

# Ceramic Capacitors

## For General Use

### SMD

## C Series

### FEATURES

- High capacitance has been achieved through precision technologies that enable the use of multiple thinner ceramic dielectric layers.
- A monolithic structure ensures superior mechanical strength and reliability.
- High-accuracy automatic mounting is facilitated through the maintenance of very precise dimensional tolerances.
- Composed of only ceramics and metals, these capacitors provide extremely dependable performance, exhibiting virtually no degradation even when subjected to temperature extremes.
- Low stray capacitance ensures high conformity with nominal values, thereby simplifying the circuit design process.
- Low residual inductance assures superior frequency characteristics.

### PRODUCT IDENTIFICATION

C 1005 CH 1H 100 D □  
 (1) (2) (3) (4) (5) (6) (7)

(1) Series name

(2) Dimensions L×W

|      |            |
|------|------------|
| 0603 | 0.6×0.3mm  |
| 1005 | 1.0×0.5mm  |
| 1608 | 1.6×0.8mm  |
| 2012 | 2.0×1.25mm |
| 3216 | 3.2×1.6mm  |

(3) Capacitance temperature characteristics

Class 1 (Temperature compensation)

| Temperature characteristics | Capacitance change | Temperature range |
|-----------------------------|--------------------|-------------------|
| C0G                         | 0±30ppm/°C         | -55 to +125°C     |

Class 2 (Temperature stable and general purpose)

| Temperature characteristics | Capacitance change | Temperature range |
|-----------------------------|--------------------|-------------------|
| X7R                         | ±15%               | -55 to +125°C     |
| X5R                         | ±15%               | -55 to +85°C      |
| Y5V                         | +22, -82%          | -30 to +85°C      |

(4) Rated voltage E<sub>dc</sub>

|    |      |
|----|------|
| 0J | 6.3V |
| 1A | 10V  |
| 1C | 16V  |
| 1E | 25V  |
| 1H | 50V  |

(5) Nominal capacitance

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.

|     |        |
|-----|--------|
| 010 | 1pF    |
| 100 | 10pF   |
| 102 | 1000pF |
| 0R5 | 0.5pF  |

(6) Capacitance tolerance

| Symbol | Tolerance | Applicable capacitance range |
|--------|-----------|------------------------------|
| C      | ±0.25pF   | 10pF or less                 |
| D      | ±0.5pF    |                              |
| J      | ±5%       | Over 10pF                    |
| K      | ±10%      |                              |
| M      | ±20%      |                              |
| Z      | +80, -20% |                              |

(7) Packaging style

|   |               |
|---|---------------|
| T | Taping (reel) |
| B | Bulk          |

# Ceramic Capacitors

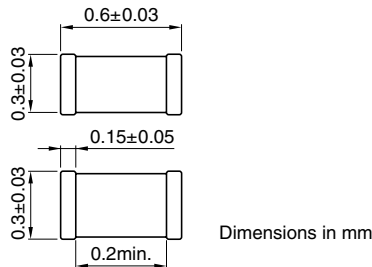
## For General Use

### SMD

## C Series

### C0603 (EIA:CC0201) TYPE

#### SHAPES AND DIMENSIONS



#### CAPACITANCE RANGES:

##### CLASS 1 (TEMPERATURE COMPENSATION)

#### TEMPERATURE CHARACTERISTICS: C0G(0±30ppm/°C)

RATED VOLTAGE Edc: 25V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 0.5*             | ±0.25pF   | 0.3±0.03       | C0603C0G1E0R5C |
| 0.75*            | ±0.25pF   | 0.3±0.03       | C0603C0G1ER75C |
| 1                | ±0.25pF   | 0.3±0.03       | C0603C0G1E010C |
| 1.5              | ±0.25pF   | 0.3±0.03       | C0603C0G1E1R5C |
| 2                | ±0.25pF   | 0.3±0.03       | C0603C0G1E020C |
| 3                | ±0.25pF   | 0.3±0.03       | C0603C0G1E030C |
| 4                | ±0.25pF   | 0.3±0.03       | C0603C0G1E040C |
| 5                | ±0.25pF   | 0.3±0.03       | C0603C0G1E050C |
| 6                | ±0.5pF    | 0.3±0.03       | C0603C0G1E060D |
| 7                | ±0.5pF    | 0.3±0.03       | C0603C0G1E070D |
| 8                | ±0.5pF    | 0.3±0.03       | C0603C0G1E080D |
| 9                | ±0.5pF    | 0.3±0.03       | C0603C0G1E090D |
| 10               | ±0.5pF    | 0.3±0.03       | C0603C0G1E100D |
| 12               | ±5%       | 0.3±0.03       | C0603C0G1E120J |
| 15               | ±5%       | 0.3±0.03       | C0603C0G1E150J |
| 18               | ±5%       | 0.3±0.03       | C0603C0G1E180J |
| 20               | ±5%       | 0.3±0.03       | C0603C0G1E200J |
| 22               | ±5%       | 0.3±0.03       | C0603C0G1E220J |
| 27               | ±5%       | 0.3±0.03       | C0603C0G1E270J |
| 33               | ±5%       | 0.3±0.03       | C0603C0G1E330J |
| 39               | ±5%       | 0.3±0.03       | C0603C0G1E390J |
| 47               | ±5%       | 0.3±0.03       | C0603C0G1E470J |
| 56               | ±5%       | 0.3±0.03       | C0603C0G1E560J |
| 68               | ±5%       | 0.3±0.03       | C0603C0G1E680J |
| 82               | ±5%       | 0.3±0.03       | C0603C0G1E820J |
| 100              | ±5%       | 0.3±0.03       | C0603C0G1E101J |

#### CAPACITANCE RANGES: CLASS 2

#### TEMPERATURE CHARACTERISTICS: X5R (±15%)

RATED VOLTAGE Edc: 25V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 100              | ±10%      | 0.3±0.03       | C0603X5R1E101K |
| 150*             | ±10%      | 0.3±0.03       | C0603X5R1E151K |
| 220              | ±10%      | 0.3±0.03       | C0603X5R1E221K |
| 330*             | ±10%      | 0.3±0.03       | C0603X5R1E331K |
| 470              | ±10%      | 0.3±0.03       | C0603X5R1E471K |
| 680*             | ±10%      | 0.3±0.03       | C0603X5R1E681K |
| 1000             | ±10%      | 0.3±0.03       | C0603X5R1E102K |
| 1500*            | ±10%      | 0.3±0.03       | C0603X5R1E152K |
| 2200             | ±10%      | 0.3±0.03       | C0603X5R1E222K |

RATED VOLTAGE Edc: 16V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 3300*            | ±10%      | 0.3±0.03       | C0603X5R1C332K |
| 4700             | ±10%      | 0.3±0.03       | C0603X5R1C472K |

RATED VOLTAGE Edc: 10V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 6800*            | ±10%      | 0.3±0.03       | C0603X5R1A682K |

RATED VOLTAGE Edc: 6.3V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 10000            | ±10%      | 0.3±0.03       | C0603X5R0J103K |

#### TEMPERATURE CHARACTERISTICS: Y5V (+22, -82%)

RATED VOLTAGE Edc: 25V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 1000             | +80, -20% | 0.3±0.03       | C0603Y5V1E102Z |

RATED VOLTAGE Edc: 16V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 10000            | +80, -20% | 0.3±0.03       | C0603Y5V1C103Z |

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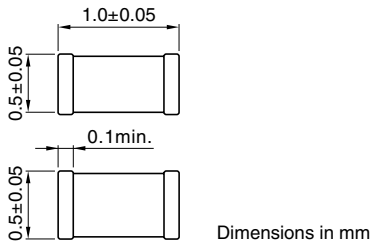
## For General Use

### SMD

## C Series

### C1005 (EIA:CC0402) TYPE

#### SHAPES AND DIMENSIONS



### CAPACITANCE RANGES:

#### CLASS 1 (TEMPERATURE COMPENSATION)

#### TEMPERATURE CHARACTERISTICS: C0G(0±30ppm/°C)

#### RATED VOLTAGE E<sub>dc</sub>: 50V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 0.5*             | ±0.25pF   | 0.5±0.05       | C1005C0G1H0R5C |
| 0.75*            | ±0.25pF   | 0.5±0.05       | C1005C0G1HR75C |
| 1                | ±0.25pF   | 0.5±0.05       | C1005C0G1H010C |
| 1.5              | ±0.25pF   | 0.5±0.05       | C1005C0G1H1R5C |
| 2                | ±0.25pF   | 0.5±0.05       | C1005C0G1H020C |
| 3                | ±0.25pF   | 0.5±0.05       | C1005C0G1H030C |
| 4                | ±0.25pF   | 0.5±0.05       | C1005C0G1H040C |
| 5                | ±0.25pF   | 0.5±0.05       | C1005C0G1H050C |
| 6                | ±0.5pF    | 0.5±0.05       | C1005C0G1H060D |
| 7                | ±0.5pF    | 0.5±0.05       | C1005C0G1H070D |
| 8                | ±0.5pF    | 0.5±0.05       | C1005C0G1H080D |
| 9                | ±0.5pF    | 0.5±0.05       | C1005C0G1H090D |
| 10               | ±0.5pF    | 0.5±0.05       | C1005C0G1H100D |
| 12               | ±5%       | 0.5±0.05       | C1005C0G1H120J |
| 15               | ±5%       | 0.5±0.05       | C1005C0G1H150J |
| 18               | ±5%       | 0.5±0.05       | C1005C0G1H180J |
| 22               | ±5%       | 0.5±0.05       | C1005C0G1H220J |
| 27               | ±5%       | 0.5±0.05       | C1005C0G1H270J |
| 33               | ±5%       | 0.5±0.05       | C1005C0G1H330J |
| 39               | ±5%       | 0.5±0.05       | C1005C0G1H390J |
| 47               | ±5%       | 0.5±0.05       | C1005C0G1H470J |
| 56               | ±5%       | 0.5±0.05       | C1005C0G1H560J |
| 68               | ±5%       | 0.5±0.05       | C1005C0G1H680J |
| 82               | ±5%       | 0.5±0.05       | C1005C0G1H820J |
| 100              | ±5%       | 0.5±0.05       | C1005C0G1H101J |
| 120              | ±5%       | 0.5±0.05       | C1005C0G1H121J |
| 150              | ±5%       | 0.5±0.05       | C1005C0G1H151J |
| 180              | ±5%       | 0.5±0.05       | C1005C0G1H181J |
| 220              | ±5%       | 0.5±0.05       | C1005C0G1H221J |
| 270              | ±5%       | 0.5±0.05       | C1005C0G1H271J |
| 330              | ±5%       | 0.5±0.05       | C1005C0G1H331J |

### CAPACITANCE RANGES: CLASS 2

### TEMPERATURE CHARACTERISTICS: X7R (±15%)

#### RATED VOLTAGE E<sub>dc</sub>: 50V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 220              | ±10%      | 0.5±0.05       | C1005X7R1H221K |
| 330*             | ±10%      | 0.5±0.05       | C1005X7R1H331K |
| 470              | ±10%      | 0.5±0.05       | C1005X7R1H471K |
| 680*             | ±10%      | 0.5±0.05       | C1005X7R1H681K |
| 1000             | ±10%      | 0.5±0.05       | C1005X7R1H102K |
| 1500*            | ±10%      | 0.5±0.05       | C1005X7R1H152K |
| 2200             | ±10%      | 0.5±0.05       | C1005X7R1H222K |
| 3300*            | ±10%      | 0.5±0.05       | C1005X7R1H332K |
| 4700             | ±10%      | 0.5±0.05       | C1005X7R1H472K |
| 6800*            | ±10%      | 0.5±0.05       | C1005X7R1H682K |

#### RATED VOLTAGE E<sub>dc</sub>: 25V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 10000            | ±10%      | 0.5±0.05       | C1005X7R1E103K |
| 15000*           | ±10%      | 0.5±0.05       | C1005X7R1E153K |
| 22000            | ±10%      | 0.5±0.05       | C1005X7R1E223K |

#### RATED VOLTAGE E<sub>dc</sub>: 16V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 33000*           | ±10%      | 0.5±0.05       | C1005X7R1C333K |
| 47000            | ±10%      | 0.5±0.05       | C1005X7R1C473K |

### TEMPERATURE CHARACTERISTICS: X5R (±15%)

#### RATED VOLTAGE E<sub>dc</sub>: 10V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 68000*           | ±10%      | 0.5±0.05       | C1005X5R1A683K |
| 100000           | ±10%      | 0.5±0.05       | C1005X5R1A104K |

### TEMPERATURE CHARACTERISTICS: Y5V (+22, -82%)

#### RATED VOLTAGE E<sub>dc</sub>: 16V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 100000           | +80, -20% | 0.5±0.05       | C1005Y5V1C104Z |

#### RATED VOLTAGE E<sub>dc</sub>: 10V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 220000           | +80, -20% | 0.5±0.05       | C1005Y5V1A224Z |
| 470000           | +80, -20% | 0.5±0.05       | C1005Y5V1A474Z |

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# Ceramic Capacitors

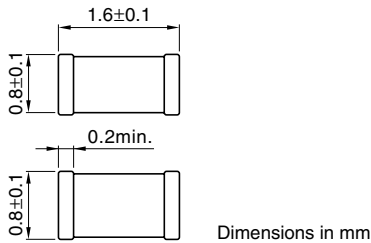
## For General Use

### SMD

## C Series

### C1608 (EIA:CC0603) TYPE

#### SHAPES AND DIMENSIONS



### CAPACITANCE RANGES:

#### CLASS 1 (TEMPERATURE COMPENSATION)

#### TEMPERATURE CHARACTERISTICS: C0G(0±30ppm/°C)

#### RATED VOLTAGE E<sub>dc</sub>: 50V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 0.5*             | ±0.25pF   | 0.8±0.1        | C1608C0G1H0R5C |
| 0.75*            | ±0.25pF   | 0.8±0.1        | C1608C0G1HR75C |
| 1                | ±0.25pF   | 0.8±0.1        | C1608C0G1H010C |
| 1.5              | ±0.25pF   | 0.8±0.1        | C1608C0G1H1R5C |
| 2                | ±0.25pF   | 0.8±0.1        | C1608C0G1H020C |
| 3                | ±0.25pF   | 0.8±0.1        | C1608C0G1H030C |
| 4                | ±0.25pF   | 0.8±0.1        | C1608C0G1H040C |
| 5                | ±0.25pF   | 0.8±0.1        | C1608C0G1H050C |
| 6                | ±0.5pF    | 0.8±0.1        | C1608C0G1H060D |
| 7                | ±0.5pF    | 0.8±0.1        | C1608C0G1H070D |
| 8                | ±0.5pF    | 0.8±0.1        | C1608C0G1H080D |
| 9                | ±0.5pF    | 0.8±0.1        | C1608C0G1H090D |
| 10               | ±0.5pF    | 0.8±0.1        | C1608C0G1H100D |
| 12               | ±5%       | 0.8±0.1        | C1608C0G1H120J |
| 15               | ±5%       | 0.8±0.1        | C1608C0G1H150J |
| 18               | ±5%       | 0.8±0.1        | C1608C0G1H180J |
| 22               | ±5%       | 0.8±0.1        | C1608C0G1H220J |
| 27               | ±5%       | 0.8±0.1        | C1608C0G1H270J |
| 33               | ±5%       | 0.8±0.1        | C1608C0G1H330J |
| 39               | ±5%       | 0.8±0.1        | C1608C0G1H390J |
| 47               | ±5%       | 0.8±0.1        | C1608C0G1H470J |
| 56               | ±5%       | 0.8±0.1        | C1608C0G1H560J |
| 68               | ±5%       | 0.8±0.1        | C1608C0G1H680J |
| 82               | ±5%       | 0.8±0.1        | C1608C0G1H820J |
| 100              | ±5%       | 0.8±0.1        | C1608C0G1H101J |
| 120              | ±5%       | 0.8±0.1        | C1608C0G1H121J |
| 150              | ±5%       | 0.8±0.1        | C1608C0G1H151J |
| 180              | ±5%       | 0.8±0.1        | C1608C0G1H181J |
| 220              | ±5%       | 0.8±0.1        | C1608C0G1H221J |
| 270              | ±5%       | 0.8±0.1        | C1608C0G1H271J |
| 330              | ±5%       | 0.8±0.1        | C1608C0G1H331J |
| 390              | ±5%       | 0.8±0.1        | C1608C0G1H391J |
| 470              | ±5%       | 0.8±0.1        | C1608C0G1H471J |
| 560              | ±5%       | 0.8±0.1        | C1608C0G1H561J |
| 680              | ±5%       | 0.8±0.1        | C1608C0G1H681J |
| 820              | ±5%       | 0.8±0.1        | C1608C0G1H821J |
| 1000             | ±5%       | 0.8±0.1        | C1608C0G1H102J |
| 1200             | ±5%       | 0.8±0.1        | C1608C0G1H122J |
| 1500             | ±5%       | 0.8±0.1        | C1608C0G1H152J |
| 1800             | ±5%       | 0.8±0.1        | C1608C0G1H182J |
| 2200             | ±5%       | 0.8±0.1        | C1608C0G1H222J |

### CAPACITANCE RANGES: CLASS 2

### TEMPERATURE CHARACTERISTICS: X7R (±15%)

### RATED VOLTAGE E<sub>dc</sub>: 50V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 220              | ±10%      | 0.8±0.1        | C1608X7R1H221K |
| 330*             | ±10%      | 0.8±0.1        | C1608X7R1H331K |
| 470              | ±10%      | 0.8±0.1        | C1608X7R1H471K |
| 680*             | ±10%      | 0.8±0.1        | C1608X7R1H681K |
| 1000             | ±10%      | 0.8±0.1        | C1608X7R1H102K |
| 1500*            | ±10%      | 0.8±0.1        | C1608X7R1H152K |
| 2200             | ±10%      | 0.8±0.1        | C1608X7R1H222K |
| 3300*            | ±10%      | 0.8±0.1        | C1608X7R1H332K |
| 4700             | ±10%      | 0.8±0.1        | C1608X7R1H472K |
| 6800*            | ±10%      | 0.8±0.1        | C1608X7R1H682K |
| 10000            | ±10%      | 0.8±0.1        | C1608X7R1H103K |
| 15000*           | ±10%      | 0.8±0.1        | C1608X7R1H153K |
| 22000            | ±10%      | 0.8±0.1        | C1608X7R1H223K |
| 33000*           | ±10%      | 0.8±0.1        | C1608X7R1H333K |
| 47000            | ±10%      | 0.8±0.1        | C1608X7R1H473K |
| 68000*           | ±10%      | 0.8±0.1        | C1608X7R1H683K |
| 100000           | ±10%      | 0.8±0.1        | C1608X7R1H104K |

### RATED VOLTAGE E<sub>dc</sub>: 25V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 100000           | ±10%      | 0.8±0.1        | C1608X7R1E104K |
|                  | ±10%      | 0.8±0.1        | C1608X7R1E154K |
| 150000           | ±20%      | 0.8±0.1        | C1608X7R1E154M |

### RATED VOLTAGE E<sub>dc</sub>: 16V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 220000           | ±10%      | 0.8±0.1        | C1608X7R1C224K |
|                  | ±20%      | 0.8±0.1        | C1608X7R1C224M |

### TEMPERATURE CHARACTERISTICS: X5R (±15%)

### RATED VOLTAGE E<sub>dc</sub>: 10V

| Capacitance (pF) | Tolerance | Thickness (mm)                       | Part No.       |
|------------------|-----------|--------------------------------------|----------------|
| 330000           | ±10%      | 0.8±0.1                              | C1608X5R1A334K |
|                  | ±20%      | 0.8±0.1                              | C1608X5R1A334M |
| 470000           | ±10%      | 0.8±0.1                              | C1608X5R1A474K |
|                  | ±20%      | 0.8±0.1                              | C1608X5R1A474M |
| 680000           | ±10%      | 0.8 <sup>+0.15</sup> <sub>-0.1</sub> | C1608X5R1A684K |
|                  | ±20%      | 0.8 <sup>+0.15</sup> <sub>-0.1</sub> | C1608X5R1A684M |
| 1000000          | ±10%      | 0.8 <sup>+0.15</sup> <sub>-0.1</sub> | C1608X5R1A105K |
| [1μF]            | ±20%      | 0.8 <sup>+0.15</sup> <sub>-0.1</sub> | C1608X5R1A105M |

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# Ceramic Capacitors

## For General Use

### SMD

## C Series

#### TEMPERATURE CHARACTERISTICS: Y5V(+22, -82%)

##### RATED VOLTAGE Edc:50V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 100000           | +80, -20% | 0.8±0.1        | C1608Y5V1H104Z |
| 220000           | +80, -20% | 0.8±0.1        | C1608Y5V1H224Z |

##### RATED VOLTAGE Edc: 25V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 470000           | +80, -20% | 0.8±0.1        | C1608Y5V1E474Z |

##### RATED VOLTAGE Edc: 16V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 1000000<br>[1μF] | +80, -20% | 0.8±0.1        | C1608Y5V1C105Z |

##### RATED VOLTAGE Edc: 10V

| Capacitance (pF)   | Tolerance | Thickness (mm) | Part No.       |
|--------------------|-----------|----------------|----------------|
| 2200000<br>[2.2μF] | +80, -20% | 0.8±0.1        | C1608Y5V1A225Z |

- For more information about products with other capacitance or other data, please contact us.

- All specifications are subject to change without notice.

# Ceramic Capacitors

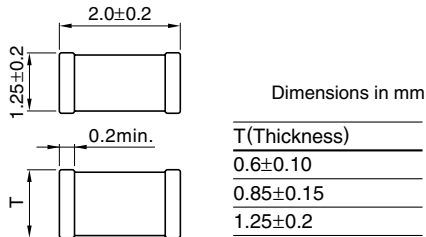
## For General Use

### SMD

## C Series

### C2012 (EIA:CC0805) TYPE

#### SHAPES AND DIMENSIONS



#### CAPACITANCE RANGES:

##### CLASS 1 (TEMPERATURE COMPENSATION)

#### TEMPERATURE CHARACTERISTICS: C0G(0±30ppm/°C)

##### RATED VOLTAGE Edc: 50V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 2700             | ±5%       | 0.6±0.15       | C2012C0G1H272J |
| 3300             | ±5%       | 0.6±0.15       | C2012C0G1H332J |
| 3900             | ±5%       | 0.85±0.15      | C2012C0G1H392J |
| 4700             | ±5%       | 0.85±0.15      | C2012C0G1H472J |
| 5600             | ±5%       | 0.85±0.15      | C2012C0G1H562J |
| 6800             | ±5%       | 1.25±0.2       | C2012C0G1H682J |
| 8200             | ±5%       | 1.25±0.2       | C2012C0G1H822J |
| 10000            | ±5%       | 1.25±0.2       | C2012C0G1H103J |

#### CAPACITANCE RANGES: CLASS 2

#### TEMPERATURE CHARACTERISTICS: X7R (±15%)

##### RATED VOLTAGE Edc: 50V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 100000*          | ±10%      | 1.25±0.2       | C2012X7R1H104K |
| 150000           | ±10%      | 1.25±0.2       | C2012X7R1H154K |
|                  | ±20%      | 1.25±0.2       | C2012X7R1H154M |
| 220000           | ±10%      | 1.25±0.2       | C2012X7R1H224K |
|                  | ±20%      | 1.25±0.2       | C2012X7R1H224M |
| 330000           | ±10%      | 1.25±0.2       | C2012X7R1H334K |
|                  | ±20%      | 1.25±0.2       | C2012X7R1H334M |

##### RATED VOLTAGE Edc: 25V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 470000           | ±10%      | 1.25±0.2       | C2012X7R1E474K |
|                  | ±20%      | 1.25±0.2       | C2012X7R1E474M |

##### RATED VOLTAGE Edc: 16V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 680000           | ±10%      | 1.25±0.2       | C2012X7R1C684K |
|                  | ±20%      | 1.25±0.2       | C2012X7R1C684M |
| 1000000          | ±10%      | 1.25±0.2       | C2012X7R1C105K |
|                  | ±20%      | 1.25±0.2       | C2012X7R1C105M |

#### TEMPERATURE CHARACTERISTICS: X5R (±15%)

##### RATED VOLTAGE Edc: 10V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 1500000          | ±10%      | 1.25±0.2       | C2012X5R1A155K |
| [1.5μF]          | ±20%      | 1.25±0.2       | C2012X5R1A155M |
| 2200000          | ±10%      | 1.25±0.2       | C2012X5R1A225K |
| [2.2μF]          | ±20%      | 1.25±0.2       | C2012X5R1A225M |
| 3300000          | ±10%      | 1.25±0.2       | C2012X5R1A335K |
| [3.3μF]          | ±20%      | 1.25±0.2       | C2012X5R1A335M |

##### RATED VOLTAGE Edc: 6.3V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 4700000          | ±10%      | 1.25±0.2       | C2012X5R0J475K |
| [4.7μF]          | ±20%      | 1.25±0.2       | C2012X5R0J475M |
| 6800000          | ±20%      | 1.25±0.2       | C2012X5R0J685M |
| [6.8μF]          |           |                |                |
| 10000000         | ±20%      | 1.25±0.2       | C2012X5R0J106M |
| [10μF]           |           |                |                |

#### TEMPERATURE CHARACTERISTICS: Y5V(+22, -82%)

##### RATED VOLTAGE Edc: 50V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 470000           | +80, -20% | 1.25±0.2       | C2012Y5V1H474Z |
| 1000000          | +80, -20% | 1.25±0.2       | C2012Y5V1H105Z |
| [1μF]            |           |                |                |

##### RATED VOLTAGE Edc: 25V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 2200000          | +80, -20% | 1.25±0.2       | C2012Y5V1E225Z |
| [2.2μF]          |           |                |                |

##### RATED VOLTAGE Edc: 16V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 4700000          | +80, -20% | 1.25±0.2       | C2012Y5V1C475Z |
| [4.7μF]          |           |                |                |

##### RATED VOLTAGE Edc: 10V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 10000000         | +80, -20% | 1.25±0.2       | C2012Y5V1A106Z |
| [10μF]           |           |                |                |

\* These products marked \* are nonstandard.

• For more information about products with other capacitance or other data, please contact us.

# Ceramic Capacitors

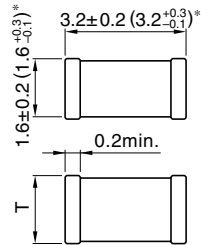
## For General Use

### SMD

## C Series

### C3216 (EIA:CC1206) TYPE

#### SHAPES AND DIMENSIONS



Dimensions in mm

T(Thickness)

0.6±0.1

0.85±0.15

1.15±0.15

1.3±0.2

1.6±0.2 (1.6<sup>+0.3</sup><sub>-0.1</sub>)\*

\* Figures within ( ) shows dimensions for C3216X5R0J106K, M.



#### CAPACITANCE RANGES:

##### CLASS 1 (TEMPERATURE COMPENSATION)

##### TEMPERATURE CHARACTERISTICS: C0G(0±30ppm/°C)

RATED VOLTAGE Edc: 50V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 3900             | ±5%       | 0.6±0.15       | C3216C0G1H392J |
| 4700             | ±5%       | 0.6±0.15       | C3216C0G1H472J |
| 5600             | ±5%       | 0.6±0.15       | C3216C0G1H562J |
| 6800             | ±5%       | 0.6±0.15       | C3216C0G1H682J |
| 8200             | ±5%       | 0.85±0.15      | C3216C0G1H822J |
| 10000            | ±5%       | 0.85±0.15      | C3216C0G1H103J |
| 15000            | ±5%       | 1.15±0.15      | C3216C0G1H153J |
| 22000            | ±5%       | 1.15±0.15      | C3216C0G1H223J |
| 33000            | ±5%       | 1.6±0.2        | C3216C0G1H333J |

##### CAPACITANCE RANGES:CLASS 2

##### TEMPERATURE CHARACTERISTICS: X7R(±15%)

RATED VOLTAGE Edc: 50V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 470000           | ±10%      | 1.6±0.2        | C3216X7R1H474K |
|                  | ±20%      | 1.6±0.2        | C3216X7R1H474M |

RATED VOLTAGE Edc: 25V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 680000           | ±10%      | 1.6±0.2        | C3216X7R1E684K |
|                  | ±20%      | 1.6±0.2        | C3216X7R1E684M |
| 1000000          | ±10%      | 1.6±0.2        | C3216X7R1E105K |
| [1μF]            | ±20%      | 1.6±0.2        | C3216X7R1E105M |
| 1500000          | ±10%      | 1.6±0.2        | C3216X7R1E155K |
| [1.5μF]          | ±20%      | 1.6±0.2        | C3216X7R1E155M |
| 2200000          | ±10%      | 1.6±0.2        | C3216X7R1E225K |
| [2.2μF]          | ±20%      | 1.6±0.2        | C3216X7R1E225M |

##### TEMPERATURE CHARACTERISTICS: X5R(±15%)

RATED VOLTAGE Edc: 16V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 3300000          | ±10%      | 1.6±0.2        | C3216X5R1C335K |
| [3.3μF]          | ±20%      | 1.6±0.2        | C3216X5R1C335M |

RATED VOLTAGE Edc: 6.3V

| Capacitance (pF) | Tolerance | Thickness (mm)                      | Part No.       |
|------------------|-----------|-------------------------------------|----------------|
| 6800000          | ±10%      | 1.6±0.2                             | C3216X5R0J685K |
| [6.8μF]          | ±20%      | 1.6±0.2                             | C3216X5R0J685M |
| 10000000         | ±10%      | 1.6 <sup>+0.3</sup> <sub>-0.1</sub> | C3216X5R0J106K |
| [10μF]           | ±20%      | 1.6 <sup>+0.3</sup> <sub>-0.1</sub> | C3216X5R0J106M |

##### TEMPERATURE CHARACTERISTICS: Y5V(+22, -82%)

RATED VOLTAGE Edc: 50V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 2200000          | +80, -20% | 1.15±0.15      | C3216Y5V1H225Z |
| [2.2μF]          |           |                |                |

RATED VOLTAGE Edc: 25V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 4700000          | +80, -20% | 1.15±0.15      | C3216Y5V1E475Z |
| [4.7μF]          |           |                |                |

RATED VOLTAGE Edc: 16V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 10000000         | +80, -20% | 1.6±0.2        | C3216Y5V1C106Z |
| [10μF]           |           |                |                |

RATED VOLTAGE Edc: 10V

| Capacitance (pF) | Tolerance | Thickness (mm) | Part No.       |
|------------------|-----------|----------------|----------------|
| 22000000         | +80, -20% | 1.6±0.2        | C3216Y5V1A226Z |
| [22μF]           |           |                |                |

• For more information about products with other capacitance or other data, please contact us.

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