



SPECIFICATION

- · Supplier : Samsung electro-mechanics
- Product : Multi-layer Ceramic Capacitor
- · Samsung P/N :
- CL03A103KP3NNNH

(Reference sheet)

- · Description :
- CAP, 10nF, 10V, ±10%, X5R, 0201

A. Samsung Part Number

		<u>C</u> (1			<u>103</u> ④	<u>K</u> 5	<u>P</u> 6	<u>3</u> 7	<u>N</u> 8	<u>N</u> 9	<u>N</u> 10	<u>н</u> Ф	
1	Series	Samsung Multi-layer Ceramic Capacitor											
2	Size	0201 (inc	h code)	L:	0.60	± 0.03	mm			W:	0.30 ± 0.03 mm	
4	Dielectric Capacitance Capacitance tolerance	X5R 10 nF ±10 %				8	Inner Term Platir Prode	inationg				Ni Cu Sn 100% (Pb Free) Normal	
6	Rated Voltage	10 V				10	Spec	ial				Reserved for future use	
\bigcirc	Thickness	0.30 ± 0.03	mm			1	Pack	aging				Cardboard Type, 7" reel	

B. Structure & Dimension



Samsung P/N	Dimension(mm)							
Samsung F/N	L	W	Т	BW				
CL03A103KP3NNNH	0.60 ± 0.03	0.30 ± 0.03	0.30 ± 0.03	0.15 ± 0.05				

C. Samsung Reliablility Test and Judgement Condition

		Judgement	Test condition				
Tan δ (DF) 0.05 max. treated at 150°C+0/-10°C for 1 hour and maintained ambient air for 24±2 hours. Insulation 10.000Mohm or 100Mohm×μ ^E Rated Voltage 60~120 sec. Resistance Whichever is smaller Appearance No abnormal exterior appearance Microscope (×10) Withstanding No dielectric breakdown or 250% of the rated voltage Characteristics Characteristics (From-55°C to 85°C, Capacitance change should be within ±15%) Adhesive Strength Adhesive Strength No peeling shall be occur on the terminal electrode 200g·f, for 10±1 sec. Bending Strength Capacitance change : within ±12.5% Bending to the limit (1mm) with 1.0mm/sec. Solderability More than 75% of terminal surface is to be solder a newly SnAg3.0Cu0.5 solder Solderability More than 75% of terminal surface is to be solder a newly Solder pot : 270±5°C, 10±1sec. Soldering Heat Tan δ, IR : initial spec. Yibration Test Capacitance change : within ±17.5% Soldering Heat Tan δ : 0.075 max Amplitude : 1.5mm From 10Hz to 55Hz (return : 1min.) 20usrs × 30E/z (return : 1min.) 20us	Capacitance	Within specified tolerance	1 ^{kHz} ±10% / 1.0±0.2Vrms				
Resistance Whichever is smaller Appearance No abnormal exterior appearance Microscope (×10) Withstanding No dielectric breakdown or 250% of the rated voltage Voltage mechanical breakdown 250% of the rated voltage Temperature X5R 250% of the rated voltage Characteristics (From-55°C to 85°C, Capacitance change should be within ±15%) Adhesive Strength No peeling shall be occur on the terminal electrode 200g-f, for 10±1 sec. Bending Strength Capacitance change : within ±12.5% Bending to the limit (1mm) with 1.0mm/sec. Solderability More than 75% of terminal surface is to be soldered newly SnAg3.0Cu.05 solder 245±5°C, 3±0.3sec. (preheating : 80~120°C for 10~30sec.) Anglitude : 1.5mm Resistance to Capacitance change : within ±7.5% Solder pot : 270±5°C, 10±1sec. Soldering Heat Tan 5, IR : initial spec. Amplitude : 1.5mm Vibration Test Capacitance change : within ±12.5% Michever is smaller Moisture Capacitance change : within ±12.5% With rated voltage Resistance Tan 5 : 0.075 max Whichever is smaller With 200% of the rated voltage High Temperature Capacitance ch	Tan δ (DF)	0.05 max.	*A capacitor prior to measuring the capacitance is heat treated at $150^{\circ}C+0/-10^{\circ}C$ for 1 hour and maintained in ambient air for 24±2 hours.				
AppearanceNo abnormal exterior appearanceMicroscope (×10)WithstandingNo dielectric breakdown or mechanical breakdown250% of the rated voltageYoltagemechanical breakdown250% of the rated voltageTemperatureX5R Characteristics(From-55°C to 85°C, Capacitance change should be within ±15%)Adhesive StrengthNo peeling shall be occur on the terminal electrode200g·f, for 10±1 sec.Bending StrengthCapacitance change : 	Insulation	10,000Mohm or 100Mohm× <i>μ</i> F	Rated Voltage 60~120 sec.				
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Resistance Tan δ : 0.075 max Max. operating temperature IR : 1,000Mohm or 50Mohm × μF 1000+48/-0hrs Whichever is smaller 1000+48/-0hrs	High Temperature	Capacitance change : within ±12.5%	With 200% of the rated voltage				
Whichever is smaller		Tan δ : 0.075 max	-				
		IR : 1,000Mohm or 50Mohm × μF	1000+48/-0hrs				
Temperature Capacitance change : within ±7.5% 1 cycle condition		Whichever is smaller					
	Temperature	Capacitance change : within ±7.5%	1 cycle condition				
Cycling Tan δ , IR : initial spec. Min. operating temperature $\rightarrow 25^{\circ}$ C	-	Tan δ, IR : initial spec.	-				
\rightarrow Max. operating temperature \rightarrow 25°C	_		\rightarrow Max. operating temperature \rightarrow 25°C				
5 cycle test			5 cycle test				

X 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)

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.