



SPECIFICATION

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

- Samsung P/N : [CL32B475KBJNFNE](#)
- Description : CAP, 4.7 μ F, 50V, $\pm 10\%$, X7R, 1210

A. Samsung Part Number

CL 32 B 475 K B J N F N E
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

| | | | |
|--------------------------------|---------------------------------------|--------------------------|-------------------------------|
| ① Series | Samsung Multi-layer Ceramic Capacitor | | |
| ② Size | 1210 (inch code) | L: 3.2 \pm 0.3 mm | W: 2.5 \pm 0.2 mm |
| ③ Dielectric | X7R | ⑧ Inner electrode | Ni |
| ④ Capacitance | 4.7 μ F | ⑨ Termination | Cu |
| ⑤ Capacitance tolerance | $\pm 10\%$ | ⑩ Plating | Sn 100% (Pb Free) |
| ⑥ Rated Voltage | 50 V | ⑪ Product | Product for POWER application |
| ⑦ Thickness | 2.5 ± 0.2 mm | ⑫ Special | Reserved for future use |
| | | ⑬ Packaging | Embossed Type, 7" reel |

B. Samsung Reliability Test and Judgement condition

| | Performance | Test condition | |
|---|--|---|--------------------|
| Capacitance | Within specified tolerance | 1kHz $\pm 10\%$ | 1.0 ± 0.2 Vrms |
| Tan δ (DF) | 0.1 max. | | |
| Insulation Resistance | 10,000Mohm or 100Mohm· μ 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 | X7R (From -55°C to 125°C, Capacitance change shoud be within $\pm 15\%$) | | |
| Adhesive Strength of Termination | No peeling shall be occur on the terminal electrode | 500g·F, for 10 ± 1 sec. | |
| Bending Strength | Capacitance change : within $\pm 12.5\%$ | 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 ± 0.3 sec. (preheating : 80~120 °C for 10~30sec.) | |
| Resistance to Soldering heat | Capacitance change : within $\pm 7.5\%$ Tan δ , IR : initial spec. | Solder pot : 270 ± 5 °C, 10 ± 1 sec. | |

| | 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) |
| Moisture Resistance | Capacitance change : within $\pm 12.5\%$ Tan δ : 0.125 max IR : $12.5\text{M}\Omega \cdot \mu\text{F}$ or Over | With rated voltage 40 ± 2 °C, 90~95%RH, 500+12/-0hrs |
| High Temperature Resistance | Capacitance change : within $\pm 12.5\%$ Tan δ : 0.125 max IR : $25\text{M}\Omega \cdot \mu\text{F}$ 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°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.