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SPECIFICATION

- · Supplier : Samsung electro-mechanics
- Product : Multi-layer Ceramic Capacitor
- · Samsung P/N :
- CL21B472JBANNNC

(Reference sheet)

- · Description :
- CAP, 4.7nF, 50V, ±5%, X7R, 0805

A. Samsung Part Number

		<u>CL</u> ①		<u>B</u> 3	<u>472</u> ④	<mark>ل</mark> ٦	<u>B</u> 6	A ⑦	<u>N</u> 8	<u>N</u> 9	<u>N</u> 10	<mark>C</mark> (1)	
1	Series	Samsung Multi-layer Ceramic Capacitor											
2	Size	0805 (inch	code)		L:	2.00	± 0.10	mm			W:	1.25 ± 0.10	mm
3	Dielectric	X7R				8	Inner	elect	rode			Ni	
4	Capacitance	4.7 nF					Term	inatio	n			Cu	
5	Capacitance	±5 %					Platir	ng				Sn 100%	(Pb Free)
	tolerance					9	Prod	uct				Normal	
6	Rated Voltage	50 V				10	Spec	ial				Reserved fo	r future use
\bigcirc	Thickness	0.65 ± 0.10 mr	n			1	Pack	aging				Cardboard T	Type, 7" reel

B. Structure & Dimension



Samsung P/N	Dimension(mm)								
Samsung F/N	L	W	Т	BW					
CL21B472JBANNNC	2.00 ± 0.10	1.25 ± 0.10	0.65 ± 0.10	0.50 +0.2/-0.3					

C. Samsung Reliablility Test and Judgement Condition

Tan δ (DF)0.025 max."A capacitor prior to measuring the capacitance is heat treated at 150°C+0/-10°C for 1 hour and maintained in ambient air for 24±2 hours.Insulation10.000Mohm or 500Mohm× μ^{β} Rated Voltage60~120 sec.ResistanceWhichever is smallerMicroscope (×10)WithstandingNo dielectric breakdown or mechanical breakdown250% of the rated voltageTemperatureX7RStore-S5°C to 125°C, Capacitance change should be within ±15%)Adhesive StrengthNo peeling shall be occur on the of Terminal electrode500g-f, for 10±1 sec.Bending StrengthCapacitance change : within ±12.5%Bending to the limit (1mm) with 1.0mm/sec.SolderabilityMore than 75% of terminal surface is to be soldered newlySolder poi : 270±5°C, 10±1sec.SolderabilityCapacitance change : within ±7.5%Solder poi : 270±5°C, 10±1sec.Vibration TestCapacitance change : within ±7.5%Solder poi : 270±5°C, 10±1sec.Soldering HeatTan 5, IR : initial spec.Amplitude : 1.5mm From 10½ to 55½ (return : 1min.) 2hours × 3 direction (x, y, z)Moisture ResistanceCapacitance change : within ±12.5% Tan 5 : 0.05 max IR : initial spec.With rated voltage 40±2°C, 90-95% RH, 500+12/-0hrs Michever is smallerHigh Temperature CyclingCapacitance change : within ±12.5% Tan 5 : 0.05 max IR : initial spec.With 200% of the rated voltage Max.operating temperature 1000+48/-0hrsTemperature CyclingCapacitance change : within ±7.5% Michever is smallerMich operating temperature 1000+48/-0hrsHigh Tempera		Judgement	Test condition				
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Resistance Whichever is smaller Microscope (×10) 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 X7R (From-55°C to 125°C, Capacitance change should be within ±15%) Adhesive Strength No peeling shall be occur on the terminal electrode 500g·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 SnAg3.0Cu0.5 solder 245±5°C, 3±0.3sec. (preheating : 80~120°C for 10~30sec.) Resistance to Capacitance change : within ±7.5% Solder pot : 270±5°C, 10±1sec. Soldering Heat Tan δ, IR : initial spec. Amplitude : 1.5mm Vibration Test Capacitance change : within ±12.5% Amplitude : 1.5mm Resistance Tan δ, IR : initial spec. Amplitude : 1.5mm Vibration Test Capacitance change : within ±12.5% Mith rated voltage Moisture Capacitance change : within ±12.5% Mith rated voltage Resistance Tan	Tan δ (DF)	0.025 max.	treated at 150 °C+0/-10 °C for 1 hour and maintained in				
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Whichever is smallerWhichever is smallerTemperature CyclingCapacitance change : within $\pm 7.5\%$ Tan δ , IR : initial spec.1 cycle condition Min. operating temperature $\rightarrow 25^{\circ}$ C \rightarrow Max. operating temperature $\rightarrow 25^{\circ}$ C	Resistance		-				
Temperature CyclingCapacitance change : Tan δ , IR : initial spec.within $\pm 7.5\%$ Min. operating temperature1 cycle condition Min. operating temperature \rightarrow 25°C \rightarrow Max. operating temperature \rightarrow 25°C		IR : 1,000Mohm or 50Mohm × μF	1000+48/-0hrs				
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CyclingTan \overline{o} , IR : initial spec.Min. operating temperature \rightarrow 25° C \rightarrow Max. operating temperature \rightarrow 25° C	Temperature	Capacitance change : within ±7.5%	1 cycle condition				
	Cycling	Tan δ, IR : initial spec.	-				
	-		\rightarrow Max. operating temperature \rightarrow 25°C				
E suela tast							
I IS 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.

- Disclaimer & Limitation of Use and Application -

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.

If you have any questions regarding this 'Limitation of Use and Application', you should first contact our sales personnel or application engineers.

- Aerospace/Aviation equipment
- 2 Automotive or Transportation equipment (vehicles, trains, ships, etc)
- 3 Medical equipment
- ④ 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.