

SPECIFICATION

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

- Samsung P/N : **CL10F224ZA8NNNC**
- Descriptionnt : **CAP, 220nF, -20/+80%, 25V,Y5V,0603**

A. Samsung Part Number

CL 10 F 224 Z A 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: 1.6 ± 0.1 mm	W: 0.8 ± 0.1 mm		
③ Dielectric	Y5V	⑧ Inner electrode	Ni		
④ Capacitance	220 nF	⑨ Termination	Cu		
⑤ Capacitance tolerance	-20/+80 %	⑩ Plating	Sn 100% (Pb Free)		
⑥ Rated Voltage	25 V	⑪ Product	Normal		
⑦ Thickness	0.8 ± 0.1 mm	⑫ Special	Reserved for future use		
		⑬ Packaging	Cardboard Type, 7" reel		

B. Samsung Reliability Test and Judgement condition

	Performance	Test condition
Capacitance	Within specified tolerance	1kHz±10% 1.0±0.2Vrms
Tan δ (DF)	0.07 max.	
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 Characterisitcs	Y5V (From -30℃ to 85℃, Capacitance change shoud be within -82~+22%)	
Adhesive Strength of Termination	No peeling shall be occur on the terminal electrode	500g·F, for 10±1 sec.
Bending Strength	Capacitance change : within ±30%	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℃, 3±0.3sec. (preheating : 80~120℃ for 10~30sec.)
Resistance to Soldering heat	Capacitance change : within ±20% Tan δ, IR : initial spec.	Solder pot : 270±5℃, 10±1sec.

	Performance	Test condition
Vibration Test	Capacitance change : within $\pm 20\%$ 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 $\pm 30\%$ Tan δ : 0.09 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
High Temperature Resistance	Capacitance change : within $\pm 30\%$ Tan δ : 0.09 max IR : 1000Mohm or 50Mohm $\cdot \mu F$ Whichever is Smaller	With 200% of the rated voltage Max. operating temperature 1000+48/-0hrs
Temperature Cycling	Capacitance change : within $\pm 20\%$ Tan δ , 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.