

SPECIFICATION

- **Supplier :** Samsung electro-mechanics
- **Product :** Multi-layer Ceramic Capacitor
- **Part Number :** CL31F226ZPHNNNE
- **Description :** CAP, 22 μ F, -20+80%, 10V, Y5V, 1206

A. Samsung Part Number

CL 31 F 226 Z P H 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 ± 0.2	mm	W: 1.6 ± 0.2	mm
③ Dielectric	Y5V	⑧ Inner electrode	Ni		
④ Capacitance	22 μ F	Termination	Cu		
⑤ Capacitance tolerance	-20/+80 %	Plating	Sn 100% (Pb Free)		
⑥ Rated Voltage	10 V	⑨ Product	Normal		
⑦ Thickness	1.6 ± 0.2	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	120Hz±20% 0.5±0.1Vrms
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 °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°C \rightarrow Max. operating temperature \rightarrow 25°C 5 cycle test

C. Recommended Soldering method :

Reflow (Reflow Peak Temperature : 260+0/-5°C, 10sec. Max)

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