



# **SPECIFICATION**

(Reference sheet)

- Supplier : Samsung electro-mechanics - Samsung P/N : CL10C110JB8NNNC

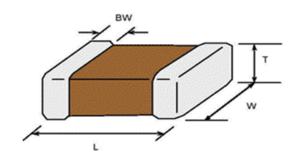
• Product : Multi-layer Ceramic Capacitor • Description : CAP, 11pF, 50V, ± 5%, C0G, 0603

## A. Samsung Part Number

<u>CL</u> <u>10</u> <u>C</u> <u>110</u> <u>J</u> <u>B</u> <u>8</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 Cer	amic Capacitor	
2	Size	0603 (inch code)	L: 1.60 ± 0.10 mm	W: 0.80 ± 0.10 mm
3	Dielectric	C0G	8 Inner electrode	Ni
4	Capacitance	<b>11</b> pF	Termination	Cu
<b>⑤</b>	Capacitance	± 5 %	Plating	Sn 100% (Pb Free)
	tolerance		9 Product	Normal
6	Rated Voltage	50 V	<b>⑩</b> Special	Reserved for future use
7	Thickness	0.80 ± 0.10 mm	Packaging	Cardboard Type, 7" reel

#### **B. Structure and dimension**



Samsung P/N	Dimension(mm)				
(Lead Free)	L	W	Т	BW	
CL10C110JB8NNNC	1.60 ± 0.10	0.80 ± 0.10	0.80 ± 0.10	0.30 ± 0.20	

#### C. Samsung Reliability Test and Judgement condition

Capacitance       Within specified tolerance       1Mt±10%       0.5~5Vrms         Q       620 min       Rated Voltage       60~120 sec.         Insulation       10,000Mohm or 500Mohm×μF       Rated Voltage       60~120 sec.         Resistance       Whichever is smaller       Microscope (*10)         Appearance       No abnormal exterior appearance       Microscope (*10)         Withstanding       No dielectric breakdown or       300% of the rated voltage         Voltage       mechanical breakdown         Temperature       C0G         Characteristics       (From -55°C to 125°C, Capacitance change should be within ±30PPM/°C)         Adhesive Strength       No peeling shall be occur on the terminal electrode       500g×F, for 10±1 sec.         Bending Strength       Capacitance change :       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         Solder benefit is to be soldered newly       245±5°C, 3±0.3sec. (preheating : 80~120°C for 10~30sec.)         Resistance to       Capacitance change :       Solder pot : 270±5°C, 10±1sec.         Soldering heat       within ±2.5% or ±0.25pF whichever is larger Tan δ, IR : initial spec.       Amplitude : 1.5mm
Insulation       10,000Mohm or 500Mohm×μF       Rated Voltage       60~120 sec.         Resistance       Whichever is smaller       Microscope (*10)         Withstanding       No dielectric breakdown or mechanical breakdown       300% of the rated voltage         Temperature       C0G         Characteristics       (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 : within ±5% or ±0.5pF whichever is larger       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       Capacitance change : within ±2.5% or ±0.25pF whichever is larger Tan δ, IR : initial spec.       Solder pot : 270±5 ℃, 10±1sec.
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Vibration Test         Capacitance change :         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 change : With rated voltage
Resistance within ±7.5% or ±0.75pF whichever is larger 40±2℃, 90~95%RH, 500+12/-0hrs
Q: 136.67 min
IR : 500Mohm or 25Mohm × $\mu$ F
Whichever is smaller
High Temperature Capacitance change : With 200% of the rated voltage
Resistance within ±3% or ±0.3pF whichever is larger Max. operating temperature
Q: 302.5 min 1000+48/-0hrs
IR: 1,000Mohm or 50Mohm × $\mu$ F
Whichever is smaller
Temperature Capacitance change : 1 cycle condition
Cycling within ±2.5% or ±0.25pF whichever is larger Min. operating temperature → 25°C
Tan $\delta$ , IR : initial spec. $\rightarrow$ Max. operating temperature $\rightarrow$ 25 $^{\circ}$ C
5 cycle test

<sup>\*</sup> The reliability test condition can be replaced by the corresponding accelerated test condition.

## D. Recommended Soldering method:

Reflow ( Reflow Peak Temperature : 260+0/-5℃, 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.

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.

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The products listed in this Specification sheet are **NOT** designed and manufactured for any use and applications set forth below.

Please note that any misuse of the products deviating from products specifications or information provided in this Spec sheet may cause serious property damages or personal injury.

We will **NOT** be liable for any damages resulting from any misuse of the products, specifically including using the products for high reliability applications as listed below.

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- ① Aerospace/Aviation equipment
- ② Automotive or Transportation equipment (vehicles, trains, ships, etc)
- 3 Medical equipment
- Military equipment
- 5 Disaster prevention/crime prevention equipment
- Any other applications with the same as or similar complexity or reliability to the applications set forth above.