



## MULTILAYER CERAMIC CHIP CAPACITORS



### **CEU Series Automotive Grade Serial Design**

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

**Issue date:**  
Dec 2014



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Please read before using this product

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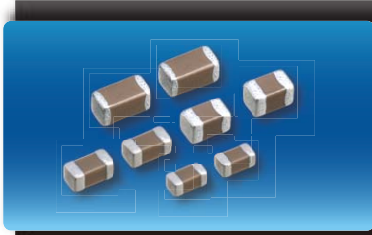
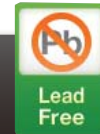
Notice: Effective January 2013, TDK will use a new catalog number which adds product thickness and packaging specification detail. This new catalog number should be referenced on all catalog orders going forward, and is not applicable for OEM part number orders. Please be aware the last five digits of 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

## CEU Series Serial Design

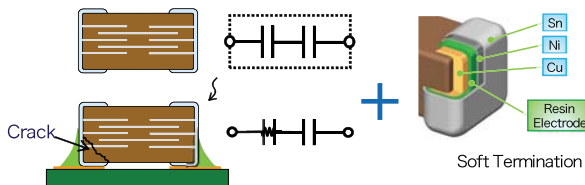
Type: CEU3 [EIA CC0603], CEU4 [EIA CC0805]



### 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.

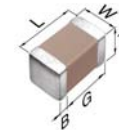


### Applications



- 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

#### Capacitance Tolerance

Code	Tolerance
K	± 10%
M	± 20%

#### Nominal Thickness

Code	Thickness
080	0.80 mm
125	1.25 mm

#### Packaging Style

Code	Style
B	178 mm Reel, 2 mm Pitch

#### Special Reserved Code

Code	Description
E	Soft Termination



## 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 $\pm 10\%$ M: $\pm 20\%$				
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 0.80 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 $\pm 10\%$ M: $\pm 20\%$		
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			

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	