Multilayer Ceramic Chip Capacitors

General use(Guaranteed at high temperature[150°C max.])

C series

Type: **C1005[EIA CC0402]**
C1608[EIA CC0603]
C2012[EIA CC0805]
C3216[EIA CC1206]
C3225[EIA CC1210]

Issue date: August 2011

- All specifications are subject to change without notice.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

REMINDERS

Please read this before using the product.

SAFETY REMINDERS

⚠ REMINDERS

1. If you intend to use a product listed in this catalog for a purpose that may cause loss of life or other damage, you must contact our company's sales window.
2. We may modify products or discontinue production of a product listed in this catalog without prior notification.
3. We provide "Delivery Specification" that explain precautions for the specifications and safety of each product listed in this catalog. We strongly recommend that you exchange these delivery specifications with customers that use one of these products.
4. If you plan to export a product listed in this catalog, keep in mind that it may be a restricted item according to the "Foreign Exchange and Foreign Trade Control Law". In such cases, it is necessary to acquire export permission in harmony with this law.
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7. 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.
8. The descriptions in this catalog apply as of August, 2011.

Multilayer Ceramic Chip Capacitors
General Use(Guaranteed at High Temperature[150°C max.])

Conformity to RoHS Directive

C Series

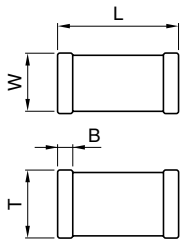
FEATURES

- With a maximum temperature of 150°C and a capacitance change within ±15%, the series is suited for devices that operate in high-temperature environments.
- The series exerts high stability at a temperatures of 125°C or lower, with a capacitance change within ±7.5%.

APPLICATION EXAMPLES

- Use in smoothing and decoupling applications for devices that operate at high temperatures

SHAPES AND DIMENSIONS



DIMENSIONS

The dimensions of each product are described within the product name.

Dimensions L×W

The 4-digit number in the product name corresponds to the dimensions of L×W.
Refer to the table below for specific values.

Dimensions in mm

Dimension code	L	W	B
1005	1.0±0.05	0.5±0.05	0.1min.
1608	1.6±0.1	0.8±0.1	0.2min.
2012	2.0±0.2	1.25±0.2	0.2min.
3216	3.2±0.2	1.6±0.2	0.2min.
3225	3.2±0.4	2.5±0.3	0.2min.

• Dimension tolerances are typical values.

Product's Thickness T

The value in parentheses at the end of the product name corresponds to thickness T.
Refer to the table of "CAPACITANCE RANGES" for specific values.

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PRODUCT IDENTIFICATION

C	3216	X8R	2A	104	K	(	115	A	A	)
(1)	(2)	(3)	(4)	(5)	(6)		(7)	(8)	(9)	

(1) Series name

(2) Dimensions L×W

1005	1.0×0.5mm
1608	1.6×0.8mm
2012	2.0×1.25mm
3216	3.2×1.6mm
3225	3.2×2.5mm

(3) Capacitance temperature characteristics

Class 2 (Temperature stable and general purpose)

Temperature characteristics	Capacitance change	Temperature range
X8R	±15%	–55 to +150°C

(4) Rated voltage Edc

1E	25V
1H	50V
2A	100V

(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.

471	470pF
102	1,000pF
333	33,000pF
474	470,000pF
225	2,200,000pF (2.2µF)

(6) Capacitance tolerance

Symbol	Tolerance
K	±10%

(7) Dimensions T

Expressed by a three-digit number in mm units.
The second and third digits denote the first and second decimal places, respectively.

050	0.50mm
085	0.85mm
125	1.25mm

(8) Packaging style

A	ø178mm reel with 4mm-pitch
B	ø178mm reel with 2mm-pitch
C	ø178mm reel with 1mm-pitch
D	ø330mm reel with 4mm-pitch
E	ø330mm reel with 2mm-pitch
F	ø330mm reel with 1mm-pitch
H	Bulk(bag)
J	ø330mm reel with 8mm-pitch
K	ø178mm reel with 8mm-pitch

(9) TDK internal code

In brochures issued in August, 2011 and later, the product thickness and packing specifications are described at the end of the ordering name [the product name described in brochures] in parentheses.
Since the existing ordering name could not clearly express the product thickness and packing specifications, it has been changed to a new product description method that solves this inconvenience.

Please be aware that the last five digits of the ordering name on the delivery label and those in the brochure differ.
No changes have been made to the delivery name.

(Example)

Brochure issued date	Ordering name (description in the brochure)	Delivery name (description on the delivery label)
Prior to July, 2011	C1608X5R1C105K	C1608X5R1C105KT000N
August, 2011 or later	C1608X5R1C105K(080AA)	C1608X5R1C105KT000N

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CAPACITANCE RANGES: CLASS 2

TEMPERATURE CHARACTERISTICS: X8R(±15%)

Capacitance	Dimension L×W	Thickness T(mm)	Capacitance tolerance	Part No. Rated voltage Edc: 100V	Rated voltage Edc: 50V	Rated voltage Edc: 25V
150pF	1005	0.50±0.05	±10%		C1005X8R1H151K(050BA)	
220pF	1005	0.50±0.05	±10%		C1005X8R1H221K(050BA)	
330pF	1005	0.50±0.05	±10%		C1005X8R1H331K(050BA)	
470pF	1005	0.50±0.05	±10%		C1005X8R1H471K(050BA)	
680pF	1005	0.50±0.05	±10%		C1005X8R1H681K(050BA)	
1nF	1005	0.50±0.05	±10%		C1005X8R1H102K(050BA)	
	1608	0.80±0.10	±10%	C1608X8R2A102K(080AA)	C1608X8R1H102K(080AA)	
1.5nF	1005	0.50±0.05	±10%		C1005X8R1H152K(050BA)	
	1608	0.80±0.10	±10%	C1608X8R2A152K(080AA)	C1608X8R1H152K(080AA)	
2.2nF	1005	0.50±0.05	±10%		C1005X8R1H222K(050BA)	
	1608	0.80±0.10	±10%	C1608X8R2A222K(080AA)	C1608X8R1H222K(080AA)	
3.3nF	1005	0.50±0.05	±10%		C1005X8R1H332K(050BA)	
	1608	0.80±0.10	±10%	C1608X8R2A332K(080AA)	C1608X8R1H332K(080AA)	
4.7nF	1005	0.50±0.05	±10%		C1005X8R1H472K(050BA)	
	1608	0.80±0.10	±10%	C1608X8R2A472K(080AA)	C1608X8R1H472K(080AA)	
6.8nF	1005	0.50±0.05	±10%			C1005X8R1E682K(050BA)
	1608	0.80±0.10	±10%	C1608X8R2A682K(080AA)	C1608X8R1H682K(080AA)	
10nF	1005	0.50±0.05	±10%			C1005X8R1E103K(050BA)
	1608	0.80±0.10	±10%	C1608X8R2A103K(080AA)	C1608X8R1H103K(080AA)	
15nF	1608	0.80±0.10	±10%	C1608X8R2A153K(080AA)	C1608X8R1H153K(080AA)	
22nF	1608	0.80±0.10	±10%		C1608X8R1H223K(080AA)	
	2012	1.25±0.20	±10%	C2012X8R2A223K(125AA)		
33nF	1608	0.80±0.10	±10%		C1608X8R1H333K(080AA)	
	3216	0.85±0.15	±10%	C3216X8R2A333K(085AA)		
47nF	1608	0.80±0.10	±10%		C1608X8R1H473K(080AA)	
	3216	0.85±0.15	±10%	C3216X8R2A473K(085AA)		
68nF	1608	0.80±0.10	±10%			C1608X8R1E683K(080AA)
	2012	1.25±0.20	±10%		C2012X8R1H683K(125AA)	
	3216	1.15±0.15	±10%	C3216X8R2A683K(115AA)		
100nF	1608	0.80±0.10	±10%			C1608X8R1E104K(080AA)
	2012	1.25±0.20	±10%		C2012X8R1H104K(125AA)	
	3216	1.15±0.15	±10%	C3216X8R2A104K(115AA)		
150nF	2012	0.85±0.15	±10%			C2012X8R1E154K(085AA)
	3216	0.85±0.15	±10%		C3216X8R1H154K(085AA)	
		1.60±0.20	±10%	C3216X8R2A154K(160AA)		
220nF	2012	1.25±0.20	±10%			C2012X8R1E224K(125AA)
	3216	1.15±0.15	±10%		C3216X8R1H224K(115AA)	
330nF	2012	1.25±0.20	±10%			C2012X8R1E334K(125AA)
	3216	0.85±0.15	±10%			C3216X8R1E334K(085AA)
		1.60±0.20	±10%		C3216X8R1H334K(160AA)	
470nF	3216	0.85±0.15	±10%			C3216X8R1E474K(085AA)
		1.60±0.20	±10%		C3216X8R1H474K(160AA)	
680nF	3216	1.15±0.15	±10%			C3216X8R1E684K(115AA)
1μF	3216	1.60±0.20	±10%			C3216X8R1E105K(160AA)
1.5μF	3225	1.60±0.20	±10%			C3225X8R1E155K(160AA)
2.2μF	3225	2.00±0.20	±10%			C3225X8R1E225K(200AA)
3.3μF	3225	2.50±0.30	±10%			C3225X8R1E335K(250AA)

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