

SPECIFICATION

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

- Samsung P/N : **CL10C220FB8NNWC**
- Description : **CAP, 22pF, 50V, ±1%, COG, 0603**

A. Samsung Part Number

CL 10 C 220 F B 8 N N W 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: 1.6 ± 0.1 mm	W: 0.8 ± 0.1 mm
③ Dielectric	COG	⑧ Inner electrode	Ni
④ Capacitance	22 pF	Termination	Cu
⑤ Capacitance tolerance	±1 %	Plating	Sn 100% (Pb Free)
⑥ Rated Voltage	50 V	⑨ Product	Normal
⑦ Thickness	0.8 ± 0.1 mm	⑩ Special	Product for Network application
		⑪ Packaging	Cardboard Type, 7" reel (4,000 ea)

B. Samsung Reliability Test and Judgement condition

	Performance	Test condition
Capacitance	Within specified tolerance	1MHz±10% 0.5~5Vrms
Q	840 min	
Insulation Resistance	More than 500Mohm·μF	Rated Voltage 60~120 sec.
Appearance	No abnormal exterior appearance	Visual inspection
Withstanding Voltage	No dielectric breakdown or mechanical breakdown	300% of the rated voltage
Temperature Characteristics	COG (From -55°C to 125°C, Capacitance change should be within ±30PPM/°C)	
Adhesive Strength of Termination	No peeling shall be occur on the terminal electrode	500g-F, for 10±1 sec.
Bending Strength	Capacitance change : within ±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 ±2.5% Tan δ, IR : initial spec.	Solder pot : 270±5°C, 10±1sec.

	Performance	Test condition
Vibration Test	Capacitance change : within $\pm 2.5\%$ Tan δ , IR : initial spec.	Amplitude : 1.5mm From 10Hz to 55Hz (return : 1min.) 2hours \times 3 direction (x, y, z)
Moisture Resistance	Capacitance change : within $\pm 7.5\%$ Q : 173.33 min IR : More than 25M $\Omega \cdot \mu F$	With rated voltage 40 $\pm 2^\circ C$, 90~95%RH, 500 +12/-0 hours
High Temperature Resistance	Capacitance change : within $\pm 3\%$ Q : 330 min IR : More than 50M $\Omega \cdot \mu F$	With 200% of the rated voltage Max. operating temperature 1000+48/-0 hours
Temperature Cycling	Capacitance change : within $\pm 2.5\%$ Tan δ , IR : initial spec.	1 cycle condition Min. operating temperature $\rightarrow 25^\circ C$ \rightarrow Max. operating temperature $\rightarrow 25^\circ C$ 5 cycles 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.