

SPECIFICATION

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

- Samsung P/N : **CL21B333KBANNWC**
- Description : **CAP, 33nF, 50V, ±10%, X7R, 0805**

A. Samsung Part Number

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|-------------------------|---------------------------------------|-------------------|-----------------------------------|
| 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 | X7R | ⑧ Inner electrode | Ni |
| ④ Capacitance | 33 nF | Termination | Cu |
| ⑤ Capacitance tolerance | ±10 % | Plating | Sn 100% (Pb Free) |
| ⑥ Rated Voltage | 50 V | ⑨ Product | Normal |
| ⑦ Thickness | 0.65 ± 0.1 mm | ⑩ Special | Product for Network application |
| | | ⑪ Packaging | Cardboard Type, 7" reel (4,000ea) |

B. Samsung Reliability Test and Judgement condition

| | Performance | Test condition |
|----------------------------------|--|--|
| Capacitance | Within specified tolerance | 1kHz±10% 1.0±0.2Vrms |
| Tan δ (DF) | 0.025 max. | |
| Insulation Resistance | More than 500Mohm·μF | Rated Voltage 60~120 sec. |
| Appearance | No abnormal exterior appearance | Visual inspection |
| Withstanding Voltage | No dielectric breakdown or mechanical breakdown | 250% of the rated voltage |
| Temperature Characteristics | X7R (From -55°C to 125°C, Capacitance change should be within ±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 ±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±0.3sec. (preheating : 80~120°C for 10~30sec.) |
| Resistance to Soldering heat | Capacitance change : within ±7.5% Tan δ, IR : initial spec. | Solder pot : 270±5°C, 10±1sec. |

| | 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 : 0.05 max IR : More than $25M\Omega \cdot \mu F$ | With rated voltage $40 \pm 2^\circ C$, 90~95%RH, 500+12/-0 hours |
| High Temperature Resistance | Capacitance change : within $\pm 12.5\%$ Tan δ : 0.05 max IR : More than $50M\Omega \cdot \mu F$ | With 200% of the rated voltage Max. operating temperature 1000+48/-0 hours |
| Temperature Cycling | Capacitance change : within $\pm 7.5\%$ Tan δ , IR : initial spec. | 1 cycle condition Min. operating temperature $\rightarrow 25^\circ C$ \rightarrow Max. operating temperature $\rightarrow 25^\circ C$ 5 cycles 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.