

# SPECIFICATION

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

- Samsung P/N : **CL10C330JB8NNWC**
- Description : **CAP, 33pF, 50V, ±5%, COG, 0603**

## A. Samsung Part Number

CL   10   C   330   J   B   8   N   N   W   C  
 ①   ②   ③   ④   ⑤   ⑥   ⑦   ⑧   ⑨   ⑩   ⑪

|                         |                                       |                   |                                    |
|-------------------------|---------------------------------------|-------------------|------------------------------------|
| ① Series                | Samsung Multi-layer Ceramic Capacitor |                   |                                    |
| ② Size                  | 0603 (inch code)                      | L: 1.6 ± 0.1 mm   | W: 0.8 ± 0.1 mm                    |
| ③ Dielectric            | C0G                                   | ⑧ Inner electrode | Ni                                 |
| ④ Capacitance           | 33 pF                                 | Termination       | Cu                                 |
| ⑤ Capacitance tolerance | ±5 %                                  | Plating           | Sn 100% (Pb Free)                  |
| ⑥ Rated Voltage         | 50 V                                  | ⑨ Product         | Normal                             |
| ⑦ Thickness             | 0.8 ± 0.1 mm                          | ⑩ Special         | Product for Network application    |
|                         |                                       | ⑪ Packaging       | Cardboard Type, 7" reel (4,000 ea) |

## B. Samsung Reliability Test and Judgement condition

|                                  | Performance  | Test condition   |
|----------------------------------|--|--|
| Capacitance                      | Within specified tolerance   | 1MHz±10%      0.5~5Vrms  |
| Q                                | 1000 min   |  |
| 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                          | 300% of the rated voltage  |
| Temperature Characteristics      | C0G<br>(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%  | 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<br>245±5℃, 3±0.3sec.<br>(preheating : 80~120℃ for 10~30sec.) |
| Resistance to Soldering heat     | Capacitance change : within ±2.5%<br>Tan δ, IR : initial spec.           | Solder pot : 270±5℃, 10±1sec.  |

|                                    | <b>Performance</b>   | <b>Test condition</b>  |
|------------------------------------|--|--|
| <b>Vibration Test</b>              | Capacitance change : within $\pm 2.5\%$<br>Tan $\delta$ , IR : initial spec.                     | Amplitude : 1.5mm<br>From 10Hz to 55Hz (return : 1min.)<br>2hours $\times$ 3 direction (x, y, z)   |
| <b>Moisture Resistance</b>         | Capacitance change : within $\pm 7.5\%$<br>Q : 200 min<br>IR : More than $25M\Omega \cdot \mu F$ | With rated voltage<br>$40 \pm 2^\circ C$ , 90~95%RH, 500 +12/-0 hours  |
| <b>High Temperature Resistance</b> | Capacitance change : within $\pm 3\%$<br>Q : 350 min<br>IR : More than $50M\Omega \cdot \mu F$   | With 200% of the rated voltage<br>Max. operating temperature<br>1000+48/-0 hours   |
| <b>Temperature Cycling</b>         | Capacitance change : within $\pm 2.5\%$<br>Tan $\delta$ , IR : initial spec.                     | 1 cycle condition<br>Min. operating temperature $\rightarrow 25^\circ C$<br>$\rightarrow$ Max. operating temperature $\rightarrow 25^\circ C$<br><br>5 cycles test |

**C. Recommended Soldering method :**

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

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