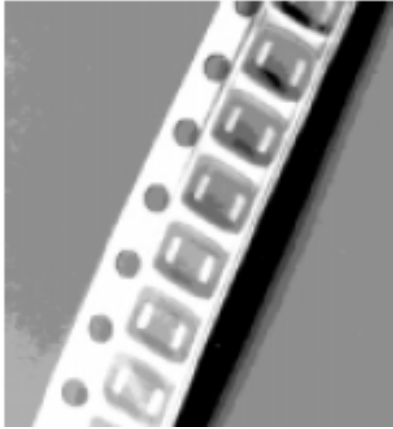


# Type C Multilayer Ceramic Chip Capacitors

## Surface Mount Chip Capacitors



Type C surface mount multilayer chip capacitors are available on tape and reel in COG (NPO), X7R, Z5U and Y5V temperature coefficients. Five standard sizes (0402, 0603, 0805, 1206, and 1210) are available in most of the temperature coefficients - 0603 is not available in Z5U.

### Highlights

- Nickel barrier/solder terminations
- 50 Vdc units can be used in 63 Vdc applications
- Tape and reel standard
- Surface Mount

### Specifications

#### Capacitance Range:

<b>COG</b>	0.5 pF	to	0.012 $\mu$ F
<b>X7R</b>	150 pF	to	0.33 $\mu$ F
<b>Z5U</b>	6800 pF	to	0.47 $\mu$ F
<b>Y5V</b>	0.022 $\mu$ F	to	2.2 $\mu$ F

#### Voltage Range:

<b>COG</b>	10, 16, 25, 50, 100, 200 Vdc
<b>X7R</b>	10, 16, 25, 50, 100, 200 Vdc
<b>Z5U</b>	50, 100 Vdc
<b>Y5V</b>	10, 16, 25, 50 Vdc

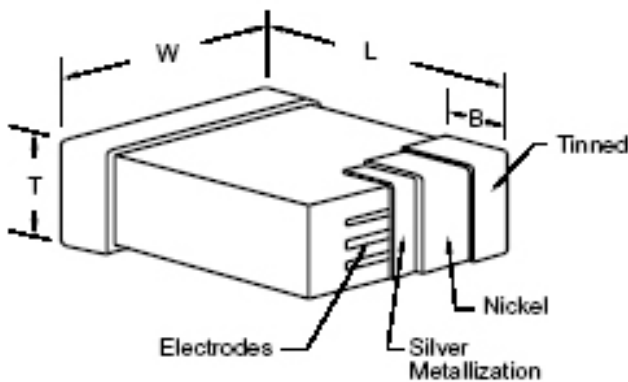
**Standard Sizes:** 0402, 0603, 0805, 1206, 1210  
(0603 not available in Z5U)

#### Tape & Reel:

7" reel per EIA RS 481-1  
Parts with ^ (caret) following the part number are 2,500 pieces per reel. Parts with # following the part number are 10,000 pieces per reel.  
13" reels are available by special request - contact the factory.

### RoHS Compliant

### Outline Drawing



Dimensions - Millimeters (Inches)				
Size Code	L Length	W Width	T Max. Thickness	B Bandwidth
402	1.0(.040) $\pm$ 0.05(.002)	0.50(.020) $\pm$ 0.05(.002)	0.55(.022)	0.20(.008) Minimum
603	1.6(.063) $\pm$ 0.15(.006)	0.80(.032) $\pm$ 0.15(.006)	0.90(.035)	0.35(.014) $\pm$ 0.15(.006)
805	2.0(.079) $\pm$ 0.20(.008)	1.25(.049) $\pm$ 0.20(.008)	1.30(.051)	0.50(.020) $\pm$ 0.25(.010)
1206	3.2(.126) $\pm$ 0.20(.008)	1.60(.063) $\pm$ 0.20(.008)	1.50(.059)	0.50(.020) $\pm$ 0.25(.010)
1210	3.2(.126) $\pm$ 0.20(.008)	2.50(.098) $\pm$ 0.20(.008)	1.70(.067)	0.50(.020) $\pm$ 0.25(.010)

**Z5U meets all Y5V requirements and can be used in its place**

Y5V -  $\Delta \leq +22/-82\%$  over  $-30^\circ\text{C}$  to  $+85^\circ\text{C}$

Z5U -  $\Delta \leq +22/-56\%$  over  $+10^\circ\text{C}$  to  $+85^\circ\text{C}$

# Type C Multilayer Ceramic Chip Capacitors

## Performance Characteristics

RoHS Compliant

Parameter	COG (NPO)	X7R	Z5U	Y5V
<b>Temperature Characteristics:</b>				
Range °C	-55 °C to +125 °C	-55 °C to +125 °C	+10 °C to +85 °C	-30 °C to +85 °C
Cap change without DC voltage	0±30 PPM/°C	±15%	+22%, -56%	+22%, -82%
<b>Aging Rate:</b> % C / Decade Hour, Max.	0%	2.5%	5.0%	3.5% 0603; 7.0% 0805
<b>Dissipation Factor:</b>				
Test conditions @ 25 °C	>100 pF w/ 1.0 vrms @ 1 kHz ≤100 pF w/ 1.0 vrms @ 1 MHz	w/ 1.0 vrms @ 1 kHz	w/ 0.5 vrms @ 1 kHz	w/ 1.0 vrms @ 1 kHz
Limits:	0.10% Max.	2.5% Max.	4.0% Max.	7.0% Max.
<b>Insulation Resistance (IR):</b>				
After 2 min. electrification @ 25 °C with rated voltage applied:	1000 megohms x µF or 100 gigaohms	1000 megohms x µF or 100 gigaohms	1000 megohms x µF or 10 gigaohms	500 megohms x µF or 10,000 megohms
<b>Moisture Resistance:</b> MIL-STD-202				
Method 106 (20 cycles w / 50 V applied)				
Post test limits @ 25 °C, whichever is smaller	100 megohms x µF or 10 gigaohms	100 megohms x µF or 10 gigaohms	1000 megohms x µF or 1 gigaohm	10 megohms x µF or 1,000 megohms
<b>Immersion Cycling:</b> MIL-STD-202, Method 104, Condition B				
(2 cycles @ 15 minutes each. Each cycle consists of immersion in hot bath @ 65 °C followed by immersion in cold salt water bath.)				
Post test limits @ 25 °C	100 megohms x µF or 10 gigaohms	100 megohms x µF or 10 gigaohms	1000 megohms x µF or 1 gigaohm	10 megohms x µF or 1,000 megohms
Insulation Resistance, whichever is smaller..				
<b>Life Test:</b> 1000 Hrs				
Test Potential and Temperature	200% V @ 125 °C	200% V @ 125 °C	150% V @ 85 °C	200% V @ 85 °C
Post test limits @ 25 °C				
Capacitance Change, whichever is greater	< 2% or 0.5 pF	±15% of initial value**	±30% of initial value**	±30% of initial value**
Dissipation Factor	0.25% Max.	0.25% Max.	5.0% Max.	7.0% Max.
Insulation Resistance, whichever is smaller..	100 megohms x µF or 10 gigaohms	100 megohms x µF or 10 gigaohms	100 megohms x µF or 1 gigaohm	10 megohms x µF or 1,000 megohms
Dielectric Strength 2.5 times rated voltage for 5 seconds with current limited to 50 mA				

\* 60 PPM/ °C below 10 pF nominal

+53 PPM -30 PPM/°C from +25 °C to -55 °C comparable to MIL-C-20

\*\*X7R and Z5U dielectrics exhibit aging characteristics; therefore, it is highly recommended that capacitors be de-aged for 2 hours at +150 °C and stabilized at room temperature for 48 hours before capacitor measurements are made.

# Type C Multilayer Ceramic Chip Capacitors

## Ratings

## RoHS Compliant

COG (NPO) Temperature Coefficient				
Cap	Catalog Part Number 0402 Size Code			
	10 Vdc	16 Vdc	25 Vdc	50 Vdc
.50 pF	C0402C508*8GAC#	C0402C508*4GAC#	C0402C508*3GAC#	C0402C508*5GAC#
.75 pF	C0402C758*8GAC#	C0402C758*4GAC#	C0402C758*3GAC#	C0402C758*5GAC#
1.0 pF	C0402C109*8GAC#	C0402C109*4GAC#	C0402C109*3GAC#	C0402C109*5GAC#
1.2 pF	C0402C129*8GAC#	C0402C129*4GAC#	C0402C129*3GAC#	C0402C129*5GAC#
1.5 pF	C0402C159*8GAC#	C0402C159*4GAC#	C0402C159*3GAC#	C0402C159*5GAC#
1.8 pF	C0402C189*8GAC#	C0402C189*4GAC#	C0402C189*3GAC#	C0402C189*5GAC#
2.2 pF	C0402C229*8GAC#	C0402C229*4GAC#	C0402C229*3GAC#	C0402C229*5GAC#
2.7 pF	C0402C279*8GAC#	C0402C279*4GAC#	C0402C279*3GAC#	C0402C279*5GAC#
3.3 pF	C0402C339*8GAC#	C0402C339*4GAC#	C0402C339*3GAC#	C0402C339*5GAC#
3.9 pF	C0402C399*8GAC#	C0402C399*4GAC#	C0402C399*3GAC#	C0402C399*5GAC#
4.7 pF	C0402C479*8GAC#	C0402C479*4GAC#	C0402C479*3GAC#	C0402C479*5GAC#
5.6 pF	C0402C569*8GAC#	C0402C569*4GAC#	C0402C569*3GAC#	C0402C569*5GAC#
6.8 pF	C0402C689*8GAC#	C0402C689*4GAC#	C0402C689*3GAC#	C0402C689*5GAC#
8.2 pF	C0402C829*8GAC#	C0402C829*4GAC#	C0402C829*3GAC#	C0402C829*5GAC#
10 pF	C0402C100*8GAC#	C0402C100*4GAC#	C0402C100*3GAC#	C0402C100*5GAC#
12 pF	C0402C120*8GAC#	C0402C120*4GAC#	C0402C120*3GAC#	C0402C120*5GAC#
15 pF	C0402C150*8GAC#	C0402C150*4GAC#	C0402C150*3GAC#	C0402C150*5GAC#
18 pF	C0402C180*8GAC#	C0402C180*4GAC#	C0402C180*3GAC#	C0402C180*5GAC#
22 pF	C0402C220*8GAC#	C0402C220*4GAC#	C0402C220*3GAC#	C0402C220*5GAC#
27 pF	C0402C270*8GAC#	C0402C270*4GAC#	C0402C270*3GAC#	C0402C270*5GAC#
33 pF	C0402C330*8GAC#	C0402C330*4GAC#	C0402C330*3GAC#	C0402C330*5GAC#
39 pF	C0402C390*8GAC#	C0402C390*4GAC#	C0402C390*3GAC#	C0402C390*5GAC#
47 pF	C0402C470*8GAC#	C0402C470*4GAC#	C0402C470*3GAC#	C0402C470*5GAC#
56 pF	C0402C560*8GAC#	C0402C560*4GAC#	C0402C560*3GAC#	C0402C560*5GAC#
68 pF	C0402C680*8GAC#	C0402C680*4GAC#	C0402C680*3GAC#	C0402C680*5GAC#
82 pF	C0402C820*8GAC#	C0402C820*4GAC#	C0402C820*3GAC#	
100 pF	C0402C101*8GAC#	C0402C101*4GAC#	C0402C101*3GAC#	

\* Insert proper letter code for desired tolerance:  
 $\pm 0.25$  pF (C) is standard on values less than 10 pF  
 $\pm 5\%$  (J) is standard on values  $\geq 10$  pF

Other Available tolerances:  
 Values less than 27 pF:  
 C =  $\pm 0.25$  pF, D =  $\pm 0.5$  pF  
 Values greater than 10 pF:  
 F =  $\pm 1\%$ ; G =  $\pm 2\%$ ; H =  $\pm 2.5\%$   
 J =  $\pm 5\%$ ; K =  $\pm 10\%$ ; M =  $\pm 20\%$

^ Parts with caret (^) following catalog number are 2,500 pcs per reel  
 # Parts with (#) following catalog number are 10,000 pieces per reel.  
 All others are 4,000 pcs per reel

Cap	Catalog Part Number 0603 Size Code COG (NPO)		
	50 Vdc	100 Vdc	200 Vdc
.50 pF	C0603C508*5GAC		
.75 pF	C0603C758*5GAC		
1.0 pF	C0603C109*5GAC	C0603C109*1GAC	C0603C109*2GAC
1.2 pF	C0603C129*5GAC	C0603C129*1GAC	C0603C129*2GAC
1.5 pF	C0603C159*5GAC	C0603C159*1GAC	C0603C159*2GAC
1.8 pF	C0603C189*5GAC	C0603C189*1GAC	C0603C189*2GAC
2.2 pF	C0603C229*5GAC	C0603C229*1GAC	C0603C229*2GAC
2.7 pF	C0603C279*5GAC	C0603C279*1GAC	C0603C279*2GAC
3.3 pF	C0603C339*5GAC	C0603C339*1GAC	C0603C339*2GAC
3.9 pF	C0603C399*5GAC	C0603C399*1GAC	C0603C399*2GAC
4.7 pF	C0603C479*5GAC	C0603C479*1GAC	C0603C479*2GAC
5.6 pF	C0603C569*5GAC	C0603C569*1GAC	C0603C569*2GAC
6.8 pF	C0603C689*5GAC	C0603C689*1GAC	C0603C689*2GAC
8.2 pF	C0603C829*5GAC	C0603C829*1GAC	C0603C829*2GAC
10 pF	C0603C100*5GAC	C0603C100*1GAC	C0603C100*2GAC

Cap	Catalog Part Number 0603 Size Code COG (NPO)		
	50 Vdc	100 Vdc	200 Vdc
12 pF	C0603C120*5GAC	C0603C120*1GAC	C0603C120*2GAC
15 pF	C0603C150*5GAC	C0603C150*1GAC	C0603C150*2GAC
18 pF	C0603C180*5GAC	C0603C180*1GAC	C0603C180*2GAC
22 pF	C0603C220*5GAC	C0603C220*1GAC	C0603C220*2GAC
27 pF	C0603C270*5GAC	C0603C270*1GAC	C0603C270*2GAC
33 pF	C0603C330*5GAC	C0603C330*1GAC	C0603C330*2GAC
39 pF	C0603C390*5GAC	C0603C390*1GAC	C0603C390*2GAC
47 pF	C0603C470*5GAC	C0603C470*1GAC	C0603C470*2GAC
56 pF	C0603C560*5GAC	C0603C560*1GAC	C0603C560*2GAC
68 pF	C0603C680*5GAC	C0603C680*1GAC	C0603C680*2GAC
82 pF	C0603C820*5GAC	C0603C820*1GAC	C0603C820*2GAC
100 pF	C0603C101*5GAC	C0603C101*1GAC	
120 pF	C0603C121*5GAC	C0603C121*1GAC	
150 pF	C0603C151*5GAC	C0603C151*1GAC	
180 pF	C0603C181*5GAC	C0603C181*1GAC	
220 pF	C0603C221*5GAC		

# Type C Multilayer Ceramic Chip Capacitors

## Ratings

## RoHS Compliant

COG (NPO) Temperature Coefficient							
Cap	Catalog Part Number 0805 Size Code			Cap	Catalog Part Number 1206 Size Code		
	50 Vdc	100 Vdc	200 Vdc		50 Vdc	100 Vdc	200 Vdc
1.0 pF	C0805C109*5GAC	C0805C109*1GAC	C0805C109*2GAC	1.0 pF	C1206C109*5GAC	C1206C109*1GAC	C1206C109*2GAC
1.2 pF	C0805C129*5GAC	C0805C129*1GAC	C0805C129*2GAC	1.2 pF	C1206C129*5GAC	C1206C129*1GAC	C1206C129*2GAC
1.5 pF	C0805C159*5GAC	C0805C159*1GAC	C0805C159*2GAC	1.5 pF	C1206C159*5GAC	C1206C159*1GAC	C1206C159*2GAC
1.8 pF	C0805C189*5GAC	C0805C189*1GAC	C0805C189*2GAC	1.8 pF	C1206C189*5GAC	C1206C189*1GAC	C1206C189*2GAC
2.2 pF	C0805C229*5GAC	C0805C229*1GAC	C0805C229*2GAC	2.2 pF	C1206C229*5GAC	C1206C229*1GAC	C1206C229*2GAC
2.7 pF	C0805C279*5GAC	C0805C279*1GAC	C0805C279*2GAC	2.7 pF	C1206C279*5GAC	C1206C279*1GAC	C1206C279*2GAC
3.3 pF	C0805C339*5GAC	C0805C339*1GAC	C0805C339*2GAC	3.3 pF	C1206C339*5GAC	C1206C339*1GAC	C1206C339*2GAC
3.9 pF	C0805C399*5GAC	C0805C399*1GAC	C0805C399*2GAC	3.9 pF	C1206C399*5GAC	C1206C399*1GAC	C1206C399*2GAC
4.7 pF	C0805C479*5GAC	C0805C479*1GAC	C0805C479*2GAC	4.7 pF	C1206C479*5GAC	C1206C479*1GAC	C1206C479*2GAC
5.6 pF	C0805C569*5GAC	C0805C569*1GAC	C0805C569*2GAC	5.6 pF	C1206C569*5GAC	C1206C569*1GAC	C1206C569*2GAC
6.8 pF	C0805C689*5GAC	C0805C689*1GAC	C0805C689*2GAC	6.8 pF	C1206C689*5GAC	C1206C689*1GAC	C1206C689*2GAC
8.2 pF	C0805C829*5GAC	C0805C829*1GAC	C0805C829*2GAC	8.2 pF	C1206C829*5GAC	C1206C829*1GAC	C1206C829*2GAC
10 pF	C0805C100*5GAC	C0805C100*1GAC	C0805C100*2GAC	10 pF	C1206C100*5GAC	C1206C100*1GAC	C1206C100*2GAC
12 pF	C0805C120*5GAC	C0805C120*1GAC	C0805C120*2GAC	12 pF	C1206C120*5GAC	C1206C120*1GAC	C1206C120*2GAC
15 pF	C0805C150*5GAC	C0805C150*1GAC	C0805C150*2GAC	15 pF	C1206C150*5GAC	C1206C150*1GAC	C1206C150*2GAC
18 pF	C0805C180*5GAC	C0805C180*1GAC	C0805C180*2GAC	18 pF	C1206C180*5GAC	C1206C180*1GAC	C1206C180*2GAC
22 pF	C0805C220*5GAC	C0805C220*1GAC	C0805C220*2GAC	22 pF	C1206C220*5GAC	C1206C220*1GAC	C1206C220*2GAC
27 pF	C0805C270*5GAC	C0805C270*1GAC	C0805C270*2GAC	27 pF	C1206C270*5GAC	C1206C270*1GAC	C1206C270*2GAC
33 pF	C0805C330*5GAC	C0805C330*1GAC	C0805C330*2GAC	33 pF	C1206C330*5GAC	C1206C330*1GAC	C1206C330*2GAC
39 pF	C0805C390*5GAC	C0805C390*1GAC	C0805C390*2GAC	39 pF	C1206C390*5GAC	C1206C390*1GAC	C1206C390*2GAC
47 pF	C0805C470*5GAC	C0805C470*1GAC	C0805C470*2GAC	47 pF	C1206C470*5GAC	C1206C470*1GAC	C1206C470*2GAC
56 pF	C0805C560*5GAC	C0805C560*1GAC	C0805C560*2GAC	56 pF	C1206C560*5GAC	C1206C560*1GAC	C1206C560*2GAC
68 pF	C0805C680*5GAC	C0805C680*1GAC	C0805C680*2GAC	68 pF	C1206C680*5GAC	C1206C680*1GAC	C1206C680*2GAC
82 pF	C0805C820*5GAC	C0805C820*1GAC	C0805C820*2GAC	82 pF	C1206C820*5GAC	C1206C820*1GAC	C1206C820*2GAC
100 pF	C0805C101*5GAC	C0805C101*1GAC	C0805C101*2GAC	100 pF	C1206C101*5GAC	C1206C101*1GAC	C1206C101*2GAC
120 pF	C0805C121*5GAC	C0805C121*1GAC	C0805C121*2GAC	120 pF	C1206C121*5GAC	C1206C121*1GAC	C1206C121*2GAC
150 pF	C0805C151*5GAC	C0805C151*1GAC	C0805C151*2GAC	150 pF	C1206C151*5GAC	C1206C151*1GAC	C1206C151*2GAC
180 pF	C0805C181*5GAC	C0805C181*1GAC	C0805C181*2GAC	180 pF	C1206C181*5GAC	C1206C181*1GAC	C1206C181*2GAC
220 pF	C0805C221*5GAC	C0805C221*1GAC	C0805C221*2GAC	220 pF	C1206C221*5GAC	C1206C221*1GAC	C1206C221*2GAC
270 pF	C0805C271*5GAC	C0805C271*1GAC	C0805C271*2GAC ^	270 pF	C1206C271*5GAC	C1206C271*1GAC	C1206C271*2GAC
330 pF	C0805C331*5GAC	C0805C331*1GAC	C0805C331*2GAC ^	330 pF	C1206C331*5GAC	C1206C331*1GAC	C1206C331*2GAC
390 pF	C0805C391*5GAC	C0805C391*1GAC	C0805C391*2GAC ^	390 pF	C1206C391*5GAC	C1206C391*1GAC	C1206C391*2GAC
470 pF	C0805C471*5GAC	C0805C471*1GAC	C0805C471*2GAC ^	470 pF	C1206C471*5GAC	C1206C471*1GAC	C1206C471*2GAC
560 pF	C0805C561*5GAC	C0805C561*1GAC		560 pF	C1206C561*5GAC	C1206C561*1GAC	C1206C561*2GAC
680 pF	C0805C681*5GAC	C0805C681*1GAC ^		680 pF	C1206C681*5GAC	C1206C681*1GAC	C1206C681*2GAC
820 pF	C0805C821*5GAC	C0805C821*1GAC ^		820 pF	C1206C821*5GAC	C1206C821*1GAC	C1206C821*2GAC
1000 pF	C0805C102*5GAC	C0805C102*1GAC ^		1000 pF	C1206C102*5GAC	C1206C102*1GAC	C1206C102*2GAC ^
1200 pF	C0805C122*5GAC			1200 pF	C1206C122*5GAC	C1206C122*1GAC	C1206C122*2GAC ^
1500 pF	C0805C152*5GAC			1500 pF	C1206C152*5GAC	C1206C152*1GAC	C1206C152*2GAC ^
1800 pF	C0805C182*5GAC			1800 pF	C1206C182*5GAC	C1206C182*1GAC	C1206C182*2GAC ^
				2200 pF	C1206C222*5GAC	C1206C222*1GAC ^	
				2700 pF	C1206C272*5GAC	C1206C272*1GAC ^	
				3300 pF	C1206C332*5GAC	C1206C332*1GAC ^	
				3900 pF	C1206C392*5GAC	C1206C392*1GAC ^	
				4700 pF	C1206C472*5GAC		

\* Insert proper letter code for desired tolerance:  
 ±0.25 pF (C) is standard on values less than 10 pF  
 ±5% (J) is standard on values ≥ 10 pF

Other Available tolerances:

Values less than 27 pF:

C = ±0.25 pF, D = ±0.5 pF

Values greater than 10 pF:

F = ±1%; G = ±2%; H = ±2.5%

J = ±5%; K = ±10%; M = ±20%

^ Parts with caret (^) following catalog number are

2,500 pcs per reel

All others are 4,000 pcs per reel

# Type C Multilayer Ceramic Chip Capacitors

**Ratings**

**RoHS Compliant**

COG (NPO) Temperature Coefficient							
Cap	Catalog Part Number 1210 Size Code			Cap	Catalog Part Number 1210 Size Code		
	50 Vdc	100 Vdc	200 Vdc		50 Vdc	100 Vdc	200 Vdc
10 pF	C1210C100*5GAC	C1210C100*1GAC	C1210C100*2GAC	390 pF	C1210C391*5GAC	C1210C391*1GAC	C1210C391*2GAC
12 pF	C1210C120*5GAC	C1210C120*1GAC	C1210C120*2GAC	470 pF	C1210C471*5GAC	C1210C471*1GAC	C1210C471*2GAC
15 pF	C1210C150*5GAC	C1210C150*1GAC	C1210C150*2GAC	560 pF	C1210C561*5GAC	C1210C561*1GAC	C1210C561*2GAC
18 pF	C1210C180*5GAC	C1210C180*1GAC	C1210C180*2GAC	680 pF	C1210C681*5GAC	C1210C681*1GAC	C1210C681*2GAC
22 pF	C1210C220*5GAC	C1210C220*1GAC	C1210C220*2GAC	820 pF	C1210C821*5GAC	C1210C821*1GAC	C1210C821*2GAC
27 pF	C1210C270*5GAC	C1210C270*1GAC	C1210C270*2GAC	1000 pF	C1210C102*5GAC	C1210C102*1GAC	C1210C102*2GAC
33 pF	C1210C330*5GAC	C1210C330*1GAC	C1210C330*2GAC	1200 pF	C1210C122*5GAC	C1210C122*1GAC	C1210C122*2GAC
39 pF	C1210C390*5GAC	C1210C390*1GAC	C1210C390*2GAC	1500 pF	C1210C152*5GAC	C1210C152*1GAC	C1210C152*2GAC
47 pF	C1210C470*5GAC	C1210C470*1GAC	C1210C470*2GAC	1800 pF	C1210C182*5GAC	C1210C182*1GAC	C1210C182*2GAC
56 pF	C1210C560*5GAC	C1210C560*1GAC	C1210C560*2GAC	2200 pF	C1210C222*5GAC	C1210C222*1GAC	C1210C222*2GAC ^
68 pF	C1210C680*5GAC	C1210C680*1GAC	C1210C680*2GAC	2700 pF	C1210C272*5GAC	C1210C272*1GAC	C1210C272*2GAC ^
82 pF	C1210C820*5GAC	C1210C820*1GAC	C1210C820*2GAC	3300 pF	C1210C332*5GAC	C1210C332*1GAC	C1210C332*2GAC ^
100 pF	C1210C101*5GAC	C1210C101*1GAC	C1210C101*2GAC	3900 pF	C1210C392*5GAC	C1210C392*1GAC ^	
120 pF	C1210C121*5GAC	C1210C121*1GAC	C1210C121*2GAC	4700 pF	C1210C472*5GAC ^	C1210C472*1GAC ^	
150 pF	C1210C151*5GAC	C1210C151*1GAC	C1210C151*2GAC	5600 pF	C1210C562*5GAC ^	C1210C562*1GAC ^	
180 pF	C1210C181*5GAC	C1210C181*1GAC	C1210C181*2GAC	6800 pF	C1210C682*5GAC ^	C1210C682*1GAC ^	
220 pF	C1210C221*5GAC	C1210C221*1GAC	C1210C221*2GAC	8200 pF	C1210C822*5GAC ^		
270 pF	C1210C271*5GAC	C1210C271*1GAC	C1210C271*2GAC	10000 pF	C1210C103*5GAC ^		

X7R Temperature Coefficient				
Cap	Catalog Part Number 0402 Size Code			
	10 Vdc	16 Vdc	25 Vdc	50 Vdc
150 pF	C0402C151*8RAC#	C0402C151*4RAC#	C0402C151*3RAC#	C0402C151*5RAC#
180 pF	C0402C181*8RAC#	C0402C181*4RAC#	C0402C181*3RAC#	C0402C181*5RAC#
220 pF	C0402C221*8RAC#	C0402C221*4RAC#	C0402C221*3RAC#	C0402C221*5RAC#
270 pF	C0402C271*8RAC#	C0402C271*4RAC#	C0402C271*3RAC#	C0402C271*5RAC#
330 pF	C0402C331*8RAC#	C0402C331*4RAC#	C0402C331*3RAC#	C0402C331*5RAC#
390 pF	C0402C391*8RAC#	C0402C391*4RAC#	C0402C391*3RAC#	C0402C391*5RAC#
470 pF	C0402C471*8RAC#	C0402C471*4RAC#	C0402C471*3RAC#	C0402C471*5RAC#
560 pF	C0402C561*8RAC#	C0402C561*4RAC#	C0402C561*3RAC#	C0402C561*5RAC#
680 pF	C0402C681*8RAC#	C0402C681*4RAC#	C0402C681*3RAC#	C0402C681*5RAC#
820 pF	C0402C821*8RAC#	C0402C821*4RAC#	C0402C821*3RAC#	C0402C821*5RAC#
1000 pF	C0402C102*8RAC#	C0402C102*4RAC#	C0602C102*3RAC#	C0602C102*5RAC#
1200 pF	C0402C122*8RAC#	C0402C122*4RAC#	C0402C122*3RAC#	C0402C122*5RAC#
1500 pF	C0402C152*8RAC#	C0402C152*4RAC#	C0402C152*3RAC#	C0402C152*5RAC#
1800 pF	C0402C182*8RAC#	C0402C182*4RAC#	C0402C182*3RAC#	
2200 pF	C0402C222*8RAC#	C0402C222*4RAC#	C0402C222*3RAC#	
2700 pF	C0402C272*8RAC#	C0402C272*4RAC#	C0402C272*3RAC#	
3300 pF	C0402C332*8RAC#	C0402C332*4RAC#	C0402C332*3RAC#	
3900 pF	C0402C392*8RAC#	C0402C392*4RAC#	C0402C392*3RAC#	
4700 pF	C0402C472*8RAC#	C0402C472*4RAC#	C0402C472*3RAC#	

\* Insert proper letter code for desired tolerance:  
 ±0.25 pF (C) is standard on values less than 10 pF  
 ±5% (J) is standard on values ≥ 10 pF

Other Available tolerances:  
 Values less than 27 pF:  
 C = ±0.25 pF, D = ±0.5 pF  
 Values greater than 10 pF:  
 F = ±1%; G = ±2%; H = ±2.5%  
 J = ±5%; K = ±10%; M = ±20%

^ Parts with caret (^) following catalog number are 2,500 pcs per reel

# Parts with (#) following catalog number are 10,000 pieces per reel.  
 All others are 4,000 pcs per reel

# Type C Multilayer Ceramic Chip Capacitors

## Ratings

## RoHS Compliant

X7R Temperature Coefficient							
Cap	Catalog Part Number 0603 Size Code			Cap	Catalog Part Number 0805 Size Code		
	50 Vdc	100 Vdc	200 Vdc		50 Vdc	100 Vdc	200 Vdc
180 pF	C0603C181*5RAC	C0603C181*1RAC	C0603C181*2RAC	220 pF	C0805C221*5RAC	C0805C221*1RAC	C0805C221*2RAC
220 pF	C0603C221*5RAC	C0603C221*1RAC	C0603C221*2RAC	270 pF	C0805C271*5RAC	C0805C271*1RAC	C0805C271*2RAC
270 pF	C0603C271*5RAC	C0603C271*1RAC	C0603C271*2RAC	330 pF	C0805C331*5RAC	C0805C331*1RAC	C0805C331*2RAC
330 pF	C0603C331*5RAC	C0603C331*1RAC	C0603C331*2RAC	390 pF	C0805C391*5RAC	C0805C391*1RAC	C0805C391*2RAC
390 pF	C0603C391*5RAC	C0603C391*1RAC	C0603C391*2RAC	470 pF	C0805C471*5RAC	C0805C471*1RAC	C0805C471*2RAC
470 pF	C0603C471*5RAC	C0603C471*1RAC	C0603C471*2RAC	560 pF	C0805C561*5RAC	C0805C561*1RAC	C0805C561*2RAC
560 pF	C0603C561*5RAC	C0603C561*1RAC	C0603C561*2RAC	680 pF	C0805C681*5RAC	C0805C681*1RAC	C0805C681*2RAC
680 pF	C0603C681*5RAC	C0603C681*1RAC	C0603C681*2RAC	820 pF	C0805C821*5RAC	C0805C821*1RAC	C0805C821*2RAC
820 pF	C0603C821*5RAC	C0603C821*1RAC	C0603C821*2RAC	1000 pF	C0805C102*5RAC	C0805C102*1RAC	C0805C102*2RAC
1000 pF	C0603C102*5RAC	C0603C102*1RAC	C0603C102*2RAC	1200 pF	C0805C122*5RAC	C0805C122*1RAC	C0805C122*2RAC
1200 pF	C0603C122*5RAC	C0603C122*1RAC		1500 pF	C0805C152*5RAC	C0805C152*1RAC	C0805C152*2RAC
1500 pF	C0603C152*5RAC	C0603C152*1RAC		1800 pF	C0805C182*5RAC	C0805C182*1RAC	C0805C182*2RAC
1800 pF	C0603C182*5RAC	C0603C182*1RAC		2200 pF	C0805C222*5RAC	C0805C222*1RAC	C0805C222*2RAC
2200 pF	C0603C222*5RAC	C0603C222*1RAC		2700 pF	C0805C272*5RAC	C0805C272*1RAC	C0805C272*2RAC
2700 pF	C0603C272*5RAC	C0603C272*1RAC		3300 pF	C0805C332*5RAC	C0805C332*1RAC	C0805C332*2RAC
3300 pF	C0603C332*5RAC	C0603C332*1RAC		3900 pF	C0805C392*5RAC	C0805C392*1RAC	C0805C392*2RAC
3900 pF	C0603C392*5RAC	C0603C392*1RAC		4700 pF	C0805C472*5RAC	C0805C472*1RAC	C0805C472*2RAC
4700 pF	C0603C472*5RAC	C0603C472*1RAC		5600 pF	C0805C562*5RAC	C0805C562*1RAC	C0805C562*2RAC
5600 pF	C0603C562*5RAC			6800 pF	C0805C682*5RAC	C0805C682*1RAC	C0805C682*2RAC
6800 pF	C0603C682*5RAC			8200 pF	C0805C822*5RAC	C0805C822*1RAC	
8200 pF	C0603C822*5RAC			10000 pF	C0805C103*5RAC	C0805C103*1RAC	
10000 pF	C0603C103*5RAC			12000 pF	C0805C123*5RAC		
12000 pF	C0603C123*5RAC			15000 pF	C0805C153*5RAC		
15000 pF	C0603C153*5RAC			18000 pF	C0805C183*5RAC		
18000 pF	C0603C183*5RAC			22000 pF	C0805C223*5RAC		
				27000 pF	C0805C273*5RAC		
				33000 pF	C0805C333*5RAC		
				39000 pF	C0805C393*5RAC		
				47000 pF	C0805C473*5RAC		
				56000 pF	C0805C563*5RAC		
				68000 pF	C0805C683*5RAC		
				82000 pF	C0805C823*5RAC		
				.1 uF	C0805C104*5RAC		

\* Insert proper letter code for desired tolerance:  
 ±10% (K) is standard  
 ±5% (J) ; ±20% (M)

^ Parts with caret (^) following catalog number are  
 2,500 pcs per reel

# Parts with (#) following catalog number are 10,000  
 pieces per reel.

All others are 4,000 pcs per reel

# Type C Multilayer Ceramic Chip Capacitors

## Ratings

## RoHS Compliant

X7R Temperature Coefficient							
Cap	Catalog Part Number 1206 Size Code			Cap	Catalog Part Number 1210 Size Code		
	50 Vdc	100 Vdc	200 Vdc		50 Vdc	100 Vdc	200 Vdc
1000 pF	C1206C102*5RAC	C1206C102*1RAC	C1206C102*2RAC	2200 pF	C1210C222*5RAC	C1210C222*1RAC	C1210C222*2RAC
1200 pF	C1206C122*5RAC	C1206C122*1RAC	C1206C122*2RAC	2700 pF	C1210C272*5RAC	C1210C272*1RAC	C1210C272*2RAC
1500 pF	C1206C152*5RAC	C1206C152*1RAC	C1206C152*2RAC	3300 pF	C1210C332*5RAC	C1210C332*1RAC	C1210C332*2RAC
1800 pF	C1206C182*5RAC	C1206C182*1RAC	C1206C182*2RAC	3900 pF	C1210C392*5RAC	C1210C392*1RAC	C1210C392*2RAC
2200 pF	C1206C222*5RAC	C1206C222*1RAC	C1206C222*2RAC	4700 pF	C1210C472*5RAC	C1210C472*1RAC	C1210C472*2RAC
2700 pF	C1206C272*5RAC	C1206C272*1RAC	C1206C272*2RAC	5600 pF	C1210C562*5RAC	C1210C562*1RAC	C1210C562*2RAC
3300 pF	C1206C332*5RAC	C1206C332*1RAC	C1206C332*2RAC	6800 pF	C1210C682*5RAC	C1210C682*1RAC	C1210C682*2RAC
3900 pF	C1206C392*5RAC	C1206C392*1RAC	C1206C392*2RAC	8200 pF	C1210C822*5RAC	C1210C822*1RAC	C1210C822*2RAC
4700 pF	C1206C472*5RAC	C1206C472*1RAC	C1206C472*2RAC	10000 pF	C1210C103*5RAC	C1210C103*1RAC	C1210C103*2RAC
5600 pF	C1206C562*5RAC	C1206C562*1RAC	C1206C562*2RAC	12000 pF	C1210C123*5RAC	C1210C123*1RAC	C1210C123*2RAC
6800 pF	C1206C682*5RAC	C1206C682*1RAC	C1206C682*2RAC	15000 pF	C1210C153*5RAC	C1210C153*1RAC	C1210C153*2RAC
8200 pF	C1206C822*5RAC	C1206C822*1RAC	C1206C822*2RAC	18000 pF	C1210C183*5RAC	C1210C183*1RAC	C1210C183*2RAC
10000 pF	C1206C103*5RAC	C1206C103*1RAC	C1206C103*2RAC	22000 pF	C1210C223*5RAC	C1210C223*1RAC	C1210C223*2RAC
12000 pF	C1206C123*5RAC	C1206C123*1RAC	C1206C123*2RAC	27000 pF	C1210C273*5RAC	C1210C273*1RAC	C1210C273*2RAC
15000 pF	C1206C153*5RAC	C1206C153*1RAC	C1206C153*2RAC	33000 pF	C1210C333*5RAC	C1210C333*1RAC	C1210C333*2RAC
18000 pF	C1206C183*5RAC	C1206C183*1RAC	C1206C183*2RAC	39000 pF	C1210C393*5RAC	C1210C393*1RAC	C1210C393*2RAC
22000 pF	C1206C223*5RAC	C1206C223*1RAC	C1206C223*2RAC	47000 pF	C1210C473*5RAC	C1210C473*1RAC	C1210C473*2RAC
27000 pF	C1206C273*5RAC	C1206C273*1RAC		56000 pF	C1210C563*5RAC	C1210C563*1RAC	
33000 pF	C1206C333*5RAC	C1206C333*1RAC		68000 pF	C1210C683*5RAC	C1210C683*1RAC	
39000 pF	C1206C393*5RAC	C1206C393*1RAC		82000 pF	C1210C823*5RAC	C1210C823*1RAC	
47000 pF	C1206C473*5RAC	C1206C473*1RAC		.1 uF	C1210C104*5RAC	C1210C104*1RAC	
56000 pF	C1206C563*5RAC			.12 uF	C1210C124*5RAC		
68000 pF	C1206C683*5RAC			.15 uF	C1210C154*5RAC		
82000 pF	C1206C823*5RAC			.18 uF	C1210C184*5RAC		
.1 uF	C1206C104*5RAC			.22 uF	C1210C224*5RAC		
.12 uF	C1206C124*5RAC			.27 uF	C1210C274*5RAC		
.15 uF	C1206C154*5RAC			.33 uF	C1210C334*5RAC		
.18 uF	C1206C184*5RAC						
.22 uF	C1206C224*5RAC						

\* Insert proper letter code for desired tolerance:

±10% (K) is standard

±5% (J); ±20% (M)

^ Parts are 4,000 pcs per reel

# Type C Multilayer Ceramic Chip Capacitors

## Ratings

## RoHS Compliant

Z5U Temperature Coefficient							
Cap	Catalog Part Number 0805 Size Code			Cap	Catalog Part Number 1210 Size Code		
	50 Vdc	100 Vdc	200 Vdc		50 Vdc	100 Vdc	200 Vdc
6800 pF	C0805C682*5UAC	C0805C682*1UAC		47000 pF	C1210C473*5UAC	C1210C473*1UAC	
8200 pF	C0805C822*5UAC	C0805C822*1UAC		56000 pF	C1210C563*5UAC	C1210C563*1UAC	
10000 pF	C0805C103*5UAC	C0805C103*1UAC		68000 pF	C1210C683*5UAC	C1210C683*1UAC	
12000 pF	C0805C123*5UAC			82000 pF	C1210C823*5UAC	C1210C823*1UAC	
15000 pF	C0805C153*5UAC			.1 uF	C1210C104*5UAC		
18000 pF	C0805C183*5UAC			.15 uF	C1210C154*5UAC		
22000 pF	C0805C223*5UAC			.18 uF	C1210C184*5UAC		
27000 pF	C0805C273*5UAC			.22 uF	C1210C224*5UAC		
33000 pF	C0805C333*5UAC			.27 uF	C1210C274*5UAC		
39000 pF	C0805C393*5UAC			.33 uF	C1210C334*5UAC		
47000 pF	C0805C473*5UAC			.39 uF	C1210C394*5UAC		
56000 pF	C0805C563*5UAC			.47 uF	C1210C474*5UAC		
68000 pF	C0805C683*5UAC						
82000 pF	C0805C823*5UAC						
.1 uF	C0805C104*5UAC						

\* Insert proper letter code for desired tolerance:  
 ±20% (M) is standard  
 Z = +80% -0%

Cap	Catalog Part Number 1206 Size Code		
	50 Vdc	100 Vdc	200 Vdc
10000 pF	C1206C103*5UAC	C1206C103*1UAC	
12000 pF	C1206C123*5UAC	C1206C123*1UAC	
15000 pF	C1206C153*5UAC	C1206C153*1UAC	
18000 pF	C1206C183*5UAC	C1206C183*1UAC	
22000 pF	C1206C223*5UAC	C1206C223*1UAC	
27000 pF	C1206C273*5UAC	C1206C273*1UAC	
33000 pF	C1206C333*5UAC	C1206C333*1UAC	
39000 pF	C1206C393*5UAC	C1206C393*1UAC	
47000 pF	C1206C473*5UAC		
56000 pF	C1206C563*5UAC		
68000 pF	C1206C683*5UAC		
82000 pF	C1206C823*5UAC		
.1 uF	C1206C104*5UAC		
.12 uF	C1206C124*5UAC		
.15 uF	C1206C154*5UAC		
.18 uF	C1206C184*5UAC		
.22 uF	C1206C224*5UAC		

**50 volt units can be used for 63 volt applications**

**Z5U meets all Y5V requirements and can be used in its place**

Y5V -  $\Delta \leq +22/-82\%$  over  $-30\text{ }^{\circ}\text{C}$  to  $+85\text{ }^{\circ}\text{C}$

Z5U -  $\Delta \leq +22/-56\%$  over  $+10\text{ }^{\circ}\text{C}$  to  $+85\text{ }^{\circ}\text{C}$



# Type C Multilayer Ceramic Chip Capacitors

**Ratings**

**RoHS Compliant**

Y5V Temperature Coefficient							
Cap	Catalog Part Number 0603 Size Code			Cap	Catalog Part Number 1206 Size Code		
	50 Vdc	100 Vdc	200 Vdc		50 Vdc	100 Vdc	200 Vdc
22000 pF	C0603C223*8VAC	C0603C223*4VAC	C0603C223*3VAC	.22 uF	C1206C224*8VAC	C1206C224*4VAC	C1206C224*3VAC
27000 pF	C0603C273*8VAC	C0603C273*4VAC	C0603C273*3VAC	.33 uF	C1206C334*8VAC	C1206C334*4VAC	C1206C334*3VAC
33000 pF	C0603C333*8VAC	C0603C333*4VAC	C0603C333*3VAC	.47 uF	C1206C474*8VAC	C1206C474*4VAC	C1206C474*3VAC
39000 pF	C0603C393*8VAC	C0603C393*4VAC	C0603C393*3VAC	.68 uF	C1206C684*8VAC	C1206C684*4VAC	C1206C684*3VAC
47000 pF	C0603C473*8VAC	C0603C473*4VAC	C0603C473*3VAC	1.0 uF	C1206C105*8VAC	C1206C105*4VAC	C1206C105*3VAC
56000 pF	C0603C563*8VAC	C0603C563*4VAC	C0603C563*3VAC	2.2 uF	C1206C225*8VAC	C1206C225*4VAC	
68000 pF	C0603C683*8VAC	C0603C683*4VAC	C0603C683*3VAC				
82000 pF	C0603C823*8VAC	C0603C823*4VAC	C0603C823*3VAC				
.1 uF	C0603C104*8VAC	C0603C104*4VAC	C0603C104*3VAC				
.15 uF	C0603C154*8VAC	C0603C154*4VAC	C0603C154*3VAC				
.22 uF	C0603C224*8VAC	C0603C224*4VAC	C0603C224*3VAC				

**50 volt units can be used for 63 volt applications**

Y5V Temperature Coefficient							
Cap	Catalog Part Number 0805 Size Code				Cap	Part Number 1210 Size Code	
	10 Vdc	16 Vdc	25 Vdc	50 Vdc		10 Vdc	16 Vdc
22000 pF	C0805C223*8VAC	C0805C223*4VAC	C0805C223*3VAC	C0805C223*5VAC	.22 uF	C1210C224*8VAC	C1210C224*4VAC
27000 pF	C0805C273*8VAC	C0805C273*4VAC	C0805C273*3VAC	C0805C273*5VAC	.33 uF	C1210C334*8VAC	C1210C334*4VAC
33000 pF	C0805C333*8VAC	C0805C333*4VAC	C0805C333*3VAC	C0805C333*5VAC	.47 uF	C1210C474*8VAC	C1210C474*4VAC
39000 pF	C0805C393*8VAC	C0805C393*4VAC	C0805C393*3VAC	C0805C393*5VAC	.68 uF	C1210C684*8VAC	C1210C684*4VAC
47000 pF	C0805C473*8VAC	C0805C473*4VAC	C0805C473*3VAC	C0805C473*5VAC	1.0 uF	C1210C105*8VAC	C1210C105*4VAC
56000 pF	C0805C563*8VAC	C0805C563*4VAC	C0805C563*3VAC	C0805C563*5VAC	2.2 uF	C1210C225*8VAC	C1210C225*4VAC
68000 pF	C0805C683*8VAC	C0805C683*4VAC	C0805C683*3VAC	C0805C683*5VAC	3.7 uF	C1210C375*8VAC	C1210C375*4VAC
82000 pF	C0805C823*8VAC	C0805C823*4VAC	C0805C823*3VAC	C0805C823*5VAC	4.7 uF	C1210C475*8VAC	C1210C475*4VAC
.1 uF	C0805C104*8VAC	C0805C104*4VAC	C0805C104*3VAC	C0805C104*5VAC			
.15 uF	C0805C154*8VAC	C0805C154*4VAC	C0805C154*3VAC				
.22 uF	C0805C224*8VAC	C0805C224*4VAC	C0805C224*3VAC				
.33 uF	C0805C334*8VAC	C0805C334*4VAC	C0805C334*3VAC				
.47 uF	C0805C474*8VAC	C0805C474*4VAC	C0805C474*3VAC				
.68 uF	C0805C684*8VAC	C0805C684*4VAC	C0805C684*3VAC				
1.0 uF	C0805C105*8VAC	C0805C105*4VAC	C0805C105*3VAC				

\* Insert proper letter code for desired tolerance:  
 ±20% (M) is standard  
 Z = +80% -0%

All Y5V units are supplied 4,000 pcs per reel