

# SPECIFICATION

(Reference sheet)

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

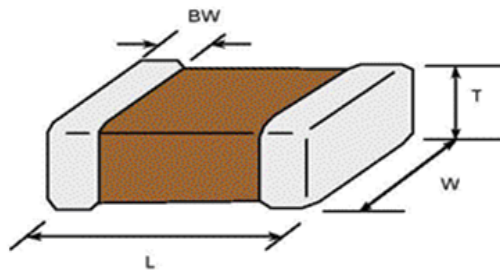
- Samsung P/N : **CL05C391JB5NNNC**
- Description : **CAP, 390pF, 50V, ± 5%, COG, 0402**

## A. Samsung Part Number

**CL** **05** **C** **391** **J** **B** **5** **N** **N** **N** **C**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

① <b>Series</b>	Samsung Multi-layer Ceramic Capacitor			
② <b>Size</b>	0402 (inch code)	L: 1.00 ± 0.05 mm	W: 0.50 ± 0.05 mm	
③ <b>Dielectric</b>	COG	⑧ <b>Inner electrode</b>	Ni	
④ <b>Capacitance</b>	390 pF	<b>Termination</b>	Cu	
⑤ <b>Capacitance tolerance</b>	± 5%	<b>Plating</b>	Sn 100% (Pb Free)	
⑥ <b>Rated Voltage</b>	50 V	⑨ <b>Product</b>	Normal	
⑦ <b>Thickness</b>	0.50 ± 0.05 mm	⑩ <b>Special</b>	Reserved for future use	
		⑪ <b>Packaging</b>	Cardboard Type, 7" reel	

## B. Structure and dimension



Samsung P/N	Dimension(mm)			
	L	W	T	BW
CL05C391JB5NNNC	1.00 ± 0.05	0.50 ± 0.05	0.50 ± 0.05	0.25 ± 0.10

### C. Samsung Reliability Test and Judgement condition

	Judgement	Test condition
Capacitance	Within specified tolerance	1MHz±10% / 0.5~5Vrms
Q	1,000 min	
Insulation Resistance	10,000Mohm or 500Mohm × μF Whichever is smaller	Rated Voltage 60~120 sec.
Appearance	No abnormal exterior appearance	Microscope (X10)
Withstanding Voltage	No dielectric breakdown or mechanical breakdown	300% of the rated voltage
Temperature Characteristics	COG (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 Soldering heat	Capacitance change : within ±2.5% or ±0.25pF whichever is larger Tan δ, IR : initial spec.	Solder pot : 270±5℃, 10±1sec.
Vibration Test	Capacitance change : within ±2.5% or ±0.25pF whichever is larger Tan δ, IR : initial spec.	Amplitude : 1.5mm From 10Hz to 55Hz (return : 1min.) 2hours ´ 3 direction (x, y, z)
Moisture Resistance	Capacitance change : within ±7.5% or ±0.75pF whichever is larger Q : 200 min IR : 500Mohm or 25Mohm × μF Whichever is smaller	With rated voltage 40±2℃, 90~95%RH, 500+12/-0hrs
High Temperature Resistance	Capacitance change : within ±3% or ±0.3pF whichever is larger Q : 350 min IR : 1,000Mohm or 50Mohm × μF Whichever is smaller	With 200% of the rated voltage Max. operating temperature 1,000+48/-0hrs
Temperature Cycling	Capacitance change : within ±2.5% or ±0.25pF whichever is larger Tan δ, IR : initial spec.	1 cycle condition Min. operating temperature → 25℃ → Max. operating temperature → 25℃  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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- ② Automotive or Transportation equipment (vehicles, trains, ships, etc)
- ③ Medical equipment
- ④ Military equipment
- ⑤ Disaster prevention/crime prevention equipment
- ⑥ Any other applications with the same as or similar complexity or reliability to the applications set forth above.