

# SPECIFICATION

(Reference sheet)

- Supplier : Samsung electro-mechanics
- Product : Multi-layer Ceramic Capacitor

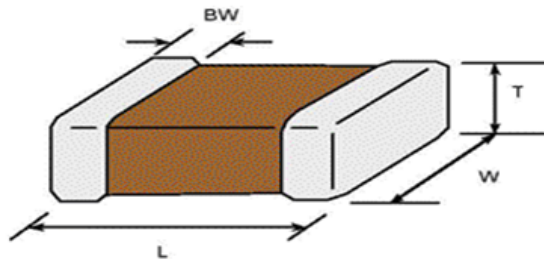
- Samsung P/N : **CL21B102KDCNNNC**
- Description : **CAP, 1 nF, 200V, ±10%, X7R, 0805**

## A. Samsung Part Number

**CL 21 B 102 K D C N N N C**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

① <b>Series</b>	Samsung Multi-layer Ceramic Capacitor			
② <b>Size</b>	0805 (inch code)	L: 2.00 ± 0.10 mm	W: 1.25 ± 0.10 mm	
③ <b>Dielectric</b>	X7R	⑧ <b>Inner electrode</b>	Ni	
④ <b>Capacitance</b>	1 nF	<b>Termination</b>	Cu	
⑤ <b>Capacitance tolerance</b>	±10 %	<b>Plating</b>	Sn 100% (Pb Free)	
⑥ <b>Rated Voltage</b>	200 V	⑨ <b>Product</b>	Normal	
⑦ <b>Thickness</b>	0.85 ± 0.10 mm	⑩ <b>Special</b>	Reserved for future use	
		⑪ <b>Packaging</b>	Cardboard Type, 7" reel	

## B. Structure and dimension



Samsung P/N	Dimension(mm)			
	L	W	T	BW
CL21B102KDCNNNC	2.00±0.10	1.25±0.10	0.85±0.10	0.50+0.20/-0.30


### C. Samsung Reliability Test and Judgement condition

	Performance	Test condition
Capacitance	Within specified tolerance	1kHz±10% 1.0±0.2Vrms
Tan δ (DF)	0.025 max.	*A capacitor prior to measuring the capacitance is heat treated at 150°C+0/-10°C for 1hour and maintained in ambient air for 24±2 hours.
Insulation Resistance	10,000Mohm or 500Mohm·μF Whichever is smaller	Rated Voltage 60~120 sec.
Appearance	No abnormal exterior appearance	Microscope (×10)
Withstanding Voltage	No dielectric breakdown or mechanical breakdown	200% of the rated voltage
Temperature Characterisitcs	X7R (From -55°C to 125°C, Capacitance change should be within ±15%)	
Adhesive Strength of Termination	No peeling shall be occur on the terminal electrode	500g·F, for 10±1 sec.
Bending Strength	Capacitance change : within ±12.5%	Bending to the limit (1mm) with 1.0mm/sec.
Solderability	More than 75% of terminal surface is to be soldered newly	SnAg3.0Cu0.5 solder 245±5°C, 3±0.3sec. (preheating : 80~120°C for 10~30sec.)
Resistance to Soldering heat	Capacitance change : within ±7.5% Tan δ, IR : initial spec.	Solder pot : 270±5°C, 10±1sec.
Vibration Test	Capacitance change : within ±5% Tan δ, IR : initial spec.	Amplitude : 1.5mm From 10Hz to 55Hz (return : 1min.) 2hours × 3 direction (x, y, z)
Moisture Resistance	Capacitance change : within ±12.5% Tan δ : 0.05 max IR : 500Mohm or 25Mohm · μF Whichever is smaller	With rated voltage 40±2°C, 90~95%RH, 500+12/-0hrs
High Temperature Resistance	Capacitance change : within ±12.5% Tan δ : 0.05 max IR : 1000Mohm or 50Mohm · μF Whichever is smaller	With 200% of the rated voltage Max. operating temperature 1000+48/-0hrs
Temperature Cycling	Capacitance change : within ±7.5% Tan δ, IR : initial spec.	1 cycle condition Min. operating temperature → 25°C → Max. operating temperature → 25°C  5 cycle test

※ The reliability test condition can be replaced by the corresponding accelerated test condition.

### D. Recommended Soldering method :

Reflow ( Reflow Peak Temperature : 260+0/-5°C, 10sec. Max )

-  Product specifications included in the specifications are effective as of March 1, 2013.  
Please be advised that they are standard product specifications for reference only.  
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- ② Automotive or Transportation equipment (vehicles, trains, ships, etc)
- ③ Medical equipment
- ④ Military equipment
- ⑤ Disaster prevention/crime prevention equipment
- ⑥ Any other applications with the same as or similar complexity or reliability to the applications set forth above.