



## **SPECIFICATION**

• Supplier : Samsung electro-mechanics • Samsung P/N : CL10C220JB8NNND

• Product : Multi-layer Ceramic Capacitor • Description : CAP, 22pF, 50V, ±5%, C0G, 0603

## A. Samsung Part Number

<u>CL</u> <u>10</u> <u>C</u> <u>220</u> <u>J</u> <u>B</u> <u>8</u> <u>N</u> <u>N</u> <u>N</u> <u>D</u> ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

① Series	Samsung Multi-layer Ceramic Capacitor		
② Size	0603 (inch code)	L: 1.6 ± 0.1 mm	W: 0.8 ± 0.1 mm
3 Dielectric	C0G	8 Inner electrode	Ni
Capacitance	<b>22</b> pF	Termination	Cu
⑤ Capacitance	±5 %	Plating	Sn 100% (Pb Free)
tolerance		Product	Normal
6 Rated Voltage	50 V	Special	Reserved for future use
① Thickness	0.8 ± 0.1 mm	① Packaging	Cardboard Type, 13" reel

## **B. Samsung Reliablility Test and Judgement condition**

	Performance	Test condition	
Capacitance	Within specified tolerance	1Mb±10% 0.5~5Vrms	
Q	840 min		
Insulation	10,000Mohm or 500Mohm⋅ <i>μ</i> F	Rated Voltage 60~120 sec.	
Resistance	Whichever is Smaller		
Appearance	No abnormal exterior appearance	Microscope (×10)	
Withstanding	No dielectric breakdown or	300% of the rated voltage	
Voltage	mechanical breakdown		
Temperature	COG		
Characterisitcs	(From -55 ℃ to 125 ℃, Capacitance change shoud be within ±30PPM/℃)		
Adhesive Strength	No peeling shall be occur on the	500g·F, for 10±1 sec.	
of Termination	terminal electrode		
Bending Strength	Capacitance change :	Bending to the limit (1mm)	
	within ±5% or ±0.5pF whichever is larger	with 1.0mm/sec.	
Solderability	More than 75% of terminal surface	SnAg3.0Cu0.5 solder	
	is to be soldered newly	245±5℃, 3±0.3sec.	
		(preheating : 80~120℃ for 10~30sec.)	
Resistance to	Capacitance change :	Solder pot : 270±5℃, 10±1sec.	
Soldering heat	within ±2.5% or ±0.25pF whichever is larger		
	Tan δ, IR : initial spec.		

	Performance	Test condition
Vibration Test	Capacitance change :	Amplitude : 1.5mm
	within ±2.5% or ±0.25pF whichever is larger	From 10Hz to 55Hz (return : 1min.)
	Tan δ, IR : initial spec.	2hours × 3 direction (x, y, z)
Moisture	Capacitance change :	With rated voltage
Resistance	within ±7.5% or ±0.75pF whichever is larger	40±2℃, 90~95%RH, 500+12/-0hrs
	Q: 173.33 min	
	IR : 500Mohm or 25Mohm $\cdot \mu$ F	
	Whichever is Smaller	
High Temperature	Capacitance change :	With 200% of the rated voltage
Resistance	within ±3% or ±0.3pF whichever is larger	Max. operating temperature
	Q: 330 min	1000+48/-0hrs
	IR: 1000Mohm or 50Mohm $\cdot \mu$ F	
	Whichever is Smaller	
Temperature	Capacitance change :	1 cycle condition
Cycling	within ±2.5% or ±0.25pF whichever is larger	Min. operating temperature → 25 °C
	Tan δ, IR : initial spec.	$ ightarrow$ Max. operating temperature $ ightarrow$ 25 $^{\circ}\!$
		5 cycle test

## C. Recommended Soldering method :

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

<sup>\*</sup> For the more detail Specification, Please refer to the Samsung MLCC catalogue.