

SPECIFICATION

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

- Samsung P/N : **CL05F104ZO5NNNC**
- Description : **CAP,100nF, 16V, -20/+80%, Y5V, 0402**

A. Samsung Part Number

CL 05 F 104 Z O 5 N N N C
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

| | | | |
|-------------------------|---------------------------------------|-------------------|-------------------------|
| ① Series | Samsung Multi-layer Ceramic Capacitor | | |
| ② Size | 0402 (inch code) | L: 1.0 ± 0.05 mm | W: 0.5 ± 0.05 mm |
| ③ Dielectric | Y5V | ⑧ Inner electrode | Ni |
| ④ Capacitance | 100 nF | Termination | Cu |
| ⑤ Capacitance tolerance | -20/+80 % | Plating | Sn 100% (Pb Free) |
| ⑥ Rated Voltage | 16 V | ⑨ Product | Normal |
| ⑦ Thickness | 0.5 ± 0.05 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±10% 1.0±0.2Vrms |
| Tan δ (DF) | 0.09 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 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 | 1) Sn63Pb37 solder 235±5℃, 5±0.5sec. 2) 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) |
| Humidity | Capacitance change : within $\pm 30\%$ Tan δ : 0.125 max IR : 1000Mohm or 50Mohm $\cdot \mu\text{F}$ Whichever is Smaller | 40 \pm 2 $^{\circ}\text{C}$, 90~95%RH, 500+12/-0hrs |
| Moisture Resistance | Capacitance change : within $\pm 30\%$ Tan δ : 0.125 max IR : 500Mohm or 25Mohm $\cdot \mu\text{F}$ Whichever is Smaller | With rated voltage 40 \pm 2 $^{\circ}\text{C}$, 90~95%RH, 500+12/-0hrs |
| High Temperature Resistance | Capacitance change : within $\pm 30\%$ Tan δ : 0.125 max IR : 1000Mohm or 50Mohm $\cdot \mu\text{F}$ 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 $^{\circ}\text{C}$ \rightarrow Max. operating temperature \rightarrow 25 $^{\circ}\text{C}$ 5 cycle test |

C. Recommended Soldering method :

Reflow (Reflow Peak Temperature : 260+0/-5 $^{\circ}\text{C}$, 10sec. Max)

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