



SPECIFICATION

(Reference sheet)

· Supplier : Samsung electro-mechanics · Samsung P/N: CL03B103KP3NNNC

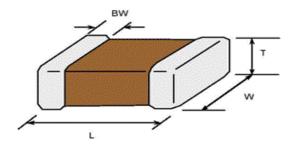
· Product : Multi-layer Ceramic Capacitor · Description : CAP, 10nF, 10V, ±10%, X7R, 0201

A. Samsung Part Number

<u>CL</u> <u>03</u> <u>B</u> <u>103</u> <u>K</u> <u>P</u> <u>3</u> <u>N</u> <u>N</u> <u>N</u> <u>C</u> 1 2 3 4 5 6 7 8 9 0 10

| 1 | Series | Samsung Multi-layer Ceramic Capacitor | | | | | |
|-----|---------------|---------------------------------------|-----------------------|-----------------|----|-------------------------|--|
| 2 | Size | 0201 (inch code) | L: 0.60 ± 0.03 mm | | W: | 0.30 ± 0.03 mm | |
| | | | | ctured for | | | |
| 3 | Dielectric | X7R | 8 | Inner electrode | | Ni | |
| 4 | Capacitance | 10 nF | | Termination | | Cu | |
| (5) | Capacitance | ±10 % | | Plating | | Sn 100% (Pb Free) | |
| | tolerance | | 9 | Product | | Normal | |
| 6 | Rated Voltage | 10 V | 10 | Special | | Reserved for future use | |
| 7 | Thickness | 0.30 ± 0.03 mm | 11 | Packaging | | Cardboard Type, 7" reel | |

B. Structure & Dimension



| Samoung D/N | Dimension(mm) | | | | | |
|-----------------|---------------|-------------|-------------|-------------|--|--|
| Samsung P/N | L | W | Т | BW | | |
| CL03B103KP3NNNC | 0.60 ± 0.03 | 0.30 ± 0.03 | 0.30 ± 0.03 | 0.15 ± 0.05 | | |

C. Samsung Reliablility Test and Judgement Condition

| Capacitance V | Within specified tolerance | 1kHz +10% / 1 0+0 2\/rms | | | |
|-------------------------------------|--|---|--|--|--|
| | | 1 ^{kHz} ±10% / 1.0±0.2Vrms | | | |
| Tan δ (DF) | 0.05 max. | *A capacitor prior to measuring the capacitance is heat treated at $150^{\circ}\text{C} + 0/-10^{\circ}\text{C}$ for 1 hour and maintained in ambient air for 24±2 hours. | | | |
| Insulation 10,000Mohm or 100Mohm×µF | | Rated Voltage 60~120 sec. | | | |
| Resistance | Whichever is smaller | | | | |
| Appearance N | No abnormal exterior appearance | Microscope (×10) | | | |
| Withstanding N | No dielectric breakdown or | 250% of the rated voltage | | | |
| Voltage n | nechanical breakdown | | | | |
| Temperature X | K7R | | | | |
| Characteristics (| From-55℃ to 125℃, Capacitance change | should be within ±15%) | | | |
| | No peeling shall be occur on the | 200g·f, for 10±1 sec. | | | |
| _ | erminal electrode | | | | |
| Bending Strength | Capacitance change: within ±12.5% | Bending to the limit (1mm) | | | |
| | | with 1.0mm/sec. | | | |
| Solderability N | More than 75% of terminal surface | SnAg3.0Cu0.5 solder | | | |
| 1 | s to be soldered newly | 245±5°C, 3±0.3sec. | | | |
| | | (preheating : 80~120°C for 10~30sec.) | | | |
| Resistance to C | Capacitance change : within ±7.5% | Solder pot : 270±5°C, 10±1sec. | | | |
| | Γan δ, IR : initial spec. | | | | |
| | Capacitance change : within ± 5% Γan δ, IR : initial spec. | Amplitude: 1.5mm From 10Hz to 55Hz (return: 1min.) 2hours × 3 direction (x, y, z) | | | |
| Moisture C | Capacitance change: within ±12.5% | With rated voltage | | | |
| Resistance T | Γan δ : 0.075 max | 40±2℃, 90~95%RH, 500+12/-0hrs | | | |
| IF | R: 500Mohm or 12.5Mohm × μ F Whichever is smaller | | | | |
| High Temperature C | Capacitance change: within ±12.5% | With 150% of the rated voltage | | | |
| Resistance T | Γan δ : 0.075 max | Max. operating temperature | | | |
| IF | R: 1,000Mohm or 25Mohm × μ F Whichever is smaller | 1000+48/-0hrs | | | |
| Temperature | Capacitance change : within ±7.5% | 1 cycle condition | | | |
| Cycling | Γan δ, IR : initial spec. | Min. operating temperature → 25°C | | | |
| | | → Max. operating temperature → 25°C | | | |
| | | 5 cycle test | | | |

X The reliability test condition can be replaced by the corresponding accelerated test condition.

D. Recommended Soldering method:

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



A Product specifications included in the specifications are effective as of March 1, 2013.

Please be advised that they are standard product specifications for reference only.

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- 2 Automotive or Transportation equipment (vehicles, trains, ships, etc)
- 3 Medical equipment
- 4 Military equipment
- ⑤ Disaster prevention/crime prevention equipment
- 6 Power plant control equipment
- Atomic energy-related equipment
- Undersea equipment
- Traffic signal equipment
- Data-processing equipment
- ## Electric heating apparatus, burning equipment
- Safety equipment
- ® Any other applications with the same as or similar complexity or reliability to the applications