



MULTILAYER CERAMIC CHIP CAPACITORS

C Series Commercial Grade High Q

Type: C0603 [EIA CC0201]

**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



C Series

High Q

Type: C0603 [EIA CC0201]



Features



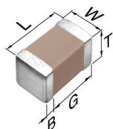
- Higher Q factor than standard capacitors.
- High stability with respect to time, temperature, frequency, and voltage.
- Excellent attenuation.
- High self-resonant frequency.
- Lower power dissipation.
- Capacitance range of 0.2pF to 20pF.
- Available in standard and tight tolerance.
- Please contact TDK for Q values.

Applications



- High-frequency applications
- PA modules
- Cellular communication, Bluetooth
- Cable/satellite TV
- GPS, satellite radio
- Filter networks/matching networks
- RF amplifiers, Low noise amplifiers
- VCOs, TCXOs, etc.
- DC blocking circuits

Shape & Dimensions



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



Catalog Number Construction

C • 0603 • C0G • 1E • 200 • J • 030 • B • G

Series Name

Dimensions L x W (mm)

Code	Length	Width	Terminal
C0603	0.60 ± 0.03	0.30 ± 0.03	0.10 min.

Temperature Characteristics

Temperature Characteristics	Capacitance Change	Temperature Range
C0G	0±30 ppm/°C	-55 to +125°C

Rated Voltage (DC)

Code	Voltage (DC)
1E	25V

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
W	± 0.05 pF
B	± 0.10 pF
C	± 0.25 pF
D	± 0.50 pF
E	± 0.20 pF
G	± 2%
J	± 5%

Nominal Thickness

Code	Thickness
030	0.30 mm

Packaging Style

Code	Style
B	178" Reel, 2mm Pitch

Special Reserved Code

Code	Description
F	High Q (STD Design)
G	High Q (New Design)



Capacitance Range Chart

EIA CC0201 [C0603]

Capacitance Range Chart

Temperature Characteristics: C0G ($0 \pm 30\text{ppm}/^\circ\text{C}$)

Rated Voltage: 25V(1E)

Capacitance (pF)	Code	Tolerance		
		W (± 0.05)	B ($\pm 0.10\text{pF}$)	C ($\pm 0.25\text{pF}$)
0.2	0R2			
0.3	0R3			
0.4	0R4			
0.5	0R5			
0.6	0R6			
0.7	0R7			
0.8	0R8			
0.9	0R9			
1	010			
1.1	1R1			
1.2	1R2			
1.3	1R3			
1.4	1R4			
1.5	1R5			
1.6	1R6			
1.7	1R7			
1.8	1R8			
1.9	1R9			
2	020			
2.1	2R1			
2.2	2R2			
2.3	2R3			
2.4	2R4			
2.5	2R5			
2.6	2R6			
2.7	2R7			
2.8	2R8			
2.9	2R9			
3	030			
3.1	3R1			
3.2	3R2			
3.3	3R3			
3.4	3R4			
3.5	3R5			

Capacitance (pF)	Code	Tolerance					
		B ($\pm 0.10\text{pF}$)	C ($\pm 0.25\text{pF}$)	D ($\pm 0.50\text{pF}$)	E ($\pm 0.20\text{pF}$)	G ($\pm 2\%$)	J ($\pm 5\%$)
3.6	3R6						
3.7	3R7						
3.8	3R8						
3.9	3R9						
4	040						
4.1	4R1						
4.2	4R2						
4.3	4R3						
4.4	4R4						
4.5	4R5						
4.6	4R6						
4.7	4R7						
4.8	4R8						
4.9	4R9						
5	050						
5.1	5R1						
5.6	5R6						
6	060						
6.2	6R2						
6.8	6R8						
7	070						
7.5	7R5						
8	080						
8.2	8R2						
9	090						
9.1	9R1						
10	100						
11	110						
12	120						
13	130						
15	150						
16	160						
18	180						
20	200						

Standard Thickness

 0.30 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	Catalog Number
				Rated Voltage Edc: 25V
0.2 pF	0603	0.30 ± 0.03	± 0.05pF	C0603C0G1E0R2W030BF
			± 0.10pF	C0603C0G1E0R2B030BF
0.3 pF	0603	0.30 ± 0.03	± 0.05pF	C0603C0G1E0R3W030BF
			± 0.10pF	C0603C0G1E0R3B030BF
0.4 pF	0603	0.30 ± 0.03	± 0.05pF	C0603C0G1E0R4W030BF
			± 0.10pF	C0603C0G1E0R4B030BF
0.5 pF	0603	0.30 ± 0.03	± 0.05pF	C0603C0G1E0R5W030BF
			± 0.10pF	C0603C0G1E0R5B030BF
0.6 pF	0603	0.30 ± 0.03	± 0.05pF	C0603C0G1E0R6W030BF
			± 0.10pF	C0603C0G1E0R6B030BF
0.7 pF	0603	0.30 ± 0.03	± 0.05pF	C0603C0G1E0R7W030BF
			± 0.10pF	C0603C0G1E0R7B030BF
0.8 pF	0603	0.30 ± 0.03	± 0.05pF	C0603C0G1E0R8W030BF
			± 0.10pF	C0603C0G1E0R8B030BF
0.9 pF	0603	0.30 ± 0.03	± 0.05pF	C0603C0G1E0R9W030BF
			± 0.10pF	C0603C0G1E0R9B030BF
1 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E010B030BF
			± 0.25pF	C0603C0G1E010C030BF
1.1 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E1R1B030BF
			± 0.25pF	C0603C0G1E1R1C030BF
1.2 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E1R2B030BF
			± 0.25pF	C0603C0G1E1R2C030BF
1.3 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E1R3B030BF
			± 0.25pF	C0603C0G1E1R3C030BF
1.4 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E1R4B030BF
			± 0.25pF	C0603C0G1E1R4C030BF
1.5 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E1R5B030BF
			± 0.25pF	C0603C0G1E1R5C030BF
1.6 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E1R6B030BF
			± 0.25pF	C0603C0G1E1R6C030BF
1.7 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E1R7B030BF
			± 0.25pF	C0603C0G1E1R7C030BF
1.8 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E1R8B030BF
			± 0.25pF	C0603C0G1E1R8C030BF
1.9 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E1R9B030BF
			± 0.25pF	C0603C0G1E1R9C030BF
2 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E20B030BF
			± 0.25pF	C0603C0G1E20C030BF
2.1 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E2R1B030BF
			± 0.25pF	C0603C0G1E2R1C030BF
2.2 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E2R2B030BG
			± 0.25pF	C0603C0G1E2R2C030BG
2.3 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E2R3B030BG
			± 0.25pF	C0603C0G1E2R3C030BG
2.4 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E2R4B030BG
			± 0.25pF	C0603C0G1E2R4C030BG
2.5 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E2R5B030BG
			± 0.25pF	C0603C0G1E2R5C030BG
2.6 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E2R6B030BG
			± 0.25pF	C0603C0G1E2R6C030BG
2.7 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E2R7B030BG
			± 0.25pF	C0603C0G1E2R7C030BG
2.8 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E2R8B030BG
			± 0.25pF	C0603C0G1E2R8C030BG
2.9 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E2R9B030BG
			± 0.25pF	C0603C0G1E2R9C030BG
3 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E030B030BG
			± 0.25pF	C0603C0G1E030C030BG
3.1 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E3R1B030BG
			± 0.25pF	C0603C0G1E3R1C030BG



Capacitance Range Table

Class 1 (Temperature Compensating)

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

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number
				Rated Voltage Edc: 25V
3.2 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E3R2B030BG
			± 0.25pF	C0603C0G1E3R2C030BG
3.3 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E3R3B030BG
			± 0.25pF	C0603C0G1E3R3C030BG
3.4 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E3R4B030BG
			± 0.25pF	C0603C0G1E3R4C030BG
3.5 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E3R5B030BG
			± 0.25pF	C0603C0G1E3R5C030BG
3.6 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E3R6B030BG
			± 0.25pF	C0603C0G1E3R6C030BG
3.7 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E3R7B030BG
			± 0.25pF	C0603C0G1E3R7C030BG
3.8 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E3R8B030BG
			± 0.25pF	C0603C0G1E3R8C030BG
3.9 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E3R9B030BG
			± 0.25pF	C0603C0G1E3R9C030BG
4 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E040B030BG
			± 0.25pF	C0603C0G1E040C030BG
4.1 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E4R1B030BG
			± 0.25pF	C0603C0G1E4R1C030BG
4.2 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E4R2B030BG
			± 0.25pF	C0603C0G1E4R2C030BG
4.3 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E4R3B030BG
			± 0.25pF	C0603C0G1E4R3C030BG
4.4 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E4R4B030BG
			± 0.25pF	C0603C0G1E4R4C030BG
4.5 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E4R5B030BG
			± 0.25pF	C0603C0G1E4R5C030BG
4.6 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E4R6B030BG
			± 0.25pF	C0603C0G1E4R6C030BG
4.7 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E4R7B030BG
			± 0.25pF	C0603C0G1E4R7C030BG
4.8 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E4R8B030BG
			± 0.25pF	C0603C0G1E4R8C030BG
4.9 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E4R9B030BG
			± 0.25pF	C0603C0G1E4R9C030BG
5 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E050B030BG
			± 0.25pF	C0603C0G1E050C030BG
5.1 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E5R1B030BG
			± 0.25pF	C0603C0G1E5R1C030BG
5.6 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E5R6B030BG
			± 0.25pF	C0603C0G1E5R6C030BG
6 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E060B030BG
			± 0.25pF	C0603C0G1E060C030BG
6.2 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E6R2B030BG
			± 0.25pF	C0603C0G1E6R2C030BG
6.8 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E6R8B030BG
			± 0.25pF	C0603C0G1E6R8C030BG
7 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E070B030BG
			± 0.25pF	C0603C0G1E070C030BG
7.5 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E7R5B030BG
			± 0.25pF	C0603C0G1E7R5C030BG
8 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E080B030BG
			± 0.25pF	C0603C0G1E080C030BG
8.2 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E8R2B030BG
			± 0.25pF	C0603C0G1E8R2C030BG
9 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E090B030BG
			± 0.25pF	C0603C0G1E090C030BG
9.1 pF	0603	0.30 ± 0.03	± 0.10pF	C0603C0G1E9R1B030BG
			± 0.25pF	C0603C0G1E9R1C030BG



Capacitance Range Table

Class 1 (Temperature Compensating)

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

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number
				Rated Voltage Edc: 25V
10 pF	0603	0.30 ± 0.03	± 0.20pF	C0603C0G1E100E030BG
			± 0.50pF	C0603C0G1E100D030BG
11 pF	0603	0.30 ± 0.03	± 2%	C0603C0G1E110G030BG
			± 5%	C0603C0G1E110J030BG
12 pF	0603	0.30 ± 0.03	± 2%	C0603C0G1E120G030BG
			± 5%	C0603C0G1E120J030BG
13 pF	0603	0.30 ± 0.03	± 2%	C0603C0G1E130G030BG
			± 5%	C0603C0G1E130J030BG
15 pF	0603	0.30 ± 0.03	± 2%	C0603C0G1E150G030BG
			± 5%	C0603C0G1E150J030BG
16 pF	0603	0.30 ± 0.03	± 2%	C0603C0G1E160G030BG
			± 5%	C0603C0G1E160J030BG
18 pF	0603	0.30 ± 0.03	± 2%	C0603C0G1E180G030BG
			± 5%	C0603C0G1E180J030BG
20 pF	0603	0.30 ± 0.03	± 2%	C0603C0G1E200G030BG
			± 5%	C0603C0G1E200J030BG