

SPECIFICATION

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

- Samsung P/N : **CL21C221FBANNNC**
- Description : **CAP, 220pF, 50V, ±1%, COG, 0805**

A. Samsung Part Number

CL 21 C 221 F B A N N N C
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

| | | | |
|-------------------------|---------------------------------------|-------------------|-------------------------|
| ① Series | Samsung Multi-layer Ceramic Capacitor | | |
| ② Size | 0805 (inch code) | L: 2.0 ± 0.1 mm | W: 1.25 ± 0.1 mm |
| ③ Dielectric | COG | ⑧ Inner electrode | Ni |
| ④ Capacitance | 220 pF | Termination | Cu |
| ⑤ Capacitance tolerance | ±1 % | Plating | Sn 100% (Pb Free) |
| ⑥ Rated Voltage | 50 V | ⑨ Product | Normal |
| ⑦ Thickness | 0.65 ± 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 | 1MHz±10% 0.5~5Vrms |
| Q | 1000 min | |
| Insulation Resistance | 10,000Mohm or 500Mohm·μF Whichever is Smaller | Rated Voltage 60~120 sec. |
| Appearance | No abnormal exterior appearance | Microscope (×10) |
| Withstanding Voltage | No dielectric breakdown or mechanical breakdown | 300% of the rated voltage |
| Temperature Characterisitcs | COG (From -55℃ to 125℃, Capacitance change should be within ±30PPM/℃) | |
| Adhesive Strength of Termination | No peeling shall be occur on the terminal electrode | 500g·F, for 10±1 sec. |
| Bending Strength | Capacitance change : within ±5% or ±0.5pF whichever is larger | 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 ±2.5% or ±0.25pF whichever is larger Tan δ, IR : initial spec. | Solder pot : 270±5℃, 10±1sec. |

| | Performance | Test condition |
|------------------------------------|---|---|
| Vibration Test | Capacitance change : within $\pm 2.5\%$ or $\pm 0.25\text{pF}$ whichever is larger 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 $\pm 7.5\%$ or $\pm 0.75\text{pF}$ whichever is larger Q : 200 min IR : 500Mohm or $25\text{Mohm} \cdot \mu\text{F}$ Whichever is Smaller | With rated voltage $40\pm 2^\circ\text{C}$, 90~95%RH, 500+12/-0hrs |
| High Temperature Resistance | Capacitance change : within $\pm 3\%$ or $\pm 0.3\text{pF}$ whichever is larger Q : 350 min IR : 1000Mohm or $50\text{Mohm} \cdot \mu\text{F}$ Whichever is Smaller | With 200% of the rated voltage Max. operating temperature 1000+48/-0hrs |
| Temperature Cycling | Capacitance change : within $\pm 2.5\%$ or $\pm 0.25\text{pF}$ whichever is larger 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 : $260\pm 0/-5^\circ\text{C}$, 10sec. Max)

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