



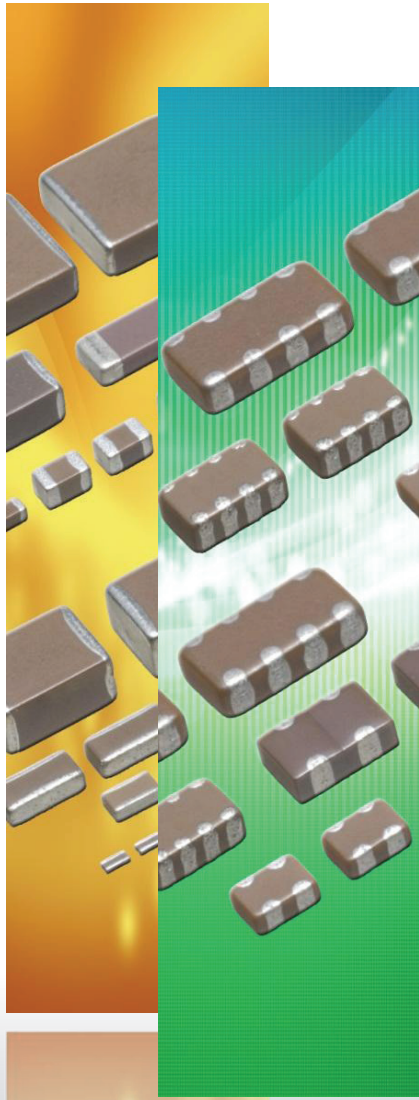
## MULTILAYER CERAMIC CHIP CAPACITORS

### **C Series, CKC Series Commercial Grade Soft Termination**

Type:

C2012 [EIA CC0805]  
C3216 [EIA CC1206]  
C3225 [EIA CC1210]  
C4520 [EIA CC1808]  
C4532 [EIA CC1812]  
C5750 [EIA CC2220]  
C7563 [EIA CC3025]  
CKCN27 [EIA CC0302]  
CKCM25 [EIA CC0504]  
CKCL22 [EIA CC0805]

Issue date:  
July 2013



## REMINDERS

Please read before using this product

### SAFETY REMINDERS



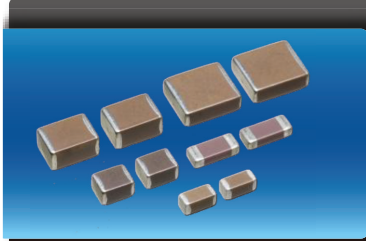
## REMINDERS

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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 part number which adds product thickness and packaging specification detail. This new part 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 TDK catalog part number will differ from the TDK item description (internal control number) on the product label. Contact your local TDK Sales representative for more information.

(Example)

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



## C Series Soft Termination

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

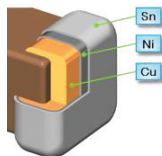


### Features

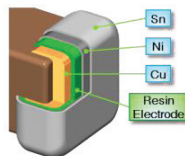


- Improved board bending resistance, drop impact resistance, thermal shock resistance, and heat cycle properties.
- Conductive resin absorb external stress to protect solder joint parts and capacitor body.
- Compliance with the RoHS Directive.

#### Standard Product



#### Soft Termination

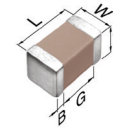


### Applications



- 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



### Part Number Construction

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

#### Series Name

#### Dimensions L x W (mm)

Code	Length	Width	Terminal
C2012	2.00 + 0.25/-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	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
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" Reel, 4mm Pitch
K	178" Reel, 8mm Pitch
L	330" Reel, 12mm Pitch

#### Special Reserved Code

Code	Description
E	Soft Termination



## Capacitance Range Chart

## EIA CC0805 [C2012]

### Capacitance Range Chart

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

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

Standard Thickness  
 ■ 0.85 mm  
 ■ 1.25 mm



## Capacitance Range Chart

## EIA CC1206 [C3216]

### Capacitance Range Chart

Temperature Characteristics: X7R ( $\pm 15\%$ ), X7S ( $\pm 22\%$ ), X7T ( $+22/-33\%$ )  
 Rated Voltage: 2000V (3D), 1000V (3A), 630V (2J), 450V (2W), 250V (2E), 100V (2A), 50V (1H), 35V (1V), 25V (1E)

Capacitance (pF)	Code	Tolerance	X7R					X7S			X7T			
			2J (630V)	2E (250V)	2A (100V)	1H (50V)	1V (35V)	1E (25V)	3D (2000V)	3A (1000V)	2A (100V)	2J (630V)	2W (450V)	2E (250V)
470	471	K: $\pm 10\%$ M: $\pm 20\%$							■					
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							■						

Standard Thickness ■ 0.85 mm ■ 1.15 mm ■ 1.30 mm ■ 1.60 mm



## Capacitance Range Chart

## EIA CC1210 [C3225]

### Capacitance Range Chart

Temperature Characteristics: X7R ( $\pm 15\%$ ), X7S ( $\pm 22\%$ ), 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: $\pm 10\%$ M: $\pm 20\%$	■						
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

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## Capacitance Range Chart

## EIA CC1808 [C4520]

### Capacitance Range Chart

Temperature Characteristics : X7R ( $\pm 15\%$ )  
 Rated Voltage: 2000V (3D)

Capacitance (pF)	Code	Tolerance	X7R
			3D (2000V)
1,000	102	K: $\pm 10\%$ M: $\pm 20\%$	1.30 mm



## Capacitance Range Chart

## EIA CC1812 [C4532]

### Capacitance Range Chart

Temperature Characteristics : C0G ( $0 \pm 30\text{ppm}/^\circ\text{C}$ ), X7R ( $\pm 15\%$ ), X7S ( $\pm 22\%$ ), X7T ( $+22/-33\%$ )  
 Rated Voltage: 630V (2J), 450V (2W), 250V (2E), 1000V (3A), 2000V (3D)

Capacitance (pF)	Code	Tolerance	C0G	X7R		X7S	X7T		
			3F (3000V)	3D (2000V)	2E (250V)	3A (1000V)	2J (630V)	2W (450V)	2E (250V)
330	331	K: $\pm 10\%$ M: $\pm 20\%$							
1,000	102								
2,200	222								
10,000	103								
220,000	224								
470,000	474								
1,000,000	105								

Standard Thickness  
 1.30 mm  
 1.60 mm  
 2.00 mm  
 2.30 mm  
 2.50 mm



## Capacitance Range Chart

## EIA CC2220 [C5750]

### Capacitance Range Chart

Temperature Characteristics : X7R ( $\pm 15\%$ ), X7S ( $\pm 22\%$ ), X7T ( $+22/-33\%$ )  
 Rated Voltage: 2000V(3D), 630V (2J), 450V (2W), 250V (2E), 100V (2A)

Capacitance (pF)	Code	Tolerance	X7R	X7S		X7T		
			2E (250V)	3D (2000V)	2A (100V)	2J (630V)	2W (450V)	2E (250V)
10,000	103	K: $\pm 10\%$ M: $\pm 20\%$						
470,000	474							
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 ( $\pm 22\%$ )  
 Rated Voltage: 50V (1H), 16V (1C)

Capacitance (pF)	Code	Tolerance	X7S	
			1H (50V)	1C (16V)
22,000,000	226	M: $\pm 20\%$		
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 +125°C, 0 ± 30 ppm/°C)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number
				TDK Part Number: 3000V
330 pF	4532	2.50 ± 0.20	± 10%	C4532C0G3F331K250KE

### Class 2 (Temperature Stable)

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

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number				
				Rated Voltage Edc: 2000V	Rated Voltage Edc: 630V	Rated Voltage Edc: 250V	Rated Voltage Edc: 100V	Rated Voltage Edc: 50V
1 nF	4520	1.30 ± 0.15	± 10%	C4520X7R3D102K130KE				
			± 20%	C4520X7R3D102M130KE				
2.2 nF	4532	1.30 ± 0.15	± 10%	C4532X7R3D222K130KE				
			± 20%	C4532X7R3D222M130KE				
10 nF	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				
47 nF	3216	1.30 ± 0.20	± 10%	C3216X7R2J223K130AE				
			± 20%	C3216X7R2J223M130AE				
100 nF	3225	2.00 +0.30/-0.20	± 10%	C3225X7R2J473K200AE				
			± 20%	C3225X7R2J473M200AE				
220 nF	3216	1.60 +0.30/-0.20	± 10%	C3216X7R2E104K160AE				
			± 20%	C3216X7R2E104M160AE				
470 nF	3225	2.00 +0.30/-0.20	± 10%	C3225X7R2E104K200AE				
			± 20%	C3225X7R2E104M200AE				
1 μF	2012	1.25 +0.25/-0.20	± 10%	C2012X7R1H474K125AE				
			± 20%	C2012X7R1H474M125AE				
2.2 μF	3216	1.60 +0.30/-0.20	± 10%	C3216X7R2A474K160AE				
			± 20%	C3216X7R2A474M160AE				
4.7 μF	4532	2.30 +0.30/-0.20	± 10%	C4532X7R2E474K230KE				
			± 20%	C4532X7R2E474M230KE				
10 μF	2012	1.25 +0.25/-0.20	± 10%	C2012X7R1H105K125AE				
			± 20%	C2012X7R1H105M125AE				
22 μF	3216	1.60 +0.30/-0.20	± 10%	C3216X7R2A105K160AE				
			± 20%	C3216X7R2A105M160AE				
47 μF	5750	2.30 +0.30/-0.20	± 10%	C5750X7R2E105K230KE				
			± 20%	C5750X7R2E105M230KE				
100 μF	3216	1.60 +0.30/-0.20	± 10%	C3216X7R1H225K160AE				
			± 20%	C3216X7R1H225M160AE				
220 μF	3225	2.30 +0.30/-0.20	± 10%	C3225X7R2A225K230AE				
			± 20%	C3225X7R2A225M230AE				

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	TDK Part 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%	C2012X7R1E475K125AE	C2012X7R1C475K125AE	
			± 20%	C2012X7R1E475M125AE	C2012X7R1C475M125AE	
10 μF	3216	1.60 +0.30/-0.20	± 10%	C3216X7R1V475K160AE		
			± 20%	C3216X7R1V475M160AE		
22 μF	3216	1.60 +0.30/-0.20	± 10%	C3216X7R1E106K160AE		
			± 20%	C3216X7R1E106M160AE		
47 μF	3225	2.30 +0.30/-0.20	± 10%	C3225X7R2A225K230AE		
			± 20%	C3225X7R2A225M230AE		

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## Capacitance Range Table

### Class 2 (Temperature Stable)

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

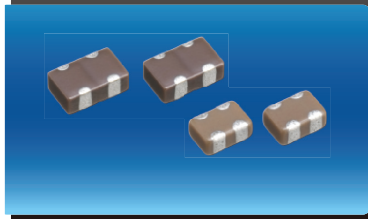
Capacitance	Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number			
				Rated Voltage Edc: 2000V	Rated Voltage Edc: 1000V	Rated Voltage Edc: 100V	Rated Voltage Edc: 50V
470 pF	3216	1.30 ± 0.20	± 10%	C3216X7S3D471K130AE			
			± 20%	C3216X7S3D471M130AE			
1 nF	3216	0.85 ± 0.15	± 10%	C3216X7S3A102K085AE			
			± 20%	C3216X7S3A102M085AE			
10 nF	4532	1.60 +0.30/-0.20	± 10%	C4532X7S3A103K160KE			
			± 20%	C4532X7S3A103M160KE			
	5750	2.50 ± 0.30	± 10%	C5750X7S3D103K250KE			
			± 20%	C5750X7S3D103M250KE			
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			
			± 10%	C3225X7S2A475K200AE			
			± 20%	C3225X7S2A475M200AE			
4.7 µF	3225	2.00 +0.30/-0.20	± 10%	C3225X7S1H475K230AE			
			± 20%	C3225X7S1H475M230AE			
	3225	2.50 ± 0.30	± 10%	C3225X7S1H106K250AE			
			± 20%	C3225X7S1H106M250AE			
10 µF	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			

### Class 2 (Temperature Stable)

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

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number	
				Rated Voltage Edc: 100V	Rated Voltage Edc: 25V
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	
2012	1.25 +0.25/-0.20	± 10%	C2012X7T2E104K125AE		
		± 20%	C2012X7T2E104M125AE		
100 nF	3216	1.60 +0.30/-0.20	± 10%	C3216X7T2W104K160AE	
			± 20%	C3216X7T2W104M160AE	
	3225	1.60 +0.30/-0.20	± 10%	C3225X7T2J104K160AE	
			± 20%	C3225X7T2J104M160AE	
3216	1.60 +0.30/-0.20	± 10%	C3216X7T2E224K160AE		
		± 20%	C3216X7T2E224M160AE		
220 nF	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	

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## CKC Series

### 2in1 Soft Termination Array

Type: CKCN27 [EIA CC0302], CKCM25 [EIA CC0504], CKCL22 [EIA CC0805]

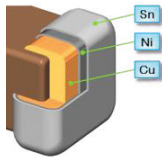


#### Features

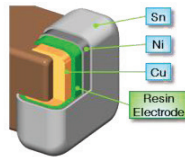


- Improved board bending resistance, drop impact resistance, thermal shock resistance, and heat cycle properties.
- Conductive resin absorb external stress to protect solder joint parts and capacitor body.
- Compliance with the RoHS Directive.

#### Standard Product



#### Soft Termination

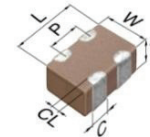


#### Applications



- 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
C	Terminal Width
P	Terminal Spacing



#### Part Number Construction

**CKC • L22 • X5R • 0J • 225 • M • 085 • A • K**

#### Series Name

#### Dimensions L x W (mm)

Code	Length	Width
N27	0.90 ± 0.05	0.60 ± 0.05
M25	1.37 ± 0.15	1.00 ± 0.15
L22	2.00 ± 0.15	1.25 ± 0.15

#### Temperature Characteristics

Temperature Characteristics	Capacitance Change	Temperature Range
COG	0±30 ppm/°C	-55 to +125°C
JB	±10%	-25 to +85°C
X5R	±15%	-55 to +85°C
X7R	±15%	-55 to +125°C
X8R	±15%	-55 to +150°C

#### Rated Voltage (DC)

Code	Voltage (DC)
0J	6.3V
1A	10V
1C	16V
1E	25V
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 = 100nF = 1μF

#### Capacitance Tolerance

Code	Tolerance
F	± 1pF
K	± 10%
M	± 20%

#### Nominal Thickness

Code	Thickness
045	0.45 mm
060	0.60 mm
080	0.80 mm
085	0.85 mm

#### Packaging Style

Code	Style
A	178" Reel, 4mm Pitch
B	178" Reel, 2mm Pitch

#### Special Reserved Code

Code	Description
K	Soft Termination





## Capacitance Range Chart

# CKCN27(C0906)[EIA CC0302]

### Capacitance Range Chart

Temperature Characteristics: JB ( $\pm 10\%$ ), X5R ( $\pm 15\%$ )  
 Rated Voltage: 6.3V (0J)

Capacitance (pF)	Code	Tolerance	JB	X5R	Standard Thickness
			0J (6.3V)	0J (6.3V)	
100,000	104	M: $\pm 20\%$			0.45 mm



## Capacitance Range Chart

# CKCM25(C1310)[EIA CC0504]

### Capacitance Range Chart

Temperature Characteristics: C0G ( $0 \pm 30\text{ppm}/^\circ\text{C}$ ), X5R ( $\pm 15\%$ ), X7R ( $\pm 15\%$ ), X8R ( $\pm 15\%$ )  
 Rated Voltage: 100V (2A), 50V (1H), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J)

Capacitance (pF)	Code	Tolerance	C0G		X5R			X7R		X8R	Standard Thickness
			2A (100V)	1H (50V)	1C (16V)	1A (10V)	0J (6.3V)	1H (50V)	1E (25V)	1H (50V)	
10	100	F: $\pm 1\text{pF}$									
15	150	K: $\pm 10\%$									
22	220	M: $\pm 20\%$									
33	330										
47	470										
68	680										
100	101										
220	221										
330	331										
470	471										
680	681										
1,000	102										
1,500	152										
2,200	222										
3,300	332										
4,700	472										
6,800	682										
10,000	103										
22,000	223										
47,000	473										
100,000	104										
220,000	224										
470,000	474										
1,000,000	105										



## Capacitance Range Chart

# CKCL22(2012) [EIA CC0805]

### Capacitance Range Chart

Temperature Characteristics: C0G ( $0 \pm 30\text{ppm}/^\circ\text{C}$ ), X5R ( $\pm 15\%$ ), X7R ( $\pm 15\%$ )  
 Rated Voltage: 100V (2A), 50V (1H), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J)

Capacitance (pF)	Code	Tolerance	C0G		X5R			X7R			
			2A (100V)	1H (50V)	1C (16V)	1A (10V)	0J (6.3V)	2A (100V)	1H (50V)	1E (25V)	1A (10V)
10	100	F: $\pm 1\text{pF}$	■	■							
22	220	K: $\pm 10\%$	■	■							
47	470	M: $\pm 20\%$	■	■							
100	101										
220	221										
470	471		■	■				■			
1,000	102							■	■		
2,200	222										
4,700	472										
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										

Standard Thickness  
 0.85 mm



## Capacitance Range Table

### Class 1 (Temperature Compensating)

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

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number	
				Rated Voltage Edc: 100V	Rated Voltage Edc: 50V
10 pF	1310	0.60 ± 0.10	± 1pF	CKCM25C0G2A100F060AK	CKCM25C0G1H100F060AK
	2012	0.85 ± 0.15	± 1pF	CKCL22C0G2A100F085AK	CKCL22C0G1H100F085AK
15 pF	1310	0.60 ± 0.10	± 10%	CKCM25C0G2A150K060AK	CKCM25C0G1H150K060AK
	2012	0.85 ± 0.15	± 10%	CKCL22C0G2A150K085AK	CKCL22C0G1H150K085AK
22 pF	1310	0.60 ± 0.10	± 10%	CKCM25C0G2A220K060AK	CKCM25C0G1H220K060AK
	2012	0.85 ± 0.15	± 10%	CKCL22C0G2A220K085AK	CKCL22C0G1H220K085AK
33 pF	1310	0.60 ± 0.10	± 10%	CKCM25C0G2A330K060AK	CKCM25C0G1H330K060AK
	2012	0.85 ± 0.15	± 10%	CKCL22C0G2A330K085AK	CKCL22C0G1H330K085AK
47 pF	1310	0.60 ± 0.10	± 10%	CKCM25C0G2A470K060AK	CKCM25C0G1H470K060AK
	2012	0.85 ± 0.15	± 10%	CKCL22C0G2A470K085AK	CKCL22C0G1H470K085AK
68 pF	1310	0.60 ± 0.10	± 10%	CKCM25C0G2A680K060AK	CKCM25C0G1H680K060AK
	2012	0.85 ± 0.15	± 10%	CKCL22C0G2A680K085AK	CKCL22C0G1H680K085AK
100 pF	1310	0.60 ± 0.10	± 10%	CKCM25C0G2A101K060AK	CKCM25C0G1H101K060AK
	2012	0.85 ± 0.15	± 10%	CKCL22C0G2A101K085AK	CKCL22C0G1H101K085AK
220 pF	1310	0.60 ± 0.10	± 10%	CKCM25C0G2A221K085AK	CKCM25C0G1H221K085AK
	2012	0.85 ± 0.15	± 10%	CKCL22C0G2A221K085AK	CKCL22C0G1H221K085AK
470 pF	1310	0.60 ± 0.10	± 10%	CKCM25C0G2A471K085AK	CKCM25C0G1H471K085AK
	2012	0.85 ± 0.15	± 10%	CKCL22C0G2A471K085AK	CKCL22C0G1H471K085AK

### Class 1 (Temperature Compensating)

Temperature Characteristics: CH (-25 to +85°C, 0±60 ppm/°C)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number
				Rated Voltage Edc: 6.3V
100 nF	0906	0.45 ± 0.05	± 20%	CKCN27JB0J104M045BK

### Class 1 (Temperature Compensating)

Temperature Characteristics: X5R (-55 to +85°C, ±15%)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number		
				Rated Voltage Edc: 16V	Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V
22 nF	1310	0.60 ± 0.10	± 20%	CKCM25X5R1C223M060AK		
47 nF	1310	0.60 ± 0.10	± 20%		CKCM25X5R1A473M060AK	
	0906	0.45 ± 0.05	± 20%			CKCN27X5R0J104M045BK
100 nF	1310	0.60 ± 0.10	± 20%			CKCM25X5R0J104M060AK
	2012	0.85 ± 0.15	± 20%	CKCL22X5R1C224M085AK		CKCM25X5R0J224M060AK
220 nF	1310	0.60 ± 0.10	± 20%			CKCM25X5R0J474M080AK
	2012	0.85 ± 0.15	± 20%	CKCL22X5R1A474M085AK		
470 nF	1310	0.80 ± 0.15	± 20%			CKCM25X5R0J105M080AK
	2012	0.85 ± 0.15	± 20%			CKCL22X5R0J105M085AK
1 µF	1310	0.80 ± 0.15	± 20%			CKCL22X5R0J225M085AK
	2012	0.85 ± 0.15	± 20%			

### Class 2 (Temperature Stable)

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

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number			
				Rated Voltage Edc: 100V	Rated Voltage Edc: 50V	Rated Voltage Edc: 25V	Rated Voltage Edc: 10V
470 pF	2012	0.85 ± 0.15	± 20%	CKCL22X7R2A471M085AK			
	1310	0.60 ± 0.10	± 20%		CKCM25X7R1H102M060AK		
1 nF	2012	0.85 ± 0.15	± 20%	CKCL22X7R2A102M085AK	CKCL22X7R1H102M085AK		
	1310	0.60 ± 0.10	± 20%		CKCM25X7R1H222M060AK		
2.2 nF	2012	0.85 ± 0.15	± 20%	CKCL22X7R2A222M085AK	CKCL22X7R1H222M085AK		
	1310	0.60 ± 0.10	± 20%		CKCM25X7R1H472M060AK		
4.7 nF	2012	0.85 ± 0.15	± 20%	CKCL22X7R2A472M085AK	CKCL22X7R1H472M085AK		
	1310	0.60 ± 0.10	± 20%			CKCM25X7R1E103M060AK	
10 nF	2012	0.85 ± 0.15	± 20%	CKCL22X7R2A103M085AK	CKCL22X7R1H103M085AK		
	2012	0.85 ± 0.15	± 20%		CKCL22X7R1H223M085AK		
47 nF	2012	0.85 ± 0.15	± 20%		CKCL22X7R1H473M085AK	CKCL22X7R1E473M085AK	
	2012	0.85 ± 0.15	± 20%		CKCL22X7R1H104M085AK	CKCL22X7R1E104M085AK	
220 nF	2012	0.85 ± 0.15	± 20%				CKCL22X7R1A224M085AK



## Capacitance Range Table

### Class 2 (Temperature Stable)

Temperature Characteristics: X8R (-55 to +150°C, ±15%)

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number
				Rated Voltage Edc: 50V
220 pF	1310	0.60 ± 0.10	± 20%	CKCM25X8R1H221M060AK
330 pF	1310	0.60 ± 0.10	± 20%	CKCM25X8R1H331M060AK
470 pF	1310	0.60 ± 0.10	± 20%	CKCM25X8R1H471M060AK
680 pF	1310	0.60 ± 0.10	± 20%	CKCM25X8R1H681M060AK
1 nF	1310	0.60 ± 0.10	± 20%	CKCM25X8R1H102M060AK
1.5 nF	1310	0.60 ± 0.10	± 20%	CKCM25X8R1H152M060AK
2.2 nF	1310	0.60 ± 0.10	± 20%	CKCM25X8R1H222M060AK
3.3 nF	1310	0.60 ± 0.10	± 20%	CKCM25X8R1H332M060AK
4.7 nF	1310	0.60 ± 0.10	± 20%	CKCM25X8R1H472M060AK
6.8 nF	1310	0.60 ± 0.10	± 20%	CKCM25X8R1H682M060AK