



## MULTILAYER CERAMIC CHIP CAPACITORS

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

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

**Issue date:**  
**Dec 2014**



## REMINDERS

Please read before using this product

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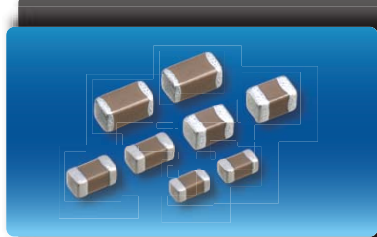
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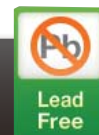
(Example)

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

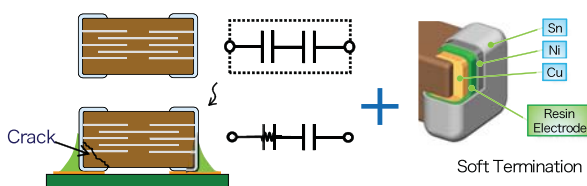
Type: CEU3 [EIA CC0603], CEU4 [EIA CC0805]



### 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.

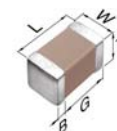


### Applications



- 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 x 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%	<a href="#">CEU3E2X7R2A102K080AE</a>	
			± 20%	<a href="#">CEU3E2X7R2A102M080AE</a>	
	2012	1.25 +0.25/-0.20	± 10%	<a href="#">CEU4J2X7R2A102K125AE</a>	
			± 20%	<a href="#">CEU4J2X7R2A102M125AE</a>	
1.5 nF	1608	0.80 +0.15/-0.10	± 10%	<a href="#">CEU3E2X7R2A152K080AE</a>	
			± 20%	<a href="#">CEU3E2X7R2A152M080AE</a>	
	2012	1.25 +0.25/-0.20	± 10%	<a href="#">CEU4J2X7R2A152K125AE</a>	
			± 20%	<a href="#">CEU4J2X7R2A152M125AE</a>	
2.2 nF	1608	0.80 +0.15/-0.10	± 10%	<a href="#">CEU3E2X7R2A222K080AE</a>	
			± 20%	<a href="#">CEU3E2X7R2A222M080AE</a>	
	2012	1.25 +0.25/-0.20	± 10%	<a href="#">CEU4J2X7R2A222K125AE</a>	
			± 20%	<a href="#">CEU4J2X7R2A222M125AE</a>	
3.3 nF	1608	0.80 +0.15/-0.10	± 10%	<a href="#">CEU3E2X7R2A332K080AE</a>	
			± 20%	<a href="#">CEU3E2X7R2A332M080AE</a>	
	2012	1.25 +0.25/-0.20	± 10%	<a href="#">CEU4J2X7R2A332K125AE</a>	
			± 20%	<a href="#">CEU4J2X7R2A332M125AE</a>	
4.7 nF	1608	0.80 +0.15/-0.10	± 10%		<a href="#">CEU3E2X7R1H472K080AE</a>
			± 20%		<a href="#">CEU3E2X7R1H472M080AE</a>
	2012	1.25 +0.25/-0.20	± 10%	<a href="#">CEU4J2X7R2A472K125AE</a>	
			± 20%	<a href="#">CEU4J2X7R2A472M125AE</a>	
6.8 nF	1608	0.80 +0.15/-0.10	± 10%		<a href="#">CEU3E2X7R1H682K080AE</a>
			± 20%		<a href="#">CEU3E2X7R1H682M080AE</a>
	2012	1.25 +0.25/-0.20	± 10%	<a href="#">CEU4J2X7R2A682K125AE</a>	
			± 20%	<a href="#">CEU4J2X7R2A682M125AE</a>	
10 nF	1608	0.80 +0.15/-0.10	± 10%		<a href="#">CEU3E2X7R1H103K080AE</a>
			± 20%		<a href="#">CEU3E2X7R1H103M080AE</a>
	2012	1.25 +0.25/-0.20	± 10%	<a href="#">CEU4J2X7R2A103K125AE</a>	
			± 20%	<a href="#">CEU4J2X7R2A103M125AE</a>	
15 nF	1608	0.80 +0.15/-0.10	± 10%		<a href="#">CEU3E2X7R1H153K080AE</a>
			± 20%		<a href="#">CEU3E2X7R1H153M080AE</a>
	2012	1.25 +0.25/-0.20	± 10%	<a href="#">CEU4J2X7R2A153K125AE</a>	
			± 20%	<a href="#">CEU4J2X7R2A153M125AE</a>	
22 nF	1608	0.80 +0.15/-0.10	± 10%		<a href="#">CEU3E2X7R1H223K080AE</a>
			± 20%		<a href="#">CEU3E2X7R1H223M080AE</a>
	2012	1.25 +0.25/-0.20	± 10%	<a href="#">CEU4J2X7R1H223K125AE</a>	
			± 20%	<a href="#">CEU4J2X7R1H223M125AE</a>	
33 nF	1608	0.80 +0.15/-0.10	± 10%		<a href="#">CEU3E2X7R1H333K080AE</a>
			± 20%		<a href="#">CEU3E2X7R1H333M080AE</a>
	2012	1.25 +0.25/-0.20	± 10%	<a href="#">CEU4J2X7R1H333K125AE</a>	
			± 20%	<a href="#">CEU4J2X7R1H333M125AE</a>	
47 nF	1608	0.80 +0.15/-0.10	± 10%		<a href="#">CEU3E2X7R1H473K080AE</a>
			± 20%		<a href="#">CEU3E2X7R1H473M080AE</a>
	2012	1.25 +0.25/-0.20	± 10%	<a href="#">CEU4J2X7R1H473K125AE</a>	
			± 20%	<a href="#">CEU4J2X7R1H473M125AE</a>	
68 nF	2012	1.25 +0.25/-0.20	± 10%	<a href="#">CEU4J2X7R1H683K125AE</a>	
			± 20%	<a href="#">CEU4J2X7R1H683M125AE</a>	
100 nF	2012	1.25 +0.25/-0.20	± 10%	<a href="#">CEU4J2X7R1H104K125AE</a>	
			± 20%	<a href="#">CEU4J2X7R1H104M125AE</a>	

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