

SPECIFICATION

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

- Samsung P/N : **CL10A105KA8NNNC**
- Description : **CAP, 1 μ F, 25V, \pm 10%, X5R, 0603**

A. Samsung Part Number

CL 10 A 105 K 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 \pm 0.1	mm	W: 0.8 \pm 0.1	mm				
③ Dielectric	X5R				⑧ Inner electrode	Ni			
④ Capacitance	1 μ F				Termination	Cu			
⑤ Capacitance tolerance	\pm 10 %				Plating	Sn 100% (Pb Free)			
⑥ Rated Voltage	25 V				⑨ Product	Normal			
⑦ Thickness	0.8 \pm 0.1 mm				⑩ Special	Reserved for future use			
					⑪ Packaging	Cardboard Type, 7" reel			

B. Samsung Reliability Test and Judgement condition

	Performance	Test condition
Capacitance	Within specified tolerance	1kHz \pm 10% 1.0 \pm 0.2Vrms
Tan δ (DF)	0.1 max.	
Insulation Resistance	10,000Mohm or 500Mohm $\cdot\mu$ F Whichever is Smaller	Rated Voltage 60~120 sec.
Appearance	No abnormal exterior appearance	Microscope (\times 10)
Withstanding Voltage	No dielectric breakdown or mechanical breakdown	250% of the rated voltage
Temperature Characterisitcs	X5R (From -55 $^{\circ}$ C to 85 $^{\circ}$ C, Capacitance change should be within \pm 15%)	
Adhesive Strength of Termination	No peeling shall be occur on the terminal electrode	500g-F, for 10 \pm 1 sec.
Bending Strength	Capacitance change : within \pm 12.5%	Bending to the limit (1mm) with 1.0mm/sec.
Solderability	More than 95% of terminal surface is to be soldered newly	1) Sn63Pb37 solder 235 \pm 5 $^{\circ}$ C, 5 \pm 0.5sec. 2) SnAg3.0Cu0.5 solder 245 \pm 5 $^{\circ}$ C, 3 \pm 0.3sec. (preheating : 80~120 $^{\circ}$ C for 10~30sec.)
Resistance to Soldering heat	Capacitance change : within \pm 7.5% Tan δ , IR : initial spec.	Solder pot : 270 \pm 5 $^{\circ}$ C, 10 \pm 1sec.

	Performance	Test condition
Vibration Test	Capacitance change : within $\pm 5\%$ Tan δ , IR : initial spec.	Amplitude : 1.5mm From 10Hz to 55Hz (return : 1min.) 2hours \times 3 direction (x, y, z)
Humidity	Capacitance change : within $\pm 12.5\%$ Tan δ : 0.125 max IR : $25M\Omega \cdot \mu F$ or Over	$40 \pm 2^\circ C$, 90~95%RH, 500+12/-0hrs
Moisture Resistance	Capacitance change : within $\pm 12.5\%$ Tan δ : 0.125 max IR : $12.5M\Omega \cdot \mu F$ or Over	With rated voltage $40 \pm 2^\circ C$, 90~95%RH, 500+12/-0hrs
High Temperature Resistance	Capacitance change : within $\pm 12.5\%$ Tan δ : 0.125 max IR : $25M\Omega \cdot \mu F$ or Over	With 150% of the rated voltage Max. operating temperature 1000+48/-0hrs
Temperature Cycling	Capacitance change : within $\pm 7.5\%$ Tan δ , IR : initial spec.	1 cycle condition Min. operating temperature $\rightarrow 25^\circ C$ \rightarrow Max. operating temperature $\rightarrow 25^\circ C$ 5 cycle test

C. Recommended Soldering method :

Reflow (Reflow Peak Temperature : $250 \pm 5^\circ C$, 6sec. Max)

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