



SPECIFICATION

(Reference sheet)

- Supplier : Samsung electro-mechanics - Samsung P/N : CL31C2R2CBCNNNC

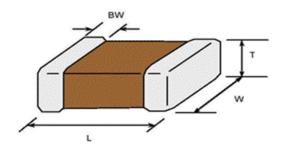
Product : Multi-layer Ceramic Capacitor
 Description : CAP, 2.2pF, 50V, ± 0.25pF, C0G, 1206

A. Samsung Part Number

<u>CL</u> <u>31</u> <u>C</u> <u>2R2</u> <u>C</u> <u>B</u> <u>C</u> <u>N</u> <u>N</u> <u>N</u> <u>C</u> ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

| 1 | Series | Samsung Multi-layer Ceramic Capacitor | | | |
|---|---------------|---------------------------------------|-------------------|-------------------------|--|
| 2 | Size | 1206 (inch code) | L: 3.20 ± 0.15 mm | W: 1.60 ± 0.15 mm | |
| | | | | | |
| 3 | Dielectric | C0G | 8 Inner electrode | Ni | |
| 4 | Capacitance | 2.2 pF | Termination | Cu | |
| ⑤ | Capacitance | ± 0.25pF | Plating | Sn 100% (Pb Free) | |
| | tolerance | | Product | Normal | |
| 6 | Rated Voltage | 50 V | Special | Reserved for future use | |
| 7 | Thickness | 0.85 ± 0.15 mm | ① Packaging | Cardboard Type, 7" reel | |

B. Structure and dimension



| Samsung P/N | Dimension(mm) | | | | |
|-----------------|---------------|-------------|-------------|-------------|--|
| (Lead Free) | L | W | Т | BW | |
| CL31C2R2CBCNNNC | 3.20 ± 0.15 | 1.60 ± 0.15 | 0.85 ± 0.15 | 0.50 ± 0.30 | |

C. Samsung Reliability Test and Judgement condition

| Capacitance Within specified t | olerance | 1181 (20) (22 - 23) | | | | |
|---------------------------------------|---|--|--|--|--|--|
| | olcianoc | 1 ^{Mlz} ±10% / 0.5~5Vrms | | | | |
| Q 444 min | | | | | | |
| Insulation 10,000Mohm or 500Mohm×μF | | Rated Voltage 60~120 sec. | | | | |
| Resistance Whichever is sm | naller | | | | | |
| Appearance No abnormal exte | erior appearance | Microscop (X10) | | | | |
| Withstanding No dielectric brea | akdown or | 300% of the rated voltage | | | | |
| Voltage mechanical break | kdown | | | | | |
| Temperature C0G | | | | | | |
| Characteristics (From -55 °C to 12 | (From -55℃ to 125℃, Capacitance change should be within ±30PPM/℃) | | | | | |
| Adhesive Strength No peeling shall be | be occur on the | 500g×F, for 10±1 sec. | | | | |
| of Termination terminal electrode | е | | | | | |
| Bending Strength Capacitance chair | nge : | Bending to the limit (1mm) | | | | |
| within ±5% or ±0 | .5pF whichever is larger | with 1.0mm/sec. | | | | |
| | f terminal surface | SnAg3.0Cu0.5 solder | | | | |
| is to be soldered | newly | 245±5℃, 3±0.3sec. | | | | |
| | | (preheating : 80~120 ℃ for 10~30sec.) | | | | |
| | | , | | | | |
| Resistance to Capacitance chair | nge : | Solder pot : 270±5℃, 10±1sec. | | | | |
| Soldering heat within ±2.5% or ± | :0.25pF whichever is larger | | | | | |
| Tan δ, IR : initial | spec. | | | | | |
| Vibration Test Capacitance char | nge : | Amplitude : 1.5mm | | | | |
| within ±2.5% or ± | 0.25pF whichever is larger | From 10Hz to 55Hz (return : 1min.) | | | | |
| Tan δ, IR : initial | spec. | 2hours ´ 3 direction (x, y, z) | | | | |
| Moisture Capacitance chai | nge : | With rated voltage | | | | |
| Resistance within ±7.5% or ± | :0.75pF whichever is larger | 40±2℃, 90~95%RH, 500+12/-0hrs | | | | |
| Q: 107.3 | 3 min | | | | | |
| IR: 500Mc | ohm or 25Mohm × μF | | | | | |
| Which | never is smaller | | | | | |
| High Temperature Capacitance chair | nge : | With 200% of the rated voltage | | | | |
| | .3pF whichever is larger | Max. operating temperature | | | | |
| | min | 1000+48/-0hrs | | | | |
| IR: 1,000I | Mohm or 50Mohm × μF | | | | | |
| | never is smaller | | | | | |
| emperature Capacitance change : | | 1 cycle condition | | | | |
| | :0.25pF whichever is larger | Min. operating temperature \rightarrow 25 $^{\circ}$ C | | | | |
| Tan δ, IR : initial | | \rightarrow Max. operating temperature \rightarrow 25 $^{\circ}$ C | | | | |
| | | | | | | |
| | | | | | | |
| | | 5 cycle test | | | | |

^{*} The reliability test condition can be replaced by the corresponding accelerated test condition.

D. Recommended Soldering method:

Reflow (Reflow Peak Temperature : 260+0/-5 °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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Should you have any question regarding the product specifications,

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- ① Aerospace/Aviation equipment
- 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