

## Excellent Integrated System Limited

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[Samsung Electro-Mechanics America, Inc.](#)  
[CL21B222KDCNNNC](#)

For any questions, you can email us directly:

[sales@integrated-circuit.com](mailto:sales@integrated-circuit.com)



## SPECIFICATION

- Supplier : Samsung electro-mechanics
- Product : Multi-layer Ceramic Capacitor
- Samsung P/N : **CL21B222KDCNNNC**
- Description : **CAP, 2.2nF, 200V, ±10%, X7R, 0805**

### A. Samsung Part Number

CL  
 21  
 B  
 222  
 K  
 D  
 C  
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 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: 2.0 ± 0.1 mm	W: 1.25 ± 0.1 mm
③ <b>Dielectric</b>	X7R	⑧ <b>Inner electrode</b>	Ni
④ <b>Capacitance</b>	2.2 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 ± 0.1 mm	⑩ <b>Special</b>	Reserved for future use
		⑪ <b>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°C to 125°C, 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°C, 3±0.3sec. (preheating : 80~120°C for 10~30sec.)
<b>Resistance to Soldering heat</b>	Capacitance change : within ±7.5% Tan δ, IR : initial spec.	Solder pot : 270±5°C, 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 $\cdot \mu F$ Whichever is Smaller	With rated voltage 40 $\pm$ 2 $^{\circ}$ 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 $\cdot \mu F$ 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 $^{\circ}$ C $\rightarrow$ Max. operating temperature $\rightarrow$ 25 $^{\circ}$ C  5 cycle test

**C. Recommended Soldering method :**

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

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