

# SPECIFICATION

- Supplier : Samsung electro-mechanics
- Product : Multi-layer Ceramic Capacitor
- Samsung P/N : **CL21B472KCANNNC**
- Description : **CAP, 4.7nF, 100V, ±10%, X7R, 0805**

## A. Samsung Part Number

CL 21 B 472 K C A N N N C  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

<b>① Series</b>	Samsung Multi-layer Ceramic Capacitor										
<b>② Size</b>	0805 (inch code)	L: 2.0 ± 0.1	mm	W: 1.25 ± 0.1	mm						
<b>③ Dielectric</b>	X7R			<b>⑧ Inner electrode</b>	Ni						
<b>④ Capacitance</b>	4.7 nF			<b>Termination</b>	Cu						
<b>⑤ Capacitance tolerance</b>	±10 %			<b>Plating</b>	Sn 100% (Pb Free)						
<b>⑥ Rated Voltage</b>	100 V			<b>⑨ Product</b>	Normal						
<b>⑦ Thickness</b>	0.65 ± 0.1	mm			<b>⑩ Special</b>	Reserved for future use					
				<b>⑪ Packaging</b>	Cardboard Type, 7" reel						

## B. Samsung Reliability Test and Judgement condition

	Performance	Test condition
<b>Capacitance</b>	Within specified tolerance	1kHz±10%      1.0±0.2Vrms
<b>Tan δ (DF)</b>	0.025 max.	
<b>Insulation Resistance</b>	10,000Mohm or 500Mohm·μF Whichever is Smaller	Rated Voltage      60~120 sec.
<b>Appearance</b>	No abnormal exterior appearance	Microscope (×10)
<b>Withstanding Voltage</b>	No dielectric breakdown or mechanical breakdown	200% of the rated voltage
<b>Temperature Characterisitcs</b>	X7R (From -55℃ to 125℃, Capacitance change should be within ±15%)	
<b>Adhesive Strength of Termination</b>	No peeling shall be occur on the terminal electrode	500g-F, for 10±1 sec.
<b>Bending Strength</b>	Capacitance change :    within ±12.5%	Bending to the limit (1mm) with 1.0mm/sec.
<b>Solderability</b>	More than 75% of terminal surface is to be soldered newly	SnAg3.0Cu0.5 solder 245±5℃, 3±0.3sec. (preheating : 80~120℃ for 10~30sec.)
<b>Resistance to Soldering heat</b>	Capacitance change :    within ±7.5% Tan δ, IR : initial spec.	Solder pot : 270±5℃, 10±1sec.

	Performance	Test condition
<b>Vibration Test</b>	Capacitance change : within $\pm 5\%$ Tan $\delta$ , IR : initial spec.	Amplitude : 1.5mm From 10Hz to 55Hz (return : 1min.) 2hours $\times$ 3 direction (x, y, z)
<b>Moisture Resistance</b>	Capacitance change : within $\pm 12.5\%$ Tan $\delta$ : 0.05 max IR : 500Mohm or 25Mohm $\cdot \mu\text{F}$ Whichever is Smaller	With rated voltage 40 $\pm$ 2 $^{\circ}\text{C}$ , 90~95%RH, 500+12/-0hrs
<b>High Temperature Resistance</b>	Capacitance change : within $\pm 12.5\%$ Tan $\delta$ : 0.05 max IR : 1000Mohm or 50Mohm $\cdot \mu\text{F}$ Whichever is Smaller	With 200% of the rated voltage Max. operating temperature 1000+48/-0hrs
<b>Temperature Cycling</b>	Capacitance change : within $\pm 7.5\%$ Tan $\delta$ , IR : initial spec.	1 cycle condition Min. operating temperature $\rightarrow$ 25 $^{\circ}\text{C}$ $\rightarrow$ Max. operating temperature $\rightarrow$ 25 $^{\circ}\text{C}$ 5 cycle test

**C. Recommended Soldering method :**

Reflow ( Reflow Peak Temperature : 260+0/-5 $^{\circ}\text{C}$ , 10sec. Max )

\* For the more detail Specification, Please refer to the Samsung MLCC catalogue.