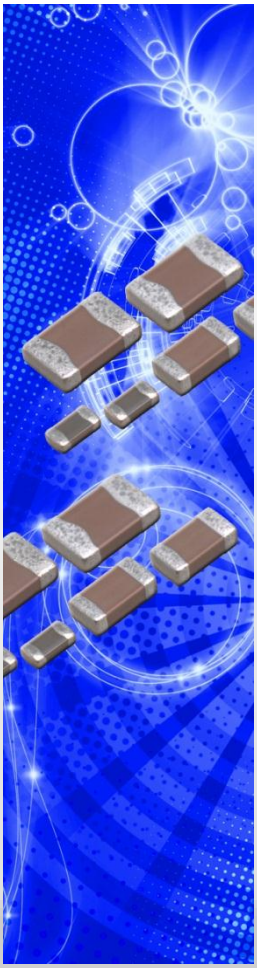
MULTILAYER CERAMIC CHIP CAPACITORS



CGB Series
Low Profile Capacitors

Type: CGB2 [EIA CC0402]
CGB3 [EIA CC0603]
CGB4 [EIA CC0805]

Issue date: January 2013

TDK MLCC
Global Catalog

Version A13

REMINDERS

Please read before using this product

SAFETY REMINDERS

REMINDERS

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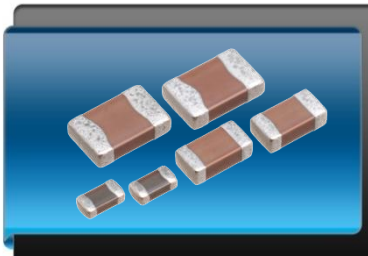
(Example)

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



CGB Series

Low Profile Capacitors

Type: CGB2 [EIA CC0402], CGB3 [EIA CC0603], CGB4 [EIA CC0805]

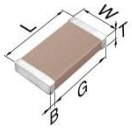
Features

- Available in three case sizes (0402, 0603, 0805) and as thin as 0.22mm.
- Capacitance offering from 0.22µF and up to 10µF.
- Ideal for height-restricted applications such as mobile phone or flash memory card.

Applications

- Smart Phone
- LCD modules
- Height restricted applications

Shape & Dimensions



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

Part Number Construction

CGB • 3 • C • 1 • X5R • 0J • 106 • M • 070 • A • C

Series Name

Dimensions L x W (mm)

Case Code	Length	Width	Terminal
2	1.00 ± 0.05	0.50 ± 0.05	0.10 min.
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)

Thickness Code	Thickness
T	0.22 mm
A	0.33 mm
B	0.55 mm
C	0.65 mm

Voltage Condition for Life Test

Code	Condition
1	1 × R.V.
3	1.5 × R.V.

Temperature Characteristics

Temperature Characteristics	Capacitance Change	Temperature Range
JB	±10%	-25 to +85°C
X5R	±15%	-55 to +85°C
X6S	±22%	-55 to +105°C
X7R	±15%	-55 to +125°C
X7S	±22%	-55 to +125°C

Rated Voltage (DC)

Voltage Code	Voltage (DC)
0G	4.0V
0J	6.3V
1A	10V
1C	16V
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

Tolerance Code	Tolerance
K	± 10%
M	± 20%

Nominal Thickness

Thickness Code	Thickness
022	0.22 mm
033	0.33 mm
055	0.55 mm
065	0.65 mm

Packaging Style

Packaging Code	Style
A	178mm Reel / 4mm Pitch
B	178mm Reel / 2mm Pitch

Special Reserved Code

Code	Description
B/C	TDK Internal Code

Capacitance Range Chart

CGB2(1005) [EIA CC0402]

Capacitance Range Chart

Temperature Characteristics: JB (±10%), X5R (±15%), X6S (±22%), X7S (±22%)
Rated Voltage: 25V (1E), 16V (1C), 10V (1A), 6.3V (0J), 4V (0G)

Capacitance (pF)	Cap Code	Tolerance	JB					X5R				
			1E (25V)	1C (16V)	1A (10V)	0J (6.3V)	0G (4V)	1E (25V)	1C (16V)	1A (10V)	0J (6.3V)	0G (4V)
330,000	334	K: ± 10% M: ± 20%										
470,000	474											
680,000	684											
1,000,000	105											
2,200,000	225											

Capacitance (pF)	Cap Code	Tolerance	X6S			X7S	
			1A (10V)	0J (6.3V)	0G (4V)	0J (6.3V)	0G (4V)
220,000	224	K: ± 10% M: ± 20%					
330,000	334						
470,000	474						
680,000	684						
1,000,000	105						

Standard Thickness

- 0.22 mm max.
- 0.33 mm max.

Capacitance Range Chart

CGB3(1608) [EIA CC0603]

Capacitance Range Chart

Temperature Characteristics: JB (±10%), X5R (±15%), X6S (±22%), X7S (±22%)
Rated Voltage: 25V (1E), 16V (1C), 10V (1A), 6.3V (0J), 4V (0G)

Capacitance (pF)	Cap Code	Tolerance	JB				X5R			
			1E (25V)	1C (16V)	1A (10V)	0J (6.3V)	1E (25V)	1C (16V)	1A (10V)	0J (6.3V)
470,000	474	K: ± 10% M: ± 20%								
1,000,000	105									
1,500,000	155									
2,200,000	225									
3,300,000	335									
4,700,000	475									
10,000,000	106									

Capacitance (pF)	Cap Code	Tolerance	X6S				X7R		X7S
			1C (16V)	1A (10V)	0J (6.3V)	0G (4V)	1A (10V)	0J (6.3V)	0J (6.3V)
1,000,000	105	K: ± 10% M: ± 20%							
1,500,000	155								
2,200,000	225								
3,300,000	335								
4,700,000	475								

Standard Thickness

- 0.55 mm max.
- 0.65 mm max.

Capacitance Range Chart

CGB4(2012) [EIA CC0805]

Capacitance Range Chart

Temperature Characteristics: JB (±10%), X5R (±15%), X6S (±22%), X7R (±15%)
Rated Voltage: 25V (1E), 16V (1C), 10V (1A), 6.3V (0J)

Capacitance (pF)	Cap Code	Tolerance	JB			X5R			X6S			X7R	
			1E (25V)	1C (16V)	1A (10V)	1E (25V)	1C (16V)	1A (10V)	1C (16V)	1A (10V)	0J (6.3V)	1A (10V)	0J (6.3V)
680,000	684	K: ± 10%											
1,000,000	105	M: ± 20%	■					■					
2,200,000	225		■	■	■	■	■	■	■	■	■	■	■

Standard Thickness

■ 0.55 mm max.

Capacitance Range Table

Class 2 (Temperature Stable)

Temperature Characteristics: JB (-25 to +85ºC, ±10%)

Capacitance	Case Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number			
				Rated Voltage Edc: 25V	Rated Voltage Edc: 16V	Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V
330 nF	1005	0.33 max.	± 10%		CGB2A1JB1C334K033BC	CGB2A3JB1A334K033BB	
			± 20%		CGB2A1JB1C334M033BC	CGB2A3JB1A334M033BB	
470 nF	1005	0.33 max.	± 10%			CGB2A3JB1A474K033BB	
					CGB2A1JB1C474K033BC	CGB2A1JB1A474K033BC	
			± 20%			CGB2A3JB1A474M033BB	
					CGB2A1JB1C474M033BC	CGB2A1JB1A474M033BC	
	1608	0.55 max.	± 10%	CGB3B3JB1E474K055AB			
				CGB3B1JB1E474K055AC			
			± 20%	CGB3B3JB1E474M055AB			
				CGB3B1JB1E474M055AC			
680 nF	1005	0.33 max.	± 10%			CGB2A1JB1A684K033BC	CGB2A3JB0J684K033BB
			± 20%			CGB2A1JB1A684M033BC	CGB2A3JB0J684M033BB
1 µF	1005	0.33 max.	± 10%				CGB2A3JB0J105K033BB
				CGB2A1JB1E105K033BC	CGB2A1JB1C105K033BC	CGB2A1JB1A105K033BC	CGB2A1JB0J105K033BC
			± 20%				CGB2A3JB0J105M033BB
				CGB2A1JB1E105M033BC	CGB2A1JB1C105M033BC	CGB2A1JB1A105M033BC	CGB2A1JB0J105M033BC
	1608	0.55 max.	± 10%		CGB3B3JB1C105K055AB		
				CGB3B1JB1E105K055AC	CGB3B1JB1C105K055AC		
			± 20%		CGB3B3JB1C105M055AB		
				CGB3B1JB1E105M055AC	CGB3B1JB1C105M055AC		
	2012	0.55 max.	± 10%	CGB4B3JB1E105K055AB			
			± 20%	CGB4B3JB1E105M055AB			
1.5 µF	1608	0.55 max.	± 10%		CGB3B1JB1C155K055AC	CGB3B3JB1A155K055AB	
			± 20%		CGB3B1JB1C155M055AC	CGB3B3JB1A155M055AB	
2.2 µF	1005	0.33 max.	± 20%				CGB2A1JB0J225M033BC
	1608	0.55 max.	± 10%		CGB3B1JB1C225K055AC	CGB3B3JB1A225K055AB	
			± 20%		CGB3B1JB1C225M055AC	CGB3B3JB1A225M055AB	
	2012	0.55 max.	± 10%	CGB4B1JB1E225K055AC	CGB4B3JB1C225K055AB	CGB4B3JB1A225K055AB	
			± 20%	CGB4B1JB1E225M055AC	CGB4B3JB1C225M055AB	CGB4B3JB1A225M055AB	
3.3 µF	1608	0.55 max.	± 10%			CGB3B1JB1A335K055AC	CGB3B3JB0J335K055AB
			± 20%			CGB3B1JB1A335M055AC	CGB3B3JB0J335M055AB
4.7 µF	1608	0.55 max.	± 10%			CGB3B1JB1A475K055AC	CGB3B3JB0J475K055AB
			± 20%			CGB3B1JB1A475M055AC	CGB3B3JB0J475M055AB
10 µF	1608	0.65 max.	± 20%				CGB3C1JB0J106M065AC

Capacitance	Case Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number
				Rated Voltage Edc: 4.0V
1 µF	1005	0.33 max.	± 10%	CGB2A3JB0G105K033BB
			± 20%	CGB2A3JB0G105M033BB

Capacitance Range Table

Class 2 (Temperature Stable)

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

Capacitance	Case Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number			
				Rated Voltage Edc: 25V	Rated Voltage Edc: 16V	Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V
330 nF	1005	0.33 max.	± 10%		CGB2A1X5R1C334K033BC	CGB2A3X5R1A334K033BB	
			± 20%		CGB2A1X5R1C334M033BC	CGB2A3X5R1A334M033BB	
470 nF	1005	0.33 max.	± 10%			CGB2A3X5R1A474K033BB	
					CGB2A1X5R1C474K033BC	CGB2A1X5R1A474K033BC	
			± 20%			CGB2A3X5R1A474M033BB	
					CGB2A1X5R1C474M033BC	CGB2A1X5R1A474M033BC	
	1608	0.55 max.	± 10%	CGB3B3X5R1E474K055AB			
				CGB3B1X5R1E474K055AC			
			± 20%	CGB3B3X5R1E474M055AB			
				CGB3B1X5R1E474M055AC			
680 nF	1005	0.33 max.	± 10%			CGB2A1X5R1A684K033BC	CGB2A3X5R0J684K033BB
			± 20%			CGB2A1X5R1A684M033BC	CGB2A3X5R0J684M033BB
1 µF	1005	0.33 max.	± 10%				CGB2A3X5R0J105K033BB
				CGB2A1X5R1E105K033BC	CGB2A1X5R1C105K033BC	CGB2A1X5R1A105K033BC	CGB2A1X5R0J105K033BC
			± 20%				CGB2A3X5R0J105M033BB
				CGB2A1X5R1E105M033BC	CGB2A1X5R1C105M033BC	CGB2A1X5R1A105M033BC	CGB2A1X5R0J105M033BC
	1608	0.55 max.	± 10%		CGB3B3X5R1C105K055AB		
				CGB3B1X5R1E105K055AC	CGB3B1X5R1C105K055AC		
			± 20%		CGB3B3X5R1C105M055AB		
				CGB3B1X5R1E105M055AC	CGB3B1X5R1C105M055AC		
	2012	0.55 max.	± 10%	CGB4B3X5R1E105K055AB			
			± 20%	CGB4B3X5R1E105M055AB			
1.5 µF	1608	0.55 max.	± 10%		CGB3B1X5R1C155K055AC	CGB3B3X5R1A155K055AB	
			± 20%		CGB3B1X5R1C155M055AC	CGB3B3X5R1A155M055AB	
2.2 µF	1005	0.33 max.	± 20%				CGB2A1X5R0J225M033BC
	1608	0.55 max.	± 10%		CGB3B1X5R1C225K055AC	CGB3B3X5R1A225K055AB	
			± 20%		CGB3B1X5R1C225M055AC	CGB3B3X5R1A225M055AB	
	2012	0.55 max.	± 10%	CGB4B1X5R1E225K055AC	CGB4B3X5R1C225K055AB	CGB4B3X5R1A225K055AB	
			± 20%	CGB4B1X5R1E225M055AC	CGB4B3X5R1C225M055AB	CGB4B3X5R1A225M055AB	
3.3 µF	1608	0.55 max.	± 10%			CGB3B1X5R1A335K055AC	CGB3B3X5R0J335K055AB
			± 20%			CGB3B1X5R1A335M055AC	CGB3B3X5R0J335M055AB
4.7 µF	1608	0.55 max.	± 10%			CGB3B1X5R1A475K055AC	CGB3B3X5R0J475K055AB
			± 20%			CGB3B1X5R1A475M055AC	CGB3B3X5R0J475M055AB
10 µF	1608	0.65 max.	± 20%				CGB3C1X5R0J106M065AC

Capacitance	Case Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number
				Rated Voltage Edc: 4.0V
470 nF	1005	0.22 max.	± 20%	CGB2T3X5R0G474M022BB
1 µF	1005	0.33 max.	± 10%	CGB2A3X5R0G105K033BB
			± 20%	CGB2A3X5R0G105M033BB

Capacitance Range Table

Class 2 (Temperature Stable)

Temperature Characteristics: X6S (-55 to +105ºC, ±22%)

Capacitance	Case Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number			
				Rated Voltage Edc: 16V	Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V	Rated Voltage Edc: 4.0V
220 nF	1005	0.22 max.	± 20%				CGB2T1X6S0G224M022BC
330 nF	1005	0.33 max.	± 10%		CGB2A1X6S1A334K033BC	CGB2A3X6S0J334K033BB	
			± 20%		CGB2A1X6S1A334M033BC	CGB2A3X6S0J334M033BB	
470 nF	1005	0.22 max.	± 20%				CGB2T1X6S0G474M022BC
		0.33 max.	± 10%		CGB2A1X6S1A474K033BC	CGB2A3X6S0J474K033BB	CGB2A1X6S0G474K033BC
			± 20%		CGB2A1X6S1A474M033BC	CGB2A3X6S0J474M033BB	CGB2A1X6S0G474M033BC
680 nF	1005	0.33 max.	± 10%				CGB2A1X6S0G684K033BC
			± 20%				CGB2A1X6S0G684M033BC
1 µF	1005	0.33 max.	± 10%		CGB2A1X6S1A105K033BC	CGB2A1X6S0J105K033BC	CGB2A1X6S0G105K033BC
			± 20%		CGB2A1X6S1A105M033BC	CGB2A1X6S0J105M033BC	CGB2A1X6S0G105M033BC
	1608	0.55 max.	± 10%	CGB3B1X6S1C105K055AC	CGB3B3X6S1A105K055AB		
			± 20%	CGB3B1X6S1C105M055AC	CGB3B3X6S1A105M055AB		
1.5 µF	1608	0.55 max.	± 10%		CGB3B1X6S1A155K055AC	CGB3B3X6S0J155K055AB	
			± 20%		CGB3B1X6S1A155M055AC	CGB3B3X6S0J155M055AB	
2.2 µF	1608	0.55 max.	± 10%		CGB3B1X6S1A225K055AC	CGB3B3X6S0J225K055AB	CGB3B3X6S0G225K055AB
			± 20%		CGB3B1X6S1A225M055AC	CGB3B3X6S0J225M055AB	CGB3B3X6S0G225M055AB
	2012	0.55 max.	± 10%	CGB4B1X6S1C225K055AC	CGB4B3X6S1A225K055AB	CGB4B3X6S0J225K055AB	
			± 20%	CGB4B1X6S1C225M055AC	CGB4B3X6S1A225M055AB	CGB4B3X6S0J225M055AB	
3.3 µF	1608	0.55 max.	± 10%				CGB3B1X6S0G335K055AC
			± 20%				CGB3B1X6S0G335M055AC
4.7 µF	1608	0.55 max.	± 10%				CGB3B1X6S0G475K055AC
			± 20%				CGB3B1X6S0G475M055AC

Class 2 (Temperature Stable)

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

Capacitance	Case Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number			
				Rated Voltage Edc: 16V	Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V	Rated Voltage Edc: 4.0V
1 µF	1608	0.55 max.	± 10%		CGB3B1X7R1A105K055AC	CGB3B3X7R0J105K055AB	
			± 20%		CGB3B1X7R1A105M055AC	CGB3B3X7R0J105M055AB	
2.2 µF	2012	0.55 max.	± 10%		CGB4B1X7R1A225K055AC	CGB4B3X7R0J225K055AB	
			± 20%		CGB4B1X7R1A225M055AC	CGB4B3X7R0J225M055AB	

Class 2 (Temperature Stable)

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

Capacitance	Case Size	Thickness (mm)	Capacitance Tolerance	TDK Part Number			
				Rated Voltage Edc: 16V	Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V	Rated Voltage Edc: 4.0V
470 nF	1005	0.33 max.	± 10%				CGB2A1X7S0G474K033BC
			± 20%				CGB2A1X7S0G474M033BC
1 µF	1005	0.33 max.	± 10%			CGB2A1X7S0J105K033BC	CGB2A1X7S0G105K033BC
			± 20%			CGB2A1X7S0J105M033BC	CGB2A1X7S0G105M033BC
2.2 µF	1608	0.55 max.	± 10%			CGB3B1X7S0J225K055AC	
			± 20%			CGB3B1X7S0J225M055AC	