

## SPECIFICATION (Reference sheet)

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

- Samsung P/N : **CL03C5R1BA3GNNH**
- Description : **CAP, 5.1 pF, 25V, ±0.1 pF, C0G, 0201**

### A. Samsung Part Number

CL   03   C   5R1   B   A   3   G   N   N   H  
 ①   ②   ③   ④   ⑤   ⑥   ⑦   ⑧   ⑨   ⑩   ⑪

① Series	Samsung Multi-layer Ceramic Capacitor									
② Size	0201 (inch code)	L: 0.6 ± 0.03 mm	W: 0.3 ± 0.03 mm							
③ Dielectric	C0G			⑧ Inner electrode	Cu					
④ Capacitance	5.1 pF			Termination	Cu					
⑤ Capacitance tolerance	±0.1 pF			Plating	Sn 100% (Pb Free)					
⑥ Rated Voltage	25 V			⑨ Product	Normal					
⑦ Thickness	0.3 ± 0.03 mm			⑩ Special	Reserved for future use					
				⑪ Packaging	Cardboard Type, 7" reel					

### B. Samsung Reliability Test and Judgement condition

	Performance	Test condition
Capacitance	Within specified tolerance	1MHz±10%      0.5~5Vrms
Q	502 min	
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	300% of the rated voltage
Temperature Characteristics	C0G (From -55℃ to 125℃, Capacitance change should be within ±30PPM/℃)	
Adhesive Strength of Termination	No peeling shall be occur on the terminal electrode	200g·F, for 10±1 sec.
Bending Strength	Capacitance change : within ±0.5pF	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℃, 3±0.3sec. (preheating : 80~120℃ for 10~30sec.)
Resistance to Soldering heat	Capacitance change : within ±0.25pF Tan δ, IR : initial spec.	Solder pot : 270±5℃, 10±1sec.

	Performance	Test condition
<b>Vibration Test</b>	Capacitance change : within $\pm 0.25\text{pF}$ Tan $\delta$ , IR : initial spec.	Amplitude : 1.5mm From 10Hz to 55Hz (return : 1min.) 2hours $\times$ 3 direction (x, y, z)
<b>Moisture Resistance</b>	Capacitance change : within $\pm 0.75\text{pF}$ Q : 117 min IR : More than $25\text{M}\Omega \cdot \mu\text{F}$	With rated voltage $40\pm 2^\circ\text{C}$ , 90~95%RH, 500+12/-0 hours
<b>High Temperature Resistance</b>	Capacitance change : within $\pm 0.3\text{pF}$ Q : 251 min IR : More than $50\text{M}\Omega \cdot \mu\text{F}$	With 200% of the rated voltage Max. operating temperature 1000+48/-0 hours
<b>Temperature Cycling</b>	Capacitance change : within $\pm 0.25\text{pF}$ Tan $\delta$ , 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 )



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.

We may change, modify or discontinue the product specifications without notice at any time.

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

Should you have any question regarding the product specifications,  
please contact our sales personnel or application engineers.