

MULTILAYER CERAMIC CHIP CAPACITORS

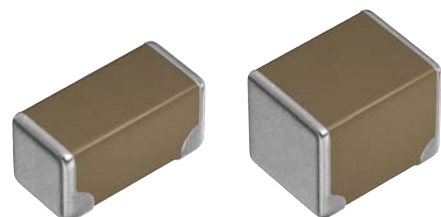
Commercial grade, Soft termination (Low resistance type)

CNC series

CNC5 3216 [1206 inch]

CNC6 3225 [1210 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

1. 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 |

CNC series

Soft termination (Low resistance type)



Type: CNC5/3216 [1206 inch], CNC6/3225 [1210 inch]

SERIES OVERVIEW

TDK multilayer ceramic chip capacitor low resistance type soft termination commercial grade CNC series is a product which conductive resin layers are included in terminals. It differs from conventional soft termination C series whose overall surface of copper is covered with the resin layers, the resin layers are covering only board mounting side. As a result, the current can pass outside the resin layers having slightly high resistance and so low electric resistance has been realized.

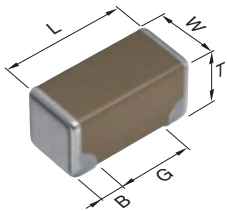
FEATURES

- Low electric resistance by applying the resin layers to only board mounting side.

APPLICATIONS

- Fail-safe design in battery line.
- Prevention of ceramic body cracks by board bending.

SHAPE & DIMENSIONS

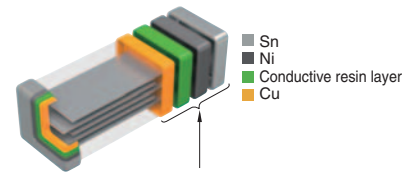


| | |
|---|------------------|
| L | Body length |
| W | Body width |
| T | Body height |
| B | Terminal width |
| G | Terminal spacing |

ELECTRODE STRUCTURE DRAWING

Soft termination

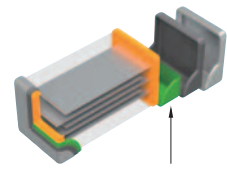
(Conventional type)



The conductive resin layer covers overall surface of copper.

Soft termination

(Low resistance type)



The conductive resin layer covers only board mounting side.

Dimensions in mm

| Type | L | W | T | B | G |
|------|-----------------|-----------------|-----------------|-----------|-----------|
| CNC5 | 3.20+0.30,-0.20 | 1.60+0.30,-0.20 | 1.60+0.30,-0.20 | 0.30 min. | 1.00 min. |
| CNC6 | 3.20±0.30 | 2.50±0.30 | 2.50±0.30 | 0.50 min. | — |

*Dimensional tolerances are typical values.

CATALOG NUMBER CONSTRUCTION

| | | | | | | | | | | |
|------------|----------|----------|----------|------------|-----------|------------|----------|------------|----------|----------|
| CNC | 6 | P | 1 | X7R | 1E | 226 | M | 250 | A | E |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |

(1) Series

(2) Dimensions L x W (mm)

| Dimensions code | EIA | Length | Width | Terminal width |
|-----------------|--------|--------|-------|----------------|
| 5 | CC1206 | 3.20 | 1.60 | 0.30 |
| 6 | CC1210 | 3.20 | 2.50 | 0.50 |

(3) Thickness code

| Code | Thickness |
|------|-----------|
| L | 1.60mm |
| P | 2.50mm |

(4) Voltage condition for life test

| Symbol | Condition |
|--------|-----------|
| 1 | 1 x R.V. |

(5) Temperature characteristic

| Temperature characteristic | Capacitance change | Temperature range |
|----------------------------|--------------------|-------------------|
| X7R | ±15% | -55 to +125°C |

(6) Rated voltage (DC)

| Code | Voltage (DC) |
|------|--------------|
| 2A | 100V |
| 1N | 75V |
| 1H | 50V |
| 1E | 25V |
| 1C | 16V |

(7) 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

(8) Capacitance tolerance

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

(9) Thickness

| Code | Thickness |
|------|-----------|
| 160 | 1.60mm |
| 250 | 2.50mm |

(10) Packaging style






| Code | Style |
|------|-----------------------|
| A | 178mm reel, 4mm pitch |


(11) Special reserved code

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

Capacitance range chart

CNC5/3216 [1206 inch]





| Capacitance | | X7R | | | |
|-------------|------|---|---|---|---|
| (pF) | Code | 1N (75V) | 1H (50V) | 1E (25V) | 1C (16V) |
| 2,200,000 | 225 |  |  | | |
| 4,700,000 | 475 | |  | | |
| 10,000,000 | 106 | | |  |  |


Standard thickness  1.60mm

■ For details such as the catalog numbers and product size, please refer to the capacitance range table below.

Capacitance range chart

CNC6/3225 [1210 inch]

| Capacitance | | X7R | | |
|-------------|------|---|---|---|
| (pF) | Code | 2A (100V) | 1H (50V) | 1E (25V) |
| 4,700,000 | 475 |  |  | |
| 10,000,000 | 106 | |  | |
| 22,000,000 | 226 | | |  |

Standard thickness  2.50mm

■ For details such as the catalog numbers and product size, please refer to the capacitance range table below.

Capacitance range table

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

| Capacitance | Dimensions | Thickness (mm) | Capacitance tolerance | Catalog number | | | | |
|-------------|------------|-------------------|--------------------------|-------------------------|------------------------|------------------------|------------------------|------------------------|
| | | | | Rated voltage Edc: 100V | Rated voltage Edc: 75V | Rated voltage Edc: 50V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
| 2.2μF | 3216 | 1.60+0.30,–0.20 | ±10% | | CNC5L1X7R1N225K160AE | CNC5L1X7R1H225K160AE | | |
| | 3216 | 1.60+0.30,–0.20 | ±10% | | | CNC5L1X7R1H475K160AE | | |
| 4.7μF | 3225 | 2.50±0.30 | ±10% | CNC6P1X7R2A475K250AE | | CNC6P1X7R1H475K250AE | | |
| | 3216 | 1.60+0.30,–0.20 | ±10% | | | | CNC5L1X7R1E106K160AE | CNC5L1X7R1C106K160AE |
| 10μF | 3225 | 2.50±0.20 | ±10% | | | CNC6P1X7R1H106K250AE | | |
| | 3225 | 2.50±0.30 | ±20% | | | | CNC6P1X7R1E226M250AE | |

Click the part numbers for details