



# SPECIFICATION

(Reference sheet)

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

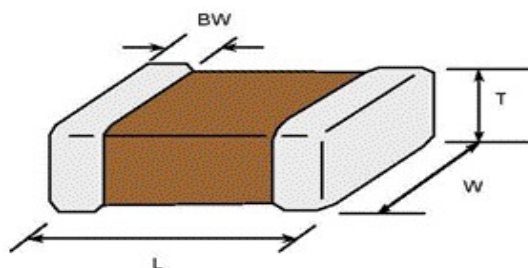
- Samsung P/N: **CL10B154KP8NNNC**
- Description : **CAP, 150nF, 10V, ±10%, X7R, 0603**

## A. Samsung Part Number

**CL** **10** **B** **154** **K** **P** **8** **N** **N** **N** **C**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

① Series	Samsung Multi-layer Ceramic Capacitor		
② Size	0603 (inch code)	L: 1.60 ± 0.10 mm	W: 0.80 ± 0.10 mm
③ Dielectric	X7R	⑧ Inner electrode	Ni
④ Capacitance	150 nF	Termination	Cu
⑤ Capacitance tolerance	±10 %	Plating	Sn 100% (Pb Free)
⑥ Rated Voltage	10 V	⑨ Product	Normal
⑦ Thickness	0.80 ± 0.10 mm	⑩ Special	Reserved for future use
		⑪ Packaging	Cardboard Type, 7" reel

## B. Structure & Dimension



Samsung P/N	Dimension(mm)			
	L	W	T	BW
CL10B154KP8NNNC	1.60 ± 0.10	0.80 ± 0.10	0.80 ± 0.10	0.30 ± 0.20


### C. Samsung Reliability Test and Judgement Condition

	Judgement	Test condition
Capacitance	Within specified tolerance	1kHz ±10% / 1.0±0.2Vrms
Tan δ (DF)	0.05 max.	*A capacitor prior to measuring the capacitance is heat treated at 150°C+0/-10°C for 1 hour and maintained in ambient air for 24±2 hours.
Insulation Resistance	10,000Mohm or 100Mohm×μF Whichever is smaller	Rated Voltage 60~120 sec.
Appearance	No abnormal exterior appearance	Microscope (×10)
Withstanding Voltage	No dielectric breakdown or mechanical breakdown	250% of the rated voltage
Temperature Characteristics	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 : 0.075 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 : 0.075 max IR : 1,000Mohm 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.