MULTILAYER CERAMIC CHIP CAPACITORS

C Series
Commercial Grade
Soft Termination

Type:

C1608 [EIA CC0603]
C2012 [EIA CC0805]
C3216 [EIA CC1206]
C3225 [EIA CC1210]
C4520 [EIA CC1808]
C4532 [EIA CC1812]
C5750 [EIA CC2220]
C7563 [EIA CC3025]

Issue date:
Jun 2015

REMINDERS

Please read before using this product

SAFETY REMINDERS

REMINDERS

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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.
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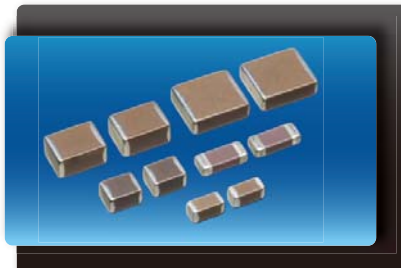
Notice: Effective January 2013, TDK will use a new catalog number which adds product thickness and packaging specification detail. This new catalog number should be referenced on all catalog orders going forward, and is not applicable for OEM part number orders. Please be aware the last five digits of the catalog number will differ from the item description (internal control number) on the product label. Contact your local TDK Sales representative for more information.

(Example)

Catalog Issued date	Catalog Number	Item Description (On Delivery Label)
Prior to January 2013	C1608C0G1E103J	C1608C0G1E103JT000N
January 2013 and Later	C1608C0G1E103J080AA	C1608C0G1E103JT000N



C Series

Soft Termination

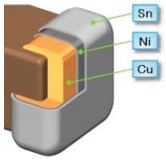
Type: C1608 [EIA CC0603], C2012 [EIA CC0805], C3216 [EIA CC1206], C3225 [EIA CC1210], C4520 [EIA CC1808], C4532 [EIA CC1812], C5750 [EIA CC2220], C7563 [EIA CC3025]

Lead Free | RoHS COMPLIANT | Ecological

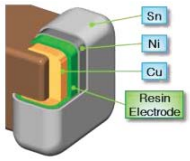
Features

- Improved board bending resistance, drop impact resistance, thermal shock resistance, and heat cycle properties.
- Conductive resin absorb external stress to protect solder joint parts and capacitor body.
- Compliance with the RoHS Directive.

Standard Product



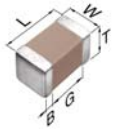
Soft Termination



Applications

- Switching power supply
- Telecom base station
- Electronic circuits mounted on alumina substrate
- SMT application which requires bending robustness in which solder joint reliability is problematic

Shape & Dimensions



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

Catalog Number Construction

C • 7563 • X7S • 1C • 107 • M • 280 • L • E

Series Name

Dimensions L x W (mm)

Code	Length	Width	Terminal
C1608	1.60 + 0.20/-0.10	0.80 + 0.15/-0.10	0.20 min.
C2012	2.00 + 0.45/-0.20	1.25 + 0.25/-0.20	0.20 min.
C3216	3.20 + 0.40/-0.20	1.60 + 0.30/-0.20	0.20 min.
C3225	3.20 + 0.50/-0.40	2.50 ± 0.30	0.20 min.
C4520	4.50 + 0.30/-0.20	2.00 ± 0.15	0.20 min.
C4532	4.50 + 0.50/-0.40	3.20 ± 0.40	0.20 min.
C5750	5.70 + 0.50/-0.40	5.00 ± 0.40	0.20 min.
C7563	7.50 ± 0.50	6.30 ± 0.50	0.30 min.

*Dimension tolerance are typical values

Temperature Characteristics

Temperature Characteristics	Temperature Coefficient or Capacitance Change	Temperature Range
C0G	0 ±30ppm/°C	-55 to +125°C
X7R	±15%	-55 to +125°C
X7S	±22%	-55 to +125°C
X7T	+22/-33%	-55 to +125°C

Rated Voltage (DC)

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

Nominal Capacitance (pF)

The capacitance is expressed in three digit codes and in units of pico Farads (pF). The first and second digits identify the first and second significant figures of the capacitance. The third digit identifies the multiplier. R designates a decimal point.

Ex. 0R2 = 0.2pF; 103 = 10,000pF; 105 = 1,000,000pF = 1,000nF

Capacitance Tolerance

Code	Tolerance
K	± 10%
M	± 20%

Nominal Thickness

Code	Thickness
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

Packaging Style

Code	Style
A	178 mm Reel, 4 mm Pitch
K	178 mm Reel, 8 mm Pitch
L	330 mm Reel, 12 mm Pitch

Special Reserved Code

Code	Description
E	Soft Termination

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Capacitance Range Chart

EIA CC0603 [C1608]

Capacitance Range Chart

Temperature Characteristics: X7R (±15%)
Rated Voltage: 50V (1H)

Capacitance (pF)	Code	Tolerance	X7R 1H (50V)
1,000	102	K: ± 10% M: ± 20%	
10,000	103		
100,000	104		
470,000	474		

StandardThickness
0.80 mm

Capacitance Range Chart

EIA CC0805 [C2012]

Capacitance Range Chart

Temperature Characteristics: X7R (±15%), X7S (±22%), X7T (+22/-33%)
Rated Voltage: 450V (2W), 250V (2E), 100V (2A), 50V (1H), 35V (1V), 25V (1E), 16V (1C)

Capacitance (pF)	Code	Tolerance	X7R 2E (250V)	X7R 2A (100V)	X7R 1H (50V)	X7R 1V (35V)	X7R 1E (25V)	X7R 1C (16V)	X7S 2A (100V)	X7T 2W (450V)	X7T 2E (250V)
10,000	103	K: ± 10% M: ± 20%									
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										

StandardThickness
0.85 mm
1.25 mm

Capacitance Range Chart

EIA CC1206 [C3216]

Capacitance Range Chart

Temperature Characteristics: X7R (±15%), X7S (±22%), X7T (+22/-33%)
Rated Voltage: 630V (2J), 450V (2W), 250V (2E), 100V (2A), 50V (1H), 35V (1V), 25V (1E)

Capacitance (pF)	Code	Tolerance	X7R 2J (630V)	X7R 2E (250V)	X7R 2A (100V)	X7R 1H (50V)	X7R 1V (35V)	X7R 1E (25V)	X7S 2A (100V)	X7T 2J (630V)	X7T 2W (450V)	X7T 2E (250V)
470	471	K: ± 10% M: ± 20%										
1,000	102											
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											

StandardThickness 0.85 mm 1.15 mm 1.30 mm 1.60 mm

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Capacitance Range Chart

EIA CC1210[C3225]

Capacitance Range Chart

Temperature Characteristics: X7R (±15%), X7S (±22%), X7T (+22/-33%)
Rated Voltage: 630V (2J), 450V (2W), 250V (2E), 100V (2A), 50V (1H)

Capacitance (pF)	Code	Tolerance	X7R			X7S		X7T	
			2J (630V)	2E (250V)	2A (100V)	2A (100V)	1H (50V)	2J (630V)	2W (450V)
47,000	473	K: ± 10% M: ± 20%							
100,000	104								
220,000	224								
2,200,000	225								
4,700,000	475								
10,000,000	106								

Standard Thickness
- 1.60 mm
- 2.00 mm
- 2.30 mm
- 2.50 mm

Capacitance Range Chart

EIA CC1808 [C4520]

Capacitance Range Chart

Temperature Characteristics : X7R (±15%)
Rated Voltage: 2000V (3D)

Capacitance (pF)	Code	Tolerance	X7R
			3D (2000V)
1,000	102	K: ± 10% M: ± 20%	

Standard Thickness
- 1.30 mm

Capacitance Range Chart

EIA CC1812 [C4532]

Capacitance Range Chart

Temperature Characteristics : C0G (0 ± 30ppm/ºC), X7R (±15%), X7T (+22/-33%)
Rated Voltage: 3000V (3F), 2000V (3D), 630V (2J), 450V (2W), 250V (2E)

Capacitance (pF)	Code	Tolerance	C0G	X7R		X7T		
			3F (3000V)	3D (2000V)	2E (250V)	2J (630V)	2W (450V)	2E (250V)
		K: ± 10% M: ± 20%						

Standard Thickness
- 1.30 mm
- 2.00 mm
- 2.30 mm
- 2.50 mm

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Capacitance Range Chart

EIA CC2220 [C5750]

Capacitance Range Chart

Temperature Characteristics : X7R (±15%), X7S (±22%), X7T (+22/-33%)

Rated Voltage: 630V (2J), 450V (2W), 250V (2E), 100V (2A)

Capacitance (pF)	Code	Tolerance	X7R	X7S	X7T		
			2E (250V)	2A (100V)	2J (630V)	2W (450V)	2E (250V)
10,000	103	K: ± 10%					
470,000	474	M: ± 20%					
1,000,000	105						
2,200,000	225						
10,000,000	106						

Standard Thickness

2.30 mm

2.50 mm

Capacitance Range Chart

EIA CC3025 [C7563]

Capacitance Range Chart

Temperature Characteristics : X7S (±22%)

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

Capacitance (pF)	Code	Tolerance	X7S	
			1H (50V)	1C (16V)
22,000,000	226	M: ± 20%		
100,000,000	107			

Standard Thickness

2.30 mm

2.80 mm

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Capacitance Range Table

Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to +125ºC, 0 ± 30 ppm/ºC)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number
				Rated Voltage Edc: 3000V
330 pF	4532	2.50 ± 0.20	± 10%	C4532C0G3F331K250KE

Class 2 (Temperature Stable)

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

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number				
				Rated Voltage Edc: 2000V	Rated Voltage Edc: 630V	Rated Voltage Edc: 250V	Rated Voltage Edc: 100V	Rated Voltage Edc: 50V
1 nF	1608	0.80 +0.15/-0.1	± 10%					C1608X7R1H102K080AE
			± 20%					C1608X7R1H102M080AE
	4520	1.30 ±0.15	± 10%	C4520X7R3D102K130KE				
			± 20%	C4520X7R3D102M130KE				
2.2 nF	4532	1.30 ±0.15	± 10%	C4532X7R3D222K130KE				
			± 20%	C4532X7R3D222M130KE				
10 nF	1608	0.80 +0.15/-0.1	± 10%					C1608X7R1H103K080AE
			± 20%					C1608X7R1H103M080AE
	2012	1.25 +0.25/-0.20	± 10%			C2012X7R2E103K125AE		
			± 20%			C2012X7R2E103M125AE		
	3216	1.15 ± 0.15	± 10%		C3216X7R2J103K115AE			
			± 20%		C3216X7R2J103M115AE			
22 nF	2012	1.25 +0.25/-0.20	± 10%			C2012X7R2E223K125AE		
			± 20%			C2012X7R2E223M125AE		
	3216	1.30 ± 0.20	± 10%		C3216X7R2J223K130AE			
			± 20%		C3216X7R2J223M130AE			
47 nF	3225	2.00 +0.30/-0.20	± 10%		C3225X7R2J473K200AE			
			± 20%		C3225X7R2J473M200AE			
100 nF	1608	0.80 +0.15/-0.1	± 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		
220 nF	3225	2.00 +0.30/-0.20	± 10%			C3225X7R2E224K200AE		
			± 20%			C3225X7R2E224M200AE		
470 nF	1608	0.80 +0.15/-0.1	± 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	
	4532	2.30 +0.30/-0.20	± 10%			C4532X7R2E474K230KE		
			± 20%			C4532X7R2E474M230KE		
1 µF	2012	1.25 +0.25/-0.20	± 10%					C2012X7R1H105K125AE
			± 20%					C2012X7R1H105M125AE
	3216	1.60 +0.30/-0.20	± 10%				C3216X7R2A105K160AE	C3216X7R1H105K160AE
			± 20%				C3216X7R2A105M160AE	C3216X7R1H105M160AE
	5750	2.30 +0.30/-0.20	± 10%			C5750X7R2E105K230KE		
			± 20%			C5750X7R2E105M230KE		
2.2 µF	2012	1.25 +0.25/-0.20	± 10%					C2012X7R1H225K125AE
			± 20%					C2012X7R1H225M125AE
	3216	1.60 +0.30/-0.20	± 10%					C3216X7R1H225K160AE
			± 20%					C3216X7R1H225M160AE
	3225	2.30 +0.30/-0.20	± 10%				C3225X7R2A225K230AE	
			± 20%				C3225X7R2A225M230AE	
4.7uF	3216	1.60 +0.30/-0.20	± 10%					C3216X7R1H475K160AE
			± 20%					C3216X7R1H475M160AE

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Capacitance Range Table

Class 2 (Temperature Stable)

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

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number		
				Rated Voltage Edc: 35V	Rated Voltage Edc: 25V	Rated Voltage Edc: 16V
2.2 µF	2012	1.25 +0.25/-0.20	± 10%	C2012X7R1V225K125AE		
			± 20%	C2012X7R1V225M125AE		
4.7 µF	2012	1.25 +0.25/-0.20	± 10%	C2012X7R1V475K125AE	C2012X7R1E475K125AE	C2012X7R1C475K125AE
			± 20%	C2012X7R1V475M125AE	C2012X7R1E475M125AE	C2012X7R1C475M125AE
	3216	1.60 +0.30/-0.20	± 10%	C3216X7R1V475K160AE		
			± 20%	C3216X7R1V475M160AE		
10 µF	3216	1.60 +0.30/-0.20	± 10%	C3216X7R1V106K160AE	C3216X7R1E106K160AE	
			± 20%	C3216X7R1V106M160AE	C3216X7R1E106M160AE	

Class 2 (Temperature Stable)

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

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number		
				Rated Voltage Edc: 100V	Rated Voltage Edc: 50V	Rated Voltage Edc: 16V
220 nF	2012	0.85 ± 0.15	± 10%	C2012X7S2A224K085AE		
			± 20%	C2012X7S2A224M085AE		
470 nF	2012	1.25 +0.25/-0.20	± 10%	C2012X7S2A474K125AE		
			± 20%	C2012X7S2A474M125AE		
1 µF	2012	1.25 +0.25/-0.20	± 10%	C2012X7S2A105K125AE		
			± 20%	C2012X7S2A105M125AE		
2.2 µF	3216	1.60 +0.30/-0.20	± 10%	C3216X7S2A225K160AE		
			± 20%	C3216X7S2A225M160AE		
4.7 µF	3225	2.00 +0.30/-0.20	± 10%	C3225X7S2A475K200AE		
			± 20%	C3225X7S2A475M200AE		
		2.30 +0.30/-0.20	± 10%		C3225X7S1H475K230AE	
			± 20%		C3225X7S1H475M230AE	
10 µF	3225	2.50 ± 0.30	± 10%		C3225X7S1H106K250AE	
			± 20%		C3225X7S1H106M250AE	
	5750	2.30 +0.30/-0.20	± 10%	C5750X7S2A106K230KE		
			± 20%	C5750X7S2A106M230KE		
22 µF	7563	2.30 (2.50max)	± 20%		C7563X7S1H226M230LE	
100 µF	7563	2.80 (3.00max)	± 20%			C7563X7S1C107M280LE

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Capacitance Range Table

Class 2 (Temperature Stable)

Temperature Characteristics: X7T (-55 to +125ºC, +22/-33%)

Capacitance	Size	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		
100 nF	2012	1.25 +0.25/-0.20	± 10%			C2012X7T2E104K125AE
			± 20%			C2012X7T2E104M125AE
	3216	1.60 +0.30/-0.20	± 10%		C3216X7T2W104K160AE	
			± 20%		C3216X7T2W104M160AE	
	3225	1.60 +0.30/-0.20	± 10%	C3225X7T2J104K160AE		
			± 20%	C3225X7T2J104M160AE		
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		
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

TDK provides Soft Termination on the most commonly used MLCC sizes and capacitance values. Soft Termination offers an external electrode design that differs from the standard electrode design, and this design may be able to be applied to capacitance values beyond those listed in the catalog. Please contact TDK if your specific product needs are not listed and we will consider adding it to the product offering.

⚠ 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.

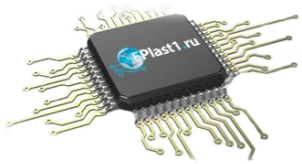
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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