K050BB       |                        |
|             |      |                | ±20%                  | C1005JB1A154M050BC     | C1005JB0J154M050BB       |                        |
| 220 nF      | 0603 | 0.30±0.03      | ±10%                  | C0603JB1A224K030BB     | C0603JB0J224K030BB       |                        |
|             |      |                | ±20%                  | C0603JB1A224M030BB     | C0603JB0J224M030BB       |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1A224K050BC     | C1005JB0J224K050BB       |                        |
|             |      |                | ±20%                  | C1005JB1A224M050BC     | C1005JB0J224M050BB       |                        |
| 330 nF      | 0603 | 0.30±0.03      | ±10%                  | C0603JB1A334K030BC     |                          |                        |
|             |      |                | ±20%                  | C0603JB1A334M030BC     |                          |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1A334K050BC     | C1005JB0J334K050BB       |                        |
|             |      |                | ±20%                  | C1005JB1A334M050BC     | C1005JB0J334M050BB       |                        |
| 470 nF      | 0603 | 0.30±0.03      | ±10%                  | C0603JB1A474K030BC     |                          |                        |
|             |      |                | ±20%                  | C0603JB1A474M030BC     |                          |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005JB1A474K050BC     | C1005JB0J474K050BB       |                        |
|             |      |                | ±20%                  | C1005JB1A474M050BC     | C1005JB0J474M050BB       |                        |

■ The gray items are non-recommended products in the new design.

■ The red items are products of the production will be stopped. Please confirm the schedule on product details information.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

Temperature Characteristics: JB(-25 to +85°C, ±10%)

| Capacitance | Size | Thickness (mm)   | Capacitance Tolerance | Catalog Number         |                          |                        |
|-------------|------|------------------|-----------------------|------------------------|--------------------------|------------------------|
|             |      |                  |                       | Rated Voltage Edc: 10V | Rated Voltage Edc : 6.3V | Rated Voltage Edc : 4V |
| 680 nF      | 1005 | 0.50±0.05        | ±10%                  | C1005JB1A684K050BC     | C1005JB0J684K050BB       |                        |
|             |      |                  | ±20%                  | C1005JB1A684M050BC     | C1005JB0J684M050BB       |                        |
|             | 1608 | 0.80+0.15/-0.10  | ±10%                  | C1608JB1A684K080AC     |                          |                        |
|             |      |                  | ±20%                  | C1608JB1A684M080AC     |                          |                        |
| 1 µF        | 1005 | 0.50±0.05        | ±10%                  | C1005JB1A105K050BB     | C1005JB0J105K050BB       |                        |
|             |      |                  | ±20%                  | C1005JB1A105M050BB     | C1005JB0J105M050BB       |                        |
|             | 1608 | 0.80+0.15/-0.10  | ±10%                  | C1608JB1A105K080AC     |                          |                        |
|             |      |                  | ±20%                  | C1608JB1A105M080AC     |                          |                        |
| 1.5 µF      | 1005 | 0.50±0.05        | ±10%                  | C1005JB1A155K050BC     | C1005JB0J155K050BB       |                        |
|             |      |                  | ±20%                  | C1005JB1A155M050BC     | C1005JB0J155M050BB       |                        |
|             | 1608 | 0.80±0.10        | ±10%                  | C1608JB1A155K080AC     | C1608JB0J155K080AB       |                        |
|             |      |                  | ±20%                  | C1608JB1A155M080AC     | C1608JB0J155M080AB       |                        |
| 2.2 µF      | 1005 | 0.50±0.05        | ±10%                  | C1005JB1A225K050BC     | C1005JB0J225K050BC       | C1005JB0G225K050BB     |
|             |      |                  | ±20%                  | C1005JB1A225M050BC     | C1005JB0J225M050BC       | C1005JB0G225M050BB     |
|             | 1608 | 0.80±0.10        | ±10%                  | C1608JB1A225K080AC     | C1608JB0J225K080AB       |                        |
|             |      |                  | ±20%                  | C1608JB1A225M080AC     | C1608JB0J225M080AB       |                        |
|             | 2012 | 0.85±0.15        | ±10%                  | C2012JB1A225K085AA     |                          |                        |
|             |      |                  | ±20%                  | C2012JB1A225M085AA     |                          |                        |
| 3.3 µF      | 1005 | 0.50±0.10        | ±10%                  | C1005JB1A335K050BC     | C1005JB0J335K050BC       | C1005JB0G335K050BB     |
|             |      |                  | ±20%                  | C1005JB1A335M050BC     | C1005JB0J335M050BC       | C1005JB0G335M050BB     |
|             | 1608 | 0.80+0.15, -0.10 | ±10%                  |                        | C1608JB0J335K080AB       |                        |
|             |      |                  | ±20%                  |                        | C1608JB0J335M080AB       |                        |
|             |      | 0.80±0.10        | ±10%                  | C1608JB1A335K080AB     |                          |                        |
|             |      |                  | ±20%                  | C1608JB1A335M080AB     |                          |                        |
|             | 2012 | 1.25±0.20        | ±10%                  | C2012JB1A335K125AA     |                          |                        |
|             |      |                  | ±20%                  | C2012JB1A335M125AA     |                          |                        |
| 4.7 µF      | 1005 | 0.50+0.15/-0.10  | ±10%                  | C1005JB1A475K050BC     | C1005JB0J475K050BC       | C1005JB0G475K050BB     |
|             |      |                  | ±20%                  | C1005JB1A475M050BC     | C1005JB0J475M050BC       | C1005JB0G475M050BB     |
|             | 1608 | 0.80+0.15, -0.10 | ±10%                  |                        | C1608JB0J475K080AB       |                        |
|             |      |                  | ±20%                  |                        | C1608JB0J475M080AB       |                        |
|             |      | 0.80±0.10        | ±10%                  | C1608JB1A475K080AB     |                          |                        |
|             |      |                  | ±20%                  | C1608JB1A475M080AB     |                          |                        |
|             |      | 0.60±0.15        | ±10%                  | C2012JB1A475K060AB     |                          |                        |
|             |      |                  | ±20%                  | C2012JB1A475M060AB     |                          |                        |
|             | 2012 | 0.85±0.15        | ±10%                  |                        | C2012JB0J475K085AB       |                        |
|             |      |                  | ±20%                  |                        | C2012JB0J475M085AB       |                        |
| 6.8 µF      |      | 1.25±0.20        | ±10%                  | C2012JB1A475K125AA     |                          |                        |
|             |      |                  | ±20%                  | C2012JB1A475M125AA     |                          |                        |
|             | 1608 | 0.80±0.10        | ±10%                  | C1608JB1A685K080AC     | C1608JB0J685K080AB       |                        |
|             |      |                  | ±20%                  | C1608JB1A685M080AC     | C1608JB0J685M080AB       |                        |
|             |      | 0.60±0.15        | ±10%                  | C2012JB1A685K060AC     |                          |                        |
|             |      |                  | ±20%                  | C2012JB1A685M060AC     |                          |                        |
|             | 2012 | 0.85±0.15        | ±10%                  | C2012JB1A685K085AC     | C2012JB0J685K085AB       |                        |
|             |      |                  | ±20%                  | C2012JB1A685M085AC     | C2012JB0J685M085AB       |                        |
|             |      | 1.25±0.20        | ±10%                  | C2012JB1A685K125AC     | C2012JB0J685K125AB       |                        |
|             |      |                  | ±20%                  | C2012JB1A685M125AC     | C2012JB0J685M125AB       |                        |
| 10 µF       | 1608 | 0.80±0.10        | ±10%                  | C1608JB1A106K080AC     | C1608JB0J106K080AB       |                        |
|             |      |                  | ±20%                  | C1608JB1A106M080AC     | C1608JB0J106M080AB       |                        |
|             | 2012 | 0.85±0.15        | ±10%                  | C2012JB1A106K085AC     | C2012JB0J106K085AB       |                        |
|             |      |                  | ±20%                  | C2012JB1A106M085AC     | C2012JB0J106M085AB       |                        |
|             |      | 1.25±0.20        | ±10%                  | C2012JB1A106K125AC     | C2012JB0J106K125AB       |                        |
|             |      |                  | ±20%                  | C2012JB1A106M125AC     | C2012JB0J106M125AB       |                        |
|             | 3216 | 1.60±0.20        | ±10%                  | C3216JB1A106K160AA     |                          |                        |
|             |      |                  | ±20%                  | C3216JB1A106M160AA     |                          |                        |
| 15 µF       | 1608 | 0.80+0.20, -0.10 | ±20%                  | C1608JB1A156M080AC     | C1608JB0J156M080AC       | C1608JB0G156M080AA     |
|             |      |                  | ±20%                  | C2012JB1A156M085AC     | C2012JB0J156M085AB       |                        |
|             | 2012 | 1.25±0.20        | ±20%                  | C2012JB1A156M125AB     | C2012JB0J156M125AC       |                        |
|             |      |                  | ±20%                  | C3216JB1A156M160AC     |                          |                        |
|             | 3225 | 2.30±0.20        | ±20%                  | C3225JB1A156M230AA     |                          |                        |

■ The red items are products of the production will be stopped. Please confirm the schedule on product details information.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

Temperature Characteristics: JB(-25 to +85°C, ±10%)

| Capacitance | Size | Thickness (mm)   | Capacitance Tolerance | Catalog Number         |                         |                       |
|-------------|------|------------------|-----------------------|------------------------|-------------------------|-----------------------|
|             |      |                  |                       | Rated Voltage Edc: 10V | Rated Voltage Edc: 6.3V | Rated Voltage Edc: 4V |
| 22 µF       | 1608 | 0.80±0.20, -0.10 | ±20%                  | C1608JB1A226M080AC     | C1608JB0J226M080AC      | C1608JB0G226M080AA    |
|             | 2012 | 0.85±0.15        | ±20%                  | C2012JB1A226M085AC     | C2012JB0J226M085AB      |                       |
|             |      | 1.25±0.20        | ±20%                  | C2012JB1A226M125AB     | C2012JB0J226M125AC      |                       |
|             | 3216 | 1.60±0.20        | ±20%                  | C3216JB1A226M160AC     |                         |                       |
|             | 3225 | 2.50±0.30        | ±20%                  | C3225JB1A226M250AA     |                         |                       |
| 33 µF       | 2012 | 1.25±0.20        | ±20%                  | C2012JB1A336M125AC     | C2012JB0J336M125AC      |                       |
|             | 3216 | 1.30±0.20        | ±20%                  |                        | C3216JB0J336M130AC      |                       |
|             |      | 1.60±0.20        | ±20%                  | C3216JB1A336M160AB     |                         |                       |
| 47 µF       | 2012 | 1.25±0.20        | ±20%                  | C2012JB1A476M125AC     | C2012JB0J476M125AC      |                       |
|             | 3216 | 1.60±0.20        | ±20%                  | C3216JB1A476M160AB     | C3216JB0J476M160AC      |                       |
| 68 µF       | 3216 | 1.60±0.30/-0.10  | ±20%                  | C3216JB1A686M160AC     | C3216JB0J686M160AB      |                       |
|             | 3225 | 2.00±0.20        | ±20%                  |                        | C3225JB0J686M200AC      |                       |
| 100 µF      | 3216 | 1.60±0.30/-0.10  | ±20%                  | C3216JB1A107M160AC     | C3216JB0J107M160AB      |                       |
|             | 3225 | 2.50±0.30        | ±20%                  |                        | C3225JB0J107M250AC      |                       |

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                        |                        |
|-------------|------|----------------|-----------------------|------------------------|------------------------|------------------------|
|             |      |                |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 100 pF      | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402X5R1C101K020BC    |
|             |      |                | ±20%                  |                        |                        | C0402X5R1C101M020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X5R1E101K030BA    |                        |
|             |      |                | ±20%                  |                        | C0603X5R1E101M030BA    |                        |
| 150 pF      | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402X5R1C151K020BC    |
|             |      |                | ±20%                  |                        |                        | C0402X5R1C151M020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X5R1E151K030BA    |                        |
|             |      |                | ±20%                  |                        | C0603X5R1E151M030BA    |                        |
| 220 pF      | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402X5R1C221K020BC    |
|             |      |                | ±20%                  |                        |                        | C0402X5R1C221M020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X5R1E221K030BA    |                        |
|             |      |                | ±20%                  |                        | C0603X5R1E221M030BA    |                        |
| 330 pF      | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402X5R1C331K020BC    |
|             |      |                | ±20%                  |                        |                        | C0402X5R1C331M020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X5R1E331K030BA    |                        |
|             |      |                | ±20%                  |                        | C0603X5R1E331M030BA    |                        |
| 470 pF      | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402X5R1C471K020BC    |
|             |      |                | ±20%                  |                        |                        | C0402X5R1C471M020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X5R1E471K030BA    |                        |
|             |      |                | ±20%                  |                        | C0603X5R1E471M030BA    |                        |
| 680 pF      | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402X5R1C681K020BC    |
|             |      |                | ±20%                  |                        |                        | C0402X5R1C681M020BC    |
|             | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X5R1E681K030BA    |                        |
|             |      |                | ±20%                  |                        | C0603X5R1E681M030BA    |                        |
| 1 nF        | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402X5R1C1000K020BC   |
|             |      |                | ±20%                  |                        |                        | C0402X5R1C1000M020BC   |
|             | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X5R1E1000K030BA   |                        |
|             |      |                | ±20%                  |                        | C0603X5R1E1000M030BA   |                        |
| 1.5 nF      | 0402 | 0.20±0.02      | ±10%                  |                        |                        | C0402X5R1C1500K020BC   |
|             |      |                | ±20%                  |                        |                        | C0402X5R1C1500M020BC   |
|             | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X5R1E1500K030BA   |                        |
|             |      |                | ±20%                  |                        | C0603X5R1E1500M030BA   |                        |

■ The gray items are non-recommended products in the new design.

■ The red items are products of the production will be stopped. Please confirm the schedule on product details information.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                        |                        |                        |
|-------------|------|----------------|-----------------------|------------------------|------------------------|------------------------|------------------------|
|             |      |                |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 35V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 2.2 nF      | 0603 | 0.30±0.03      | ±10%                  |                        |                        | C0603X5R1E222K030BA    |                        |
|             |      |                | ±20%                  |                        |                        | C0603X5R1E222M030BA    |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X5R1H222K050BA    |                        |                        |                        |
|             |      |                | ±20%                  | C1005X5R1H222M050BA    |                        |                        |                        |
| 3.3 nF      | 0603 | 0.30±0.03      | ±10%                  |                        |                        | C0603X5R1E332K030BA    |                        |
|             |      |                | ±20%                  |                        |                        | C0603X5R1E332M030BA    |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X5R1H332K050BA    |                        |                        |                        |
|             |      |                | ±20%                  | C1005X5R1H332M050BA    |                        |                        |                        |
| 4.7 nF      | 0603 | 0.30±0.03      | ±10%                  |                        |                        |                        | C0603X5R1C472K030BA    |
|             |      |                | ±20%                  |                        |                        |                        | C0603X5R1C472M030BA    |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X5R1H472K050BA    |                        |                        |                        |
|             |      |                | ±20%                  | C1005X5R1H472M050BA    |                        |                        |                        |
| 6.8 nF      | 1005 | 0.50±0.05      | ±10%                  | C1005X5R1H682K050BA    |                        |                        |                        |
|             |      |                | ±20%                  | C1005X5R1H682M050BA    |                        |                        |                        |
| 10 nF       | 0603 | 0.30±0.03      | ±10%                  |                        |                        |                        | C0603X5R1C103K030BA    |
|             |      |                | ±20%                  |                        |                        |                        | C0603X5R1C103M030BA    |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X5R1H103K050BB    |                        | C1005X5R1E103K050BA    |                        |
|             |      |                | ±20%                  | C1005X5R1H103M050BB    |                        | C1005X5R1E103M050BA    |                        |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1H103K080AA    |                        |                        |                        |
|             |      |                | ±20%                  | C1608X5R1H103M080AA    |                        |                        |                        |
| 15 nF       | 1005 | 0.50±0.05      | ±10%                  | C1005X5R1H153K050BB    |                        | C1005X5R1E153K050BA    | C1005X5R1C153K050BA    |
|             |      |                | ±20%                  | C1005X5R1H153M050BB    |                        | C1005X5R1E153M050BA    | C1005X5R1C153M050BA    |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1H153K080AA    |                        |                        |                        |
|             |      |                | ±20%                  | C1608X5R1H153M080AA    |                        |                        |                        |
|             | 0603 | 0.30±0.03      | ±10%                  |                        |                        | C0603X5R1E223K030BB    |                        |
|             |      |                | ±20%                  |                        |                        | C0603X5R1E223M030BB    |                        |
| 22 nF       | 1005 | 0.50±0.05      | ±10%                  | C1005X5R1H223K050BB    |                        | C1005X5R1E223K050BA    | C1005X5R1C223K050BA    |
|             |      |                | ±20%                  | C1005X5R1H223M050BB    |                        | C1005X5R1E223M050BA    | C1005X5R1C223M050BA    |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1H223K080AA    |                        |                        |                        |
|             |      |                | ±20%                  | C1608X5R1H223M080AA    |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X5R1H333K050BB    |                        | C1005X5R1E333K050BA    | C1005X5R1C333K050BA    |
|             |      |                | ±20%                  | C1005X5R1H333M050BB    |                        | C1005X5R1E333M050BA    | C1005X5R1C333M050BA    |
| 33 nF       | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1H333K080AA    |                        |                        |                        |
|             |      |                | ±20%                  | C1608X5R1H333M080AA    |                        |                        |                        |
|             | 0603 | 0.30±0.03      | ±10%                  |                        |                        | C0603X5R1E473K030BB    |                        |
|             |      |                | ±20%                  |                        |                        | C0603X5R1E473M030BB    |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X5R1H473K050BB    |                        | C1005X5R1E473K050BA    | C1005X5R1C473K050BA    |
|             |      |                | ±20%                  | C1005X5R1H473M050BB    |                        | C1005X5R1E473M050BA    | C1005X5R1C473M050BA    |
| 47 nF       | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1H473K080AA    |                        |                        |                        |
|             |      |                | ±20%                  | C1608X5R1H473M080AA    |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X5R1H683K050BB    | C1005X5R1V683K050BB    | C1005X5R1E683K050BC    | C1005X5R1C683K050BA    |
|             |      |                | ±20%                  | C1005X5R1H683M050BB    | C1005X5R1V683M050BB    | C1005X5R1E683M050BC    | C1005X5R1C683M050BA    |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1H683K080AA    |                        |                        |                        |
|             |      |                | ±20%                  | C1608X5R1H683M080AA    |                        |                        |                        |
| 68 nF       | 0603 | 0.30±0.03      | ±10%                  |                        |                        | C0603X5R1E104K030BB    | C0603X5R1C104K030BC    |
|             |      |                | ±20%                  |                        |                        | C0603X5R1E104M030BB    | C0603X5R1C104M030BC    |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X5R1H104K050BB    | C1005X5R1V104K050BB    | C1005X5R1E104K050BC    | C1005X5R1C104K050BA    |
|             |      |                | ±20%                  | C1005X5R1H104M050BB    | C1005X5R1V104M050BB    | C1005X5R1E104M050BC    | C1005X5R1C104M050BA    |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1H104K080AA    |                        |                        |                        |
|             |      |                | ±20%                  | C1608X5R1H104M080AA    |                        |                        |                        |
| 100 nF      | 2012 | 0.85±0.15      | ±10%                  | C2012X5R1H104K085AA    |                        |                        |                        |
|             |      |                | ±20%                  | C2012X5R1H104M085AA    |                        |                        |                        |
|             | 0603 | 0.30±0.03      | ±10%                  |                        |                        |                        | C0603X5R1C154K030BC    |
|             |      |                | ±20%                  |                        |                        |                        | C0603X5R1C154M030BC    |
|             | 0603 | 0.30±0.05      | ±10%                  |                        |                        | C0603X5R1E154K030BC    |                        |
|             |      |                | ±20%                  |                        |                        | C0603X5R1E154M030BC    |                        |
|             | 1005 | 0.50±0.05      | ±10%                  |                        |                        | C1005X5R1E154K050BC    | C1005X5R1C154K050BB    |
|             |      |                | ±20%                  |                        |                        | C1005X5R1E154M050BC    | C1005X5R1C154M050BB    |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1H154K080AB    | C1608X5R1V154K080AB    | C1608X5R1E154K080AA    |                        |
|             |      |                | ±20%                  | C1608X5R1H154M080AB    | C1608X5R1V154M080AB    | C1608X5R1E154M080AA    |                        |
| 150 nF      | 2012 | 0.85±0.15      | ±10%                  | C2012X5R1H154K085AA    |                        |                        |                        |
|             |      |                | ±20%                  | C2012X5R1H154M085AA    |                        |                        |                        |

■ The gray items are non-recommended products in the new design.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm)  | Capacitance Tolerance | Catalog Number         |                        |                        |                        |
|-------------|------|-----------------|-----------------------|------------------------|------------------------|------------------------|------------------------|
|             |      |                 |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 35V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 220 nF      | 0603 | 0.30±0.03       | ±10%                  |                        |                        |                        | C0603X5R1C224K030BC    |
|             |      |                 | ±20%                  |                        |                        |                        | C0603X5R1C224M030BC    |
|             |      | 0.30±0.05       | ±10%                  |                        |                        | C0603X5R1E224K030BC    |                        |
|             |      |                 | ±20%                  |                        |                        | C0603X5R1E224M030BC    |                        |
|             | 1005 | 0.50±0.05       | ±10%                  |                        |                        | C1005X5R1E224K050BC    | C1005X5R1C224K050BB    |
|             |      |                 | ±20%                  |                        |                        | C1005X5R1E224M050BC    | C1005X5R1C224M050BB    |
|             |      | 0.80±0.10       | ±10%                  | C1608X5R1H224K080AB    | C1608X5R1V224K080AB    | C1608X5R1E224K080AA    |                        |
|             |      |                 | ±20%                  | C1608X5R1H224M080AB    | C1608X5R1V224M080AB    | C1608X5R1E224M080AA    |                        |
|             | 2012 | 1.25±0.20       | ±10%                  | C2012X5R1H224K125AA    |                        |                        |                        |
|             |      |                 | ±20%                  | C2012X5R1H224M125AA    |                        |                        |                        |
| 330 nF      | 1005 | 0.50±0.05       | ±10%                  |                        | C1005X5R1V334K050BC    | C1005X5R1E334K050BB    | C1005X5R1C334K050BC    |
|             |      |                 | ±20%                  |                        | C1005X5R1V334M050BC    | C1005X5R1E334M050BB    | C1005X5R1C334M050BC    |
|             |      | 0.80±0.10       | ±10%                  | C1608X5R1H334K080AB    | C1608X5R1V334K080AB    | C1608X5R1E334K080AC    | C1608X5R1C334K080AA    |
|             |      |                 | ±20%                  | C1608X5R1H334M080AB    | C1608X5R1V334M080AB    | C1608X5R1E334M080AC    | C1608X5R1C334M080AA    |
|             | 2012 | 1.25±0.20       | ±10%                  | C2012X5R1H334K125AA    |                        |                        |                        |
|             |      |                 | ±20%                  | C2012X5R1H334M125AA    |                        |                        |                        |
|             | 1608 | 0.80±0.10       | ±10%                  | C1608X5R1H334K080AB    | C1608X5R1V334K080AB    | C1608X5R1E334K080AC    | C1608X5R1C334K080AA    |
|             |      |                 | ±20%                  | C1608X5R1H334M080AB    | C1608X5R1V334M080AB    | C1608X5R1E334M080AC    | C1608X5R1C334M080AA    |
|             |      | 1.25±0.20       | ±10%                  | C2012X5R1H334K125AA    |                        |                        |                        |
|             |      |                 | ±20%                  | C2012X5R1H334M125AA    |                        |                        |                        |
| 470 nF      | 1005 | 0.50±0.05       | ±10%                  |                        | C1005X5R1V474K050BC    | C1005X5R1E474K050BB    | C1005X5R1C474K050BC    |
|             |      |                 | ±20%                  |                        | C1005X5R1V474M050BC    | C1005X5R1E474M050BB    | C1005X5R1C474M050BC    |
|             |      | 0.80±0.10       | ±10%                  | C1608X5R1H474K080AB    | C1608X5R1V474K080AB    | C1608X5R1E474K080AC    | C1608X5R1C474K080AA    |
|             |      |                 | ±20%                  | C1608X5R1H474M080AB    | C1608X5R1V474M080AB    | C1608X5R1E474M080AC    | C1608X5R1C474M080AA    |
|             | 2012 | 1.25±0.20       | ±10%                  | C2012X5R1H474K125AB    |                        |                        |                        |
|             |      |                 | ±20%                  | C2012X5R1H474M125AB    |                        |                        |                        |
|             | 1608 | 0.80±0.10       | ±10%                  | C1608X5R1H474K080AB    | C1608X5R1V474K080AB    | C1608X5R1E474K080AC    | C1608X5R1C474K080AA    |
|             |      |                 | ±20%                  | C1608X5R1H474M080AB    | C1608X5R1V474M080AB    | C1608X5R1E474M080AC    | C1608X5R1C474M080AA    |
|             |      | 1.25±0.20       | ±10%                  | C2012X5R1H474K125AB    |                        |                        |                        |
|             |      |                 | ±20%                  | C2012X5R1H474M125AB    |                        |                        |                        |
| 680 nF      | 1005 | 0.50±0.05       | ±10%                  |                        | C1005X5R1V684K050BC    | C1005X5R1E684K050BC    | C1005X5R1C684K050BC    |
|             |      |                 | ±20%                  |                        | C1005X5R1V684M050BC    | C1005X5R1E684M050BC    | C1005X5R1C684M050BC    |
|             |      | 0.80±0.10       | ±10%                  | C1608X5R1H684K080AB    | C1608X5R1V684K080AB    | C1608X5R1E684K080AC    | C1608X5R1C684K080AA    |
|             |      |                 | ±20%                  | C1608X5R1H684M080AB    | C1608X5R1V684M080AB    | C1608X5R1E684M080AC    | C1608X5R1C684M080AA    |
|             | 2012 | 1.25±0.20       | ±10%                  | C2012X5R1H684K125AB    |                        | C2012X5R1E684K125AA    |                        |
|             |      |                 | ±20%                  | C2012X5R1H684M125AB    |                        | C2012X5R1E684M125AA    |                        |
|             | 1608 | 0.80±0.10       | ±10%                  | C1608X5R1H684K080AB    | C1608X5R1V684K080AB    | C1608X5R1E684K080AC    | C1608X5R1C684K080AA    |
|             |      |                 | ±20%                  | C1608X5R1H684M080AB    | C1608X5R1V684M080AB    | C1608X5R1E684M080AC    | C1608X5R1C684M080AA    |
|             |      | 1.25±0.20       | ±10%                  | C2012X5R1H684K125AB    |                        | C2012X5R1E684K125AA    |                        |
|             |      |                 | ±20%                  | C2012X5R1H684M125AB    |                        | C2012X5R1E684M125AA    |                        |
| 1 µF        | 1005 | 0.50±0.05       | ±10%                  |                        | C1005X5R1V105K050BC    | C1005X5R1E105K050BC    | C1005X5R1C105K050BC    |
|             |      |                 | ±20%                  |                        | C1005X5R1V105M050BC    | C1005X5R1E105M050BC    | C1005X5R1C105M050BC    |
|             |      | 0.80±0.10       | ±10%                  | C1608X5R1H105K080AB    | C1608X5R1V105K080AB    | C1608X5R1E105K080AC    | C1608X5R1C105K080AA    |
|             |      |                 | ±20%                  | C1608X5R1H105M080AB    | C1608X5R1V105M080AB    | C1608X5R1E105M080AC    | C1608X5R1C105M080AA    |
|             | 2012 | 0.85±0.15       | ±10%                  | C2012X5R1H105K085AB    | C2012X5R1V105K085AB    | C2012X5R1E105K085AC    | C2012X5R1C105K085AA    |
|             |      |                 | ±20%                  | C2012X5R1H105M085AB    | C2012X5R1V105M085AB    | C2012X5R1E105M085AC    | C2012X5R1C105M085AA    |
|             |      | 1.25±0.20       | ±10%                  | C2012X5R1H105K125AB    |                        | C2012X5R1E105K125AA    |                        |
|             |      |                 | ±20%                  | C2012X5R1H105M125AB    |                        | C2012X5R1E105M125AA    |                        |
|             | 3216 | 1.60±0.20       | ±10%                  | C3216X5R1H105K160AA    |                        |                        |                        |
|             |      |                 | ±20%                  | C3216X5R1H105M160AA    |                        |                        |                        |
| 1.5 µF      | 1005 | 0.50+0.15/-0.10 | ±10%                  |                        | C1005X5R1V155K050BC    |                        | C1005X5R1C155K050BC    |
|             |      |                 | ±20%                  |                        | C1005X5R1V155M050BC    |                        | C1005X5R1C155M050BC    |
|             |      | 0.50±0.05       | ±10%                  |                        |                        |                        | C1005X5R1C155K050BC    |
|             |      |                 | ±20%                  |                        |                        |                        | C1005X5R1C155M050BC    |
|             | 1608 | 0.80±0.10       | ±10%                  |                        | C1608X5R1V155K080AC    | C1608X5R1E155K080AB    | C1608X5R1C155K080AB    |
|             |      |                 | ±20%                  |                        | C1608X5R1V155M080AC    | C1608X5R1E155M080AB    | C1608X5R1C155M080AB    |
|             |      | 1.25±0.20       | ±10%                  | C2012X5R1H155K125AB    | C2012X5R1V155K125AB    | C2012X5R1E155K125AA    | C2012X5R1C155K125AA    |
|             |      |                 | ±20%                  | C2012X5R1H155M125AB    | C2012X5R1V155M125AB    | C2012X5R1E155M125AA    | C2012X5R1C155M125AA    |
|             | 3216 | 1.60±0.20       | ±10%                  | C3216X5R1H155K160AB    |                        | C3216X5R1E155K160AA    |                        |
|             |      |                 | ±20%                  | C3216X5R1H155M160AB    |                        | C3216X5R1E155M160AA    |                        |
| 2.2 µF      | 1005 | 0.50+0.15/-0.10 | ±10%                  |                        | C1005X5R1V225K050BC    |                        | C1005X5R1C225K050BC    |
|             |      |                 | ±20%                  |                        | C1005X5R1V225M050BC    |                        | C1005X5R1C225M050BC    |
|             |      | 0.50±0.10       | ±10%                  |                        |                        | C1005X5R1E225K050BC    |                        |
|             |      |                 | ±20%                  |                        |                        | C1005X5R1E225M050BC    |                        |
|             | 1608 | 0.80±0.10       | ±10%                  |                        | C1608X5R1V225K080AC    | C1608X5R1E225K080AB    | C1608X5R1C225K080AB    |
|             |      |                 | ±20%                  |                        | C1608X5R1V225M080AC    | C1608X5R1E225M080AB    | C1608X5R1C225M080AB    |
|             |      | 1.25±0.20       | ±10%                  | C2012X5R1H225K085AB    | C2012X5R1V225K085AB    | C2012X5R1E225K085AC    | C2012X5R1C225K085AC    |
|             |      |                 | ±20%                  | C2012X5R1H225M085AB    | C2012X5R1V225M085AB    | C2012X5R1E225M085AC    | C2012X5R1C225M085AC    |
|             | 2012 | 1.25±0.20       | ±10%                  | C2012X5R1H225K125AB    | C2012X5R1V225K125AB    | C2012X5R1E225K125AC    | C2012X5R1C225K125AA    |
|             |      |                 | ±20%                  | C2012X5R1H225M125AB    | C2012X5R1V225M125AB    | C2012X5R1E225M125AC    | C2012X5R1C225M125AA    |

■ The red items are products of the production will be stopped. Please confirm the schedule on product details information.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm)   | Capacitance Tolerance | Catalog Number         |                        |                        |                        |
|-------------|------|------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|
|             |      |                  |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 35V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 2.2 µF      | 3216 | 1.60±0.20        | ±10%                  | C3216X5R1H225K160AB    |                        | C3216X5R1E225K160AA    |                        |
|             |      |                  | ±20%                  | C3216X5R1H225M160AB    |                        | C3216X5R1E225M160AA    |                        |
|             |      |                  | ±10%                  | C3225X5R1H225K250AB    |                        |                        |                        |
|             | 3225 | 2.50±0.30        | ±20%                  | C3225X5R1H225M250AB    |                        |                        |                        |
|             |      |                  | ±10%                  |                        |                        | C1608X5R1E335K080AC    | C1608X5R1C335K080AC    |
|             |      |                  | ±20%                  |                        |                        | C1608X5R1E335M080AC    | C1608X5R1C335M080AC    |
| 3.3 µF      | 1608 | 0.80±0.10        | ±10%                  |                        |                        |                        |                        |
|             |      |                  | ±20%                  |                        |                        |                        |                        |
|             |      |                  | ±10%                  |                        | C1608X5R1V335K080AC    |                        |                        |
|             |      | 0.80+0.20, -0.10 | ±20%                  |                        | C1608X5R1V335M080AC    |                        |                        |
|             |      |                  | ±10%                  |                        |                        |                        | C2012X5R1C335K060AC    |
|             |      |                  | ±20%                  |                        |                        |                        | C2012X5R1C335M060AC    |
|             | 2012 | 0.60±0.15        | ±10%                  |                        |                        |                        |                        |
|             |      |                  | ±20%                  |                        |                        |                        |                        |
|             |      |                  | ±10%                  |                        |                        | C2012X5R1E335K085AC    | C2012X5R1C335K085AB    |
|             |      | 0.85±0.15        | ±20%                  |                        |                        | C2012X5R1E335M085AC    | C2012X5R1C335M085AB    |
|             |      |                  | ±10%                  | C2012X5R1H335K125AB    | C2012X5R1V335K125AC    | C2012X5R1E335K125AB    | C2012X5R1C335K125AC    |
|             |      |                  | ±20%                  | C2012X5R1H335M125AB    | C2012X5R1V335M125AC    | C2012X5R1E335M125AB    | C2012X5R1C335M125AC    |
|             | 3216 | 1.60±0.20        | ±10%                  | C3216X5R1H335K160AB    | C3216X5R1V335K160AB    | C3216X5R1E335K160AA    |                        |
|             |      |                  | ±20%                  | C3216X5R1H335M160AB    | C3216X5R1V335M160AB    | C3216X5R1E335M160AA    |                        |
|             |      |                  | ±10%                  | C3225X5R1H335K250AB    |                        |                        |                        |
|             |      | 2.50±0.30        | ±20%                  | C3225X5R1H335M250AB    |                        |                        |                        |
|             |      |                  | ±10%                  |                        |                        |                        |                        |
|             |      |                  | ±20%                  |                        |                        |                        |                        |
| 4.7 µF      | 1608 | 0.80±0.10        | ±10%                  |                        |                        | C1608X5R1E475K080AC    | C1608X5R1C475K080AC    |
|             |      |                  | ±20%                  |                        |                        | C1608X5R1E475M080AC    | C1608X5R1C475M080AC    |
|             |      |                  | ±10%                  |                        | C1608X5R1V475K080AC    |                        |                        |
|             |      | 0.80+0.20, -0.10 | ±20%                  |                        | C1608X5R1V475M080AC    |                        |                        |
|             |      |                  | ±10%                  |                        |                        |                        | C2012X5R1C475K060AC    |
|             |      |                  | ±20%                  |                        |                        |                        | C2012X5R1C475M060AC    |
|             | 2012 | 0.60±0.15        | ±10%                  |                        |                        |                        |                        |
|             |      |                  | ±20%                  |                        |                        |                        |                        |
|             |      |                  | ±10%                  |                        |                        | C2012X5R1E475K085AC    | C2012X5R1C475K085AB    |
|             |      | 0.85±0.15        | ±20%                  |                        |                        | C2012X5R1E475M085AC    | C2012X5R1C475M085AB    |
|             |      |                  | ±10%                  | C2012X5R1H475K125AB    | C2012X5R1V475K125AC    | C2012X5R1E475K125AB    | C2012X5R1C475K125AC    |
|             |      |                  | ±20%                  | C2012X5R1H475M125AB    | C2012X5R1V475M125AC    | C2012X5R1E475M125AB    | C2012X5R1C475M125AC    |
|             | 3216 | 1.15±0.15        | ±10%                  | C3216X5R1H475K085AB    | C3216X5R1V475K085AB    | C3216X5R1E475K085AB    |                        |
|             |      |                  | ±20%                  | C3216X5R1H475M085AB    | C3216X5R1V475M085AB    | C3216X5R1E475M085AB    |                        |
|             |      |                  | ±10%                  |                        |                        | C3216X5R1E475K115AB    | C3216X5R1C475K115AA    |
|             |      | 1.60±0.20        | ±20%                  |                        |                        | C3216X5R1E475M115AB    | C3216X5R1C475M115AA    |
|             |      |                  | ±10%                  | C3216X5R1H475K160AB    | C3216X5R1V475K160AB    | C3216X5R1E475K160AA    |                        |
|             |      |                  | ±20%                  | C3216X5R1H475M160AB    | C3216X5R1V475M160AB    | C3216X5R1E475M160AA    |                        |
|             | 3225 | 2.50±0.30        | ±10%                  | C3225X5R1H475K250AB    |                        |                        |                        |
|             |      |                  | ±20%                  | C3225X5R1H475M250AB    |                        |                        |                        |
|             |      |                  | ±10%                  |                        |                        |                        |                        |
|             |      | 0.80+0.20, -0.10 | ±20%                  |                        |                        | C1608X5R1E685K080AC    | C1608X5R1C685K080AB    |
|             |      |                  | ±10%                  |                        |                        | C1608X5R1E685M080AC    | C1608X5R1C685M080AB    |
|             |      |                  | ±20%                  |                        |                        |                        | C2012X5R1C685K085AC    |
| 6.8 µF      | 2012 | 0.85±0.15        | ±10%                  |                        |                        |                        |                        |
|             |      |                  | ±20%                  |                        |                        |                        |                        |
|             |      |                  | ±10%                  |                        | C2012X5R1V685K125AC    | C2012X5R1E685K125AC    | C2012X5R1C685K125AC    |
|             |      | 1.25±0.20        | ±20%                  |                        | C2012X5R1V685M125AC    | C2012X5R1E685M125AC    | C2012X5R1C685M125AC    |
|             |      |                  | ±10%                  | C3216X5R1H685K160AB    | C3216X5R1V685K160AB    | C3216X5R1E685K160AB    | C3216X5R1C685K160AA    |
|             |      |                  | ±20%                  | C3216X5R1H685M160AB    | C3216X5R1V685M160AB    | C3216X5R1E685M160AB    | C3216X5R1C685M160AA    |
|             | 3216 | 2.00±0.20        | ±10%                  |                        |                        |                        |                        |
|             |      |                  | ±20%                  |                        |                        |                        |                        |
|             |      |                  | ±10%                  |                        |                        |                        |                        |
|             |      | 2.50±0.30        | ±20%                  |                        |                        |                        |                        |
|             |      |                  | ±10%                  | C3225X5R1H685K250AB    |                        | C3225X5R1E685K250AA    | C3225X5R1C685K250AA    |
|             |      |                  | ±20%                  | C3225X5R1H685M250AB    |                        | C3225X5R1E685M250AA    | C3225X5R1C685M250AA    |
|             | 4532 | 2.50±0.30        | ±10%                  | C4532X5R1H685K250KA    |                        |                        |                        |
|             |      |                  | ±20%                  | C4532X5R1H685M250KA    |                        |                        |                        |
|             |      |                  | ±10%                  |                        |                        |                        |                        |
| 10 µF       | 1608 | 0.80+0.20, -0.10 | ±20%                  |                        |                        | C1608X5R1E106M080AC    | C1608X5R1C106M080AB    |
|             |      |                  | ±10%                  |                        | C2012X5R1V106K085AC    | C2012X5R1E106K085AC    | C2012X5R1C106K085AC    |
|             |      |                  | ±20%                  |                        | C2012X5R1V106M085AC    | C2012X5R1E106M085AC    | C2012X5R1C106M085AC    |
|             |      | 0.85±0.15        | ±10%                  |                        | C2012X5R1V106K125AC    | C2012X5R1E106K125AB    | C2012X5R1C106K125AC    |
|             |      |                  | ±20%                  |                        | C2012X5R1V106M125AC    | C2012X5R1E106M125AB    | C2012X5R1C106M125AC    |
|             |      |                  | ±10%                  |                        |                        | C3216X5R1E106K085AC    | C3216X5R1C106K085AC    |
|             | 3216 | 0.85±0.15        | ±20%                  |                        |                        | C3216X5R1E106M085AC    | C3216X5R1C106M085AC    |
|             |      |                  | ±10%                  | C3216X5R1H106K160AB    | C3216X5R1V106K160AB    | C3216X5R1E106K160AB    | C3216X5R1C106K160AA    |
|             |      |                  | ±20%                  | C3216X5R1H106M160AB    | C3216X5R1V106M160AB    | C3216X5R1E106M160AB    | C3216X5R1C106M160AA    |
|             |      | 1.60±0.20        | ±10%                  |                        |                        |                        |                        |
|             |      |                  | ±20%                  |                        |                        |                        |                        |
|             |      |                  | ±10%                  |                        |                        |                        |                        |

■ The red items are products of the production will be stopped. Please confirm the schedule on product details information.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                        |                        |                        |
|-------------|------|----------------|-----------------------|------------------------|------------------------|------------------------|------------------------|
|             |      |                |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 35V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 10 µF       | 3225 | 2.00±0.20      | ±10%                  |                        |                        |                        | C3225X5R1C106K200AA    |
|             |      |                | ±20%                  |                        |                        |                        | C3225X5R1C106M200AA    |
|             |      | 2.50±0.30      | ±10%                  | C3225X5R1H106K250AB    |                        | C3225X5R1E106K250AA    |                        |
|             |      |                | ±20%                  | C3225X5R1H106M250AB    |                        | C3225X5R1E106M250AA    |                        |
|             | 4532 | 2.50±0.30      | ±10%                  |                        |                        | C4532X5R1E106K250KA    |                        |
|             |      |                | ±20%                  |                        |                        | C4532X5R1E106M250KA    |                        |
| 15 µF       | 5750 | 2.30±0.20      | ±10%                  | C5750X5R1H106K230KA    |                        |                        |                        |
|             |      |                | ±20%                  | C5750X5R1H106M230KA    |                        |                        |                        |
|             | 2012 | 1.25±0.20      | ±20%                  |                        | C2012X5R1V156M125AC    | C2012X5R1E156M125AC    | C2012X5R1C156M125AC    |
|             |      |                | ±20%                  |                        | C3216X5R1V156M160AC    | C3216X5R1E156M160AB    | C3216X5R1C156M160AB    |
|             |      | 2.50±0.30      | ±20%                  |                        |                        |                        | C3225X5R1C156M250AA    |
|             |      |                | ±20%                  |                        |                        | C4532X5R1E156M250KA    |                        |
| 22 µF       | 4532 | 2.80±0.30      | ±20%                  |                        |                        | C4532X5R1E156M280KA    |                        |
|             |      |                | ±20%                  |                        |                        |                        |                        |
|             |      | 0.85±0.15      | ±20%                  |                        |                        |                        | C2012X5R1C226M085AC    |
|             |      |                | ±20%                  |                        |                        |                        | C2012X5R1C226K125AC    |
|             | 3216 | 1.60±0.20      | ±20%                  |                        | C2012X5R1V226M125AC    | C2012X5R1E226M125AC    | C2012X5R1C226M125AC    |
|             |      |                | ±20%                  |                        | C3216X5R1V226M160AC    | C3216X5R1E226M160AB    | C3216X5R1C226M160AB    |
| 33 µF       | 3225 | 2.50±0.30      | ±10%                  |                        |                        |                        | C3225X5R1C226K250AA    |
|             |      |                | ±20%                  |                        |                        |                        | C3225X5R1C226M250AA    |
|             |      | 2.00±0.20      | ±20%                  |                        |                        |                        | C4532X5R1C226M200KA    |
|             |      |                | ±20%                  |                        |                        |                        | C4532X5R1C226M230KA    |
|             | 4532 | 2.30±0.20      | ±20%                  |                        |                        | C4532X5R1E226M250KA    |                        |
|             |      |                | ±20%                  |                        |                        | C5750X5R1E226M230KA    |                        |
| 47 µF       | 5750 | 2.50±0.30      | ±20%                  |                        |                        | C5750X5R1E226M250KA    |                        |
|             |      |                | ±20%                  |                        |                        |                        |                        |
|             |      | 1.60±0.20      | ±20%                  |                        |                        | C3216X5R1E336M160AC    | C3216X5R1C336M160AB    |
|             |      |                | ±20%                  |                        |                        |                        | C4532X5R1C336M250KA    |
|             | 4532 | 2.50±0.30      | ±20%                  |                        |                        |                        | C5750X5R1C336M200KA    |
|             |      |                | ±20%                  |                        |                        |                        | C3216X5R1C476M160AB    |
| 47 µF       | 5750 | 2.30±0.20      | ±20%                  |                        |                        |                        | C5750X5R1C476M230KA    |

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                          |                        |
|-------------|------|----------------|-----------------------|------------------------|--------------------------|------------------------|
|             |      |                |                       | Rated Voltage Edc: 10V | Rated Voltage Edc : 6.3V | Rated Voltage Edc : 4V |
| 1 nF        | 0402 | 0.20±0.02      | ±10%                  | C0402X5R1A102K020BC    | C0402X5R0J102K020BC      | C0402X5R0G102K020BC    |
|             |      |                | ±20%                  | C0402X5R1A102M020BC    | C0402X5R0J102M020BC      | C0402X5R0G102M020BC    |
| 1.5 nF      | 0402 | 0.20±0.02      | ±10%                  | C0402X5R1A152K020BC    | C0402X5R0J152K020BC      | C0402X5R0G152K020BC    |
|             |      |                | ±20%                  | C0402X5R1A152M020BC    | C0402X5R0J152M020BC      | C0402X5R0G152M020BC    |
| 2.2 nF      | 0402 | 0.20±0.02      | ±10%                  | C0402X5R1A222K020BC    | C0402X5R0J222K020BC      | C0402X5R0G222K020BC    |
|             |      |                | ±20%                  | C0402X5R1A222M020BC    | C0402X5R0J222M020BC      | C0402X5R0G222M020BC    |
| 3.3 nF      | 0402 | 0.20±0.02      | ±10%                  | C0402X5R1A332K020BC    | C0402X5R0J332K020BC      | C0402X5R0G332K020BC    |
|             |      |                | ±20%                  | C0402X5R1A332M020BC    | C0402X5R0J332M020BC      | C0402X5R0G332M020BC    |
| 4.7 nF      | 0402 | 0.20±0.02      | ±10%                  | C0402X5R1A472K020BC    | C0402X5R0J472K020BC      | C0402X5R0G472K020BC    |
|             |      |                | ±20%                  | C0402X5R1A472M020BC    | C0402X5R0J472M020BC      | C0402X5R0G472M020BC    |
| 6.8 nF      | 0402 | 0.20±0.02      | ±10%                  | C0402X5R1A682K020BC    | C0402X5R0J682K020BC      | C0402X5R0G682K020BC    |
|             |      |                | ±20%                  | C0402X5R1A682M020BC    | C0402X5R0J682M020BC      | C0402X5R0G682M020BC    |
| 10 nF       | 0603 | 0.30±0.03      | ±10%                  | C0603X5R1A682K030BA    |                          |                        |
|             |      |                | ±20%                  | C0603X5R1A682M030BA    |                          |                        |
| 15 nF       | 0402 | 0.20±0.02      | ±10%                  | C0402X5R1A103K020BC    | C0402X5R0J103K020BC      | C0402X5R0G103K020BC    |
|             |      |                | ±20%                  | C0402X5R1A103M020BC    | C0402X5R0J103M020BC      | C0402X5R0G103M020BC    |
| 22 nF       | 0603 | 0.30±0.03      | ±10%                  | C0603X5R1A103K030BA    |                          |                        |
|             |      |                | ±20%                  | C0603X5R1A103M030BA    |                          |                        |
| 33 nF       | 0603 | 0.30±0.03      | ±10%                  | C0603X5R1A153K030BC    | C0603X5R0J153K030BA      |                        |
|             |      |                | ±20%                  | C0603X5R1A153M030BC    | C0603X5R0J153M030BA      |                        |
| 33 nF       | 0402 | 0.20±0.02      | ±20%                  |                        | C0402X5R0J223M020BC      | C0402X5R0G223M020BC    |
|             |      |                | ±10%                  | C0603X5R1A223K030BC    | C0603X5R0J223K030BC      |                        |
| 33 nF       | 0603 | 0.30±0.03      | ±20%                  | C0603X5R1A223M030BC    | C0603X5R0J223M030BC      |                        |
|             |      |                | ±10%                  | C0603X5R1A333K030BC    | C0603X5R0J333K030BC      |                        |
| 33 nF       | 0603 | 0.30±0.03      | ±20%                  | C0603X5R1A333M030BC    | C0603X5R0J333M030BC      |                        |

■ The gray items are non-recommended products in the new design.

■ The red items are products of the production will be stopped. Please confirm the schedule on product details information.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm)  | Capacitance Tolerance | Catalog Number         |                          |                        |
|-------------|------|-----------------|-----------------------|------------------------|--------------------------|------------------------|
|             |      |                 |                       | Rated Voltage Edc: 10V | Rated Voltage Edc : 6.3V | Rated Voltage Edc : 4V |
| 47 nF       | 0402 | 0.20±0.02       | ±20%                  |                        | C0402X5R0J473M020BC      | C0402X5R0G473M020BC    |
|             | 0603 | 0.30±0.03       | ±10%                  | C0603X5R1A473K030BC    | C0603X5R0J473K030BC      |                        |
|             |      |                 | ±20%                  | C0603X5R1A473M030BC    | C0603X5R0J473M030BC      |                        |
|             | 1005 | 0.50±0.05       | ±10%                  | C1005X5R1A473K050BA    |                          |                        |
|             |      |                 | ±20%                  | C1005X5R1A473M050BA    |                          |                        |
|             |      |                 |                       |                        |                          |                        |
| 68 nF       | 0603 | 0.30±0.03       | ±10%                  | C0603X5R1A683K030BC    | C0603X5R0J683K030BC      |                        |
|             | 1005 | 0.50±0.05       | ±20%                  | C0603X5R1A683M030BC    | C0603X5R0J683M030BC      |                        |
|             |      |                 | ±10%                  | C1005X5R1A683K050BA    |                          |                        |
|             |      |                 | ±20%                  | C1005X5R1A683M050BA    |                          |                        |
|             |      |                 |                       |                        |                          |                        |
|             |      |                 |                       |                        |                          |                        |
| 100 nF      | 0402 | 0.20±0.02       | ±20%                  |                        | C0402X5R0J104M020BC      | C0402X5R0G104M020BC    |
|             | 0603 | 0.30±0.03       | ±10%                  | C0603X5R1A104K030BC    | C0603X5R0J104K030BC      |                        |
|             |      |                 | ±20%                  | C0603X5R1A104M030BC    | C0603X5R0J104M030BC      |                        |
|             | 1005 | 0.50±0.05       | ±10%                  | C1005X5R1A104K050BA    | C1005X5R0J104K050BA      |                        |
|             |      |                 | ±20%                  | C1005X5R1A104M050BA    |                          |                        |
|             |      |                 |                       |                        |                          |                        |
| 150 nF      | 0603 | 0.30±0.03       | ±10%                  | C0603X5R1A154K030BB    | C0603X5R0J154K030BB      |                        |
|             | 1005 | 0.50±0.05       | ±20%                  | C0603X5R1A154M030BB    | C0603X5R0J154M030BB      |                        |
|             |      |                 | ±10%                  | C1005X5R1A154K050BB    | C1005X5R0J154K050BB      |                        |
|             |      |                 | ±20%                  | C1005X5R1A154M050BB    | C1005X5R0J154M050BB      |                        |
|             |      |                 |                       |                        |                          |                        |
|             |      |                 |                       |                        |                          |                        |
| 220 nF      | 0402 | 0.20±0.03       | ±20%                  |                        |                          | C0402X5R0G224M020BC    |
|             | 0603 | 0.30±0.03       | ±10%                  | C0603X5R1A224K030BB    | C0603X5R0J224K030BB      |                        |
|             |      |                 | ±20%                  | C0603X5R1A224M030BB    | C0603X5R0J224M030BB      |                        |
|             | 1005 | 0.50±0.05       | ±10%                  | C1005X5R1A224K050BB    | C1005X5R0J224K050BB      |                        |
|             |      |                 | ±20%                  | C1005X5R1A224M050BB    | C1005X5R0J224M050BB      |                        |
|             |      |                 |                       |                        |                          |                        |
| 330 nF      |      | 0.30±0.03       | ±20%                  |                        | C0603X5R0J334M030BC      |                        |
|             | 0603 | 0.30±0.05       | ±10%                  | C0603X5R1A334K030BC    |                          |                        |
|             |      |                 | ±20%                  | C0603X5R1A334M030BC    |                          |                        |
|             | 1005 | 0.50±0.05       | ±10%                  | C1005X5R1A334K050BB    | C1005X5R0J334K050BB      |                        |
|             |      |                 | ±20%                  | C1005X5R1A334M050BB    | C1005X5R0J334M050BB      |                        |
|             |      |                 |                       |                        |                          |                        |
| 470 nF      | 0603 | 0.30±0.03       | ±10%                  |                        | C0603X5R0J474K030BC      |                        |
|             |      | 0.30±0.05       | ±20%                  | C0603X5R1A474M030BC    |                          |                        |
|             |      |                 | ±10%                  | C1005X5R1A474K050BB    | C1005X5R0J474K050BB      |                        |
|             | 1005 | 0.50±0.05       | ±20%                  | C1005X5R1A474M050BB    | C1005X5R0J474M050BB      |                        |
|             |      |                 | ±10%                  |                        |                          |                        |
|             |      |                 |                       |                        |                          |                        |
| 680 nF      | 1608 | 0.80±0.15/-0.10 | ±10%                  | C1608X5R1A474K080AA    |                          |                        |
|             | 1005 | 0.50±0.05       | ±10%                  | C1005X5R1A684K050BB    | C1005X5R0J684K050BB      |                        |
|             |      |                 | ±20%                  | C1005X5R1A684M050BB    | C1005X5R0J684M050BB      |                        |
|             | 1608 | 0.80±0.15/-0.10 | ±10%                  | C1608X5R1A684K080AC    |                          |                        |
|             |      |                 | ±20%                  | C1608X5R1A684M080AC    |                          |                        |
|             |      |                 |                       |                        |                          |                        |
| 1 µF        | 0603 | 0.30±0.05       | ±20%                  |                        | C0603X5R0J105M030BC      | C0603X5R0G105M030BC    |
|             | 1005 | 0.50±0.05       | ±10%                  | C1005X5R1A105K050BB    | C1005X5R0J105K050BB      |                        |
|             |      |                 | ±20%                  | C1005X5R1A105M050BB    | C1005X5R0J105M050BB      |                        |
|             | 1608 | 0.80±0.15/-0.10 | ±10%                  | C1608X5R1A105K080AC    |                          |                        |
|             |      |                 | ±20%                  | C1608X5R1A105M080AC    |                          |                        |
|             |      |                 |                       |                        |                          |                        |
| 1.5 µF      | 1005 | 0.50±0.05       | ±10%                  | C1005X5R1A155K050BC    | C1005X5R0J155K050BB      |                        |
|             | 1608 | 0.80±0.10       | ±20%                  | C1005X5R1A155M050BC    | C1005X5R0J155M050BB      |                        |
|             |      |                 | ±10%                  | C1608X5R1A155K080AB    | C1608X5R0J155K080AB      |                        |
|             |      |                 | ±20%                  | C1608X5R1A155M080AB    | C1608X5R0J155M080AB      |                        |
|             |      |                 |                       |                        |                          |                        |
|             |      |                 |                       |                        |                          |                        |
| 2.2 µF      | 0603 | 0.30±0.10       | ±20%                  |                        | C0603X5R0J225M030BC      | C0603X5R0G225M030BC    |
|             | 1005 | 0.50±0.05       | ±10%                  | C1005X5R1A225K050BC    | C1005X5R0J225K050BC      | C1005X5R0G225K050BB    |
|             |      |                 | ±20%                  | C1005X5R1A225M050BC    | C1005X5R0J225M050BC      | C1005X5R0G225M050BB    |
|             | 1608 | 0.80±0.10       | ±10%                  | C1608X5R1A225K080AC    | C1608X5R0J225K080AB      |                        |
|             |      |                 | ±20%                  | C1608X5R1A225M080AC    | C1608X5R0J225M080AB      |                        |
|             |      |                 |                       |                        |                          |                        |
| 3.3 µF      | 2012 | 0.85±0.15       | ±10%                  | C2012X5R1A225K085AA    | C2012X5R0J225K085AA      |                        |
|             |      |                 | ±20%                  | C2012X5R1A225M085AA    | C2012X5R0J225M085AA      |                        |
|             |      |                 | ±10%                  | C1005X5R1A335K050BC    | C1005X5R0J335K050BC      | C1005X5R0G335K050BB    |
|             | 1005 | 0.50±0.10       | ±20%                  | C1005X5R1A335M050BC    | C1005X5R0J335M050BC      | C1005X5R0G335M050BB    |
|             |      |                 | ±10%                  | C1608X5R1A335K080AC    | C1608X5R0J335K080AB      |                        |
|             | 1608 | 0.80±0.10       | ±20%                  | C1608X5R1A335M080AC    | C1608X5R0J335M080AB      |                        |
| 4.7 µF      | 2012 | 1.25±0.20       | ±10%                  | C2012X5R1A335K125AA    |                          |                        |
|             |      |                 | ±20%                  | C2012X5R1A335M125AA    |                          |                        |
|             |      |                 | ±10%                  | C1005X5R1A475K050BC    | C1005X5R0J475K050BC      | C1005X5R0G475K050BB    |
|             | 1005 | 0.50±0.15/-0.10 | ±20%                  | C1005X5R1A475M050BC    | C1005X5R0J475M050BC      | C1005X5R0G475M050BB    |
|             |      |                 |                       |                        |                          |                        |
|             |      |                 |                       |                        |                          |                        |

■ The gray items are non-recommended products in the new design.

■ The red items are products of the production will be stopped. Please confirm the schedule on product details information.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                         |                       |
|-------------|------|----------------|-----------------------|------------------------|-------------------------|-----------------------|
|             |      |                |                       | Rated Voltage Edc: 10V | Rated Voltage Edc: 6.3V | Rated Voltage Edc: 4V |
| 4.7 µF      | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1A475K080AC    | C1608X5R0J475K080AB     |                       |
|             |      |                | ±20%                  | C1608X5R1A475M080AC    | C1608X5R0J475M080AB     |                       |
|             |      | 0.60±0.15      | ±10%                  | C2012X5R1A475K060AB    |                         |                       |
|             |      |                | ±20%                  | C2012X5R1A475M060AB    |                         |                       |
|             | 2012 | 0.85±0.15      | ±10%                  | C2012X5R1A475K085AC    | C2012X5R0J475K085AB     |                       |
|             |      |                | ±20%                  | C2012X5R1A475M085AC    | C2012X5R0J475M085AB     |                       |
| 6.8 µF      | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1A685K080AC    | C1608X5R0J685K080AB     |                       |
|             |      |                | ±20%                  | C1608X5R1A685M080AC    | C1608X5R0J685M080AB     |                       |
|             |      | 0.60±0.15      | ±10%                  | C2012X5R1A685K060AC    |                         |                       |
|             |      |                | ±20%                  | C2012X5R1A685M060AC    |                         |                       |
|             | 2012 | 0.85±0.15      | ±10%                  | C2012X5R1A685K085AB    | C2012X5R0J685K085AB     |                       |
|             |      |                | ±20%                  | C2012X5R1A685M085AB    | C2012X5R0J685M085AB     |                       |
| 10 µF       | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1A106K080AC    | C1608X5R0J106K080AB     |                       |
|             |      |                | ±20%                  | C1608X5R1A106M080AC    | C1608X5R0J106M080AB     |                       |
|             |      | 0.60±0.15      | ±10%                  | C2012X5R1A106K085AB    | C2012X5R0J106K085AB     |                       |
|             |      |                | ±20%                  | C2012X5R1A106M085AB    | C2012X5R0J106M085AB     |                       |
|             | 2012 | 0.85±0.15      | ±10%                  | C2012X5R1A106K125AB    | C2012X5R0J106K125AB     |                       |
|             |      |                | ±20%                  | C2012X5R1A106M125AB    | C2012X5R0J106M125AB     |                       |
| 15 µF       | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1A156K080AC    | C1608X5R0J156K080AB     |                       |
|             |      |                | ±20%                  | C1608X5R1A156M080AC    | C1608X5R0J156M080AB     |                       |
|             |      | 0.60±0.15      | ±10%                  | C2012X5R1A156K085AB    | C2012X5R0J156K085AB     |                       |
|             |      |                | ±20%                  | C2012X5R1A156M085AB    | C2012X5R0J156M085AB     |                       |
|             | 2012 | 0.85±0.15      | ±10%                  | C2012X5R1A156K125AB    | C2012X5R0J156K125AB     |                       |
|             |      |                | ±20%                  | C2012X5R1A156M125AB    | C2012X5R0J156M125AB     |                       |
| 22 µF       | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1A226K080AC    | C1608X5R0J226K080AB     |                       |
|             |      |                | ±20%                  | C1608X5R1A226M080AC    | C1608X5R0J226M080AB     |                       |
|             |      | 0.60±0.15      | ±10%                  | C2012X5R1A226K125AB    | C2012X5R0J226K125AB     |                       |
|             |      |                | ±20%                  | C2012X5R1A226M125AB    | C2012X5R0J226M125AB     |                       |
|             | 2012 | 0.85±0.15      | ±10%                  | C2012X5R1A226K160AB    | C2012X5R0J226K160AB     |                       |
|             |      |                | ±20%                  | C2012X5R1A226M160AB    | C2012X5R0J226M160AB     |                       |
| 33 µF       | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1A336K125AC    | C1608X5R0J336K125AC     |                       |
|             |      |                | ±20%                  | C1608X5R1A336M125AC    | C1608X5R0J336M125AC     |                       |
|             |      | 0.60±0.15      | ±10%                  | C2012X5R1A336K160AB    | C2012X5R0J336K160AB     |                       |
|             |      |                | ±20%                  | C2012X5R1A336M160AB    | C2012X5R0J336M160AB     |                       |
|             | 2012 | 0.85±0.15      | ±10%                  | C2012X5R1A336K200AA    | C2012X5R0J336K200AA     |                       |
|             |      |                | ±20%                  | C2012X5R1A336M200AA    | C2012X5R0J336M200AA     |                       |
| 47 µF       | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1A476K125AC    | C1608X5R0J476K125AC     |                       |
|             |      |                | ±20%                  | C1608X5R1A476M125AC    | C1608X5R0J476M125AC     |                       |
|             |      | 0.60±0.15      | ±10%                  | C2012X5R1A476K160AB    | C2012X5R0J476K160AB     |                       |
|             |      |                | ±20%                  | C2012X5R1A476M160AB    | C2012X5R0J476M160AB     |                       |
|             | 2012 | 0.85±0.15      | ±10%                  | C2012X5R1A476K250AC    | C2012X5R0J476K250AC     |                       |
|             |      |                | ±20%                  | C2012X5R1A476M250AC    | C2012X5R0J476M250AC     |                       |
| 68 µF       | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1A686K160AB    | C1608X5R0J686K160AB     |                       |
|             |      |                | ±20%                  | C1608X5R1A686M160AB    | C1608X5R0J686M160AB     |                       |
|             |      | 0.60±0.15      | ±10%                  | C2012X5R1A686K200AA    | C2012X5R0J686K200AA     |                       |
|             |      |                | ±20%                  | C2012X5R1A686M200AA    | C2012X5R0J686M200AA     |                       |
|             | 2012 | 0.85±0.15      | ±10%                  | C2012X5R1A686K280KA    | C2012X5R0J686K280KA     |                       |
|             |      |                | ±20%                  | C2012X5R1A686M280KA    | C2012X5R0J686M280KA     |                       |
| 100 µF      | 1608 | 0.80±0.10      | ±10%                  | C1608X5R1A107M160AB    | C1608X5R0J107M160AB     |                       |
|             |      |                | ±20%                  | C1608X5R1A107M280KA    | C1608X5R0J107M280KA     |                       |
|             |      | 0.60±0.15      | ±10%                  | C2012X5R1A107M200AA    | C2012X5R0J107M200AA     |                       |
|             |      |                | ±20%                  | C2012X5R1A107M250AC    | C2012X5R0J107M250AC     |                       |
|             | 2012 | 0.85±0.15      | ±10%                  | C2012X5R1A107M280KA    | C2012X5R0J107M280KA     |                       |
|             |      |                | ±20%                  | C2012X5R1A107M280KA    | C2012X5R0J107M280KA     |                       |

■ The red items are products of the production will be stopped. Please confirm the schedule on product details information.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm)  | Capacitance Tolerance | Catalog Number         |                        |                        |                        |
|-------------|------|-----------------|-----------------------|------------------------|------------------------|------------------------|------------------------|
|             |      |                 |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 35V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 2.2 nF      | 0603 | 0.30±0.03       | ±10%                  |                        |                        | C0603X6S1E222K030BA    | C0603X6S1C222K030BA    |
|             |      |                 | ±20%                  |                        |                        | C0603X6S1E222M030BA    | C0603X6S1C222M030BA    |
| 4.7 nF      | 0603 | 0.30±0.03       | ±10%                  |                        |                        |                        | C0603X6S1C472K030BA    |
|             |      |                 | ±20%                  |                        |                        |                        | C0603X6S1C472M030BA    |
| 10 nF       | 1005 | 0.50±0.05       | ±10%                  | C1005X6S1H103K050BB    |                        |                        |                        |
|             |      |                 | ±20%                  | C1005X6S1H103M050BB    |                        |                        |                        |
| 15 nF       | 1005 | 0.50±0.05       | ±10%                  | C1005X6S1H153K050BB    |                        |                        |                        |
|             |      |                 | ±20%                  | C1005X6S1H153M050BB    |                        |                        |                        |
| 22 nF       | 0603 | 0.30±0.03       | ±10%                  |                        |                        |                        | C0603X6S1C223K030BC    |
|             |      |                 | ±20%                  |                        |                        |                        | C0603X6S1C223M030BC    |
|             | 1005 | 0.50±0.05       | ±10%                  | C1005X6S1H223K050BB    |                        |                        |                        |
|             |      |                 | ±20%                  | C1005X6S1H223M050BB    |                        |                        |                        |
| 33 nF       | 1005 | 0.50±0.05       | ±10%                  | C1005X6S1H333K050BB    |                        |                        |                        |
|             |      |                 | ±20%                  | C1005X6S1H333M050BB    |                        |                        |                        |
| 47 nF       | 0603 | 0.30±0.03       | ±10%                  |                        |                        |                        | C0603X6S1C473K030BC    |
|             |      |                 | ±20%                  |                        |                        |                        | C0603X6S1C473M030BC    |
|             | 1005 | 0.50±0.05       | ±10%                  | C1005X6S1H473K050BB    |                        |                        |                        |
|             |      |                 | ±20%                  | C1005X6S1H473M050BB    |                        |                        |                        |
| 68 nF       | 1005 | 0.50±0.05       | ±10%                  | C1005X6S1H683K050BB    | C1005X6S1V683K050BB    | C1005X6S1E683K050BC    |                        |
|             |      |                 | ±20%                  | C1005X6S1H683M050BB    | C1005X6S1V683M050BB    | C1005X6S1E683M050BC    |                        |
| 100 nF      | 0603 | 0.30±0.03       | ±10%                  |                        |                        |                        | C0603X6S1C104K030BC    |
|             |      |                 | ±20%                  |                        |                        |                        | C0603X6S1C104M030BC    |
|             | 1005 | 0.50±0.05       | ±10%                  | C1005X6S1H104K050BB    | C1005X6S1V104K050BB    | C1005X6S1E104K050BC    |                        |
|             |      |                 | ±20%                  | C1005X6S1H104M050BB    | C1005X6S1V104M050BB    | C1005X6S1E104M050BC    |                        |
| 150 nF      | 1005 | 0.50±0.05       | ±10%                  |                        |                        | C1005X6S1E154K050BC    | C1005X6S1C154K050BB    |
|             |      |                 | ±20%                  |                        |                        | C1005X6S1E154M050BC    | C1005X6S1C154M050BB    |
|             | 1608 | 0.80±0.10       | ±10%                  | C1608X6S1H154K080AB    | C1608X6S1V154K080AB    |                        |                        |
|             |      |                 | ±20%                  | C1608X6S1H154M080AB    | C1608X6S1V154M080AB    |                        |                        |
| 220 nF      | 1005 | 0.50±0.05       | ±10%                  |                        |                        | C1005X6S1E224K050BC    | C1005X6S1C224K050BB    |
|             |      |                 | ±20%                  |                        |                        | C1005X6S1E224M050BC    | C1005X6S1C224M050BB    |
|             | 1608 | 0.80±0.10       | ±10%                  | C1608X6S1H224K080AB    | C1608X6S1V224K080AB    |                        |                        |
|             |      |                 | ±20%                  | C1608X6S1H224M080AB    | C1608X6S1V224M080AB    |                        |                        |
| 330 nF      | 1005 | 0.50±0.05       | ±10%                  |                        |                        |                        | C1005X6S1C334K050BC    |
|             |      |                 | ±20%                  |                        |                        |                        | C1005X6S1C334M050BC    |
|             | 1608 | 0.80±0.10       | ±10%                  | C1608X6S1H334K080AB    | C1608X6S1V334K080AB    | C1608X6S1E334K080AB    |                        |
|             |      |                 | ±20%                  | C1608X6S1H334M080AB    | C1608X6S1V334M080AB    | C1608X6S1E334M080AB    |                        |
| 470 nF      | 1005 | 0.50±0.05       | ±10%                  |                        |                        |                        | C1005X6S1C474K050BC    |
|             |      |                 | ±20%                  |                        |                        |                        | C1005X6S1C474M050BC    |
|             | 1608 | 0.80±0.10       | ±10%                  | C1608X6S1H474K080AB    | C1608X6S1V474K080AB    | C1608X6S1E474K080AB    |                        |
|             |      |                 | ±20%                  | C1608X6S1H474M080AB    | C1608X6S1V474M080AB    | C1608X6S1E474M080AB    |                        |
|             | 2012 | 1.25±0.20       | ±10%                  | C2012X6S1H474K125AB    |                        |                        |                        |
|             |      |                 | ±20%                  | C2012X6S1H474M125AB    |                        |                        |                        |
| 680 nF      | 1005 | 0.50±0.05       | ±10%                  |                        |                        |                        | C1005X6S1C684K050BC    |
|             |      |                 | ±20%                  |                        |                        |                        | C1005X6S1C684M050BC    |
|             | 1608 | 0.80±0.10       | ±10%                  | C1608X6S1H684K080AC    | C1608X6S1V684K080AB    | C1608X6S1E684K080AB    | C1608X6S1C684K080AC    |
|             |      |                 | ±20%                  | C1608X6S1H684M080AC    | C1608X6S1V684M080AB    | C1608X6S1E684M080AB    | C1608X6S1C684M080AC    |
|             | 2012 | 1.25±0.20       | ±10%                  | C2012X6S1H684K125AB    |                        |                        |                        |
|             |      |                 | ±20%                  | C2012X6S1H684M125AB    |                        |                        |                        |
| 1 µF        | 1005 | 0.50±0.05       | ±10%                  |                        |                        |                        | C1005X6S1C105K050BC    |
|             |      |                 | ±20%                  |                        |                        |                        | C1005X6S1C105M050BC    |
|             | 1608 | 0.80±0.10       | ±10%                  | C1608X6S1H105K080AC    | C1608X6S1V105K080AB    | C1608X6S1E105K080AB    | C1608X6S1C105K080AC    |
|             |      |                 | ±20%                  | C1608X6S1H105M080AC    | C1608X6S1V105M080AB    | C1608X6S1E105M080AB    | C1608X6S1C105M080AC    |
|             | 2012 | 0.85±0.15       | ±10%                  | C2012X6S1H105K085AB    | C2012X6S1V105K085AB    | C2012X6S1E105K085AB    |                        |
|             |      |                 | ±20%                  | C2012X6S1H105M085AB    | C2012X6S1V105M085AB    | C2012X6S1E105M085AB    |                        |
|             | 2012 | 1.25±0.20       | ±10%                  | C2012X6S1H105K125AB    |                        |                        |                        |
|             |      |                 | ±20%                  | C2012X6S1H105M125AB    |                        |                        |                        |
| 1.5 µF      | 1005 | 0.50+0.15/-0.10 | ±10%                  |                        |                        |                        | C1005X6S1C155K050BC    |
|             |      |                 | ±20%                  |                        |                        |                        | C1005X6S1C155M050BC    |
|             | 1608 | 0.80±0.10       | ±10%                  |                        |                        |                        | C1608X6S1C155K080AC    |
|             |      |                 | ±20%                  |                        |                        |                        | C1608X6S1C155M080AC    |
|             | 2012 | 1.25±0.20       | ±10%                  | C2012X6S1H155K125AB    | C2012X6S1V155K125AB    | C2012X6S1E155K125AB    |                        |
|             |      |                 | ±20%                  | C2012X6S1H155M125AB    | C2012X6S1V155M125AB    | C2012X6S1E155M125AB    |                        |
|             | 3216 | 1.60±0.20       | ±10%                  | C3216X6S1H155K160AB    | C3216X6S1V155K160AB    |                        |                        |
|             |      |                 | ±20%                  | C3216X6S1H155M160AB    | C3216X6S1V155M160AB    |                        |                        |

■ The gray items are non-recommended products in the new design.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

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

| Capacitance | Size   | Thickness (mm)   | Capacitance Tolerance | Catalog Number         |                        |                        |                        |
|-------------|--------|------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|
|             |        |                  |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 35V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 2.2 µF      | 1005   | 0.50±0.15, -0.10 | ±10%                  |                        |                        |                        | C1005X6S1C225K050BC    |
|             |        |                  | ±20%                  |                        |                        |                        | C1005X6S1C225M050BC    |
|             | 1608   | 0.80±0.10        | ±10%                  |                        |                        |                        | C1608X6S1C225K080AC    |
|             |        |                  | ±20%                  |                        |                        |                        | C1608X6S1C225M080AC    |
|             | 2012   | 0.85±0.15        | ±10%                  | C2012X6S1H225K085AC    | C2012X6S1V225K085AB    | C2012X6S1E225K085AB    | C2012X6S1C225K085AB    |
|             |        |                  | ±20%                  | C2012X6S1H225M085AC    | C2012X6S1V225M085AB    | C2012X6S1E225M085AB    | C2012X6S1C225M085AB    |
|             |        | 1.25±0.20        | ±10%                  | C2012X6S1H225K125AB    | C2012X6S1V225K125AB    | C2012X6S1E225K125AC    |                        |
|             |        |                  | ±20%                  | C2012X6S1H225M125AB    | C2012X6S1V225M125AB    | C2012X6S1E225M125AC    |                        |
|             | 3216   | 1.60±0.20        | ±10%                  | C3216X6S1H225K160AB    | C3216X6S1V225K160AB    |                        |                        |
|             |        |                  | ±20%                  | C3216X6S1H225M160AB    | C3216X6S1V225M160AB    |                        |                        |
| 3.3 µF      | 1608   | 0.80±0.20, -0.10 | ±10%                  |                        |                        |                        | C1608X6S1C335K080AC    |
|             |        |                  | ±20%                  |                        |                        |                        | C1608X6S1C335M080AC    |
|             | 2012   | 1.25±0.20        | ±10%                  | C2012X6S1H335K125AC    | C2012X6S1V335K125AB    | C2012X6S1E335K125AC    | C2012X6S1C335K125AC    |
|             |        |                  | ±20%                  | C2012X6S1H335M125AC    | C2012X6S1V335M125AB    | C2012X6S1E335M125AC    | C2012X6S1C335M125AC    |
|             | 3216   | 1.60±0.20        | ±10%                  | C3216X6S1H335K160AB    | C3216X6S1V335K160AB    |                        |                        |
|             |        |                  | ±20%                  | C3216X6S1H335M160AB    | C3216X6S1V335M160AB    |                        |                        |
|             | 4.7 µF | 0.85±0.15        | ±10%                  |                        |                        |                        | C1608X6S1C475K080AC    |
|             |        |                  | ±20%                  |                        |                        |                        | C1608X6S1C475M080AC    |
| 4.7 µF      | 2012   | 1.25±0.20        | ±10%                  | C2012X6S1H475K125AC    | C2012X6S1V475K125AB    | C2012X6S1E475K125AC    | C2012X6S1C475K125AC    |
|             |        |                  | ±20%                  | C2012X6S1H475M125AC    | C2012X6S1V475M125AB    | C2012X6S1E475M125AC    | C2012X6S1C475M125AC    |
|             |        | 0.85±0.15        | ±10%                  |                        | C3216X6S1V475K085AC    | C3216X6S1E475K085AB    |                        |
|             |        |                  | ±20%                  |                        | C3216X6S1V475M085AC    | C3216X6S1E475M085AB    |                        |
|             | 3216   | 1.60±0.20        | ±10%                  | C3216X6S1H475K160AB    | C3216X6S1V475K160AB    | C3216X6S1E475K160AB    |                        |
|             |        |                  | ±20%                  | C3216X6S1H475M160AB    | C3216X6S1V475M160AB    | C3216X6S1E475M160AB    |                        |
|             | 3225   | 2.50±0.30        | ±10%                  | C3225X6S1H475K250AB    |                        |                        |                        |
|             |        |                  | ±20%                  | C3225X6S1H475M250AB    |                        |                        |                        |
| 6.8 µF      | 2012   | 1.25±0.20        | ±10%                  |                        |                        |                        | C2012X6S1C685K125AC    |
|             |        |                  | ±20%                  |                        |                        |                        | C2012X6S1C685M125AC    |
|             | 3216   | 1.60±0.20        | ±10%                  |                        | C3216X6S1V685K160AC    | C3216X6S1E685K160AB    | C3216X6S1C685K160AC    |
|             |        |                  | ±20%                  |                        | C3216X6S1V685M160AC    | C3216X6S1E685M160AB    | C3216X6S1C685M160AC    |
|             | 3225   | 2.50±0.30        | ±10%                  | C3225X6S1H685K250AC    | C3225X6S1V685K250AC    | C3225X6S1E685K250AB    |                        |
|             |        |                  | ±20%                  | C3225X6S1H685M250AC    | C3225X6S1V685M250AC    | C3225X6S1E685M250AB    |                        |
| 10 µF       | 2012   | 0.85±0.15        | ±10%                  |                        |                        |                        | C2012X6S1C106K085AC    |
|             |        |                  | ±20%                  |                        |                        |                        | C2012X6S1C106M085AC    |
|             |        | 1.25±0.20        | ±10%                  |                        |                        |                        | C2012X6S1C106K125AC    |
|             |        |                  | ±20%                  |                        |                        |                        | C2012X6S1C106M125AC    |
|             | 3216   | 0.85±0.15        | ±10%                  |                        |                        |                        | C3216X6S1C106K085AC    |
|             |        |                  | ±20%                  |                        |                        |                        | C3216X6S1C106M085AC    |
|             |        | 1.60±0.20        | ±10%                  |                        | C3216X6S1V106K160AC    | C3216X6S1E106K160AB    | C3216X6S1C106K160AB    |
|             |        |                  | ±20%                  |                        | C3216X6S1V106M160AC    | C3216X6S1E106M160AB    | C3216X6S1C106M160AB    |
|             | 3225   | 2.50±0.30        | ±10%                  | C3225X6S1H106K250AC    | C3225X6S1V106K250AC    | C3225X6S1E106K250AC    |                        |
|             |        |                  | ±20%                  | C3225X6S1H106M250AC    | C3225X6S1V106M250AC    | C3225X6S1E106M250AC    |                        |
| 15 µF       | 2012   | 1.25±0.20        | ±20%                  |                        |                        |                        | C2012X6S1C156M125AC    |
|             | 3216   | 1.60±0.20        | ±20%                  |                        |                        |                        | C3216X6S1C156M160AC    |
| 22 µF       | 2012   | 1.25±0.20        | ±20%                  |                        |                        |                        | C2012X6S1C226M125AC    |
|             | 3216   | 1.60±0.20        | ±20%                  |                        |                        |                        | C3216X6S1C226M160AC    |
|             | 3225   | 2.50±0.30        | ±20%                  |                        |                        |                        | C3225X6S1C226M250AC    |

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                         |                       |
|-------------|------|----------------|-----------------------|------------------------|-------------------------|-----------------------|
|             |      |                |                       | Rated Voltage Edc: 10V | Rated Voltage Edc: 6.3V | Rated Voltage Edc: 4V |
| 100 pF      | 0402 | 0.20±0.02      | ±10%                  | C0402X6S1A101K020BC    | C0402X6S0J101K020BC     | C0402X6S0G101K020BC   |
|             |      |                | ±20%                  | C0402X6S1A101M020BC    | C0402X6S0J101M020BC     | C0402X6S0G101M020BC   |
| 150 pF      | 0402 | 0.20±0.02      | ±10%                  | C0402X6S1A151K020BC    | C0402X6S0J151K020BC     | C0402X6S0G151K020BC   |
|             |      |                | ±20%                  | C0402X6S1A151M020BC    | C0402X6S0J151M020BC     | C0402X6S0G151M020BC   |
| 220 pF      | 0402 | 0.20±0.02      | ±10%                  | C0402X6S1A221K020BC    | C0402X6S0J221K020BC     | C0402X6S0G221K020BC   |
|             |      |                | ±20%                  | C0402X6S1A221M020BC    | C0402X6S0J221M020BC     | C0402X6S0G221M020BC   |
| 330 pF      | 0402 | 0.20±0.02      | ±10%                  | C0402X6S1A331K020BC    | C0402X6S0J331K020BC     | C0402X6S0G331K020BC   |
|             |      |                | ±20%                  | C0402X6S1A331M020BC    | C0402X6S0J331M020BC     | C0402X6S0G331M020BC   |

■ The gray items are non-recommended products in the new design.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                         |                       |
|-------------|------|----------------|-----------------------|------------------------|-------------------------|-----------------------|
|             |      |                |                       | Rated Voltage Edc: 10V | Rated Voltage Edc: 6.3V | Rated Voltage Edc: 4V |
| 470 pF      | 0402 | 0.20±0.02      | ±10%                  | C0402X6S1A471K020BC    | C0402X6S0J471K020BC     | C0402X6S0G471K020BC   |
|             |      |                | ±20%                  | C0402X6S1A471M020BC    | C0402X6S0J471M020BC     | C0402X6S0G471M020BC   |
| 680 pF      | 0402 | 0.20±0.02      | ±10%                  | C0402X6S1A681K020BC    | C0402X6S0J681K020BC     | C0402X6S0G681K020BC   |
|             |      |                | ±20%                  | C0402X6S1A681M020BC    | C0402X6S0J681M020BC     | C0402X6S0G681M020BC   |
| 2.2 nF      | 0603 | 0.30±0.03      | ±10%                  | C0603X6S1A222K030BA    | C0603X6S0J222K030BA     |                       |
|             |      |                | ±20%                  | C0603X6S1A222M030BA    | C0603X6S0J222M030BA     |                       |
| 4.7 nF      | 0603 | 0.30±0.03      | ±10%                  | C0603X6S1A472K030BA    | C0603X6S0J472K030BA     |                       |
|             |      |                | ±20%                  | C0603X6S1A472M030BA    | C0603X6S0J472M030BA     |                       |
| 10 nF       | 0603 | 0.30±0.03      | ±10%                  | C0603X6S1A103K030BA    | C0603X6S0J103K030BA     |                       |
|             |      |                | ±20%                  | C0603X6S1A103M030BA    | C0603X6S0J103M030BA     |                       |
| 22 nF       | 0603 | 0.30±0.03      | ±10%                  | C0603X6S1A223K030BB    |                         | C0603X6S0G223K030BC   |
|             |      |                | ±20%                  | C0603X6S1A223M030BB    |                         | C0603X6S0G223M030BC   |
| 47 nF       | 0603 | 0.30±0.03      | ±10%                  | C0603X6S1A473K030BB    |                         | C0603X6S0G473K030BC   |
|             |      |                | ±20%                  | C0603X6S1A473M030BB    |                         | C0603X6S0G473M030BC   |
| 68 nF       | 0603 | 0.30±0.03      | ±10%                  |                        |                         | C0603X6S0G683K030BC   |
|             |      |                | ±20%                  |                        |                         | C0603X6S0G683M030BC   |
| 100 nF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J104K030BC     | C0603X6S0G104K030BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J104M030BC     | C0603X6S0G104M030BC   |
| 150 nF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J154K030BC     | C0603X6S0G154K030BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J154M030BC     | C0603X6S0G154M030BC   |
| 220 nF      | 0603 | 0.30±0.03      | ±10%                  | C0603X6S1A154K030BC    |                         |                       |
|             |      |                | ±20%                  | C0603X6S1A154M030BC    |                         |                       |
| 330 nF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K030BC     | C0603X6S0G224K030BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M030BC     | C0603X6S0G224M030BC   |
| 470 nF      | 0603 | 0.30±0.03      | ±10%                  | C0603X6S1A224K030BC    |                         |                       |
|             |      |                | ±20%                  | C0603X6S1A224M030BC    |                         |                       |
| 680 nF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 1 µF        | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 1.5 µF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 2.2 µF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 3.3 µF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 4.7 µF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 10 µF       | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 22 µF       | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 47 µF       | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 100 µF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 220 µF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 470 µF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 1 mF        | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 2.2 mF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 4.7 mF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 10 mF       | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 22 mF       | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 47 mF       | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 100 mF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 220 mF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 470 mF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |
| 1 F         | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X6S0J224K050BC     | C0603X6S0G224K050BC   |
|             |      |                | ±20%                  |                        | C0603X6S0J224M050BC     | C0603X6S0G224M050BC   |

■ The gray items are non-recommended products in the new design.

■ The red items are products of the production will be stopped. Please confirm the schedule on product details information.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm)   | Capacitance Tolerance | Catalog Number         |                         |                       |
|-------------|------|------------------|-----------------------|------------------------|-------------------------|-----------------------|
|             |      |                  |                       | Rated Voltage Edc: 10V | Rated Voltage Edc: 6.3V | Rated Voltage Edc: 4V |
| 4.7 µF      | 2012 | 0.85±0.15        | ±10%                  | C2012X6S1A475K085AB    |                         |                       |
|             |      |                  | ±20%                  | C2012X6S1A475M085AB    |                         |                       |
|             |      | 1.25±0.20        | ±10%                  |                        | C2012X6S0J475K125AB     |                       |
|             |      |                  | ±20%                  |                        | C2012X6S0J475M125AB     |                       |
| 6.8 µF      | 1608 | 0.80±0.10        | ±10%                  |                        |                         | C1608X6S0G685K080AC   |
|             |      |                  | ±20%                  |                        |                         | C1608X6S0G685M080AC   |
|             |      | 0.80+0.20, -0.10 | ±10%                  | C1608X6S1A685K080AC    | C1608X6S0J685K080AB     |                       |
|             |      |                  | ±20%                  | C1608X6S1A685M080AC    | C1608X6S0J685M080AB     |                       |
|             | 2012 | 0.85±0.15        | ±10%                  | C2012X6S1A685K085AC    | C2012X6S0J685K085AB     |                       |
|             |      |                  | ±20%                  | C2012X6S1A685M085AC    | C2012X6S0J685M085AB     |                       |
|             |      | 1.25±0.20        | ±10%                  | C2012X6S1A685K125AB    |                         |                       |
|             |      |                  | ±20%                  | C2012X6S1A685M125AB    |                         |                       |
|             | 3216 | 0.85±0.15        | ±10%                  | C3216X6S1A685K085AB    |                         |                       |
|             |      |                  | ±20%                  | C3216X6S1A685M085AB    |                         |                       |
| 10 µF       | 1608 | 0.80±0.10        | ±10%                  |                        |                         | C1608X6S0G106K080AB   |
|             |      |                  | ±20%                  |                        |                         | C1608X6S0G106M080AC   |
|             |      | 0.80+0.20, -0.10 | ±20%                  | C1608X6S1A106M080AC    | C1608X6S0J106M080AC     |                       |
|             |      |                  | ±10%                  | C2012X6S1A106K085AC    | C2012X6S0J106K085AC     |                       |
|             | 2012 | 0.85±0.15        | ±20%                  | C2012X6S1A106M085AC    | C2012X6S0J106M085AC     |                       |
|             |      |                  | ±10%                  | C2012X6S1A106K125AB    | C2012X6S0J106K125AB     | C2012X6S0G106K125AC   |
|             |      | 1.25±0.20        | ±20%                  | C2012X6S1A106M125AB    | C2012X6S0J106M125AB     | C2012X6S0G106M125AC   |
|             |      |                  | ±10%                  | C3216X6S1A106K085AB    |                         |                       |
|             | 3216 | 0.85±0.15        | ±20%                  | C3216X6S1A106M085AB    |                         |                       |
|             |      |                  | ±10%                  |                        | C3216X6S0J106K160AC     |                       |
| 15 µF       | 2012 | 0.85±0.15        | ±20%                  |                        |                         | C2012X6S0G156M085AC   |
|             |      |                  | ±20%                  | C2012X6S1A156M125AC    | C2012X6S0J156M125AB     |                       |
|             | 3216 | 1.60±0.20        | ±20%                  | C3216X6S1A156M160AB    | C3216X6S0J156M160AB     |                       |
|             |      |                  | ±20%                  |                        |                         |                       |
|             | 2012 | 0.85±0.15        | ±20%                  |                        | C2012X6S0J226M085AC     | C2012X6S0G226M085AC   |
|             |      |                  | ±20%                  | C2012X6S1A226M125AC    | C2012X6S0J226M125AB     | C2012X6S0G226M125AC   |
| 22 µF       | 3216 | 1.60±0.20        | ±20%                  | C3216X6S1A226M160AB    | C3216X6S0J226M160AB     |                       |
|             |      |                  | ±20%                  |                        |                         |                       |
|             | 2012 | 1.25±0.20        | ±20%                  |                        |                         | C2012X6S0G336M125AC   |
|             |      |                  | ±20%                  |                        |                         |                       |
| 33 µF       | 3216 | 1.60±0.20        | ±20%                  | C3216X6S1A336M160AC    | C3216X6S0J336M160AB     |                       |
|             |      |                  | ±20%                  |                        |                         |                       |
|             | 2012 | 1.25±0.20        | ±20%                  |                        |                         | C2012X6S0G476M125AC   |
|             |      |                  | ±20%                  |                        |                         |                       |
| 47 µF       | 3216 | 1.60±0.20        | ±20%                  | C3216X6S1A476M160AC    | C3216X6S0J476M160AB     | C3216X6S0G476M160AC   |
|             |      |                  | ±20%                  |                        |                         |                       |
|             | 3225 | 2.50±0.30        | ±20%                  |                        | C3225X6S0J476M250AC     |                       |
|             |      |                  | ±20%                  |                        |                         |                       |
| 68 µF       | 3216 | 1.60+0.30, -0.10 | ±20%                  |                        |                         | C3216X6S0G686M160AC   |
|             |      |                  | ±20%                  |                        |                         |                       |
|             | 3216 | 1.60+0.30, -0.10 | ±20%                  |                        |                         | C3216X6S0G107M160AC   |
|             |      |                  | ±20%                  |                        |                         |                       |
| 100 µF      | 3225 | 2.50±0.30        | ±20%                  |                        | C3225X6S0J107M250AC     | C3225X6S0G107M250AC   |
|             |      |                  | ±20%                  |                        |                         |                       |
|             | 4532 | 2.80±0.30        | ±20%                  | C4532X6S0J107M280KC    |                         |                       |

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number         |                        |
|-------------|------|----------------|-----------------------|------------------------|------------------------|
|             |      |                |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 25V |
| 100 pF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X7R1E101K030BA    |
|             |      |                | ±20%                  |                        | C0603X7R1E101M030BA    |
| 150 pF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X7R1E151K030BA    |
|             |      |                | ±20%                  |                        | C0603X7R1E151M030BA    |
| 220 pF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X7R1E221K030BA    |
|             |      |                | ±20%                  |                        | C0603X7R1E221M030BA    |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H221K050BA    |                        |
|             |      |                | ±20%                  | C1005X7R1H221M050BA    |                        |
| 330 pF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X7R1E331K030BA    |
|             |      |                | ±20%                  |                        | C0603X7R1E331M030BA    |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H331K050BA    |                        |
|             |      |                | ±20%                  | C1005X7R1H331M050BA    |                        |
| 470 pF      | 0603 | 0.30±0.03      | ±10%                  |                        | C0603X7R1E471K030BA    |
|             |      |                | ±20%                  |                        | C0603X7R1E471M030BA    |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H471K050BA    |                        |
|             |      |                | ±20%                  | C1005X7R1H471M050BA    |                        |

■ The gray items are non-recommended products in the new design.

■ The red items are products of the production will be stopped. Please confirm the schedule on product details information.

# 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: 50V | Rated Voltage Edc: 35V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 680 pF      | 0603 | 0.30±0.03      | ±10%                  |                        |                        | C0603X7R1E681K030BA    |                        |
|             |      |                | ±20%                  |                        |                        | C0603X7R1E681M030BA    |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H681K050BA    |                        |                        |                        |
|             |      |                | ±20%                  | C1005X7R1H681M050BA    |                        |                        |                        |
| 1 nF        | 0603 | 0.30±0.03      | ±10%                  |                        |                        | C0603X7R1E102K030BA    |                        |
|             |      |                | ±20%                  |                        |                        | C0603X7R1E102M030BA    |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H102K050BA    |                        | C1005X7R1E102K050BA    |                        |
|             |      |                | ±20%                  | C1005X7R1H102M050BA    |                        |                        |                        |
| 1.5 nF      | 0603 | 0.30±0.03      | ±10%                  |                        |                        | C0603X7R1E152K030BA    |                        |
|             |      |                | ±20%                  |                        |                        | C0603X7R1E152M030BA    |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H152K050BA    |                        |                        |                        |
|             |      |                | ±20%                  | C1005X7R1H152M050BA    |                        |                        |                        |
| 2.2 nF      | 0603 | 0.30±0.03      | ±10%                  |                        |                        | C0603X7R1E222K030BA    | C0603X7R1C222K030BA    |
|             |      |                | ±20%                  |                        |                        | C0603X7R1E222M030BA    | C0603X7R1C222M030BA    |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H222K050BA    |                        |                        |                        |
|             |      |                | ±20%                  | C1005X7R1H222M050BA    |                        |                        |                        |
| 3.3 nF      | 0603 | 0.30±0.03      | ±10%                  |                        |                        | C0603X7R1E332K030BA    |                        |
|             |      |                | ±20%                  |                        |                        | C0603X7R1E332M030BA    |                        |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H332K050BA    |                        |                        |                        |
|             |      |                | ±20%                  | C1005X7R1H332M050BA    |                        |                        |                        |
| 4.7 nF      | 0603 | 0.30±0.03      | ±10%                  |                        |                        |                        | C0603X7R1C472K030BA    |
|             |      |                | ±20%                  |                        |                        |                        | C0603X7R1C472M030BA    |
|             | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H472K050BA    |                        |                        |                        |
|             |      |                | ±20%                  | C1005X7R1H472M050BA    |                        |                        |                        |
| 6.8 nF      | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H682K050BA    |                        |                        |                        |
|             |      |                | ±20%                  | C1005X7R1H682M050BA    |                        |                        |                        |
| 10 nF       | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H103K050BB    | C1005X7R1V103K050BB    | C1005X7R1E103K050BB    | C1005X7R1C103K050BA    |
|             |      |                | ±20%                  | C1005X7R1H103M050BB    | C1005X7R1V103M050BB    | C1005X7R1E103M050BB    |                        |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X7R1H103K080AA    |                        | C1608X7R1E103K080AA    |                        |
|             |      |                | ±20%                  | C1608X7R1H103M080AA    |                        |                        |                        |
| 15 nF       | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H153K050BB    | C1005X7R1V153K050BB    |                        |                        |
|             |      |                | ±20%                  | C1005X7R1H153M050BB    | C1005X7R1V153M050BB    |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X7R1H153K080AA    |                        |                        |                        |
|             |      |                | ±20%                  | C1608X7R1H153M080AA    |                        |                        |                        |
| 22 nF       | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H223K050BB    | C1005X7R1V223K050BB    | C1005X7R1E223K050BB    |                        |
|             |      |                | ±20%                  | C1005X7R1H223M050BB    | C1005X7R1V223M050BB    | C1005X7R1E223M050BB    |                        |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X7R1H223K080AA    |                        |                        |                        |
|             |      |                | ±20%                  | C1608X7R1H223M080AA    |                        |                        |                        |
| 33 nF       | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H333K050BB    | C1005X7R1V333K050BB    |                        |                        |
|             |      |                | ±20%                  | C1005X7R1H333M050BB    | C1005X7R1V333M050BB    |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X7R1H333K080AA    |                        |                        |                        |
|             |      |                | ±20%                  | C1608X7R1H333M080AA    |                        |                        |                        |
| 47 nF       | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H473K050BB    | C1005X7R1V473K050BB    | C1005X7R1E473K050BC    | C1005X7R1C473K050BC    |
|             |      |                | ±20%                  | C1005X7R1H473M050BB    | C1005X7R1V473M050BB    | C1005X7R1E473M050BC    | C1005X7R1C473M050BC    |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X7R1H473K080AA    |                        |                        |                        |
|             |      |                | ±20%                  | C1608X7R1H473M080AA    |                        |                        |                        |
| 68 nF       | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H683K050BB    | C1005X7R1V683K050BB    | C1005X7R1E683K050BB    | C1005X7R1C683K050BC    |
|             |      |                | ±20%                  | C1005X7R1H683M050BB    | C1005X7R1V683M050BB    | C1005X7R1E683M050BB    | C1005X7R1C683M050BC    |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X7R1H683K080AA    |                        |                        |                        |
|             |      |                | ±20%                  | C1608X7R1H683M080AA    |                        |                        |                        |
| 100 nF      | 1005 | 0.50±0.05      | ±10%                  | C1005X7R1H104K050BB    | C1005X7R1V104K050BB    | C1005X7R1E104K050BB    | C1005X7R1C104K050BC    |
|             |      |                | ±20%                  | C1005X7R1H104M050BB    | C1005X7R1V104M050BB    | C1005X7R1E104M050BB    | C1005X7R1C104M050BC    |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X7R1H104K080AA    |                        | C1608X7R1E104K080AA    |                        |
|             |      |                | ±20%                  | C1608X7R1H104M080AA    |                        | C1608X7R1E104M080AA    |                        |
| 150 nF      | 2012 | 0.85±0.15      | ±10%                  | C2012X7R1H104K085AA    |                        |                        |                        |
|             |      |                | ±20%                  | C2012X7R1H104M085AA    |                        |                        |                        |
|             | 1005 | 0.50±0.05      | ±10%                  |                        | C1005X7R1V154K050BC    | C1005X7R1E154K050BB    | C1005X7R1C154K050BC    |
|             |      |                | ±20%                  |                        | C1005X7R1V154M050BC    | C1005X7R1E154M050BB    | C1005X7R1C154M050BC    |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X7R1H154K080AB    | C1608X7R1V154K080AB    | C1608X7R1E154K080AA    |                        |
|             |      |                | ±20%                  | C1608X7R1H154M080AB    | C1608X7R1V154M080AB    | C1608X7R1E154M080AA    |                        |
|             | 2012 | 0.85±0.15      | ±10%                  | C2012X7R1H154K085AA    |                        |                        |                        |
|             |      |                | ±20%                  | C2012X7R1H154M085AA    |                        |                        |                        |

■ The gray items are non-recommended products in the new design.

# 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: 50V | Rated Voltage Edc: 35V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 150 nF      | 2012 | 1.25±0.20      | ±10%                  | C2012X7R1H154K125AA    |                        |                        |                        |
|             |      |                | ±20%                  | C2012X7R1H154M125AA    |                        |                        |                        |
| 220 nF      | 1005 | 0.50±0.05      | ±10%                  |                        | C1005X7R1V224K050BC    | C1005X7R1E224K050BB    | C1005X7R1C224K050BC    |
|             |      |                | ±20%                  |                        | C1005X7R1V224M050BC    | C1005X7R1E224M050BB    | C1005X7R1C224M050BC    |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X7R1H224K080AB    | C1608X7R1V224K080AB    | C1608X7R1E224K080AC    | C1608X7R1C224K080AC    |
|             |      |                | ±20%                  | C1608X7R1H224M080AB    | C1608X7R1V224M080AB    | C1608X7R1E224M080AC    | C1608X7R1C224M080AC    |
|             | 2012 | 1.25±0.20      | ±10%                  | C2012X7R1H224K125AA    |                        |                        |                        |
|             |      |                | ±20%                  | C2012X7R1H224M125AA    |                        |                        |                        |
| 330 nF      | 3216 | 1.15±0.15      | ±10%                  | C3216X7R1H224K115AA    |                        |                        |                        |
|             |      |                | ±20%                  | C3216X7R1H224M115AA    |                        |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X7R1H334K080AC    | C1608X7R1V334K080AB    | C1608X7R1E334K080AC    | C1608X7R1C334K080AC    |
|             |      |                | ±20%                  | C1608X7R1H334M080AC    | C1608X7R1V334M080AB    | C1608X7R1E334M080AC    | C1608X7R1C334M080AC    |
|             | 2012 | 1.25±0.20      | ±10%                  | C2012X7R1H334K125AA    |                        |                        |                        |
|             |      |                | ±20%                  | C2012X7R1H334M125AA    |                        |                        |                        |
| 470 nF      | 3216 | 1.60±0.20      | ±10%                  | C3216X7R1H334K160AA    |                        |                        |                        |
|             |      |                | ±20%                  | C3216X7R1H334M160AA    |                        |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  | C1608X7R1H474K080AC    | C1608X7R1V474K080AB    | C1608X7R1E474K080AB    | C1608X7R1C474K080AC    |
|             |      |                | ±20%                  | C1608X7R1H474M080AC    | C1608X7R1V474M080AB    | C1608X7R1E474M080AB    | C1608X7R1C474M080AC    |
|             | 2012 | 1.25±0.20      | ±10%                  | C2012X7R1H474K125AB    | C2012X7R1V474K125AB    | C2012X7R1E474K125AA    |                        |
|             |      |                | ±20%                  | C2012X7R1H474M125AB    | C2012X7R1V474M125AB    | C2012X7R1E474M125AA    |                        |
| 680 nF      | 3216 | 1.60±0.20      | ±10%                  | C3216X7R1H474K160AA    |                        |                        |                        |
|             |      |                | ±20%                  | C3216X7R1H474M160AA    |                        |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  |                        | C1608X7R1V684K080AC    | C1608X7R1E684K080AB    | C1608X7R1C684K080AC    |
|             |      |                | ±20%                  |                        | C1608X7R1V684M080AC    | C1608X7R1E684M080AB    | C1608X7R1C684M080AC    |
|             | 2012 | 1.25±0.20      | ±10%                  | C2012X7R1H684K125AB    | C2012X7R1V684K125AB    | C2012X7R1E684K125AB    | C2012X7R1C684K125AA    |
|             |      |                | ±20%                  | C2012X7R1H684M125AB    | C2012X7R1V684M125AB    | C2012X7R1E684M125AB    | C2012X7R1C684M125AA    |
| 1 µF        | 3216 | 1.60±0.20      | ±10%                  | C3216X7R1H684K160AA    |                        |                        |                        |
|             |      |                | ±20%                  | C3216X7R1H684M160AA    |                        |                        |                        |
|             | 1608 | 0.80±0.10      | ±10%                  |                        | C1608X7R1V105K080AC    | C1608X7R1E105K080AB    | C1608X7R1C105K080AC    |
|             |      |                | ±20%                  |                        | C1608X7R1V105M080AC    | C1608X7R1E105M080AB    | C1608X7R1C105M080AC    |
|             | 2012 | 0.85±0.15      | ±10%                  | C2012X7R1H105K085AC    | C2012X7R1V105K085AB    | C2012X7R1E105K085AB    | C2012X7R1C105K085AC    |
|             |      |                | ±20%                  | C2012X7R1H105M085AC    | C2012X7R1V105M085AB    | C2012X7R1E105M085AB    | C2012X7R1C105M085AC    |
|             |      | 1.25±0.20      | ±10%                  | C2012X7R1H105K125AB    | C2012X7R1V105K125AB    | C2012X7R1E105K125AB    | C2012X7R1C105K125AA    |
|             |      |                | ±20%                  | C2012X7R1H105M125AB    | C2012X7R1V105M125AB    | C2012X7R1E105M125AB    | C2012X7R1C105M125AA    |
|             | 3216 | 0.85±0.15      | ±10%                  |                        |                        | C3216X7R1E105K085AA    |                        |
|             |      |                | ±20%                  |                        |                        | C3216X7R1E105M085AA    |                        |
|             | 3216 | 1.60±0.20      | ±10%                  | C3216X7R1H105K160AB    |                        | C3216X7R1E105K160AA    |                        |
|             |      |                | ±20%                  | C3216X7R1H105M160AB    |                        | C3216X7R1E105M160AA    |                        |
| 1.5 µF      | 3225 | 1.60±0.20      | ±10%                  | C3225X7R1H105K160AA    |                        |                        |                        |
|             |      |                | ±20%                  | C3225X7R1H105M160AA    |                        |                        |                        |
|             | 4532 | 1.60±0.20      | ±10%                  | C4532X7R1H105K160KA    |                        |                        |                        |
|             |      |                | ±20%                  | C4532X7R1H105M160KA    |                        |                        |                        |
|             | 2012 | 1.25±0.20      | ±10%                  | C2012X7R1H155K125AC    | C2012X7R1V155K125AB    | C2012X7R1E155K125AC    | C2012X7R1C155K125AB    |
|             |      |                | ±20%                  | C2012X7R1H155M125AC    | C2012X7R1V155M125AB    | C2012X7R1E155M125AC    | C2012X7R1C155M125AB    |
|             | 3216 | 1.60±0.20      | ±10%                  | C3216X7R1H155K160AB    | C3216X7R1V155K160AB    | C3216X7R1E155K160AA    |                        |
|             |      |                | ±20%                  | C3216X7R1H155M160AB    | C3216X7R1V155M160AB    | C3216X7R1E155M160AA    |                        |
|             | 3225 | 2.00±0.20      | ±10%                  | C3225X7R1H155K200AA    |                        |                        |                        |
|             |      |                | ±20%                  | C3225X7R1H155M200AA    |                        |                        |                        |
| 2.2 µF      | 2012 | 0.85±0.15      | ±10%                  |                        | C2012X7R1V225K085AC    | C2012X7R1E225K085AB    | C2012X7R1C225K085AB    |
|             |      |                | ±20%                  |                        | C2012X7R1V225M085AC    | C2012X7R1E225M085AB    | C2012X7R1C225M085AB    |
|             | 3216 | 1.60±0.20      | ±10%                  | C2012X7R1H225K125AC    | C2012X7R1V225K125AB    | C2012X7R1E225K125AB    | C2012X7R1C225K125AB    |
|             |      |                | ±20%                  | C2012X7R1H225M125AC    | C2012X7R1V225M125AB    | C2012X7R1E225M125AB    | C2012X7R1C225M125AB    |
|             | 3216 | 1.60±0.20      | ±10%                  | C3216X7R1H225K160AB    | C3216X7R1V225K160AB    | C3216X7R1E225K160AA    |                        |
|             |      |                | ±20%                  | C3216X7R1H225M160AB    | C3216X7R1V225M160AB    | C3216X7R1E225M160AA    |                        |
|             | 3225 | 2.00±0.20      | ±10%                  | C3225X7R1H225K200AB    |                        |                        |                        |
|             |      |                | ±20%                  | C3225X7R1H225M200AB    |                        |                        |                        |
|             | 4532 | 1.60±0.20      | ±10%                  | C3225X7R1H225K250AB    |                        |                        |                        |
|             |      |                | ±20%                  | C4532X7R1H225K160KA    |                        |                        |                        |
|             | 4532 | 1.60±0.20      | ±10%                  | C4532X7R1H225M160KA    |                        |                        |                        |
|             |      |                | ±20%                  | C4532X7R1H225M160KA    |                        |                        |                        |

# 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: 50V | Rated Voltage Edc: 35V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 3.3 µF      | 2012 | 1.25±0.20      | ±10%                  |                        | C2012X7R1V335K125AC    | C2012X7R1E335K125AB    | C2012X7R1C335K125AB    |
|             |      |                | ±20%                  |                        | C2012X7R1V335M125AC    | C2012X7R1E335M125AB    | C2012X7R1C335M125AB    |
|             | 3216 | 1.60±0.20      | ±10%                  | C3216X7R1H335K160AC    | C3216X7R1V335K160AB    | C3216X7R1E335K160AC    |                        |
|             |      |                | ±20%                  | C3216X7R1H335M160AC    | C3216X7R1V335M160AB    | C3216X7R1E335M160AC    |                        |
|             | 3225 | 1.60±0.20      | ±10%                  |                        |                        | C3225X7R1E335K160AA    |                        |
|             |      |                | ±20%                  |                        |                        | C3225X7R1E335M160AA    |                        |
|             |      | 2.50±0.30      | ±10%                  | C3225X7R1H335K250AB    |                        |                        |                        |
|             |      |                | ±20%                  | C3225X7R1H335M250AB    |                        |                        |                        |
| 4.7 µF      | 4532 | 2.00±0.20      | ±10%                  | C4532X7R1H335K200KA    |                        |                        |                        |
|             |      |                | ±20%                  | C4532X7R1H335M200KA    |                        |                        |                        |
|             | 2012 | 1.25±0.20      | ±10%                  |                        | C2012X7R1V475K125AC    | C2012X7R1E475K125AB    | C2012X7R1C475K125AB    |
|             |      |                | ±20%                  |                        | C2012X7R1V475M125AC    | C2012X7R1E475M125AB    | C2012X7R1C475M125AB    |
|             |      | 0.85±0.15      | ±10%                  |                        | C3216X7R1V475K085AC    | C3216X7R1E475K085AB    | C3216X7R1C475K085AB    |
|             |      |                | ±20%                  |                        | C3216X7R1V475M085AC    | C3216X7R1E475M085AB    | C3216X7R1C475M085AB    |
|             |      | 1.60±0.20      | ±10%                  | C3216X7R1H475K160AC    | C3216X7R1V475K160AB    | C3216X7R1E475K160AC    | C3216X7R1C475K160AB    |
|             |      |                | ±20%                  | C3216X7R1H475M160AC    | C3216X7R1V475M160AB    | C3216X7R1E475M160AC    | C3216X7R1C475M160AB    |
|             | 3225 | 2.00±0.20      | ±10%                  |                        |                        | C3225X7R1E475K200AA    |                        |
|             |      |                | ±20%                  |                        |                        | C3225X7R1E475M200AA    |                        |
|             |      | 2.50±0.30      | ±10%                  | C3225X7R1H475K250AB    |                        |                        |                        |
|             |      |                | ±20%                  | C3225X7R1H475M250AB    |                        |                        |                        |
| 6.8 µF      | 4532 | 2.00±0.20      | ±10%                  | C4532X7R1H475K200KB    |                        | C4532X7R1E475M200KA    |                        |
|             |      |                | ±20%                  | C4532X7R1H475M200KB    |                        |                        |                        |
|             | 5750 | 2.00±0.20      | ±10%                  | C5750X7R1H475K200KA    |                        |                        |                        |
|             |      |                | ±20%                  | C5750X7R1H475M200KA    |                        |                        |                        |
|             |      | 2.80±0.30      | ±10%                  | C5750X7R1H475M280KA    |                        |                        |                        |
|             |      |                | ±20%                  |                        |                        |                        |                        |
|             | 3216 | 1.60±0.20      | ±10%                  |                        | C3216X7R1V685K160AC    | C3216X7R1E685K160AB    | C3216X7R1C685K160AC    |
|             |      |                | ±20%                  |                        | C3216X7R1V685M160AC    | C3216X7R1E685M160AB    | C3216X7R1C685M160AC    |
|             | 3225 | 2.50±0.30      | ±10%                  |                        |                        | C3225X7R1E685K250AB    |                        |
|             |      |                | ±20%                  |                        |                        | C3225X7R1E685M250AB    |                        |
| 10 µF       | 4532 | 2.50±0.30      | ±10%                  | C4532X7R1H685K250KB    |                        |                        |                        |
|             |      |                | ±20%                  | C4532X7R1H685M250KB    |                        |                        |                        |
|             | 5750 | 2.50±0.30      | ±10%                  | C5750X7R1H685K250KA    |                        |                        |                        |
|             |      |                | ±20%                  | C5750X7R1H685M250KA    |                        |                        |                        |
|             | 3216 | 1.60±0.20      | ±10%                  |                        | C3216X7R1V106K160AC    | C3216X7R1E106K160AB    | C3216X7R1C106K160AC    |
|             |      |                | ±20%                  |                        | C3216X7R1V106M160AC    | C3216X7R1E106M160AB    | C3216X7R1C106M160AC    |
|             |      | 2.00±0.20      | ±10%                  |                        |                        |                        | C3225X7R1C106K200AB    |
|             |      |                | ±20%                  |                        |                        |                        | C3225X7R1C106M200AB    |
|             |      | 2.50±0.30      | ±10%                  | C3225X7R1H106M250AC    |                        | C3225X7R1E106K250AC    |                        |
|             |      |                | ±20%                  |                        |                        | C3225X7R1E106M250AC    |                        |
| 15 µF       | 4532 | 2.30±0.20      | ±10%                  |                        |                        |                        | C4532X7R1C106K230KA    |
|             |      |                | ±20%                  |                        |                        |                        | C4532X7R1C106M230KA    |
|             | 5750 | 2.50±0.30      | ±10%                  |                        |                        | C4532X7R1E106K250KA    |                        |
|             |      |                | ±20%                  |                        |                        | C4532X7R1E106M250KA    |                        |
|             |      | 2.00±0.20      | ±10%                  |                        |                        | C5750X7R1E106M200KA    |                        |
|             |      |                | ±20%                  |                        |                        |                        |                        |
|             | 5750 | 2.30±0.20      | ±10%                  | C5750X7R1H106K230KB    |                        |                        |                        |
|             |      |                | ±20%                  | C5750X7R1H106M230KB    |                        |                        |                        |
| 22 µF       | 3225 | 2.50±0.30      | ±10%                  |                        |                        |                        | C3225X7R1C156M250AB    |
|             |      |                | ±20%                  |                        |                        |                        |                        |
|             | 4532 | 2.00±0.20      | ±10%                  |                        |                        |                        | C3225X7R1C226K250AC    |
|             |      |                | ±20%                  |                        |                        |                        | C3225X7R1C226M250AC    |
|             |      | 2.30±0.20      | ±10%                  |                        |                        |                        | C4532X7R1C226M200KC    |
|             |      |                | ±20%                  |                        |                        |                        | C4532X7R1C226M230KB    |
|             | 5750 | 2.50±0.30      | ±10%                  |                        | C4532X7R1E226M250KC    |                        |                        |
|             |      |                | ±20%                  |                        | C5750X7R1E226M250KA    |                        |                        |
| 33 µF       | 4532 | 2.50±0.30      | ±10%                  |                        |                        |                        | C5750X7R1C226M280KA    |
|             |      |                | ±20%                  |                        |                        |                        | C4532X7R1C336M250KC    |
| 47 µF       | 5750 | 2.00±0.20      | ±10%                  |                        |                        |                        | C5750X7R1C336M200KB    |
|             |      |                | ±20%                  |                        |                        |                        | C5750X7R1C476M230KB    |

# 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: 10V | Rated Voltage Edc: 6.3V | Rated Voltage Edc: 4V |
| 100 pF      | 0402 | 0.20±0.02       | ±10%                  | C0402X7R1A101K020BC    | C0402X7R0J101K020BC     | C0402X7R0G101K020BC   |
|             |      |                 | ±20%                  | C0402X7R1A101M020BC    | C0402X7R0J101M020BC     | C0402X7R0G101M020BC   |
| 150 pF      | 0402 | 0.20±0.02       | ±10%                  | C0402X7R1A151K020BC    | C0402X7R0J151K020BC     | C0402X7R0G151K020BC   |
|             |      |                 | ±20%                  | C0402X7R1A151M020BC    | C0402X7R0J151M020BC     | C0402X7R0G151M020BC   |
| 220 pF      | 0402 | 0.20±0.02       | ±10%                  | C0402X7R1A221K020BC    | C0402X7R0J221K020BC     | C0402X7R0G221K020BC   |
|             |      |                 | ±20%                  | C0402X7R1A221M020BC    | C0402X7R0J221M020BC     | C0402X7R0G221M020BC   |
| 330 pF      | 0402 | 0.20±0.02       | ±10%                  | C0402X7R1A331K020BC    | C0402X7R0J331K020BC     | C0402X7R0G331K020BC   |
|             |      |                 | ±20%                  | C0402X7R1A331M020BC    | C0402X7R0J331M020BC     | C0402X7R0G331M020BC   |
| 470 pF      | 0402 | 0.20±0.02       | ±10%                  | C0402X7R1A471K020BC    | C0402X7R0J471K020BC     | C0402X7R0G471K020BC   |
|             |      |                 | ±20%                  | C0402X7R1A471M020BC    | C0402X7R0J471M020BC     | C0402X7R0G471M020BC   |
| 680 pF      | 0402 | 0.20±0.02       | ±10%                  | C0402X7R1A681K020BC    | C0402X7R0J681K020BC     | C0402X7R0G681K020BC   |
|             |      |                 | ±20%                  | C0402X7R1A681M020BC    | C0402X7R0J681M020BC     | C0402X7R0G681M020BC   |
| 1 nF        | 0402 | 0.20±0.02       | ±10%                  | C0402X7R1A102K020BC    |                         |                       |
|             |      |                 | ±20%                  | C0402X7R1A102M020BC    |                         |                       |
| 1.5 nF      | 0402 | 0.20±0.02       | ±10%                  | C0402X7R1A152K020BC    |                         |                       |
|             |      |                 | ±20%                  | C0402X7R1A152M020BC    |                         |                       |
| 2.2 nF      | 0603 | 0.30±0.03       | ±10%                  | C0603X7R1A222K030BA    | C0603X7R0J222K030BA     |                       |
|             |      |                 | ±20%                  | C0603X7R1A222M030BA    | C0603X7R0J222M030BA     |                       |
| 4.7 nF      | 0603 | 0.30±0.03       | ±10%                  | C0603X7R1A472K030BA    | C0603X7R0J472K030BA     |                       |
|             |      |                 | ±20%                  | C0603X7R1A472M030BA    | C0603X7R0J472M030BA     |                       |
| 10 nF       | 0603 | 0.30±0.03       | ±10%                  | C0603X7R1A103K030BA    | C0603X7R0J103K030BA     |                       |
|             |      |                 | ±20%                  | C0603X7R1A103M030BA    | C0603X7R0J103M030BC     |                       |
| 100 nF      | 1005 | 0.50±0.05       | ±10%                  | C1005X7R1A104K050BB    |                         |                       |
|             |      |                 | ±10%                  | C1005X7R1A154K050BB    |                         |                       |
| 150 nF      | 1005 | 0.50±0.05       | ±20%                  | C1005X7R1A154M050BB    |                         |                       |
|             |      |                 | ±10%                  | C1005X7R1A224K050BB    |                         |                       |
| 220 nF      | 1005 | 0.50±0.05       | ±20%                  | C1005X7R1A224M050BB    |                         |                       |
|             |      |                 | ±10%                  | C1608X7R1A684K080AC    |                         |                       |
| 680 nF      | 1608 | 0.80+0.15/-0.10 | ±10%                  | C1608X7R1A684M080AC    |                         |                       |
|             |      |                 | ±20%                  | C1608X7R1A105K080AC    |                         |                       |
| 1 µF        | 1608 | 0.80+0.15/-0.10 | ±10%                  | C1608X7R1A105M080AC    |                         |                       |
|             |      |                 | ±20%                  | C1608X7R1A155K080AC    | C1608X7R0J155K080AB     |                       |
| 1.5 µF      | 1608 | 0.80±0.10       | ±20%                  | C1608X7R1A155M080AC    | C1608X7R0J155M080AB     |                       |
|             |      |                 | ±10%                  | C1608X7R1A225K080AC    | C1608X7R0J225K080AB     |                       |
| 2.2 µF      | 1608 | 0.80±0.10       | ±20%                  | C1608X7R1A225M080AC    | C1608X7R0J225M080AB     |                       |
|             |      |                 | ±10%                  | C2012X7R1A335K125AC    |                         |                       |
| 3.3 µF      | 2012 | 1.25±0.20       | ±20%                  | C2012X7R1A335M125AC    |                         |                       |
|             |      |                 | ±10%                  | C2012X7R1A475K085AC    | C2012X7R0J475K085AB     |                       |
| 4.7 µF      | 2012 | 0.85±0.15       | ±20%                  | C2012X7R1A475M085AC    | C2012X7R0J475M085AB     |                       |
|             |      |                 | ±10%                  | C2012X7R1A475K125AC    |                         |                       |
| 6.8 µF      | 2012 | 1.25±0.20       | ±20%                  | C2012X7R1A475M125AC    |                         |                       |
|             |      |                 | ±10%                  | C2012X7R1A685K125AC    | C2012X7R0J685K125AB     |                       |
|             | 2012 | 1.25±0.20       | ±20%                  | C2012X7R1A685M125AC    | C2012X7R0J685M125AB     |                       |
|             |      |                 | ±10%                  | C2012X7R1A106K125AC    | C2012X7R0J106K125AB     |                       |
| 10 µF       | 3216 | 0.85±0.15       | ±20%                  | C2012X7R1A106M125AC    | C2012X7R0J106M125AB     |                       |
|             |      |                 | ±10%                  | C3216X7R1A106K085AC    | C3216X7R0J106K085AB     |                       |
|             | 3216 | 1.60±0.20       | ±20%                  | C3216X7R1A106M085AC    | C3216X7R0J106M085AB     |                       |
|             |      |                 | ±10%                  | C3216X7R1A106K160AC    |                         |                       |
| 22 µF       | 3225 | 2.30±0.20       | ±20%                  | C3216X7R1A106M160AC    |                         |                       |
|             |      |                 | ±10%                  | C3225X7R1A226K230AC    |                         |                       |
|             |      |                 | ±20%                  | C3225X7R1A226M230AC    |                         |                       |

■ The gray items are non-recommended products in the new design.

# MULTILAYER CERAMIC CHIP CAPACITORS



## Capacitance Range Table

### Class 2 (Temperature Stable)

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

| Capacitance | Size | Thickness (mm)   | Capacitance Tolerance | Catalog Number         |                        |                        |                         |                       |
|-------------|------|------------------|-----------------------|------------------------|------------------------|------------------------|-------------------------|-----------------------|
|             |      |                  |                       | Rated Voltage Edc: 50V | Rated Voltage Edc: 16V | Rated Voltage Edc: 10V | Rated Voltage Edc: 6.3V | Rated Voltage Edc: 4V |
| 22 nF       | 0603 | 0.30±0.03        | ±10%                  |                        |                        | C0603X7S1A223K030BC    | C0603X7S0J223K030BB     |                       |
|             |      |                  | ±20%                  |                        |                        | C0603X7S1A223M030BC    | C0603X7S0J223M030BB     |                       |
| 47 nF       | 0603 | 0.30±0.03        | ±10%                  |                        |                        | C0603X7S1A473K030BC    | C0603X7S0J473K030BB     |                       |
|             |      |                  | ±20%                  |                        |                        | C0603X7S1A473M030BC    | C0603X7S0J473M030BB     |                       |
| 100 nF      | 0603 | 0.30±0.03        | ±10%                  |                        |                        | C0603X7S1A104K030BC    |                         | C0603X7S0G104K030BC   |
|             |      |                  | ±20%                  |                        |                        | C0603X7S1A104M030BC    |                         | C0603X7S0G104M030BC   |
| 150 nF      | 0603 | 0.30±0.05        | ±10%                  |                        |                        |                        | C0603X7S0J154K030BC     |                       |
|             |      |                  | ±20%                  |                        |                        |                        | C0603X7S0J154M030BC     |                       |
| 220 nF      | 0603 | 0.30±0.03        | ±10%                  |                        |                        |                        |                         | C0603X7S0G224K030BC   |
|             |      |                  | ±20%                  |                        |                        |                        |                         | C0603X7S0G224M030BC   |
|             |      | 0.30±0.05        | ±10%                  |                        |                        |                        | C0603X7S0J224K030BC     |                       |
|             |      |                  | ±20%                  |                        |                        |                        | C0603X7S0J224M030BC     |                       |
| 330 nF      | 1005 | 0.50±0.05        | ±10%                  |                        | C1005X7S1C334K050BC    | C1005X7S1A334K050BC    | C1005X7S0J334K050BC     |                       |
|             |      |                  | ±20%                  |                        | C1005X7S1C334M050BC    | C1005X7S1A334M050BC    | C1005X7S0J334M050BC     |                       |
| 470 nF      | 1005 | 0.50±0.05        | ±10%                  |                        | C1005X7S1C474K050BC    | C1005X7S1A474K050BC    | C1005X7S0J474K050BB     |                       |
|             |      |                  | ±20%                  |                        | C1005X7S1C474M050BC    | C1005X7S1A474M050BC    | C1005X7S0J474M050BB     |                       |
| 680 nF      | 1005 | 0.50±0.05        | ±10%                  |                        |                        | C1005X7S1A684K050BC    | C1005X7S0J684K050BC     | C1005X7S0G684K050BC   |
|             |      |                  | ±20%                  |                        |                        | C1005X7S1A684M050BC    | C1005X7S0J684M050BC     | C1005X7S0G684M050BC   |
| 1 µF        | 1005 | 0.50±0.05        | ±10%                  |                        |                        | C1005X7S1A105K050BC    | C1005X7S0J105K050BC     | C1005X7S0G105K050BC   |
|             |      |                  | ±20%                  |                        |                        | C1005X7S1A105M050BC    | C1005X7S0J105M050BC     | C1005X7S0G105M050BC   |
| 1.5 µF      | 1005 | 0.50+0.15/-0.10  | ±10%                  |                        |                        | C1005X7S1A155K050BC    |                         |                       |
|             |      |                  | ±20%                  |                        |                        | C1005X7S1A155M050BC    |                         |                       |
|             |      | 0.50±0.05        | ±10%                  |                        |                        |                        |                         | C1005X7S0G155K050BC   |
|             |      |                  | ±20%                  |                        |                        |                        |                         | C1005X7S0G155M050BC   |
|             | 1608 | 0.50±0.10        | ±10%                  |                        |                        |                        | C1005X7S0J155K050BC     |                       |
|             |      |                  | ±20%                  |                        |                        |                        | C1005X7S0J155M050BC     |                       |
|             |      | 0.80±0.10        | ±10%                  |                        | C1608X7S1C155K080AC    |                        |                         |                       |
|             |      |                  | ±20%                  |                        | C1608X7S1C155M080AC    |                        |                         |                       |
| 2.2 µF      | 1005 | 0.50±0.10        | ±10%                  |                        |                        |                        | C1005X7S0J225K050BC     |                       |
|             |      |                  | ±20%                  |                        |                        |                        | C1005X7S0J225M050BC     |                       |
|             |      | 0.50+0.15/-0.10  | ±10%                  |                        |                        | C1005X7S1A225K050BC    |                         |                       |
|             |      |                  | ±20%                  |                        |                        | C1005X7S1A225M050BC    |                         |                       |
|             | 1608 | 0.50±0.05        | ±10%                  |                        |                        |                        |                         | C1005X7S0G225K050BC   |
|             |      |                  | ±20%                  |                        |                        |                        |                         | C1005X7S0G225M050BC   |
|             |      | 0.80±0.10        | ±10%                  |                        | C1608X7S1C225K080AC    | C1608X7S1A225K080AC    | C1608X7S0J225K080AB     |                       |
|             |      |                  | ±20%                  |                        | C1608X7S1C225M080AC    | C1608X7S1A225M080AC    | C1608X7S0J225M080AB     |                       |
| 3.3 µF      | 1608 | 0.80±0.10        | ±10%                  |                        |                        |                        | C1608X7S0J335K080AC     | C1608X7S0G335K080AC   |
|             |      |                  | ±20%                  |                        |                        |                        | C1608X7S0J335M080AC     | C1608X7S0G335M080AC   |
|             |      | 0.80+0.20, -0.10 | ±10%                  |                        |                        | C1608X7S1A335K080AC    |                         |                       |
|             |      |                  | ±20%                  |                        |                        | C1608X7S1A335M080AC    |                         |                       |
| 4.7 µF      | 1608 | 0.80±0.10        | ±10%                  |                        |                        |                        | C1608X7S0J475K080AC     | C1608X7S0G475K080AC   |
|             |      |                  | ±20%                  |                        |                        |                        | C1608X7S0J475M080AC     | C1608X7S0G475M080AC   |
|             |      | 0.80+0.20, -0.10 | ±10%                  |                        |                        | C1608X7S1A475K080AC    |                         |                       |
|             |      |                  | ±20%                  |                        |                        | C1608X7S1A475M080AC    |                         |                       |
| 6.8 µF      | 1608 | 0.80+0.20, -0.10 | ±10%                  |                        |                        |                        | C1608X7S0J685K080AC     | C1608X7S0G685K080AB   |
|             |      |                  | ±20%                  |                        |                        |                        | C1608X7S0J685M080AC     | C1608X7S0G685M080AB   |
|             | 2012 | 1.25±0.20        | ±10%                  |                        | C2012X7S1C685K125AC    |                        |                         |                       |
|             |      |                  | ±20%                  |                        | C2012X7S1C685M125AC    |                        |                         |                       |
| 10 µF       | 3225 | 2.50±0.30        | ±10%                  |                        | C3225X7S1H685K250AB    |                        |                         |                       |
|             |      |                  | ±20%                  |                        | C3225X7S1H685M250AB    |                        |                         |                       |
|             | 1608 | 0.80+0.20, -0.10 | ±20%                  |                        |                        |                        | C1608X7S0J106M080AC     | C1608X7S0G106M080AB   |
|             |      |                  | ±10%                  |                        |                        |                        | C2012X7S0J106K085AC     | C2012X7S0G106K085AC   |
| 15 µF       | 2012 | 0.85±0.15        | ±20%                  |                        |                        |                        | C2012X7S0J106M085AC     | C2012X7S0G106M085AC   |
|             |      |                  | ±10%                  |                        | C2012X7S1C106K125AC    |                        |                         |                       |
|             |      | 1.25±0.20        | ±20%                  |                        | C2012X7S1C106M125AC    |                        |                         |                       |
|             |      |                  | ±10%                  |                        | C3225X7S1H106K250AB    |                        |                         |                       |
| 22 µF       | 3216 | 2.50±0.30        | ±20%                  |                        | C3225X7S1H106M250AB    |                        |                         |                       |
|             |      |                  | ±10%                  |                        |                        |                        |                         |                       |
|             | 2012 | 1.25±0.20        | ±20%                  |                        |                        | C2012X7S1A156M125AC    | C2012X7S0J156M125AC     | C2012X7S0G156M125AC   |
|             |      |                  | ±10%                  |                        |                        | C3216X7S1A156M160AC    | C3216X7S0J156M160AB     |                       |
| 33 µF       | 3216 | 1.60±0.20        | ±20%                  |                        |                        | C2012X7S1A226M125AC    | C2012X7S0J226M125AC     | C2012X7S0G226M125AC   |
|             |      |                  | ±10%                  |                        |                        | C3216X7S1A226M160AC    | C3216X7S0J226M160AB     |                       |
| 47 µF       | 3216 | 1.60±0.20        | ±20%                  |                        |                        |                        | C3216X7S0J336M160AC     | C3216X7S0G336M160AB   |
|             |      |                  | ±10%                  |                        |                        |                        | C3216X7S0J476M160AC     | C3216X7S0G476M160AB   |
| 75 µF       | 3225 | 2.50±0.30        | ±20%                  |                        |                        |                        |                         |                       |
|             |      |                  | ±10%                  |                        |                        |                        | C3225X7S0J476M250AC     |                       |

■ The gray items are non-recommended products in the new design.