

## SPECIFICATION

(Reference sheet)

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

- Samsung P/N : **CL21CR47CBANNNC**
- Description : **CAP, 0.47pF, 50V,  $\pm 0.25\text{pF}$ , C0G, 0805**

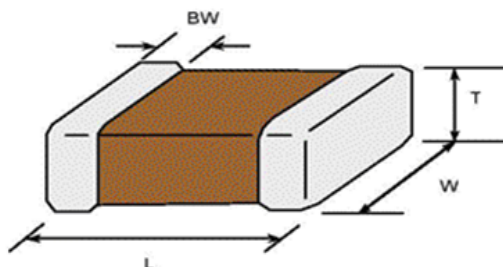
### A. Samsung Part Number

**CL** **21** **C** **R47** **C** **B** **A** **N** **N** **N** **C**

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|                         |                                       |             |                   |                         |  |
|-------------------------|---------------------------------------|-------------|-------------------|-------------------------|--|
| ① Series                | Samsung Multi-layer Ceramic Capacitor |             |                   |                         |  |
| ② Size                  | 0805                                  | (inch code) | L: 2.00 ± 0.10 mm | W: 1.25 ± 0.10 mm       |  |
| ③ Dielectric            | C0G                                   |             | ⑧ Inner electrode | Ni                      |  |
| ④ Capacitance           | 0.47 pF                               |             | Termination       | Cu                      |  |
| ⑤ Capacitance tolerance | ± 0.25pF                              |             | Plating           | Sn 100% (Pb Free)       |  |
| ⑥ Rated Voltage         | 50 V                                  |             | ⑨ Product         | Normal                  |  |
| ⑦ Thickness             | 0.65 ± 0.10 mm                        |             | ⑩ Special         | Reserved for future use |  |
|                         |                                       |             | ⑪ Packaging       | Cardboard Type, 7" reel |  |

### B. Structure and dimension



| Samsung P/N     | Dimension(mm)   |                 |                 |                   |
|-----------------|-----------------|-----------------|-----------------|-------------------|
|                 | L               | W               | T               | BW                |
| CL21CR47CBANNNC | $2.00 \pm 0.10$ | $1.25 \pm 0.10$ | $0.65 \pm 0.10$ | $0.50+0.20/-0.30$ |

### C. Samsung Reliability Test and Judgement condition

|                                  | Judgement                                                                                                                                         | Test condition                                                                                                  |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Capacitance                      | Within specified tolerance                                                                                                                        | 1MHz±10% / 0.5~5Vrms                                                                                            |
| Q                                | 409 min                                                                                                                                           |                                                                                                                 |
| Insulation Resistance            | 10,000Mohm or 500Mohm × $\mu F$<br>Whichever is smaller                                                                                           | Rated Voltage 60~120 sec.                                                                                       |
| Appearance                       | No abnormal exterior appearance                                                                                                                   | Microscop (X10)                                                                                                 |
| Withstanding Voltage             | No dielectric breakdown or mechanical breakdown                                                                                                   | 300% of the rated voltage                                                                                       |
| Temperature Characteristics      | COG<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 :<br>within ±5% or ±0.5pF whichever is larger                                                                                  | Bending to the limit (1mm)<br>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 :<br>within ±2.5% or ±0.25pF whichever is larger<br>Tan δ, IR : initial spec.                                                  | Solder pot : 270±5℃, 10±1sec.                                                                                   |
| Vibration Test                   | Capacitance change :<br>within ±2.5% or ±0.25pF whichever is larger<br>Tan δ, IR : initial spec.                                                  | Amplitude : 1.5mm<br>From 10Hz to 55Hz (return : 1min.)<br>2hours ´ 3 direction (x, y, z)                       |
| Moisture Resistance              | Capacitance change :<br>within ±7.5% or ±0.75pF whichever is larger<br>Q : 101.57 min<br>IR : 500Mohm or 25Mohm × $\mu F$<br>Whichever is smaller | With rated voltage<br>40±2℃, 90~95%RH, 500+12/-0hrs                                                             |
| High Temperature Resistance      | Capacitance change :<br>within ±3% or ±0.3pF whichever is larger<br>Q : 204.70 min<br>IR : 1,000Mohm or 50Mohm × $\mu F$<br>Whichever is smaller  | With 200% of the rated voltage<br>Max. operating temperature<br>1,000+48/-0hrs                                  |
| Temperature Cycling              | Capacitance change :<br>within ±2.5% or ±0.25pF whichever is larger<br>Tan δ, IR : initial spec.                                                  | 1 cycle condition<br>Min. operating temperature → 25℃<br>→ Max. operating temperature → 25℃<br><br>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±5℃, 30sec. )



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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So, you need to approve the product specifications before placing an order.

Should you have any question regarding the product specifications,  
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- ④ Military equipment*
- ⑤ Disaster prevention/crime prevention equipment*
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