



SPECIFICATION

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

- Samsung P/N : [CL10A474KA8NFNC](#)
- Description : CAP, 470nF, 25V, ±10%, X5R, 0603

A. Samsung Part Number

CL 10 A 474 K A 8 N F N C
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

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|--------------------------------|---------------------------------------|--|--|--------------------------|----------------------------------|--|-----------------|--|--|--|--|--|--|--|
| 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 | X5R | | | ⑧ Inner electrode | Ni | | | | | | | | | |
| ④ Capacitance | 470 nF | | | ⑨ Termination | Cu | | | | | | | | | |
| ⑤ Capacitance tolerance | ±10 % | | | ⑩ Plating | Sn 100% (Pb Free) | | | | | | | | | |
| ⑥ Rated Voltage | 25 V | | | ⑪ Product | Product for POWER application | | | | | | | | | |
| ⑦ Thickness | 0.8 ± 0.1 mm | | | ⑫ Special | Reserved for future use | | | | | | | | | |
| | | | | ⑬ 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) | 0.1 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 | X5R (From -55 °C to 85 °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 : 0.125 max IR : More than $12.5\text{M}\Omega \cdot \mu\text{F}$ | With rated voltage $40 \pm 2^\circ\text{C}$, 90~95%RH, 500 +12/-0 hours |
| High Temperature Resistance | Capacitance change : within $\pm 12.5\%$ Tan δ : 0.125 max IR : More than $25\text{M}\Omega \cdot \mu\text{F}$ | With 150% 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 $\rightarrow 25^\circ\text{C}$ \rightarrow Max. operating temperature $\rightarrow 25^\circ\text{C}$ 5 cycles 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.