



MULTILAYER CERAMIC CHIP CAPACITORS



CEU Series Automotive Grade Serial Design

Type:

**CEU3 [EIA CC0603]
CEU4 [EIA CC0805]**

**Issue date:
Oct 2013**



REMINDERS

Please read before using this 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.
5. Any reproduction or transferring of the contents of this catalog is prohibited without prior permission from our company.
6. 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.
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.

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

CEU Series

Serial Design

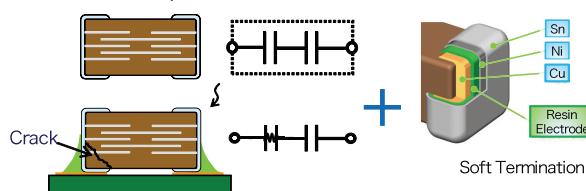
Type: CEU3 [EIA CC0603], CEU4 [EIA CC0805]



Features



- Fail-safe function with serial configuration of capacitors inside a single product.
- Improved stress resistance.
- Improved thermal shock resistance.
- Allows for reduction of PCB space.
- Compliance with the RoHS Directive.
- AEC-Q200 compliant.

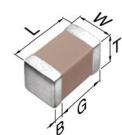


Applications



- Power supply without protective circuit
- Automotive battery line

Shape & Dimensions



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



Catalog Number Construction

CEU • 4 • J • 2 • X7R • 1H • 104 • K • 125 • A • E

Series Name

Dimensions L x W (mm)

Code	Length	Width	Terminal
3	1.60 ± 0.10	0.80 ± 0.10	0.20 min.
4	2.00 ± 0.20	1.25 ± 0.20	0.20 min.

Thickness T Code (mm)

Code	Thickness
E	0.80 mm
J	1.25 mm

Voltage Condition for Life Test

Symbol	Condition
2	2 × R.V.

Temperature Characteristics

Temperature Characteristics	Capacitance Change	Temperature Range
X7R	± 15%	-55 to +125°C

Rated Voltage (DC)

Code	Voltage (DC)
1H	50V
2A	100V

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 = 1μF

Nominal Thickness

Code	Thickness
080	0.80 mm
125	1.25 mm

Packaging Style

Code	Style
B	178" Reel, 2mm Pitch

Special Reserved Code

Code	Description
E	Soft Termination

Capacitance Tolerance

Code	Tolerance
K	± 10%
M	± 20%



Capacitance Range Chart

CEU3(1608) [EIA CC0603]

Capacitance Range Chart

Temperature Characteristics: X7R ($\pm 15\%$)

Rated Voltage: 100V (2A), 50V (1H)

Capacitance (pF)	Code	Tolerance	X7R	
			2A (100V)	1H (50V)
1,000	102	K: $\pm 10\%$		
1,500	152	M: $\pm 20\%$		
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
0.80 mm



Capacitance Range Chart

CEU4(2012) [EIA CC0805]

Capacitance Range Chart

Temperature Characteristics: X7R ($\pm 15\%$)

Rated Voltage: 100V (2A), 50V (1H)

Capacitance (pF)	Code	Tolerance	X7R	
			2A (100V)	1H (50V)
1,000	102	K: $\pm 10\%$		
1,500	152	M: $\pm 20\%$		
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			

Standard Thickness
1.25 mm


Capacitance Range Table
Class 2 (Temperature Stable)

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

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number	
				Rated Voltage Edc: 100V	Rated Voltage Edc: 50V
1 nF	1608	0.80 +0.15/-0.10	± 10%	CEU3E2X7R2A102K080AE	
			± 20%	CEU3E2X7R2A102M080AE	
	2012	1.25 +0.25/-0.20	± 10%	CEU4J2X7R2A102K125AE	
			± 20%	CEU4J2X7R2A102M125AE	
1.5 nF	1608	0.80 +0.15/-0.10	± 10%	CEU3E2X7R2A152K080AE	
			± 20%	CEU3E2X7R2A152M080AE	
	2012	1.25 +0.25/-0.20	± 10%	CEU4J2X7R2A152K125AE	
			± 20%	CEU4J2X7R2A152M125AE	
2.2 nF	1608	0.80 +0.15/-0.10	± 10%	CEU3E2X7R2A222K080AE	
			± 20%	CEU3E2X7R2A222M080AE	
	2012	1.25 +0.25/-0.20	± 10%	CEU4J2X7R2A222K125AE	
			± 20%	CEU4J2X7R2A222M125AE	
3.3 nF	1608	0.80 +0.15/-0.10	± 10%	CEU3E2X7R2A332K080AE	
			± 20%	CEU3E2X7R2A332M080AE	
	2012	1.25 +0.25/-0.20	± 10%	CEU4J2X7R2A332K125AE	
			± 20%	CEU4J2X7R2A332M125AE	
4.7 nF	1608	0.80 +0.15/-0.10	± 10%	CEU3E2X7R1H472K080AE	
			± 20%	CEU3E2X7R1H472M080AE	
	2012	1.25 +0.25/-0.20	± 10%	CEU4J2X7R2A472K125AE	
			± 20%	CEU4J2X7R2A472M125AE	
6.8 nF	1608	0.80 +0.15/-0.10	± 10%	CEU3E2X7R1H682K080AE	
			± 20%	CEU3E2X7R1H682M080AE	
	2012	1.25 +0.25/-0.20	± 10%	CEU4J2X7R2A682K125AE	
			± 20%	CEU4J2X7R2A682M125AE	
10 nF	1608	0.80 +0.15/-0.10	± 10%	CEU3E2X7R1H103K080AE	
			± 20%	CEU3E2X7R1H103M080AE	
	2012	1.25 +0.25/-0.20	± 10%	CEU4J2X7R2A103K125AE	
			± 20%	CEU4J2X7R2A103M125AE	
15 nF	1608	0.80 +0.15/-0.10	± 10%	CEU3E2X7R1H153K080AE	
			± 20%	CEU3E2X7R1H153M080AE	
	2012	1.25 +0.25/-0.20	± 10%	CEU4J2X7R2A153K125AE	
			± 20%	CEU4J2X7R2A153M125AE	
22 nF	1608	0.80 +0.15/-0.10	± 10%	CEU3E2X7R1H223K080AE	
			± 20%	CEU3E2X7R1H223M080AE	
	2012	1.25 +0.25/-0.20	± 10%	CEU4J2X7R1H223K125AE	
			± 20%	CEU4J2X7R1H223M125AE	
33 nF	1608	0.80 +0.15/-0.10	± 10%	CEU3E2X7R1H333K080AE	
			± 20%	CEU3E2X7R1H333M080AE	
	2012	1.25 +0.25/-0.20	± 10%	CEU4J2X7R1H333K125AE	
			± 20%	CEU4J2X7R1H333M125AE	
47 nF	1608	0.80 +0.15/-0.10	± 10%	CEU3E2X7R1H473K080AE	
			± 20%	CEU3E2X7R1H473M080AE	
	2012	1.25 +0.25/-0.20	± 10%	CEU4J2X7R1H473K125AE	
			± 20%	CEU4J2X7R1H473M125AE	
68 nF	2012	1.25 +0.25/-0.20	± 10%	CEU4J2X7R1H683K125AE	
			± 20%	CEU4J2X7R1H683M125AE	
100 nF	2012	1.25 +0.25/-0.20	± 10%	CEU4J2X7R1H104K125AE	
			± 20%	CEU4J2X7R1H104M125AE	