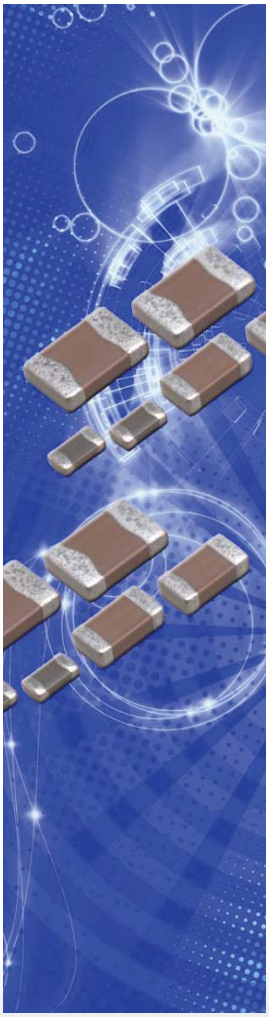
MULTILAYER CERAMIC CHIP CAPACITORS



CGB Series
Commercial Grade
Low Profile

Type:

CGB1 [EIA CC0201]
CGB2 [EIA CC0402]
CGB3 [EIA CC0603]
CGB4 [EIA CC0805]

Issue date:
Apr 2015

REMINDERS

Please read before using this product

SAFETY REMINDERS

REMINDERS

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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

CGB Series

Low Profile

Type: CGB1 [EIA CC0201], CGB2 [EIA CC0402], CGB3 [EIA CC0603], CGB4 [EIA CC0805]

Lead Free · RoHS COMPLIANT · Ecological

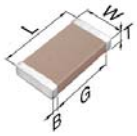
Features

- Available in four sizes (0201, 0402, 0603, 0805) and as thin as 0.22mm.
- Capacitance offering from 0.1 µF and up to 10µF.
- Ideal for height-restricted applications such as mobile phone.

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

Catalog Number Construction

CGB • 3 • C • 1 • X5R • 0J • 106 • M • 065 • A • C

Series Name

Dimensions L x W (mm)

Code	Length	Width	Terminal
1	0.60 ± 0.03	0.30 ± 0.03	0.10 min.
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)

Code	Thickness
T	0.22 mm max.
A	0.33 mm max.
S	0.50 mm max.
B	0.55 mm max.
C	0.65 mm max.

Voltage Condition for Life Test

Symbol	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)

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

Code	Tolerance
K	± 10%
M	± 20%

Nominal Thickness

Code	Thickness
022	0.22 mm max.
033	0.33 mm max.
050	0.50 mm max.
055	0.55 mm max.
065	0.65 mm max.

Packaging Style

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

Special Reserved Code

Code	Description
B, C	TDK Internal Code

Capacitance Range Chart

CGB1(0603) [EIA CC0201]

Capacitance Range Chart

Temperature Characteristics: X5R (±15%), X6S (±22%)

Rated Voltage: 6.3V (0J), 4V (0G)

Capacitance (pF)	Code	Tolerance	X5R	X6S
			0J (6.3V)	0G (4V)
100,000	104	M : ±20%		

Standard Thickness

0.22 mm

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)	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)
220,000	224	K : ±10% M : ±20%										
470,000	474											
1,000,000	105											
2,200,000	225											

Capacitance (pF)	Code	Tolerance	X6S			X7S	
			1A (10V)	0J (6.3V)	0G (4V)	0J (6.3V)	0G (4V)
220,000	224	K : ±10% M : ±20%					
470,000	474						
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%), X7R (±15%), X7S (±22%)

Rated Voltage: 25V (1E), 16V (1C), 10V (1A), 6.3V (0J), 4V (0G)

Capacitance (pF)	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)
470,000	474	K : ±10% M : ±20%										
1,000,000	105											
2,200,000	225											
4,700,000	475											
10,000,000	106											

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

Standard Thickness

0.50 mm max.

0.55 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), 4V (0G)

Capacitance (pF)	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% M: ± 20%											
1,000,000	105		■			■							
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	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number			
				Rated Voltage Edc: 25V	Rated Voltage Edc: 16V	Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V
470nF	1005	0.33max.	±10%			CGB2A3JB1A474K033BB	
					CGB2A1JB1C474K033BC		
			±20%			CGB2A3JB1A474M033BB	
					CGB2A1JB1C474M033BC		
	1608	0.55max.	±10%	CGB3B3JB1E474K055AB			
			±20%	CGB3B3JB1E474M055AB			
1μF	1005	0.33max.	±10%				CGB2A3JB0J105K033BB
				CGB2A1JB1E105K033BC	CGB2A1JB1C105K033BC	CGB2A1JB1A105K033BC	
			±20%				CGB2A3JB0J105M033BB
				CGB2A1JB1E105M033BC	CGB2A1JB1C105M033BC	CGB2A1JB1A105M033BC	
	1608	0.55max.	±10%		CGB3B3JB1C105K055AB		
				CGB3B1JB1E105K055AC			
			±20%		CGB3B3JB1C105M055AB		
				CGB3B1JB1E105M055AC			
	2012	0.55max.	±10%	CGB4B3JB1E105K055AB			
			±20%	CGB4B3JB1E105M055AB			
2.2μF	1005	0.33max.	±20%				CGB2A1JB0J225M033BC
	1608	0.55max.	±10%		CGB3B1JB1C225K055AC	CGB3B3JB1A225K055AB	
			±20%		CGB3B1JB1C225M055AC	CGB3B3JB1A225M055AB	
	2012	0.55max.	±10%	CGB4B1JB1E225K055AC	CGB4B3JB1C225K055AB	CGB4B3JB1A225K055AB	
			±20%	CGB4B1JB1E225M055AC	CGB4B3JB1C225M055AB	CGB4B3JB1A225M055AB	
4.7μF	1608	0.55max.	±10%			CGB3B1JB1A475K055AC	CGB3B3JB0J475K055AB
			±20%			CGB3B1JB1A475M055AC	CGB3B3JB0J475M055AB
10μF	1608	0.50max.	±20%				CGB3S1JB0J106M050AC
		0.65max.	±20%				CGB3C1JB0J106M065AC

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number
				Rated Voltage Edc: 4.0V
1 μF	1005	0.33max.	± 10%	CGB2A3JB0G105K033BB
			± 20%	CGB2A3JB0G105M033BB
10μF	1608	0.50max.	± 20%	CGB3S3JB0G106M050AB

Capacitance Range Table

Class 2 (Temperature Stable)

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

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number			
				Rated Voltage Edc: 25V	Rated Voltage Edc: 16V	Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V
100nF	0603	0.22max.	±20%				CGB1T3X5R0J104M022BB
220nF	1005	0.22max.	±20%				CGB2T3X5R0J224M022BB
470nF	1005	0.22max.	±20%				CGB2T3X5R0J474M022BB
		0.33max.	±10%			CGB2A3X5R1A474K033BB	
					CGB2A1X5R1C474K033BC		
			±20%			CGB2A3X5R1A474M033BB	
					CGB2A1X5R1C474M033BC		
	1608	0.55max.	±10%	CGB3B3X5R1E474K055AB			
			±20%	CGB3B3X5R1E474M055AB			
1µF	1005	0.33max.	±10%				CGB2A3X5R0J105K033BB
				CGB2A1X5R1E105K033BC	CGB2A1X5R1C105K033BC	CGB2A1X5R1A105K033BC	
			±20%				CGB2A3X5R0J105M033BB
				CGB2A1X5R1E105M033BC	CGB2A1X5R1C105M033BC	CGB2A1X5R1A105M033BC	
	1608	0.55max.	±10%		CGB3B3X5R1C105K055AB		
				CGB3B1X5R1E105K055AC			
			±20%		CGB3B3X5R1C105M055AB		
				CGB3B1X5R1E105M055AC			
	2012	0.55max.	±10%	CGB4B3X5R1E105K055AB			
			±20%	CGB4B3X5R1E105M055AB			
2.2µF	1005	0.33max.	±20%				CGB2A1X5R0J225M033BC
	1608	0.55max.	±10%		CGB3B1X5R1C225K055AC	CGB3B3X5R1A225K055AB	
			±20%		CGB3B1X5R1C225M055AC	CGB3B3X5R1A225M055AB	
	2012	0.55max.	±10%	CGB4B1X5R1E225K055AC	CGB4B3X5R1C225K055AB	CGB4B3X5R1A225K055AB	
			±20%	CGB4B1X5R1E225M055AC	CGB4B3X5R1C225M055AB	CGB4B3X5R1A225M055AB	
4.7µF	1608	0.55max.	±10%			CGB3B1X5R1A475K055AC	CGB3B3X5R0J475K055AB
			±20%			CGB3B1X5R1A475M055AC	CGB3B3X5R0J475M055AB
10µF	1608	0.50max.	±20%				CGB3S1X5R0J106M050AC
		0.65max.	±20%				CGB3C1X5R0J106M065AC

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number
				Rated Voltage Edc: 4.0V
470 nF	1005	0.22max.	± 20%	CGB2T1X5R0G474M022BC
1 µF	1005	0.22max.	± 20%	CGB2T1X5R0G105M022BC
		0.33max.	± 10%	CGB2A3X5R0G105K033BB
			± 20%	CGB2A3X5R0G105M033BB
10µF	1608	0.50max.	±20%	CGB3S3X5R0G106M050AB

Capacitance Range Table

Class 2 (Temperature Stable)

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

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog Number			
				Rated Voltage Edc: 16V	Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V	Rated Voltage Edc: 4.0V
100nF	0603	0.22max.	±20%				CGB1T3X6S0G104M022BB
220nF	1005	0.22max.	±20%				CGB2T1X6S0G224M022BC
470nF	1005	0.22max.	±20%				CGB2T1X6S0G474M022BC
		0.33max.	±10%		CGB2A1X6S1A474K033BC	CGB2A3X6S0J474K033BB	CGB2A1X6S0G474K033BC
			±20%		CGB2A1X6S1A474M033BC	CGB2A3X6S0J474M033BB	CGB2A1X6S0G474M033BC
1μF	1005	0.22max.	±20%				CGB2T1X6S0G105M022BC
		0.33max.	±10%		CGB2A1X6S1A105K033BC	CGB2A1X6S0J105K033BC	CGB2A1X6S0G105K033BC
			±20%		CGB2A1X6S1A105M033BC	CGB2A1X6S0J105M033BC	CGB2A1X6S0G105M033BC
	1608	0.55max.	±10%	CGB3B1X6S1C105K055AC	CGB3B3X6S1A105K055AB		
			±20%	CGB3B1X6S1C105M055AC	CGB3B3X6S1A105M055AB		
2.2μF	1608	0.55max.	±10%		CGB3B1X6S1A225K055AC	CGB3B3X6S0J225K055AB	CGB3B3X6S0G225K055AB
			±20%		CGB3B1X6S1A225M055AC	CGB3B3X6S0J225M055AB	CGB3B3X6S0G225M055AB
	2012	0.55max.	±10%	CGB4B1X6S1C225K055AC	CGB4B3X6S1A225K055AB	CGB4B3X6S0J225K055AB	
			±20%	CGB4B1X6S1C225M055AC	CGB4B3X6S1A225M055AB	CGB4B3X6S0J225M055AB	
4.7μF	1608	0.55max.	±10%				CGB3B1X6S0G475K055AC
			±20%				CGB3B1X6S0G475M055AC

Class 2 (Temperature Stable)

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

Capacitance	Size	Thickness (mm)	Capacitance Tolerance	Catalog 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	Size	Thickness (mm)	Capacitance Tolerance	Catalog 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%				CGB3B1X7S0G225K055AC
			± 20%				CGB3B1X7S0G225M055AC