

## 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







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Please read before using this product

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(Example)

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



### MULTILAYER CERAMIC CHIP CAPACITORS

Lead

Free

RoHS

Ecological



# CGB Series Low Profile

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

 Smart Phone **Features** Available in four sizes (0201, 0402, 0603, 0805) and as thin **Applications**  LCD modules as 0.22mm. · Height restricted applications Capacitance offering from 0.1 µF and up to 10µF. Ideal for height-restricted applications such as mobile phone. Shape & Body Length **Dimensions** W Body Width Т Body Height В Terminal Width G Terminal Spacing **Catalog Number** C • 1 • X5R • 0J • 106 • M • 065 • A • C 3 Construction Series Name Dimensions L x W (mm) Code Length Width Terminal 1  $0.60\pm0.03$  $0.30 \pm 0.03$ 0.10 min. 2  $1.00 \pm 0.05$  $0.50 \pm 0.05$ 0.10 min 3  $1.60 \pm 0.10$  $0.80 \pm 0.10$ 0.20 min 4  $2.00 \pm 0.20$  $1.25 \pm 0.20$ 0.20 min Thickness T Code (mm) Code Thickness Voltage Condition Т 0.22 mm max. for Life Test Α 0.33 mm max. Condition Symbol S 0.50 mm max. В 0.55 mm max. 1 × R.V. С 0.65 mm max. 3 1.5 × R.V. **Temperature Characteristics** Rated Voltage (DC) Temperature Capacitance Temperature Characteristics Change Range Code Voltage (DC) JB ± 10% -25 to +85°C 0G 4 0V ± 15% -55 to +85°C X5F 0J 6.3 ± 22% X6S -55 to +105°C 1A 10V X7R -55 to +125°C ± 15% 1C 16V X7S ± 22% 55 to +125°C 25V 1E Nominal Capacitance (pF) The capacitance is expressed in three digit codes and in units of pico **Capacitance Tolerance** Farads (pF). The first and second digits identify the first and second Code Tolerance significant figures of the capacitance. The third digit identifies the Κ ± 10% multiplier. R designates a decimal point. Μ ± 20% Ex. 0R2 = 0.2pF; 103 = 10,000pF; 105 = 1,000,000pF = 1,000nF = 1µF **Nominal Thickness** Packaging Style Code Thickness **Special Reserved Code** 022 Code Style 0.22 mm max. Description 033 0.33 mm max. 178 mm Reel, 4 mm Pitch Code A

B, C TDK Internal Code

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178 mm Reel 2 mm Pitch

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В

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0.50 mm max

0.55 mm max

0.65 mm max

050

055

065



### MULTILAYER CERAMIC CHIP CAPACITORS

# CGB1(0603) [EIA CC0201]

#### Capacitance Range Chart

Capacitance

**Range Chart** 

Temperature Characteristics: X5R (±15%), X6S (±22%) Rated Voltage: 6.3V (0J), 4V (0G)

			X5R	X6S	
Capacitance (pF)	Code	Tolerance	0J (6.3V)	0G (4V)	Standard Thickness
100,000	104	M : ±20%			0.22 mm



# 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)

0					JB					X5R		
Capacitance (pF)	Code	Tolerance	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%										
470,000	474	M : ±20%										
1,000,000	105											
2,200,000	225											
		1						-				
				X6S		X7	'S					
Capacitance	Code	Tolerance	1A	0J	0G	0J	<b>0G</b>					
(pF)			(10V)	(6.3V)	(4V)	(6.3V)	(4V)	Sto	ndard Tl	nioknoon		
220,000	224	K : ±10%						Sia				
470,000	474	M : ±20%						_	0.22	mm ma	X.	
1,000,000	105								0.33	mm ma	X.	



## 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)

				J	В				X	5R		
Capacitance (pF)	Code	Tolerance	1E (25V)	1C (16V)	1A (10V)	0J (6.3V)	0G (4V)	1E (25V)	1C (16V)	1A (10V)	0J (6.3V)	0G (4V)
470,000	47 <b>4</b>	K : ±10%										
1,000,000	105	M:±20%										
2,200,000	225											
4,700,000	475											
10,000,000	106											
				X	S		X	7R	X7S	]		
Capacitance (pF)	Code	Tolerance	1C (16V)	1A (10V)	0J (6.3V)	0G (4V)	1A (10V)	0J (6.3V)	0G (4V)	Sta	ndard Th	nickness
1,000,000	105	K : ±10%									0.50	mm max
2,200,000	225	M: ±20%										
4,700,000	475										0.55	mm max

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# 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)

Consoltones				JB			X5R			X6S		X	′R
Capacitance (pF)	Code	Tolerance	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	1011 2 2070											

Standard Thickness

0.55 mm max.

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### Capacitance Range Table

#### **Class 2 (Temperature Stable)**

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

Canacitanaa	Size	Thickness	Capacitance	Catalog Number					
Capacitance	Size	(mm)	Tolerance	Rated Voltage Edc: 25V	Rated Voltage Edc: 16V	Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V		
			±10%			CGB2A3JB1A474K033BB			
	1005	0.33max.	±10%		CGB2A1JB1C474K033BC				
470nF	1005	0.55ITIAX.	±20%			CGB2A3JB1A474M033BB			
470HF			±20%		CGB2A1JB1C474M033BC				
	1608	0.55max.	±10%	CGB3B3JB1E474K055AB					
	1000	0.55max.	±20%	CGB3B3JB1E474M055AB					
			±10%				CGB2A3JB0J105K033BB		
	1005	0.33max.	±10%	CGB2A1JB1E105K033BC	CGB2A1JB1C105K033BC	CGB2A1JB1A105K033BC			
	1005	0.33max.	. 00%				CGB2A3JB0J105M033BB		
			±20%	CGB2A1JB1E105M033BC	CGB2A1JB1C105M033BC	CGB2A1JB1A105M033BC			
1E			. 109/		CGB3B3JB1C105K055AB				
1µF	1000	0.55max	0.55max	0.55max.	±10%	CGB3B1JB1E105K055AC			
	1608	0.55max.	±20%		CGB3B3JB1C105M055AB				
				CGB3B1JB1E105M055AC					
	2012	0.55max.	±10%	CGB4B3JB1E105K055AB					
	2012	0.55max.	±20%	CGB4B3JB1E105M055AB					
	1005	0.33max.	±20%				CGB2A1JB0J225M033BC		
	1000	0.55	±10%		CGB3B1JB1C225K055AC	CGB3B3JB1A225K055AB			
2.2µF	1608	0.55max.	±20%		CGB3B1JB1C225M055AC	CGB3B3JB1A225M055AB			
	0010	0.55	±10%	CGB4B1JB1E225K055AC	CGB4B3JB1C225K055AB	CGB4B3JB1A225K055AB			
	2012	0.55max.	±20%	CGB4B1JB1E225M055AC	CGB4B3JB1C225M055AB	CGB4B3JB1A225M055AB			
4 7.JE	1608	0.55max.	±10%			CGB3B1JB1A475K055AC	CGB3B3JB0J475K055AB		
4.7µF	1008	0.55max.	±20%			CGB3B1JB1A475M055AC	CGB3B3JB0J475M055AB		
10µF	1608 -	0.50max.	±20%				CGB3S1JB0J106M050AC		
τυμΕ	1008 -	0.65max.	±20%				CGB3C1JB0J106M065AC		

Consoitonoo	Size	Thickness	Capacitance	Catalog Number
Capacitance	Size	(mm)	Tolerance	Rated Voltage Edc: 4.0V
1 uF	1005	0.33max.	± 10%	CGB2A3JB0G105K033BB
ιμr	1005	0.55ITIAX.	± 20%	CGB2A3JB0G105M033BB
10µF	F 1608	0.50max.	± 20%	CGB3S3JB0G106M050AB

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#### **Class 2 (Temperature Stable)**

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

Consoitonco	Size	Thickness	Capacitance	Catalog Number			
Capacitance	Size	(mm)	Tolerance	Rated Voltage Edc: 25V	Rated Voltage Edc: 16V	Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V
100nF	0603	0.22max.	±20%				CGB1T3X5R0J104M022BE
220nF	1005	0.22max.	±20%				CGB2T3X5R0J224M022BE
		0.22max.	±20%				CGB2T3X5R0J474M022BE
	-		±10%			CGB2A3X5R1A474K033BB	
	1005	0.33max.	±10%		CGB2A1X5R1C474K033BC		
470nF		0.3311ax.	±20%			CGB2A3X5R1A474M033BB	
			±20%		CGB2A1X5R1C474M033BC		
	1608	0.55max.	±10%	CGB3B3X5R1E474K055AB			
	1000	0.55ITIAX.	±20%	CGB3B3X5R1E474M055AB			
			±10%				CGB2A3X5R0J105K033BE
	1005	0.33max.	±10%	CGB2A1X5R1E105K033BC	CGB2A1X5R1C105K033BC	CGB2A1X5R1A105K033BC	
	1005	0.55ITIAX.	±20%				CGB2A3X5R0J105M033B
			±20%	CGB2A1X5R1E105M033BC	CGB2A1X5R1C105M033BC	CGB2A1X5R1A105M033BC	
1µF			±10%		CGB3B3X5R1C105K055AB		
ιμr	1608	0.55max.	±10%	CGB3B1X5R1E105K055AC			
	1000	0.55ITIAX.	±20%		CGB3B3X5R1C105M055AB		
			±20%	CGB3B1X5R1E105M055AC			
	2012	0.55max.	±10%	CGB4B3X5R1E105K055AB			
	2012	0.55ITIAX.	±20%	CGB4B3X5R1E105M055AB			
	1005	0.33max.	±20%				CGB2A1X5R0J225M033B0
	1608	0.55max.	±10%		CGB3B1X5R1C225K055AC	CGB3B3X5R1A225K055AB	
2.2µF	1000	0.55ITIAX.	±20%		CGB3B1X5R1C225M055AC	CGB3B3X5R1A225M055AB	
	2012	0.55max.	±10%	CGB4B1X5R1E225K055AC	CGB4B3X5R1C225K055AB	CGB4B3X5R1A225K055AB	
	2012	0.55ITIAX.	±20%	CGB4B1X5R1E225M055AC	CGB4B3X5R1C225M055AB	CGB4B3X5R1A225M055AB	
4.7µF	1608	0.55max.	±10%			CGB3B1X5R1A475K055AC	CGB3B3X5R0J475K055AE
4.7µr	1000	0.55max.	±20%			CGB3B1X5R1A475M055AC	CGB3B3X5R0J475M055AB
10µF	1608 -	0.50max.	±20%				CGB3S1X5R0J106M050A0
ιυμε	1008 -	0.65max.	±20%				CGB3C1X5R0J106M065A0

Canaaitanaa	Size	Thickness	Capacitance	Catalog Number
Capacitance	Size	(mm)	Tolerance	Rated Voltage Edc: 4.0V
470 nF	1005	0.22max.	± 20%	CGB2T1X5R0G474M022BC
		0.22max.	± 20%	CGB2T1X5R0G105M022BC
1 µF	1005	0.33max.	± 10%	CGB2A3X5R0G105K033BB
		0.3311aX.	± 20%	CGB2A3X5R0G105M033BB
10µF	1608	0.50max.	±20%	CGB3S3X5R0G106M050AB

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### Capacitance Range Table

#### **Class 2 (Temperature Stable)**

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

0	0:	Thickness	Capacitance	Catalog Number			
Capacitance	Size	(mm)	Tolerance	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
		0.22max.	±20%				CGB2T1X6S0G474M022BC
470nF	1005	0.33max.	±10%		CGB2A1X6S1A474K033BC	CGB2A3X6S0J474K033BB	CGB2A1X6S0G474K033BC
		0.55max.	±20%		CGB2A1X6S1A474M033BC	CGB2A3X6S0J474M033BB	CGB2A1X6S0G474M033BC
		0.22max.	±20%				CGB2T1X6S0G105M022BC
	1005	0.33max.	±10%		CGB2A1X6S1A105K033BC	CGB2A1X6S0J105K033BC	CGB2A1X6S0G105K033BC
1µF		0.33max.	±20%		CGB2A1X6S1A105M033BC	CGB2A1X6S0J105M033BC	CGB2A1X6S0G105M033BC
	1608	0.55max.	±10%	CGB3B1X6S1C105K055AC	CGB3B3X6S1A105K055AB		
	1608	0.55max.	±20%	CGB3B1X6S1C105M055AC	CGB3B3X6S1A105M055AB		
	1608	0.55max.	±10%		CGB3B1X6S1A225K055AC	CGB3B3X6S0J225K055AB	CGB3B3X6S0G225K055AB
0.0.5	1000	0.55max.	±20%		CGB3B1X6S1A225M055AC	CGB3B3X6S0J225M055AB	CGB3B3X6S0G225M055AB
2.2µF	2012	0.55max.	±10%	CGB4B1X6S1C225K055AC	CGB4B3X6S1A225K055AB	CGB4B3X6S0J225K055AB	
	2012	0.55max.	±20%	CGB4B1X6S1C225M055AC	CGB4B3X6S1A225M055AB	CGB4B3X6S0J225M055AB	
4.7µF	1608	0 EEmov	±10%				CGB3B1X6S0G475K055AC
4.7μF	1008	0.55max.	±20%				CGB3B1X6S0G475M055AC

#### **Class 2 (Temperature Stable)**

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

	Capacitance	Size	Thickness	Capacitance	Catalog Number			
	Capacitance	Size	(mm)	Tolerance	Rated Voltage Edc: 16V	Rated Voltage Edc: 10V	Rated Voltage Edc: 6.3V	Rated Voltage Edc: 4.0V
	1.05	1608	0.55 max.	± 10%		CGB3B1X7R1A105K055AC	CGB3B3X7R0J105K055AB	
	1 µF	1000	0.55 max.	± 20%		CGB3B1X7R1A105M055AC	CGB3B3X7R0J105M055AB	
_	2.2 uF	0010	0.55 max.	± 10%		CGB4B1X7R1A225K055AC	CGB4B3X7R0J225K055AB	
	2.2 µr	2012	0.55 max.	± 20%		CGB4B1X7R1A225M055AC	CGB4B3X7R0J225M055AB	

#### Class 2 (Temperature Stable)

Temperature Characteristics: X7S (-55 to +125°C, ±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
470 HF	1005	0.55 max.	± 20%				CGB2A1X7S0G474M033BC
1	1005	0.33 max.	± 10%			CGB2A1X7S0J105K033BC	CGB2A1X7S0G105K033BC
1 µF	1005	0.33 max.	± 20%			CGB2A1X7S0J105M033BC	CGB2A1X7S0G105M033BC
0.0	1000	0.55 mar	± 10%				CGB3B1X7S0G225K055AC
2.2 µF	1608	0.55 max.	± 20%				CGB3B1X7S0G225M055AC

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### TDK:

CGB2T1X6S0G105M022BC CGB2T1X5R0G105M022BC CGB2T3X5R0J224M022BB CGB3B1X7S0G225M055AC
CGB2A1X6S0G474M033BB CGB2T3X5R0J474M022BB CGB2A1X6S0G474K033BB CGB1T3X5R0J104M022BB
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CGB3B1X7R1A105K055AC CGB3S3X5R0G106M050AB CGB3B1X5R1C225K055AC CGB3S3JB0G106M050AB
<u>CGB3B1X6S0G475M055AC</u> <u>CGB3B3X5R0J475K055AB</u> <u>CGB3B1X5R1A475K055AC</u> <u>CGB3B3X5R0J475M055AB</u>
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<u>CGB3B3X5R1A225K055AB</u> <u>CGB3B1X6S1A225K055AC</u> <u>CGB3B1X6S1A225M055AC</u> <u>CGB3S1JB0J106M050AC</u>
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CGB3B3X6S1A105K055AB CGB4B3JB1E105M055AB CGB2A1X7S0G105M033BC CGB2A3JB1A474M033BB
<u>CGB2A3X5R0J105K033BB</u> <u>CGB2T1X6S0G224M022BC</u> <u>CGB3B1JB1E105M055AC</u> <u>CGB3B3X6S0J225K055AB</u>
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CGB2A3X5R0J105M033BB CGB2A3X6S0J474K033BB CGB4B1X5R1E225K055AC CGB4B1X5R1E225M055AC
CGB4B3X6S0J225K055AB CGB3B3JB1A225M055AB CGB3B3X6S1A105M055AB CGB3C1JB0J106M065AC
CGB4B1X7R1A225M055AC CGB4B3JB1E105K055AB CGB2A1JB1A105M033BC CGB2A1X5R1C105M033BC
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