

# SPECIFICATION

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

- Samsung P/N : **CL21F105ZBFNNNG**
- Description : **CAP, 1 $\mu$ F, -20+80%, 50V, Y5V, 0805**

## A. Samsung Part Number

**CL**   **21**   **F**   **105**   **Z**   **B**   **F**   **N**   **N**   **N**   **G**  
 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            | Y5V                                   |                 |                  | ⑧ Inner electrode | Ni                             |  |  |  |  |  |
| ④ Capacitance           | 1 μF                                  |                 |                  | Termination       | Cu                             |  |  |  |  |  |
| ⑤ Capacitance tolerance | -20/+80 %                             |                 |                  | Plating           | Sn 100% (Pb Free)              |  |  |  |  |  |
| ⑥ Rated Voltage         | 50 V                                  |                 |                  | ⑨ Product         | Normal                         |  |  |  |  |  |
| ⑦ Thickness             | 1.25 ± 0.1 mm                         |                 |                  | ⑩ Special         | Reserved for future use        |  |  |  |  |  |
|                         |                                       |                 |                  | ⑪ Packaging       | Embossed Type, 7"reel(3,000ea) |  |  |  |  |  |

## B. Samsung Reliability Test and Judgement condition

|                                  | Performance                                                             | Test condition                                                                   |
|----------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Capacitance                      | Within specified tolerance                                              | 1kHz±10%      1.0±0.2Vrms                                                        |
| Tan $\delta$ (DF)                | 0.07 max.                                                               |                                                                                  |
| Insulation Resistance            | More than 100Mohm· $\mu$ F                                              | 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      | Y5V<br>(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               | SnAg3.0Cu0.5 solder<br>245±5℃, 3±0.3sec.<br>(preheating : 80~120℃ for 10~30sec.) |
| Resistance to Soldering heat     | Capacitance change : within ±20%<br>Tan $\delta$ , IR : initial spec.   | Solder pot : 270±5℃, 10±1sec.                                                    |

|                                    | Performance                                                                                                  | Test condition                                                                                                                                           |
|------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Vibration Test</b>              | Capacitance change : within $\pm 20\%$<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 $\pm 30\%$<br>Tan $\delta$ : 0.09 max<br>IR : More than 25M $\Omega \cdot \mu F$ | With rated voltage<br>40 $\pm 2$ °C, 90~95%RH, 500+12/-0 hours                                                                                           |
| <b>High Temperature Resistance</b> | Capacitance change : within $\pm 30\%$<br>Tan $\delta$ : 0.09 max<br>IR : More than 50M $\Omega \cdot \mu F$ | With 200% of the rated voltage<br>Max. operating temperature<br><br>1000+48/-0 hours                                                                     |
| <b>Temperature Cycling</b>         | Capacitance change : within $\pm 20\%$<br>Tan $\delta$ , IR : initial spec.                                  | 1 cycle condition<br>Min. operating temperature $\rightarrow$ 25 °C<br>$\rightarrow$ Max. operating temperature $\rightarrow$ 25 °C<br><br>5 cycles 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.