

SPECIFICATION

- Supplier : Samsung electro-mechanics
- Product : Multi-layer Ceramic Capacitor
- Samsung P/N : **CL31F106ZPENNE**
- Description : **CAP, 10 μ F, -20+80%, 10V, Y5V, 1206**

A. Samsung Part Number

CL 31 F 106 Z P E N N N E
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

① Series	Samsung Multi-layer Ceramic Capacitor		
② Size	1206 (inch code)	L: 3.2 ± 0.15 mm	W: 1.6 ± 0.15 mm
③ Dielectric	Y5V	⑧ Inner electrode	Ni
④ Capacitance	10 μ F	Termination	Cu
⑤ Capacitance tolerance	-20/+80 %	Plating	Sn 100% (Pb Free)
⑥ Rated Voltage	10 V	⑨ Product	Normal
⑦ Thickness	1.1 ± 0.15 mm	⑩ Special	Reserved for future use
		⑪ Packaging	Embossed 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)	0.125 max.	
Insulation Resistance	10,000Mohm or 100Mohm· μ F 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°C to 85°C, Capacitance change should 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°C, 3±0.3sec. (preheating : 80~120°C for 10~30sec.)
Resistance to Soldering heat	Capacitance change : within ±20% Tan δ , IR : initial spec.	Solder pot : 270±5°C, 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 : 0.16 max IR : 12.5M $\Omega \cdot \mu F$ or Over	With rated voltage 40 ± 2 $^{\circ}C$, 90~95%RH, 500+12/-0hrs
High Temperature Resistance	Capacitance change : within $\pm 30\%$ Tan δ : 0.16 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 $\pm 20\%$ 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.