



# **SPECIFICATION**

(Reference sheet)

- Supplier : Samsung electro-mechanics - Samsung P/N : CL10C120FB8NNNC

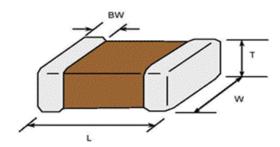
Product : Multi-layer Ceramic Capacitor
 Description : CAP, 12pF, 50V, ± 1%, C0G, 0603

### A. Samsung Part Number

<u>CL</u> <u>10</u> <u>C</u> <u>120</u> <u>F</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 Cerar	nic Capacitor	
2	Size	0603 (inch code)	L: 1.60 ± 0.10 mm	W: 0.80 ± 0.10 mm
3	Dielectric	C0G	Inner electrode	Ni
4	Capacitance	<b>12</b> pF	Termination	Cu
⑤	Capacitance	± 1%	Plating	Sn 100% (Pb Free)
	tolerance		Product	Normal
6	Rated Voltage	50 V	Special	Reserved for future use
7	Thickness	0.80 ± 0.10 mm	① Packaging	Cardboard Type, 7" reel

#### B. Structure and dimension



Samsung P/N	Dimension(mm)				
(Lead Free)	L	W	Т	BW	
CL10C120FB8NNNC	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       1Mb±10% / 0.5~5Vrms         Q       640 min       Rated Voltage       60~120 sec.         Insulation       10,000Mohm or 500Mohm×µF       Rated Voltage       60~120 sec.         Resistance       Whichever is smaller       Microscop (X10)         Appearance       No abnormal exterior appearance       Microscop (X10)         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 : 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         Resistance to       Capacitance change : (preheating : 80~120 °C for 10~30sec.)         Resistance to       Capacitance change : within ±2.5% or ±0.25pF whichever is larger       Solder pot : 270±5 °C, 10±1sec.
Resistance   Gamma
Resistance       Whichever is smaller         Appearance       No abnormal exterior appearance       Microscop (X10)         Withstanding       No dielectric breakdown or mechanical breakdown       300% of the rated voltage         Temperature       C0G       From -55 °C to 125 °C, Capacitance change should be within ±30PPM/°C)         Adhesive Strength of Termination       No peeling shall be occur on the terminal electrode       500g×F, for 10±1 sec.         Bending Strength       Capacitance change : with 1.0mm/sec.         Solderability       More than 75% of terminal surface is to be soldered newly       SnAg3.0Cu0.5 solder 245±5 °C, 3±0.3sec. (preheating : 80~120 °C for 10~30sec.)         Resistance to       Capacitance change :       Solder pot : 270±5 °C, 10±1sec.
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Soldering heat within +2.5% or +0.25pF whichever is larger
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Tan δ, IR : initial spec.
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: 140 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: 305 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°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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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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- 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.