

C1005X8R1E473M050BE Datasheet



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| | |
|------------------------------|---|
| DiGi Electronics Part Number | C1005X8R1E473M050BE-DG |
| Manufacturer | TDK Corporation |
| Manufacturer Product Number | C1005X8R1E473M050BE |
| Description | CAP CER 0.047UF 25V X8R 0402 |
| Detailed Description | 0.047 μ F \pm 20% 25V Ceramic Capacitor X8R 0402 (10 05 Metric) |

This model C1005X8R1E473M050BE is available at DiGi Electronics.

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Purchase and inquiry

Manufacturer Product Number:

C1005X8R1E473M050BE

Series:

C

Capacitance:0.047 μ F**Voltage - Rated:**

25V

Operating Temperature:

-55°C ~ 150°C

Ratings:

-

Failure Rate:

-

Package / Case:

0402 (1005 Metric)

Height - Seated (Max):

-

Lead Spacing:

-

Manufacturer:

TDK Corporation

Product Status:

Not For New Designs

Tolerance: \pm 20%**Temperature Coefficient:**

X8R

Features:

Soft Termination

Applications:

Boardflex Sensitive

Mounting Type:

Surface Mount, MLCC

Size / Dimension:

0.039" L x 0.020" W (1.00mm x 0.50mm)

Thickness (Max):

0.024" (0.60mm)

Lead Style:

-

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8532.24.0020

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99



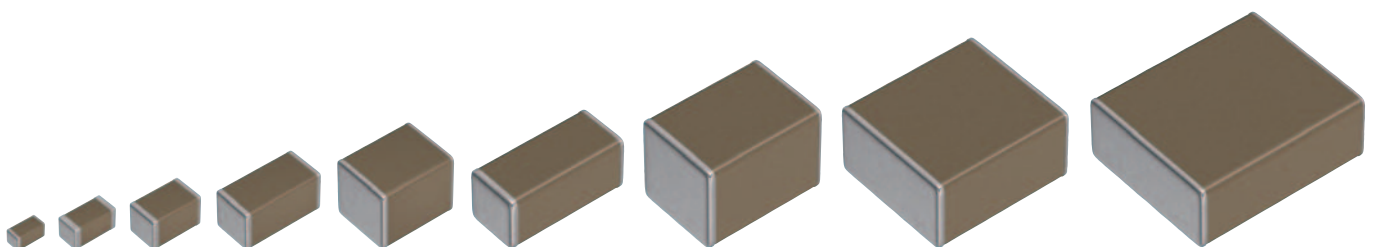
MULTILAYER CERAMIC CHIP CAPACITORS

Commercial grade, soft termination

C series

| | |
|--------------|--------------------|
| C1005 | [0402 inch] |
| C1608 | [0603 inch] |
| C2012 | [0805 inch] |
| C3216 | [1206 inch] |
| C3225 | [1210 inch] |
| C4520 | [1808 inch] |
| C4532 | [1812 inch] |
| C5750 | [2220 inch] |
| C7563 | [3025 inch] |

* Dimensions code: JIS[EIA]



REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using this products.

REMINDERS

- The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.

The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.

If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each catalog, please contact us.

- | | |
|--|--|
| (1) Aerospace/aviation equipment | (8) Public information-processing equipment |
| (2) Transportation equipment (cars, electric trains, ships, etc.) | (9) Military equipment |
| (3) Medical equipment (excepting Pharmaceutical Affairs Law classification Class1,2) | (10) Electric heating apparatus, burning equipment |
| (4) Power-generation control equipment | (11) Disaster prevention/crime prevention equipment |
| (5) Atomic energy-related equipment | (12) Safety equipment |
| (6) Seabed equipment | (13) Other applications that are not considered general-purpose applications |
| (7) Transportation control equipment | |

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.

- We may modify products or discontinue production of a product listed in this catalog without prior notification.
- 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.
- 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.
- Any reproduction or transferring of the contents of this catalog is prohibited without prior permission from our company.
- We are not responsible for problems that occur related to the intellectual property rights or other rights of our company or a third party when you use a product listed in this catalog. We do not grant license of these rights.
- This catalog only applies to products purchased through our company or one of our company's official agencies. This catalog does not apply to products that are purchased through other third parties.

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

Soft termination



Type: C1005 [0402 inch], C1608 [0603 inch], C2012 [0805 inch],
C3216 [1206 inch], C3225 [1210 inch], C4520 [1808 inch],
C4532 [1812 inch], C5750 [2220 inch], C7563 [3025 inch]

SERIES OVERVIEW

Soft termination C series is a product incorporating a conductive resin layer into the terminal electrodes. The resin layer protects the ceramic body from cracks by relieving stress caused by thermal shock and board flexure.

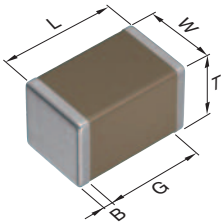
FEATURES

- The resin layer relieves mechanical stress and thermal shock
- X8R and X8L types whose operating temperature are up to 150°C are available
- COG type having excellent stable temperature and DC-bias characteristics is also available

APPLICATIONS

- Fail-safe design in power line
- Prevention of ceramic body cracks by board bending
- Prevention of solder cracks by thermal shock
- Equipment such as mobile devices having a high possibility of drop

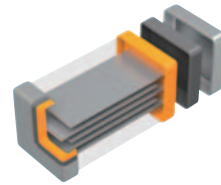
SHAPE & DIMENSIONS



| | |
|---|------------------|
| L | Body length |
| W | Body width |
| T | Body height |
| B | Terminal width |
| G | Terminal spacing |

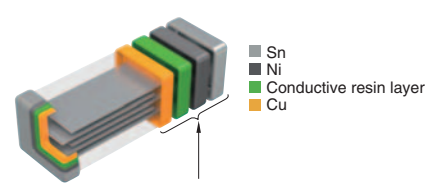
TERMINAL ELECTRODE STRUCTURES

General type



3-layer structure of Cu, Ni and Sn.

Soft termination



4-layer structure including conductive resin layer.

Dimensions in mm

| Type | L | W | T | B | G |
|--------------|-----------------|-----------------|-----------------|-----------|-----------|
| C1005 | 1.00+0.15,-0.05 | 0.50+0.10,-0.05 | 0.50+0.10,-0.05 | 0.10 min. | 0.30 min. |
| C1608 | 1.60+0.20,-0.10 | 0.80+0.15,-0.10 | 0.80+0.15,-0.10 | 0.20 min. | 0.30 min. |
| C2012 | 2.00+0.45,-0.20 | 1.25+0.25,-0.20 | 1.25+0.25,-0.20 | 0.20 min. | 0.50 min. |
| C3216 | 3.20+0.40,-0.20 | 1.60+0.30,-0.20 | 1.60+0.30,-0.20 | 0.20 min. | 1.00 min. |
| C3225 | 3.20+0.50,-0.40 | 2.50±0.30 | 2.50±0.30 | 0.20 min. | — |
| C4520 | 4.50+0.50,-0.40 | 2.00+0.30,-0.20 | 1.30±0.20 | 0.20 min. | — |
| C4532 | 4.50+0.50,-0.40 | 3.20±0.40 | 2.50±0.30 | 0.20 min. | — |
| C5750 | 5.70+0.50,-0.40 | 5.00±0.40 | 2.50±0.30 | 0.20 min. | — |
| C7563 | 7.50±0.50 | 6.30±0.50 | 3.00 max. | 0.30 min. | — |

*Dimensional tolerances are typical values.

MULTILAYER CERAMIC CHIP CAPACITORS



CATALOG NUMBER CONSTRUCTION

| | | | | | | | | |
|----------|-------------|------------|-----------|------------|----------|------------|----------|----------|
| C | 7563 | X7S | 1C | 107 | M | 280 | L | E |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |

(1) Series

(2) Dimensions L x W (mm)

| Code | EIA | Length | Width | Terminal width |
|------|--------|--------|-------|----------------|
| 1005 | CC0402 | 1.00 | 0.50 | 0.10 |
| 1608 | CC0603 | 1.60 | 0.80 | 0.20 |
| 2012 | CC0805 | 2.00 | 1.25 | 0.20 |
| 3216 | CC1206 | 3.20 | 1.60 | 0.20 |
| 3225 | CC1210 | 3.20 | 2.50 | 0.20 |
| 4520 | CC1808 | 4.50 | 2.00 | 0.20 |
| 4532 | CC1812 | 4.50 | 3.20 | 0.20 |
| 5750 | CC2220 | 5.70 | 5.00 | 0.20 |
| 7563 | CC3025 | 7.50 | 6.30 | 0.30 |

(3) Temperature characteristics

| Temperature characteristics | Temperature coefficient or capacitance change | Temperature range |
|-----------------------------|---|-------------------|
| C0G | 0±30 ppm/°C | -55 to +125°C |
| X5R | ±15% | -55 to +85°C |
| X7R | ±15% | -55 to +125°C |
| X7S | ±22% | -55 to +125°C |
| X7T | +22,-33% | -55 to +125°C |
| X8R | ±15% | -55 to +150°C |
| X8L | +15,-40% | -55 to +150°C |

(4) Rated voltage (DC)

| Code | Voltage (DC) |
|------|--------------|
| 0J | 6.3V |
| 1A | 10V |
| 1C | 16V |
| 1E | 25V |
| 1V | 35V |
| 1H | 50V |
| 2A | 100V |
| 2E | 250V |
| 2W | 450V |
| 2J | 630V |
| 3A | 1000V |
| 3D | 2000V |
| 3F | 3000V |

(5) 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.

(Example)0R5 = 0.5pF
 101 = 100pF
 225 = 2,200,000pF = 2.2μF

(6) Capacitance tolerance

| Code | Tolerance |
|------|-----------|
| J | ±5% |
| K | ±10% |
| M | ±20% |

(7) Thickness

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

(8) Packaging style

| Code | Style |
|------|------------------------|
| A | 178mm reel, 4mm pitch |
| B | 178mm reel, 2mm pitch |
| K | 178mm reel, 8mm pitch |
| L | 330mm reel, 12mm pitch |

(9) Special reserved code

| Code | Description |
|------|------------------|
| E | Soft termination |

MULTILAYER CERAMIC CHIP CAPACITORS



Capacitance range chart

C1005 [0402 inch]

| Capacitance | | C0G | | X5R | | | | X7R | | | |
|-------------|------|--------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|
| (pF) | Code | 2A (100V) | 1H (50V) | 1V (35V) | 1E (25V) | 1A (10V) | 0J (6.3V) | 1H (50V) | 1V (35V) | 1E (25V) | 1C (16V) |
| 100 | 101 | ■ | ■ | | | | | | | | |
| 150 | 151 | ■ | ■ | | | | | | | | |
| 220 | 221 | ■ | ■ | | | | | | | | |
| 330 | 331 | ■ | ■ | | | | | | | | |
| 470 | 471 | ■ | ■ | | | | | | | | |
| 680 | 681 | ■ | ■ | | | | | | | | |
| 1,000 | 102 | ■ | ■ | | | | | ■ | | | |
| 2,200 | 222 | | | | | | | ■ | | | |
| 4,700 | 472 | | | | | | | ■ | | | |
| 10,000 | 103 | | | | | | | ■ | | | |
| 22,000 | 223 | | | | | | | ■ | | | |
| 47,000 | 473 | | | | | | | ■ | | | |
| 100,000 | 104 | | | | | | | ■ | ■ | ■ | ■ |
| 220,000 | 224 | | | | | | | ■ | ■ | ■ | ■ |
| 470,000 | 474 | | | ■ | ■ | | | | | | |
| 1,000,000 | 105 | | | ■ | ■ | | | | | | |
| 2,200,000 | 225 | | | ■ | ■ | | | | | | |
| 4,700,000 | 475 | | | ■ | ■ | ■ | ■ | | | | |

| Capacitance | | X8R | | | |
|-------------|------|--------------|-------------|-------------|-------------|
| (pF) | Code | 2A (100V) | 1H (50V) | 1E (25V) | 1C (16V) |
| 150 | 151 | ■ | ■ | | |
| 220 | 221 | ■ | ■ | | |
| 330 | 331 | ■ | ■ | | |
| 470 | 471 | ■ | ■ | | |
| 680 | 681 | ■ | ■ | | |
| 1,000 | 102 | ■ | ■ | | |
| 1,500 | 152 | ■ | ■ | | |
| 2,200 | 222 | ■ | ■ | | |
| 3,300 | 332 | ■ | ■ | | |
| 4,700 | 472 | ■ | ■ | | |
| 6,800 | 682 | | ■ | ■ | |
| 10,000 | 103 | | ■ | ■ | |
| 15,000 | 153 | | ■ | ■ | |
| 22,000 | 223 | | ■ | ■ | |
| 33,000 | 333 | | ■ | ■ | ■ |
| 47,000 | 473 | | ■ | ■ | ■ |

Standard thickness ■ 0.50 mm

■ Background gray: These products are not recommended for new designs.

■ For details such as the catalog numbers, please refer to the capacitance range table on page 11 and after.


MULTILAYER CERAMIC CHIP CAPACITORS 

Capacitance range chart

C1608 [0603 inch]

| Capacitance | | C0G | | | X5R | | | | | X7R | | | | |
|-------------|------|-----------|-----------|----------|----------|----------|----------|----------|-----------|-----------|----------|----------|----------|----------|
| (pF) | Code | 2E (250V) | 2A (100V) | 1H (50V) | 1V (35V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) | 2A (100V) | 1H (50V) | 1V (35V) | 1E (25V) | 1A (10V) |
| 100 | 101 | | | | | | | | | | | | | |
| 330 | 331 | | | | | | | | | | | | | |
| 470 | 471 | | | | | | | | | | | | | |
| 680 | 681 | | | | | | | | | | | | | |
| 1,000 | 102 | | | | | | | | | | | | | |
| 1,200 | 122 | | | | | | | | | | | | | |
| 1,500 | 152 | | | | | | | | | | | | | |
| 1,800 | 182 | | | | | | | | | | | | | |
| 2,200 | 222 | | | | | | | | | | | | | |
| 2,700 | 272 | | | | | | | | | | | | | |
| 3,300 | 332 | | | | | | | | | | | | | |
| 3,900 | 392 | | | | | | | | | | | | | |
| 4,700 | 472 | | | | | | | | | | | | | |
| 5,600 | 562 | | | | | | | | | | | | | |
| 6,800 | 682 | | | | | | | | | | | | | |
| 8,200 | 822 | | | | | | | | | | | | | |
| 10,000 | 103 | | | | | | | | | | | | | |
| 22,000 | 223 | | | | | | | | | | | | | |
| 47,000 | 473 | | | | | | | | | | | | | |
| 100,000 | 104 | | | | | | | | | | | | | |
| 220,000 | 224 | | | | | | | | | | | | | |
| 470,000 | 474 | | | | | | | | | | | | | |
| 1,000,000 | 105 | | | | | | | | | | | | | |
| 2,200,000 | 225 | | | | | | | | | | | | | |
| 4,700,000 | 475 | | | | | | | | | | | | | |
| 10,000,000 | 106 | | | | | | | | | | | | | |

| Capacitance | | X7S | | X8R | | | |
|-------------|------|-----------|----------|-----------|----------|----------|----------|
| (pF) | Code | 2A (100V) | 1C (16V) | 2A (100V) | 1H (50V) | 1E (25V) | 1C (16V) |
| 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 | | | | | | |
| 2,200,000 | 225 | | | | | | |

Standard thickness  0.8 mm

 Background gray: These products are not recommended for new designs.

■ For details such as the catalog numbers, please refer to the capacitance range table on page 11 and after.

⚠ 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

C2012 [0805 inch]

| Capacitance | | C0G | | | | X5R | X7R | | | | | | X7S | | |
|-------------|------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|----------|----------|----------|-----------|----------|
| (pF) | Code | 2W (450V) | 2E (250V) | 2A (100V) | 1H (50V) | 1A (10V) | 2E (250V) | 2A (100V) | 1H (50V) | 1V (35V) | 1E (25V) | 1C (16V) | 1A (10V) | 2A (100V) | 1E (25V) |
| 100 | 101 | █ | | | | | | | | | | | | | |
| 150 | 151 | █ | | | | | | | | | | | | | |
| 220 | 221 | █ | | | | | | | | | | | | | |
| 330 | 331 | █ | | | | | | | | | | | | | |
| 470 | 471 | █ | | | | | | | | | | | | | |
| 680 | 681 | █ | | | | | | | | | | | | | |
| 1,000 | 102 | █ | | | | | █ | █ | | | | | | | |
| 1,200 | 122 | █ | | | | | | | | | | | | | |
| 1,500 | 152 | █ | | | | | | | | | | | | | |
| 1,800 | 182 | █ | | | | | | | | | | | | | |
| 2,200 | 222 | █ | | | | | █ | █ | | | | | | | |
| 2,700 | 272 | █ | | | | | | | | | | | | | |
| 3,300 | 332 | █ | █ | | | | | | | | | | | | |
| 3,900 | 392 | █ | █ | | | | | | | | | | | | |
| 4,700 | 472 | | █ | | | | █ | █ | | | | | | | |
| 5,600 | 562 | | █ | | | | | | | | | | | | |
| 6,800 | 682 | | █ | | | | | | | | | | | | |
| 10,000 | 103 | | | | | | █ | █ | | | | | | | |
| 15,000 | 153 | | | █ | █ | | | | | | | | | | |
| 22,000 | 223 | | | █ | █ | | █ | █ | | | | | | | |
| 33,000 | 333 | | | █ | █ | | | | | | | | | | |
| 47,000 | 473 | | | | | | | █ | | | | | | | |
| 100,000 | 104 | | | | | | | █ | █ | | | | | | |
| 220,000 | 224 | | | | | | | | | | | | █ | █ | |
| 470,000 | 474 | | | | | | | | | | | | | | |
| 1,000,000 | 105 | | | | | | | | █ | █ | | | | █ | |
| 2,200,000 | 225 | | | | | | | | | █ | | | | | |
| 4,700,000 | 475 | | | | | | | | █ | █ | █ | | | | |
| 10,000,000 | 106 | | | | | | | | | | | | █ | | █ |
| 22,000,000 | 226 | | | | | | █ | | | | | | | | |

| Capacitance | | X7T | | X8R | | | | X8L | |
|-------------|------|-----------|-----------|-----------|----------|----------|----------|----------|----------|
| (pF) | Code | 2W (450V) | 2E (250V) | 2A (100V) | 1H (50V) | 1E (25V) | 1C (16V) | 1E (25V) | 1A (10V) |
| 10,000 | 103 | █ | | | | | | | |
| 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 | | | | | █ | █ | | |
| 4,700,000 | 475 | | | | | | | █ | |
| 10,000,000 | 106 | | | | | | | | █ |

Standard thickness  0.60 mm  0.85 mm  1.25 mm

 Background gray: These products are not recommended for new designs.

■ For details such as the catalog numbers, please refer to the capacitance range table on page 11 and after.

⚠ 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

C3216 [1206 inch]

| Capacitance | | C0G | | | | | X7R | | | | | | X7S | |
|-------------|------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|----------|----------|----------|----------|-----------|
| (pF) | Code | 2J (630V) | 2W (450V) | 2E (250V) | 2A (100V) | 1H (50V) | 2J (630V) | 2E (250V) | 2A (100V) | 1H (50V) | 1V (35V) | 1E (25V) | 1C (16V) | 2A (100V) |
| 1,000 | 102 | | | | | | 1.15 | | | | | | | |
| 2,200 | 222 | | | | | | 1.15 | | | | | | | |
| 3,300 | 332 | | | | | | 1.15 | | | | | | | |
| 3,900 | 392 | 0.85 | | | | | 1.15 | | | | | | | |
| 4,700 | 472 | | | | | | 1.15 | | | | | | | |
| 5,600 | 562 | 1.15 | | | | | 1.15 | | | | | | | |
| 6,800 | 682 | 1.15 | 1.15 | | | | 1.15 | | | | | | | |
| 8,200 | 822 | 1.15 | 1.15 | 1.15 | | | 1.15 | | | | | | | |
| 10,000 | 103 | 1.15 | 1.15 | 1.15 | | | 1.15 | | | | | | | |
| 15,000 | 153 | | | 1.15 | | | 1.15 | | | | | | | |
| 22,000 | 223 | | | | | | 1.15 | 1.15 | | | | | | |
| 33,000 | 333 | | | | | | 1.15 | 1.15 | | | | | | |
| 47,000 | 473 | | | | 1.15 | 1.15 | 1.15 | 1.15 | | | | | | |
| 68,000 | 683 | | | | 1.15 | 1.15 | 1.15 | 1.15 | | | | | | |
| 100,000 | 104 | | | | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | | | | | |
| 220,000 | 224 | | | | | | | | 1.15 | | | | | |
| 470,000 | 474 | | | | | | | | 1.15 | | | | | |
| 1,000,000 | 105 | | | | | | | | 1.15 | 1.15 | | | | |
| 2,200,000 | 225 | | | | | | | | 1.15 | 1.15 | 1.15 | | | 1.15 |
| 4,700,000 | 475 | | | | | | | | 1.15 | 1.15 | 1.15 | 1.15 | | 1.15 |
| 10,000,000 | 106 | | | | | | | | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 |

| Capacitance | | X7T | | | X8R | | | | X8L |
|-------------|------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|
| (pF) | Code | 2J (630V) | 2W (450V) | 2E (250V) | 2A (100V) | 1H (50V) | 1E (25V) | 1C (16V) | 1E (25V) |
| 47,000 | 473 | 1.15 | | | | | | | |
| 100,000 | 104 | | 1.15 | | 1.15 | | | | |
| 150,000 | 154 | | | | 1.15 | | | | |
| 220,000 | 224 | | | 1.15 | | | | | |
| 330,000 | 334 | | | | 1.15 | | | | |
| 470,000 | 474 | | | | 1.15 | 1.15 | | | |
| 680,000 | 684 | | | | 1.15 | 1.15 | | | |
| 1,000,000 | 105 | | | | 1.15 | 1.15 | 1.15 | | |
| 1,500,000 | 155 | | | | | | 1.15 | | |
| 2,200,000 | 225 | | | | | | 1.15 | 1.15 | |
| 3,300,000 | 335 | | | | | | 1.15 | 1.15 | |
| 4,700,000 | 475 | | | | | | 1.15 | 1.15 | 1.15 |
| 10,000,000 | 106 | | | | | | 1.15 | 1.15 | 1.15 |

Standard thickness 0.85 mm 1.15 mm 1.30 mm 1.60 mm

Background gray: These products are not recommended for new designs.

For details such as the catalog numbers, please refer to the capacitance range table on page 11 and after.

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 TDK

Capacitance range chart

C3225 [1210 inch]

| Capacitance | | C0G | | | | | X7R | | | | X7S | |
|-------------|------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|----------|
| (pF) | Code | 3A (1kV) | 2J (630V) | 2W (450V) | 2E (250V) | 2A (100V) | 2J (630V) | 2E (250V) | 2A (100V) | 1H (50V) | 2A (100V) | 1H (50V) |
| 1,000 | 102 | █ | | | | | | | | | | |
| 1,200 | 122 | █ | | | | | | | | | | |
| 1,500 | 152 | █ | | | | | | | | | | |
| 1,800 | 182 | █ | | | | | | | | | | |
| 2,200 | 222 | █ | | | | | | | | | | |
| 2,700 | 272 | █ | | | | | | | | | | |
| 3,300 | 332 | █ | | | | | | | | | | |
| 3,900 | 392 | █ | | | | | | | | | | |
| 4,700 | 472 | █ | | | | | | | | | | |
| 5,600 | 562 | █ | | | | | | | | | | |
| 6,800 | 682 | █ | | | | | | | | | | |
| 8,200 | 822 | █ | | | | | | | | | | |
| 15,000 | 153 | █ | █ | | | | | | | | | |
| 22,000 | 223 | | | | █ | | | | | | | |
| 33,000 | 333 | | █ | █ | | | | | | | | |
| 47,000 | 473 | | | | | | █ | | | | | |
| 68,000 | 683 | | | | | █ | | | | | | |
| 100,000 | 104 | | | | | | | █ | | | | |
| 220,000 | 224 | | | | | | | | █ | | | |
| 470,000 | 474 | | | | | | | | █ | | | |
| 1,000,000 | 105 | | | | | | | | | █ | | |
| 2,200,000 | 225 | | | | | | | | | | █ | |
| 3,300,000 | 335 | | | | | | | | | | █ | |
| 4,700,000 | 475 | | | | | | | | | | █ | |
| 10,000,000 | 106 | | | | | | | | | | █ | |

| Capacitance | | X7T | | | X8R | | |
|-------------|------|-----------|-----------|-----------|-----------|----------|----------|
| (pF) | Code | 2J (630V) | 2W (450V) | 2E (250V) | 2A (100V) | 1E (25V) | 1C (16V) |
| 100,000 | 104 | █ | | | | | |
| 150,000 | 154 | █ | | | | | |
| 220,000 | 224 | | █ | | | | |
| 330,000 | 334 | | | █ | | | |
| 470,000 | 474 | | | | █ | | |
| 680,000 | 684 | | | | | █ | |
| 3,300,000 | 335 | | | | | | █ |
| 4,700,000 | 475 | | | | | | █ |
| 10,000,000 | 106 | | | | | | █ |

Standard thickness █ 1.60 mm █ 2.00 mm █ 2.30 mm █ 2.50 mm

█ Background gray: These products are not recommended for new designs.

█ For details such as the catalog numbers, please refer to the capacitance range table on page 11 and after.

Capacitance range chart

C4520 [1808 inch]

| Capacitance | | X7R |
|-------------|------|----------|
| (pF) | Code | 3D (2kV) |
| 1,000 | 102 | █ |

Standard thickness

█ 1.30 mm

█ For details such as the catalog numbers, please refer to the capacitance range table on page 11 and after.

⚠ 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

C4532 [1812 inch]

| Capacitance | | C0G | | X7R | | | X7T | | |
|-------------|------|-------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|
| (pF) | Code | 3F (3kV) | 2J (630V) | 3D (2kV) | 2J (630V) | 2E (250V) | 2J (630V) | 2W (450V) | 2E (250V) |
| 330 | 331 | | | | | | | | |
| 2,200 | 222 | | | | | | | | |
| 33,000 | 333 | | | | | | | | |
| 100,000 | 104 | | | | | | | | |
| 220,000 | 224 | | | | | | | | |
| 470,000 | 474 | | | | | | | | |
| 1,000,000 | 105 | | | | | | | | |

Standard thickness 1.30 mm 2.00 mm 2.30 mm 2.50 mm

■ For details such as the catalog numbers, please refer to the capacitance range table on page 11 and after.

Capacitance range chart

C5750 [2220 inch]

| Capacitance | | C0G | | | X7R | | X7S | X7T | | |
|-------------|------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| (pF) | Code | 2J (630V) | 2E (250V) | 2A (100V) | 2J (630V) | 2E (250V) | 2A (100V) | 2J (630V) | 2W (450V) | 2E (250V) |
| 68,000 | 683 | | | | | | | | | |
| 150,000 | 154 | | | | | | | | | |
| 220,000 | 224 | | | | | | | | | |
| 470,000 | 474 | | | | | | | | | |
| 1,000,000 | 105 | | | | | | | | | |
| 2,200,000 | 225 | | | | | | | | | |
| 10,000,000 | 106 | | | | | | | | | |

Standard thickness 2.30 mm 2.50 mm

■ For details such as the catalog numbers, please refer to the capacitance range table on page 11 and after.

Capacitance range chart

C7563 [3025 inch]

| Capacitance | | X7R | | X7S | |
|-------------|------|-------------|-------------|-------------|--|
| (pF) | Code | 1E (25V) | 1H (50V) | 1C (16V) | |
| 22,000,000 | 226 | | | | |
| 47,000,000 | 476 | | | | |
| 100,000,000 | 107 | | | | |

Standard thickness 2.30 mm 2.80 mm

■ For details such as the catalog numbers, please refer to the capacitance range table on page 11 and after.

MULTILAYER CERAMIC CHIP CAPACITORS



Capacitance range table

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

| Capacitance | Dimensions | Thickness (mm) | Capacitance tolerance | Catalog number | | | |
|-------------|------------|-----------------|-----------------------|------------------------|------------------------|-------------------------|-------------------------|
| | | | | Rated voltage Edc: 3kV | Rated voltage Edc: 1kV | Rated voltage Edc: 630V | Rated voltage Edc: 450V |
| 100pF | 2012 | 0.60±0.15 | ±5% | | | | C2012C0G2W101J060AE |
| 150pF | 2012 | 0.60±0.15 | ±5% | | | | C2012C0G2W151J060AE |
| 220pF | 2012 | 0.60±0.15 | ±5% | | | | C2012C0G2W221J060AE |
| 330pF | 2012 | 0.60±0.15 | ±5% | | | | C2012C0G2W331J060AE |
| | 4532 | 2.50±0.30 | ±10% | C4532C0G3F331K250KE | | | |
| 470pF | 2012 | 0.60±0.15 | ±5% | | | | C2012C0G2W471J060AE |
| 680pF | 2012 | 0.60±0.15 | ±5% | | | | C2012C0G2W681J060AE |
| 1nF | 2012 | 0.60±0.15 | ±5% | | | | C2012C0G2W102J060AE |
| | 3225 | 2.00+0.30,-0.20 | ±5% | | C3225C0G3A102J200AE | | |
| 1.2nF | 2012 | 0.60±0.15 | ±5% | | | | C2012C0G2W122J060AE |
| | 3225 | 2.00+0.30,-0.20 | ±5% | | C3225C0G3A122J200AE | | |
| 1.5nF | 2012 | 0.85±0.15 | ±5% | | | | C2012C0G2W152J085AE |
| | 3225 | 2.00+0.30,-0.20 | ±5% | | C3225C0G3A152J200AE | | |
| 1.8nF | 2012 | 0.85±0.15 | ±5% | | | | C2012C0G2W182J085AE |
| | 3225 | 2.00+0.30,-0.20 | ±5% | | C3225C0G3A182J200AE | | |
| 2.2nF | 2012 | 0.85±0.15 | ±5% | | | | C2012C0G2W222J085AE |
| | 3225 | 2.00+0.30,-0.20 | ±5% | | C3225C0G3A222J200AE | | |
| 2.7nF | 2012 | 1.25+0.25,-0.20 | ±5% | | | | C2012C0G2W272J125AE |
| | 3225 | 2.00+0.30,-0.20 | ±5% | | C3225C0G3A272J200AE | | |
| 3.3nF | 2012 | 1.25+0.25,-0.20 | ±5% | | | | C2012C0G2W332J125AE |
| | 3225 | 2.00+0.30,-0.20 | ±5% | | C3225C0G3A332J200AE | | |
| 3.9nF | 2012 | 1.25+0.25,-0.20 | ±5% | | | | C2012C0G2W392J125AE |
| | 3216 | 0.85±0.15 | ±5% | | | C3216C0G2J392J085AE | |
| 4.7nF | 3225 | 2.00+0.30,-0.20 | ±5% | | C3225C0G3A392J200AE | | |
| | 3225 | 2.00+0.30,-0.20 | ±5% | | C3225C0G3A472J200AE | | |
| 5.6nF | 3216 | 1.15±0.15 | ±5% | | | C3216C0G2J562J115AE | |
| | 3225 | 2.00+0.30,-0.20 | ±5% | | C3225C0G3A562J200AE | | |
| 6.8nF | 3216 | 1.15±0.15 | ±5% | | | C3216C0G2J682J115AE | C3216C0G2W682J115AE |
| | 3225 | 2.00+0.30,-0.20 | ±5% | | C3225C0G3A682J200AE | | |
| 8.2nF | 3216 | 1.15±0.15 | ±5% | | | | C3216C0G2W822J115AE |
| | 3225 | 2.30+0.30,-0.20 | ±5% | | C3225C0G3A822J230AE | C3216C0G2J822J160AE | |
| 10nF | 3216 | 1.60+0.30,-0.20 | ±5% | | | C3216C0G2J103J160AE | C3216C0G2W103J160AE |
| 15nF | 3225 | 1.60+0.30,-0.20 | ±5% | | | C3225C0G2J153J160AE | |
| 33nF | 3225 | 2.50±0.30 | ±5% | | | C3225C0G2J333J250AE | C3225C0G2W333J250AE |
| | 4532 | 2.00+0.30,-0.20 | ±5% | | C4532C0G2J333J200KE | | |
| 68nF | 5750 | 2.30+0.30,-0.20 | ±5% | | | C5750C0G2J683J230KE | |

Click the part numbers for details.

MULTILAYER CERAMIC CHIP CAPACITORS



Capacitance range table

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

| Capacitance | Dimensions | Thickness (mm) | Capacitance tolerance | Catalog number | | |
|-------------|------------|-----------------|-----------------------|-------------------------|-------------------------|------------------------|
| | | | | Rated voltage Edc: 250V | Rated voltage Edc: 100V | Rated voltage Edc: 50V |
| 100pF | 1005 | 0.50+0.10,-0.05 | ±5% | | C1005C0G2A101J050BE | C1005C0G1H101J050BE |
| | 1608 | 0.80+0.15,-0.10 | ±5% | | | C1608C0G1H101J080AE |
| 150pF | 1005 | 0.50+0.10,-0.05 | ±5% | | C1005C0G2A151J050BE | C1005C0G1H151J050BE |
| 220pF | 1005 | 0.50+0.10,-0.05 | ±5% | | C1005C0G2A221J050BE | C1005C0G1H221J050BE |
| 330pF | 1005 | 0.50+0.10,-0.05 | ±5% | | C1005C0G2A331J050BE | C1005C0G1H331J050BE |
| | 1608 | 0.80+0.15,-0.10 | ±5% | | C1608C0G2A331J080AE | C1608C0G1H331J080AE |
| 470pF | 1005 | 0.50+0.10,-0.05 | ±5% | | C1005C0G2A471J050BE | C1005C0G1H471J050BE |
| | 1608 | 0.80+0.15,-0.10 | ±5% | | C1608C0G2A471J080AE | C1608C0G1H471J080AE |
| 680pF | 1005 | 0.50+0.10,-0.05 | ±5% | | C1005C0G2A681J050BE | C1005C0G1H681J050BE |
| | 1608 | 0.80+0.15,-0.10 | ±5% | | C1608C0G2A681J080AE | C1608C0G1H681J080AE |
| 1nF | 1005 | 0.50+0.10,-0.05 | ±5% | | C1005C0G2A102J050BE | C1005C0G1H102J050BE |
| | 1608 | 0.80+0.15,-0.10 | ±5% | C1608C0G2E102J080AE | C1608C0G2A102J080AE | C1608C0G1H102J080AE |
| 1.2nF | 1608 | 0.80+0.15,-0.10 | ±5% | C1608C0G2E122J080AE | C1608C0G2A122J080AE | C1608C0G1H122J080AE |
| 1.5nF | 1608 | 0.80+0.15,-0.10 | ±5% | C1608C0G2E152J080AE | C1608C0G2A152J080AE | C1608C0G1H152J080AE |
| 1.8nF | 1608 | 0.80+0.15,-0.10 | ±5% | C1608C0G2E182J080AE | C1608C0G2A182J080AE | C1608C0G1H182J080AE |
| 2.2nF | 1608 | 0.80+0.15,-0.10 | ±5% | | C1608C0G2A222J080AE | C1608C0G1H222J080AE |
| 2.7nF | 1608 | 0.80+0.15,-0.10 | ±5% | | C1608C0G2A272J080AE | C1608C0G1H272J080AE |
| 3.3nF | 1608 | 0.80+0.15,-0.10 | ±5% | | C1608C0G2A332J080AE | C1608C0G1H332J080AE |
| | 2012 | 0.85±0.15 | ±5% | C2012C0G2E332J085AE | | |
| 3.9nF | 1608 | 0.80+0.15,-0.10 | ±5% | | C1608C0G2A392J080AE | C1608C0G1H392J080AE |
| | 2012 | 1.25+0.25,-0.20 | ±5% | C2012C0G2E392J125AE | | |
| 4.7nF | 1608 | 0.80+0.15,-0.10 | ±5% | | C1608C0G2A472J080AE | C1608C0G1H472J080AE |
| | 2012 | 1.25+0.25,-0.20 | ±5% | C2012C0G2E472J125AE | | |
| 5.6nF | 1608 | 0.80+0.15,-0.10 | ±5% | | C1608C0G2A562J080AE | C1608C0G1H562J080AE |
| | 2012 | 1.25+0.25,-0.20 | ±5% | C2012C0G2E562J125AE | | |
| 6.8nF | 1608 | 0.80+0.15,-0.10 | ±5% | | C1608C0G2A682J080AE | C1608C0G1H682J080AE |
| | 2012 | 1.25+0.25,-0.20 | ±5% | C2012C0G2E682J125AE | | |
| 8.2nF | 1608 | 0.80+0.15,-0.10 | ±5% | | C1608C0G2A822J080AE | C1608C0G1H822J080AE |
| | 1608 | 0.80+0.15,-0.10 | ±5% | | C1608C0G2A103J080AE | C1608C0G1H103J080AE |
| 10nF | 3216 | 1.15±0.15 | ±5% | C3216C0G2E103J115AE | | |
| | 2012 | 0.85±0.15 | ±5% | | C2012C0G2A153J085AE | C2012C0G1H153J085AE |
| 15nF | 3216 | 1.60+0.30,-0.20 | ±5% | C3216C0G2E153J160AE | | |
| | 2012 | 1.25+0.25,-0.20 | ±5% | | C2012C0G2A223J125AE | C2012C0G1H223J125AE |
| 22nF | 3225 | 1.60+0.30,-0.20 | ±5% | C3225C0G2E223J160AE | | |
| | 2012 | 1.25+0.25,-0.20 | ±5% | | C2012C0G2A333J125AE | C2012C0G1H333J125AE |
| 47nF | 3216 | 1.15±0.15 | ±5% | C3216C0G2A473J115AE | | C3216C0G1H473J115AE |
| 68nF | 3216 | 1.60+0.30,-0.20 | ±5% | C3216C0G2A683J160AE | | C3216C0G1H683J160AE |
| | 3225 | 2.30+0.30,-0.20 | ±5% | C3225C0G2A683J230AE | | |
| 100nF | 3216 | 1.60+0.30,-0.20 | ±5% | C3216C0G2A104J160AE | | C3216C0G1H104J160AE |
| 150nF | 5750 | 2.30+0.30,-0.20 | ±5% | C5750C0G2E154J230KE | C5750C0G2A154J230KE | |

■ Gray items: These products are not recommended for new designs.
Click the part numbers for details.

Capacitance range table

Temperature characteristic: X5R (–55 to +85°C, ±15%)

| Capacitance | Dimensions | Thickness (mm) | Capacitance tolerance | Catalog number | | | | |
|-------------|------------|-----------------|-----------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
| | | | | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V | Rated voltage Edc: 10V | Rated voltage Edc: 6.3V |
| 470nF | 1005 | 0.50+0.10,-0.05 | ±10% | C1005X5R1V474K050BE | C1005X5R1E474K050BE | | | |
| 1µF | 1005 | 0.50+0.15,-0.05 | ±10% | C1005X5R1V105K050BE | C1005X5R1E105K050BE | | | |
| 2.2µF | 1005 | 0.50+0.20,-0.10 | ±10% | C1005X5R1V225K050BE | C1005X5R1E225K050BE | | | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | C1608X5R1V225K080AE | C1608X5R1E225K080AE | | | |
| 4.7µF | 1005 | 0.50+0.20,-0.10 | ±10% | | | C1005X5R1A475K050BE | C1005X5R0J475K050BE | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | | | C1608X5R1A475K080AE | | |
| 10µF | 1608 | 0.80+0.20,-0.10 | ±10% | | C1608X5R1C475K080AE | | | |
| | 1608 | 0.80+0.20,-0.10 | ±10% | | | | | C1608X5R0J106K080AE |
| 22µF | 2012 | 1.25+0.25,-0.20 | ±20% | | | C2012X5R1A226M125AE | | |

Click the part numbers for details.

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

MULTILAYER CERAMIC CHIP CAPACITORS



Capacitance range table

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

| Capacitance | Dimensions | Thickness (mm) | Capacitance tolerance | Catalog number | | | | | |
|-------------|------------|-----------------|-----------------------|------------------------|-------------------------|-------------------------|-------------------------|------------------------|---------------------|
| | | | | Rated voltage Edc: 2kV | Rated voltage Edc: 630V | Rated voltage Edc: 250V | Rated voltage Edc: 100V | Rated voltage Edc: 50V | |
| 1nF | 1005 | 0.50+0.10,-0.05 | ±10% | | | | | C1005X7R1H102K050BE | |
| | | | ±20% | | | | | C1005X7R1H102M050BE | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | | | | C1608X7R2A102K080AE | C1608X7R1H102K080AE | |
| | | | ±20% | | | | C1608X7R2A102M080AE | C1608X7R1H102M080AE | |
| | 2012 | 0.85±0.15 | ±10% | | | C2012X7R2E102K085AE | C2012X7R2A102K085AE | | |
| | | | ±20% | | | C2012X7R2E102M085AE | C2012X7R2A102M085AE | | |
| | 3216 | 1.15±0.15 | ±10% | | | C3216X7R2J102K115AE | | | |
| | | | ±20% | | | C3216X7R2J102M115AE | | | |
| | 4520 | 1.30±0.20 | ±10% | | | C4520X7R3D102K130KE | | | |
| | | | ±20% | | | C4520X7R3D102M130KE | | | |
| 2.2nF | 1005 | 0.50+0.10,-0.05 | ±10% | | | | | C1005X7R1H222K050BE | |
| | | | ±20% | | | | | C1005X7R1H222M050BE | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | | | | C1608X7R2A222K080AE | C1608X7R1H222K080AE | |
| | | | ±20% | | | | C1608X7R2A222M080AE | C1608X7R1H222M080AE | |
| | 2012 | 0.85±0.15 | ±10% | | | C2012X7R2E222K085AE | C2012X7R2A222K085AE | | |
| | | | ±20% | | | C2012X7R2E222M085AE | C2012X7R2A222M085AE | | |
| | 3216 | 1.15±0.15 | ±10% | | | C3216X7R2J222K115AE | | | |
| | | | ±20% | | | C3216X7R2J222M115AE | | | |
| | 4532 | 1.30±0.20 | ±10% | | | C4532X7R3D222K130KE | | | |
| | | | ±20% | | | C4532X7R3D222M130KE | | | |
| 3.3nF | 3216 | 1.15±0.15 | ±10% | | | C3216X7R2J332K115AE | | | |
| | | | ±20% | | | C3216X7R2J332M115AE | | | |
| 4.7nF | 1005 | 0.50+0.10,-0.05 | ±10% | | | | | C1005X7R1H472K050BE | |
| | | | ±20% | | | | | C1005X7R1H472M050BE | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | | | | C1608X7R2A472K080AE | C1608X7R1H472K080AE | |
| | | | ±20% | | | | C1608X7R2A472M080AE | C1608X7R1H472M080AE | |
| | 2012 | 0.85±0.15 | ±10% | | | C2012X7R2E472K085AE | C2012X7R2A472K085AE | | |
| | | | ±20% | | | C2012X7R2E472M085AE | C2012X7R2A472M085AE | | |
| | 3216 | 1.15±0.15 | ±10% | | | C3216X7R2J472K115AE | | | |
| | | | ±20% | | | C3216X7R2J472M115AE | | | |
| | 10nF | 1005 | 0.50+0.10,-0.05 | ±10% | | | | | C1005X7R1H103K050BE |
| | | | | ±20% | | | | | C1005X7R1H103M050BE |
| 1608 | | 0.80+0.15,-0.10 | ±10% | | | | C1608X7R2A103K080AE | C1608X7R1H103K080AE | |
| | | | ±20% | | | | C1608X7R2A103M080AE | C1608X7R1H103M080AE | |
| 2012 | | 0.85±0.15 | ±10% | | | C2012X7R2A103K085AE | C2012X7R2A103M085AE | | |
| | | | ±20% | | | C2012X7R2E103K125AE | C2012X7R2E103M125AE | | |
| 3216 | | 1.15±0.15 | ±10% | | | C3216X7R2J103K115AE | | | |
| | | | ±20% | | | C3216X7R2J103M115AE | | | |
| 22nF | | 1005 | 0.50+0.10,-0.05 | ±10% | | | | | C1005X7R1H223K050BE |
| | | | | ±20% | | | | | C1005X7R1H223M050BE |
| | 1608 | 0.80+0.15,-0.10 | ±10% | | | | C1608X7R2A223K080AE | C1608X7R1H223K080AE | |
| | | | ±20% | | | | C1608X7R2A223M080AE | C1608X7R1H223M080AE | |
| | 2012 | 1.25+0.25,-0.20 | ±10% | | | C2012X7R2E223K125AE | C2012X7R2A223K125AE | | |
| | | | ±20% | | | C2012X7R2E223M125AE | C2012X7R2A223M125AE | | |
| | 3216 | 1.15±0.15 | ±10% | | | C3216X7R2E223K115AE | | | |
| | | | ±20% | | | C3216X7R2E223M115AE | | | |
| | 3216 | 1.30±0.20 | ±10% | | | C3216X7R2J223K130AE | | | |
| | | | ±20% | | | C3216X7R2J223M130AE | | | |
| 33nF | 3216 | 1.60+0.30,-0.20 | ±10% | | | C3216X7R2J333K160AE | | | |
| | | | ±20% | | | C3216X7R2J333M160AE | | | |
| 47nF | 1005 | 0.50+0.10,-0.05 | ±10% | | | | | C1005X7R1H473K050BE | |
| | | | ±20% | | | | | C1005X7R1H473M050BE | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | | | | C1608X7R1H473K080AE | C1608X7R1H473M080AE | |
| | | | ±20% | | | | | | |
| | 2012 | 1.25+0.25,-0.20 | ±10% | | | | C2012X7R2A473K125AE | | |
| | | | ±20% | | | | C2012X7R2A473M125AE | | |
| | 3216 | 1.60+0.30,-0.20 | ±10% | | | C3216X7R2E473K160AE | | | |
| | | | ±20% | | | C3216X7R2E473M160AE | | | |
| | 3225 | 2.00+0.30,-0.20 | ±10% | | | C3225X7R2J473K200AE | | | |
| | | | ±20% | | | C3225X7R2J473M200AE | | | |

■ Gray items: These products are not recommended for new designs.
Click the part numbers for details.

MULTILAYER CERAMIC CHIP CAPACITORS



Capacitance range table

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

| Capacitance | Dimensions | Thickness (mm) | Capacitance tolerance | Catalog number | | | |
|-------------|-----------------|-----------------|-----------------------|-------------------------|-------------------------|-------------------------|------------------------|
| | | | | Rated voltage Edc: 630V | Rated voltage Edc: 250V | Rated voltage Edc: 100V | Rated voltage Edc: 50V |
| 68nF | 3225 | 2.00+0.30,-0.20 | ±10% | C3225X7R2J683K200AE | | | |
| | | | ±20% | C3225X7R2J683M200AE | | | |
| | 1005 | 0.50+0.10,-0.05 | ±10% | | | | C1005X7R1H104K050BE |
| | | | ±20% | | | | C1005X7R1H104M050BE |
| 100nF | 1608 | 0.80+0.15,-0.10 | ±10% | | | | C1608X7R1H104K080AE |
| | | | ±20% | | | | C1608X7R1H104M080AE |
| | 2012 | 1.25+0.25,-0.20 | ±10% | | | C2012X7R2A104K125AE | C2012X7R1H104K125AE |
| | | | ±20% | | | C2012X7R2A104M125AE | C2012X7R1H104M125AE |
| | 3216 | 1.60+0.30,-0.20 | ±10% | | C3216X7R2E104K160AE | C3216X7R2A104K160AE | |
| | | | ±20% | | C3216X7R2E104M160AE | C3216X7R2A104M160AE | |
| | 3225 | 2.00+0.30,-0.20 | ±10% | | C3225X7R2E104K200AE | | |
| | | | ±20% | | C3225X7R2E104M200AE | | |
| 4532 | 2.30+0.30,-0.20 | ±10% | C4532X7R2J104K230KE | | | | |
| | | ±20% | C4532X7R2J104M230KE | | | | |
| 220nF | 1608 | 0.80+0.15,-0.10 | ±10% | | | | C1608X7R1H224K080AE |
| | | | ±20% | | | | C1608X7R1H224M080AE |
| | 2012 | 1.25+0.25,-0.20 | ±10% | | | | C2012X7R1H224K125AE |
| | | | ±20% | | | | C2012X7R1H224M125AE |
| | 3216 | 1.15±0.15 | ±10% | | | C3216X7R2A224K115AE | |
| | | | ±20% | | | C3216X7R2A224M115AE | |
| | 3225 | 2.00+0.30,-0.20 | ±10% | | C3225X7R2E224K200AE | | |
| | | | ±20% | | C3225X7R2E224M200AE | | |
| 5750 | 2.30+0.30,-0.20 | ±10% | C5750X7R2J224K230KE | | | | |
| | | ±20% | C5750X7R2J224M230KE | | | | |
| 470nF | 1608 | 0.80+0.15,-0.10 | ±10% | | | | C1608X7R1H474K080AE |
| | | | ±20% | | | | C1608X7R1H474M080AE |
| | 2012 | 1.25+0.25,-0.20 | ±10% | | | | C2012X7R1H474K125AE |
| | | | ±20% | | | | C2012X7R1H474M125AE |
| | 3216 | 1.60+0.30,-0.20 | ±10% | | | C3216X7R2A474K160AE | |
| | | | ±20% | | | C3216X7R2A474M160AE | |
| | 3225 | 2.00+0.30,-0.20 | ±10% | | | C3225X7R2A474K200AE | |
| | | | ±20% | | | C3225X7R2A474M200AE | |
| 4532 | 2.30+0.30,-0.20 | ±10% | | C4532X7R2E474K230KE | | | |
| | | ±20% | | C4532X7R2E474M230KE | | | |
| 1µF | 2012 | 1.25+0.25,-0.20 | ±10% | | | | C2012X7R1H105K125AE |
| | | | ±20% | | | | C2012X7R1H105M125AE |
| | 3216 | 1.60+0.30,-0.20 | ±10% | | | C3216X7R2A105K160AE | C3216X7R1H105K160AE |
| | | | ±20% | | | C3216X7R2A105M160AE | C3216X7R1H105M160AE |
| | 3225 | 2.00+0.30,-0.20 | ±10% | | | C3225X7R2A105K200AE | |
| | | | ±20% | | | C3225X7R2A105M200AE | |
| | 5750 | 2.30+0.30,-0.20 | ±10% | | C5750X7R2E105K230KE | | |
| | | | ±20% | | C5750X7R2E105M230KE | | |
| 2.2µF | 2012 | 1.25+0.25,-0.20 | ±10% | | | | C2012X7R1H225K125AE |
| | | | ±20% | | | | C2012X7R1H225M125AE |
| | 3216 | 1.60+0.30,-0.20 | ±10% | | | | C3216X7R1H225K160AE |
| | | | ±20% | | | | C3216X7R1H225M160AE |
| | 3225 | 2.00+0.30,-0.20 | ±10% | | | | C3225X7R1H225K200AE |
| | | | ±20% | | | | C3225X7R1H225M200AE |
| | 3225 | 2.30+0.30,-0.20 | ±10% | | | C3225X7R2A225K230AE | |
| | | | ±20% | | | C3225X7R2A225M230AE | |
| 2012 | 1.25+0.25,-0.20 | ±10% | | | | C2012X7R1H475K125AE | |
| | | ±20% | | | | C2012X7R1H475M125AE | |
| 4.7µF | 3216 | 1.60+0.30,-0.20 | ±10% | | | | C3216X7R1H475K160AE |
| | | | ±20% | | | | C3216X7R1H475M160AE |
| 10µF | 3216 | 1.60+0.30,-0.20 | ±10% | | | | C3216X7R1H106K160AE |

■ Gray items: These products are not recommended for new designs.
Click the part numbers for details.

MULTILAYER CERAMIC CHIP CAPACITORS



Capacitance range table

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

| Capacitance | Dimensions | Thickness (mm) | Capacitance tolerance | Catalog number | | | |
|-------------|-----------------|-----------------|-----------------------|------------------------|------------------------|------------------------|------------------------|
| | | | | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V | Rated voltage Edc: 10V |
| 220nF | 1005 | 0.50+0.10,-0.05 | ±10% | C1005X7R1V224K050BE | C1005X7R1E224K050BE | C1005X7R1C224K050BE | |
| | | | ±20% | C1005X7R1V224M050BE | C1005X7R1E224M050BE | C1005X7R1C224M050BE | |
| 470nF | 1608 | 0.80+0.15,-0.10 | ±10% | C1608X7R1V474K080AE | C1608X7R1E474K080AE | | |
| | | | ±20% | C1608X7R1V474M080AE | C1608X7R1E474M080AE | | |
| 1µF | 1608 | 0.80+0.15,-0.10 | ±10% | C1608X7R1V105K080AE | C1608X7R1E105K080AE | | |
| | | | ±20% | C1608X7R1V105M080AE | C1608X7R1E105M080AE | | |
| | 2012 | 1.25+0.25,-0.20 | ±10% | C2012X7R1V105K125AE | | | |
| | | | ±20% | C2012X7R1V105M125AE | | | |
| 1608 | 0.80+0.15,-0.10 | ±10% | | | | C1608X7R1A225K080AE | |
| | | ±20% | | | | C1608X7R1A225M080AE | |
| 2.2µF | 2012 | 1.25+0.25,-0.20 | ±10% | C2012X7R1V225K125AE | C2012X7R1E225K125AE | | |
| | | | ±20% | C2012X7R1V225M125AE | C2012X7R1E225M125AE | | |
| | 3216 | 1.60+0.30,-0.20 | ±10% | C3216X7R1V225K160AE | C3216X7R1E225K160AE | | |
| | | | ±20% | C3216X7R1V225M160AE | C3216X7R1E225M160AE | | |
| 4.7µF | 2012 | 1.25+0.25,-0.20 | ±10% | C2012X7R1V475K125AE | C2012X7R1E475K125AE | C2012X7R1C475K125AE | |
| | | | ±20% | C2012X7R1V475M125AE | C2012X7R1E475M125AE | C2012X7R1C475M125AE | |
| | 3216 | 1.60+0.30,-0.20 | ±10% | C3216X7R1V475K160AE | C3216X7R1E475K160AE | | |
| | | | ±20% | C3216X7R1V475M160AE | C3216X7R1E475M160AE | | |
| 2012 | 1.25+0.25,-0.20 | ±10% | | | | C2012X7R1A106K125AE | |
| | | ±20% | | | | C2012X7R1A106M125AE | |
| 10µF | 3216 | 1.60+0.30,-0.20 | ±10% | C3216X7R1V106K160AE | C3216X7R1E106K160AE | C3216X7R1C106K160AE | |
| | | | ±20% | C3216X7R1V106M160AE | C3216X7R1E106M160AE | C3216X7R1C106M160AE | |
| 47nF | 7563 | 2.30 (2.50max.) | ±20% | | C7563X7R1E476M230LE | | |

■ Gray items: These products are not recommended for new designs.
Click the part numbers for details.

Capacitance range table

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

| Capacitance | Dimensions | Thickness (mm) | Capacitance tolerance | Catalog number | | | |
|-------------|-----------------|-----------------|-----------------------|-------------------------|------------------------|------------------------|------------------------|
| | | | | Rated voltage Edc: 100V | Rated voltage Edc: 50V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
| 47nF | 1608 | 0.80+0.15,-0.10 | ±10% | C1608X7S2A473K080AE | | | |
| | | | ±20% | C1608X7S2A473M080AE | | | |
| 100nF | 1608 | 0.80+0.15,-0.10 | ±10% | C1608X7S2A104K080AE | | | |
| | | | ±20% | C1608X7S2A104M080AE | | | |
| 220nF | 2012 | 0.85±0.15 | ±10% | C2012X7S2A224K085AE | | | |
| | | | ±20% | C2012X7S2A224M085AE | | | |
| 470nF | 2012 | 1.25+0.25,-0.20 | ±10% | C2012X7S2A474K125AE | | | |
| | | | ±20% | C2012X7S2A474M125AE | | | |
| 1µF | 2012 | 1.25+0.25,-0.20 | ±10% | C2012X7S2A105K125AE | | | |
| | | | ±20% | C2012X7S2A105M125AE | | | |
| 2.2µF | 1608 | 0.80+0.15,-0.10 | ±10% | | | | C1608X7S1C225K080AE |
| | | | ±20% | C3216X7S2A225K160AE | | | |
| 3216 | 1.60+0.30,-0.20 | ±10% | C3216X7S2A225M160AE | | | | |
| | | ±20% | C3225X7S2A335K200AE | | | | |
| 3.3µF | 3225 | 2.00+0.30,-0.20 | ±10% | C3225X7S2A335M200AE | | | |
| | | | ±20% | C3225X7S2A475K200AE | | | |
| 4.7µF | 3225 | 2.00+0.30,-0.20 | ±10% | C3225X7S2A475M200AE | | | |
| | | | ±20% | | C3225X7S1H475K230AE | | |
| | 2012 | 1.25+0.25,-0.20 | ±10% | | C3225X7S1H475M230AE | | |
| | | | ±20% | | | C2012X7S1E106K125AE | |
| 3225 | 2.50 ±0.30 | ±10% | | C3225X7S1H106K250AE | | | |
| | | ±20% | | C3225X7S1H106M250AE | | | |
| 10µF | 5750 | 2.30+0.30,-0.20 | ±10% | C5750X7S2A106K230KE | | | |
| | | | ±20% | C5750X7S2A106M230KE | | | |
| 22µF | 7563 | 2.30 (2.50max.) | ±20% | | C7563X7S1H226M230LE | | |
| 100µF | 7563 | 2.80 (3.00max.) | ±20% | | | | C7563X7S1C107M280LE |

■ Gray items: These products are not recommended for new designs.
Click the part numbers for details.

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

MULTILAYER CERAMIC CHIP CAPACITORS



Capacitance range table

Temperature characteristic: X7T (–55 to +125°C, +22,–33%)

| Capacitance | Dimensions | Thickness (mm) | Capacitance tolerance | Catalog number | | |
|-------------|-----------------|-----------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | | | | Rated voltage Edc: 630V | Rated voltage Edc: 450V | Rated voltage Edc: 250V |
| 10 nF | 2012 | 0.85±0.15 | ± 10% | | C2012X7T2W103K085AE | |
| | | | ± 20% | | C2012X7T2W103M085AE | |
| 22 nF | 2012 | 1.25+0.25,-0.20 | ± 10% | | C2012X7T2W223K125AE | |
| | | | ± 20% | | C2012X7T2W223M125AE | |
| 47 nF | 2012 | 1.25+0.25,-0.20 | ± 10% | | C2012X7T2W473K125AE | C2012X7T2E473K125AE |
| | | | ± 20% | | C2012X7T2W473M125AE | C2012X7T2E473M125AE |
| | 3216 | 1.60+0.30,-0.20 | ± 10% | C3216X7T2J473K160AE | | |
| | | | ± 20% | C3216X7T2J473M160AE | | |
| 2012 | 1.25+0.25,-0.20 | ± 10% | | | C2012X7T2E104K125AE | |
| | | ± 20% | | | C2012X7T2E104M125AE | |
| 100 nF | 3216 | 1.60+0.30,-0.20 | ± 10% | | C3216X7T2W104K160AE | |
| | | | ± 20% | | C3216X7T2W104M160AE | |
| 3225 | 1.60+0.30,-0.20 | ± 10% | | C3225X7T2J104K160AE | | |
| | | | | C3225X7T2J104M160AE | | |
| 150 nF | 3225 | 2.00+0.30,-0.20 | ± 10% | C3225X7T2J154K200AE | | |
| | | | ± 20% | C3225X7T2J154M200AE | | |
| 220 nF | 3216 | 1.60+0.30,-0.20 | ± 10% | | C3216X7T2E224K160AE | |
| | | | ± 20% | | C3216X7T2E224M160AE | |
| | 3225 | 2.00+0.30,-0.20 | ± 10% | | C3225X7T2W224K200AE | |
| | | | ± 20% | | C3225X7T2W224M200AE | |
| 4532 | 2.00+0.30,-0.20 | ± 10% | C4532X7T2J224K200KE | | | |
| | | ± 20% | C4532X7T2J224M200KE | | | |
| 330 nF | 3225 | 2.00+0.30,-0.20 | ± 10% | | C3225X7T2E334K200AE | |
| | | | ± 20% | | C3225X7T2E334M200AE | |
| 470 nF | 4532 | 2.30+0.30,-0.20 | ± 10% | | C4532X7T2W474K230KE | |
| | | | ± 20% | | C4532X7T2W474M230KE | |
| | 5750 | 2.50±0.30 | ± 10% | C5750X7T2J474K250KE | | |
| | | | ± 20% | C5750X7T2J474M250KE | | |
| 1 µF | 4532 | 2.50±0.30 | ± 10% | | C4532X7T2E105K250KE | |
| | | | ± 20% | | C4532X7T2E105M250KE | |
| 5750 | 2.50±0.30 | ± 10% | | C5750X7T2W105K250KE | | |
| | | ± 20% | | C5750X7T2W105M250KE | | |
| 2.2 µF | 5750 | 2.50±0.30 | ± 10% | | C5750X7T2E225K250KE | |
| | | | ± 20% | | C5750X7T2E225M250KE | |

■ Gray items: These products are not recommended for new designs.
Click the part numbers for details.

MULTILAYER CERAMIC CHIP CAPACITORS



Capacitance range table

Temperature characteristic: X8R (-55 to +150°C, ±15%)

| Capacitance | Dimensions | Thickness (mm) | Capacitance tolerance | Catalog number | | | |
|-------------|------------|-----------------|-----------------------|-------------------------|------------------------|------------------------|------------------------|
| | | | | Rated voltage Edc: 100V | Rated voltage Edc: 50V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
| 150pF | 1005 | 0.50+0.10,-0.05 | ±10% | C1005X8R2A151K050BE | C1005X8R1H151K050BE | | |
| | | | ±20% | C1005X8R2A151M050BE | C1005X8R1H151M050BE | | |
| 220pF | 1005 | 0.50+0.10,-0.05 | ±10% | C1005X8R2A221K050BE | C1005X8R1H221K050BE | | |
| | | | ±20% | C1005X8R2A221M050BE | C1005X8R1H221M050BE | | |
| 330pF | 1005 | 0.50+0.10,-0.05 | ±10% | C1005X8R2A331K050BE | C1005X8R1H331K050BE | | |
| | | | ±20% | C1005X8R2A331M050BE | C1005X8R1H331M050BE | | |
| 470pF | 1005 | 0.50+0.10,-0.05 | ±10% | C1005X8R2A471K050BE | C1005X8R1H471K050BE | | |
| | | | ±20% | C1005X8R2A471M050BE | C1005X8R1H471M050BE | | |
| 680pF | 1005 | 0.50+0.10,-0.05 | ±10% | C1005X8R2A681K050BE | C1005X8R1H681K050BE | | |
| | | | ±20% | C1005X8R2A681M050BE | C1005X8R1H681M050BE | | |
| 1nF | 1005 | 0.50+0.10,-0.05 | ±10% | C1005X8R2A102K050BE | C1005X8R1H102K050BE | | |
| | | | ±20% | C1005X8R2A102M050BE | C1005X8R1H102M050BE | | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | C1608X8R2A102K080AE | C1608X8R1H102K080AE | | |
| | | | ±20% | C1608X8R2A102M080AE | C1608X8R1H102M080AE | | |
| 1.5nF | 1005 | 0.50+0.10,-0.05 | ±10% | C1005X8R2A152K050BE | C1005X8R1H152K050BE | | |
| | | | ±20% | C1005X8R2A152M050BE | C1005X8R1H152M050BE | | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | C1608X8R2A152K080AE | C1608X8R1H152K080AE | | |
| | | | ±20% | C1608X8R2A152M080AE | C1608X8R1H152M080AE | | |
| 2.2nF | 1005 | 0.50+0.10,-0.05 | ±10% | C1005X8R2A222K050BE | C1005X8R1H222K050BE | | |
| | | | ±20% | C1005X8R2A222M050BE | C1005X8R1H222M050BE | | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | C1608X8R2A222K080AE | C1608X8R1H222K080AE | | |
| | | | ±20% | C1608X8R2A222M080AE | C1608X8R1H222M080AE | | |
| 3.3nF | 1005 | 0.50+0.10,-0.05 | ±10% | C1005X8R2A332K050BE | C1005X8R1H332K050BE | | |
| | | | ±20% | C1005X8R2A332M050BE | C1005X8R1H332M050BE | | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | C1608X8R2A332K080AE | C1608X8R1H332K080AE | | |
| | | | ±20% | C1608X8R2A332M080AE | C1608X8R1H332M080AE | | |
| 4.7nF | 1005 | 0.50+0.10,-0.05 | ±10% | | C1005X8R1H472K050BE | | |
| | | | ±20% | | C1005X8R1H472M050BE | | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | C1608X8R2A472K080AE | C1608X8R1H472K080AE | | |
| | | | ±20% | C1608X8R2A472M080AE | C1608X8R1H472M080AE | | |
| 6.8nF | 1005 | 0.50+0.10,-0.05 | ±10% | | C1005X8R1H682K050BE | C1005X8R1E682K050BE | |
| | | | ±20% | | C1005X8R1H682M050BE | C1005X8R1E682M050BE | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | C1608X8R2A682K080AE | C1608X8R1H682K080AE | | |
| | | | ±20% | C1608X8R2A682M080AE | C1608X8R1H682M080AE | | |
| 10nF | 1005 | 0.50+0.10,-0.05 | ±10% | | C1005X8R1H103K050BE | C1005X8R1E103K050BE | |
| | | | ±20% | | C1005X8R1H103M050BE | C1005X8R1E103M050BE | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | C1608X8R2A103K080AE | C1608X8R1H103K080AE | | |
| | | | ±20% | C1608X8R2A103M080AE | C1608X8R1H103M080AE | | |
| 15nF | 1005 | 0.50+0.10,-0.05 | ±10% | | | C1005X8R1E153K050BE | |
| | | | ±20% | | | C1005X8R1E153M050BE | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | C1608X8R2A153K080AE | C1608X8R1H153K080AE | | |
| | | | ±20% | C1608X8R2A153M080AE | C1608X8R1H153M080AE | | |
| 22nF | 1005 | 0.50+0.10,-0.05 | ±10% | | | C1005X8R1E223K050BE | |
| | | | ±20% | | | C1005X8R1E223M050BE | |
| | 1608 | 0.80+0.15,-0.10 | ±10% | C1608X8R2A223K080AE | C1608X8R1H223K080AE | | |
| | | | ±20% | C1608X8R2A223M080AE | C1608X8R1H223M080AE | | |
| | 2012 | 1.25+0.25,-0.20 | ±10% | C2012X8R2A223K125AE | | | |
| | | | ±20% | C2012X8R2A223M125AE | | | |
| 33nF | 1005 | 0.50+0.10,-0.05 | ±10% | | | C1005X8R1E333K050BE | C1005X8R1C333K050BE |
| | | | ±20% | | | C1005X8R1E333M050BE | C1005X8R1C333M050BE |
| | 1608 | 0.80+0.15,-0.10 | ±10% | | C1608X8R1H333K080AE | | |
| | | | ±20% | | C1608X8R1H333M080AE | | |
| | 2012 | 1.25+0.25,-0.20 | ±10% | C2012X8R2A333K125AE | | | |
| | | | ±20% | C2012X8R2A333M125AE | | | |
| 47nF | 1005 | 0.50+0.10,-0.05 | ±10% | | | C1005X8R1E473K050BE | C1005X8R1C473K050BE |
| | | | ±20% | | | C1005X8R1E473M050BE | C1005X8R1C473M050BE |
| | 1608 | 0.80+0.15,-0.10 | ±10% | | C1608X8R1H473K080AE | | |
| | | | ±20% | | C1608X8R1H473M080AE | | |
| | 2012 | 1.25+0.25,-0.20 | ±10% | C2012X8R2A473K125AE | | | |
| | | | ±20% | C2012X8R2A473M125AE | | | |
| 68nF | 1608 | 0.80+0.15,-0.10 | ±10% | | C1608X8R1H683K080AE | C1608X8R1E683K080AE | |
| | | | ±20% | | C1608X8R1H683M080AE | C1608X8R1E683M080AE | |
| | 2012 | 1.25+0.25,-0.20 | ±10% | C2012X8R2A683K125AE | C2012X8R1H683K125AE | | |
| | | | ±20% | C2012X8R2A683M125AE | C2012X8R1H683M125AE | | |

■ Gray items: These products are not recommended for new designs.
Click the part numbers for details.

MULTILAYER CERAMIC CHIP CAPACITORS



Capacitance range table

Temperature characteristic: X8R (-55 to +150°C, ±15%)

| Capacitance | Dimensions | Thickness (mm) | Capacitance tolerance | Catalog number | | | |
|-------------|-----------------|-----------------|-----------------------|-------------------------|------------------------|------------------------|------------------------|
| | | | | Rated voltage Edc: 100V | Rated voltage Edc: 50V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
| 100nF | 1608 | 0.80+0.15,-0.10 | ±10% | | C1608X8R1H104K080AE | C1608X8R1E104K080AE | |
| | | | ±20% | | C1608X8R1H104M080AE | C1608X8R1E104M080AE | |
| | 2012 | 1.25+0.25,-0.20 | ±10% | | C2012X8R1H104K125AE | | |
| | | | ±20% | | C2012X8R1H104M125AE | | |
| 3216 | 1.15±0.15 | ±10% | | C3216X8R2A104K115AE | | | |
| | | | ±20% | | C3216X8R2A104M115AE | | |
| 150nF | 1608 | 0.80+0.15,-0.10 | ±10% | | | C1608X8R1E154K080AE | |
| | | | ±20% | | | C1608X8R1E154M080AE | |
| | 2012 | 0.85±0.15 | ±10% | | | C2012X8R1E154K085AE | |
| | | | ±20% | | | C2012X8R1E154M085AE | |
| 3216 | 1.60+0.30,-0.20 | ±10% | | | C2012X8R1H154K125AE | | |
| | | ±20% | | | C2012X8R1H154M125AE | | |
| 220nF | 1608 | 0.80+0.15,-0.10 | ±10% | | | C1608X8R1E224K080AE | |
| | | | ±20% | | | C1608X8R1E224M080AE | |
| | 2012 | 1.25+0.25,-0.20 | ±10% | | | C2012X8R1H224K125AE | C2012X8R1E224K125AE |
| | | | ±20% | | | C2012X8R1H224M125AE | C2012X8R1E224M125AE |
| 3216 | 1.60+0.30,-0.20 | ±10% | | | C3216X8R2A224K160AE | | |
| | | ±20% | | | C3216X8R2A224M160AE | | |
| 330nF | 1608 | 0.80+0.15,-0.10 | ±10% | | | C1608X8R1E334K080AE | C1608X8R1C334K080AE |
| | | | ±20% | | | C1608X8R1E334M080AE | C1608X8R1C334M080AE |
| | 2012 | 1.25+0.25,-0.20 | ±10% | | | C2012X8R1E334K125AE | |
| | | | ±20% | | | C2012X8R1E334M125AE | |
| 3216 | 1.60+0.30,-0.20 | ±10% | | | C3216X8R2A334K160AE | C3216X8R1H334K160AE | |
| | | ±20% | | | C3216X8R2A334M160AE | C3216X8R1H334M160AE | |
| 470nF | 1608 | 0.80+0.15,-0.10 | ±10% | | | | C1608X8R1C474K080AE |
| | | | ±20% | | | | C1608X8R1C474M080AE |
| | 2012 | 1.25+0.25,-0.20 | ±10% | | | | C2012X8R1E474K125AE |
| | | | ±20% | | | | C2012X8R1E474M125AE |
| 3216 | 1.60+0.30,-0.20 | ±10% | | | | C3216X8R1H474K160AE | |
| | | ±20% | | | | C3216X8R1H474M160AE | |
| 680nF | 2012 | 1.25+0.25,-0.20 | ±10% | | | C2012X8R1E684K125AE | C2012X8R1C684K125AE |
| | | | ±20% | | | C2012X8R1E684M125AE | C2012X8R1C684M125AE |
| | 3216 | 1.60+0.30,-0.20 | ±10% | | | C3216X8R1H684K160AE | |
| | | | ±20% | | | C3216X8R1H684M160AE | |
| 3225 | 2.50±0.30 | ±10% | | | C3225X8R2A684K250AE | | |
| | | ±20% | | | C3225X8R2A684M250AE | | |
| 1µF | 2012 | 1.25+0.25,-0.20 | ±10% | | | C2012X8R1E105K125AE | C2012X8R1C105K125AE |
| | | | ±20% | | | C2012X8R1E105M125AE | C2012X8R1C105M125AE |
| | 3216 | 1.60+0.30,-0.20 | ±10% | | | C3216X8R1H105K160AE | C3216X8R1E105K160AE |
| | | | ±20% | | | C3216X8R1H105M160AE | C3216X8R1E105M160AE |
| 1.5µF | 3216 | 1.60+0.30,-0.20 | ±10% | | | C3216X8R1E155K160AE | |
| | | | ±20% | | | C3216X8R1E155M160AE | |
| 3.3µF | 3216 | 1.60+0.30,-0.20 | ±10% | | | C3216X8R1E225K160AE | |
| | | | ±20% | | | C3216X8R1E225M160AE | |
| | 3225 | 2.50±0.30 | ±10% | | | C3225X8R1E335K160AE | C3216X8R1C335K160AE |
| | | | ±20% | | | C3225X8R1E335M160AE | C3216X8R1C335M160AE |
| 4.7µF | 3216 | 1.60+0.30,-0.20 | ±10% | | | C3216X8R1E475K160AE | C3216X8R1C475K160AE |
| | | | ±20% | | | C3216X8R1E475M160AE | C3216X8R1C475M160AE |
| | 3225 | 2.50±0.30 | ±10% | | | C3225X8R1E475K250AE | |
| | | | ±20% | | | C3225X8R1E475M250AE | |
| 10µF | 3225 | 2.50±0.30 | ±10% | | | C3225X8R1E106K250AE | C3225X8R1C106K250AE |
| | | | ±20% | | | C3225X8R1E106M250AE | C3225X8R1C106M250AE |

■ Gray items: These products are not recommended for new designs.
Click the part numbers for details.

MULTILAYER CERAMIC CHIP CAPACITORS



Capacitance range table

Temperature characteristic: X8L (–55 to +150°C, +15,–40%)

| Capacitance | Dimensions | Thickness (mm) | Capacitance tolerance | Catalog number | |
|-------------|------------|-------------------|--------------------------|-------------------------------------|-------------------------------------|
| | | | | Rated voltage Edc: 25V | Rated voltage Edc: 10V |
| 4.7μF | 2012 | 1.25+0.25,-0.20 | ±10% | C2012X8L1E475K125AE | |
| | 2012 | 1.25+0.25,-0.20 | ±10% | | C2012X8L1A106K125AE |
| 10μF | 3216 | 1.60+0.30,-0.20 | ±10% | C3216X8L1E106K160AE | |

Click the part numbers for details.

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