



SPECIFICATION

(Reference sheet)

• Supplier : Samsung electro-mechanics • Samsung P/N : CL10Y105MR5NJND

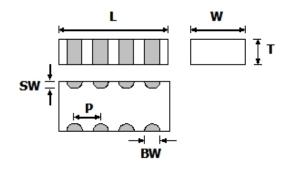
• Product : Multi-layer Ceramic Capacitor • Description : CAP, 1µF, 4V, ±20%, X7S, 0603

A. Samsung Part Number

<u>CL</u> <u>10</u> <u>Y</u> <u>105</u> <u>M</u> <u>R</u> <u>5</u> <u>N</u> <u>J</u> <u>N</u> <u>D</u> ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

1	Series	Samsung Multi-layer Ceramic Capacitor					
2	Size	0603 (inch code)	L: 1.60 ± 0.10 mm	W: $0.80 \pm 0.10 \text{ mm}$			
3	Dielectric	X7S	8 Inner electrode	Ni			
4	Capacitance	1 μF	Termination	Cu			
(5)	Capacitance	±20 %	Plating	Sn 100% (Pb Free)			
	tolerance		9 Product	SLIC			
6	Rated Voltage	4 V	Special	Reserved for future use			
7	Thickness	0.50 +0.05/-0.1 mm	① Packaging	Cardboard Type, 13" reel			

B. Structure and Dimensions



Samsung P/N	Dimension(mm)					
Samsung F/N	L	W	Т	BW	SW	Р
CL10Y105MR5NJND	1.60±0.10	0.80±0.10	0.5 +0.05/-0.1	0.25±0.10	0.15±0.10	0.40±0.10

C. Samsung Reliablility Test and Judgement Condition

Insulation 10,000Mohm or 50Mohm×μF Rated Voltage 60~120 sec. Resistance Whichever is smaller Appearance No abnormal exterior appearance Microscope (×10) Withstanding No delectric breakdown or mechanical breakdown 250% of the rated voltage Voltage Temperature X7S Characteristics (From -55℃ to 125℃, Capacitance change should be within ±22%) Adhesive Strength of Termination 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 SnAg3.0Cu.0.5 solder 245±5℃, 3±0.3sec. (preheating : 80~120℃ for 10~30sec.) Resistance to Soldering heat Capacitance change : within ±7.5% Solder pot : 270±5℃, 10±1sec. Soldering heat Tan δ, IR : initial spec. Amplitude : 1.5mm From 10Hz to 55Hz (return : 1min.) 2hours × 3 direction (x, y, z) Wibration Test Capacitance change : within ±12.5% With rated voltage Resistance Tan δ : 0.2 max IR : 500Mohm or 12.5Mohm × μF Whichever is smaller With 150% of the rated voltage High Temperature Capacitance change : within ±12.5% Within ±12.5% With 150% of the rated volta		Judgement	Test condition			
Insulation 10,000Mohm or 50Mohm×μF Rated Voltage 60~120 sec.	Capacitance	Within specified tolerance	1kHz ±10% / 0.5±0.1Vrms			
Resistance Whichever is smaller Microscope (×10) Appearance No abnormal exterior appearance Microscope (×10) Withstanding No dielectric breakdown or mechanical breakdown 250% of the rated voltage Temperature X7S Characteristics (From -55℃ to 125℃, Capacitance change should be within ±22%) 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℃, 3±0.3sec. (preheating: 80~120℃ for 10~30sec.) Resistance to Capacitance change: within ±7.5% Solder pot: 270±5℃, 10±1sec. Soldering heat Tan δ, IR: initial spec. Amplitude: 1.5mm Vibration Test Capacitance change: within ±20% Amplitude: 1.5mm From 10Hz to 55Hz (return: 1min.) 2hours × 3 direction (x, y, z) Moisture Capacitance change: within ±12.5% With rated voltage 40±2 ℂ, 90~95%RH, 500+12/-0hrs Resistance Tan δ: 0.2 max Within ±12.5% With 150% of the rated voltage Max. operating temperature Hi	Tan δ (DF)	0.12 max.				
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IR : 500Mohm or 12.5Mohm × μ F	Moisture	Capacitance change : within ±12.5%	With rated voltage			
	Resistance	Tan δ : 0.2 max	40±2℃, 90~95%RH, 500+12/-0hrs			
High TemperatureCapacitance change : within ±12.5%With 150% of the rated voltageResistanceTan δ : 0.2 maxMax. operating temperatureIR : 1,000Mohm or 25Mohm × μ F1,000+48/-0hrs		IR : 500Mohm or 12.5Mohm × μ F				
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IR : 1,000Mohm or 25Mohm × μF 1,000+48/-0hrs	High Temperature	Capacitance change : within ±12.5%	With 150% of the rated voltage			
	Resistance	Tan δ : 0.2 max	Max. operating temperature			
Whichever is smaller		IR : 1,000Mohm or 25Mohm × μ F	1,000+48/-0hrs			
		Whichever is smaller				
Temperature Capacitance change: within ±12.5% 1 cycle condition	Temperature	Capacitance change : within ±12.5%	1 cycle condition			
CyclingTan δ , IR : initial spec.Min. operating temperature \rightarrow 25 $^{\circ}$ C	Cycling	Tan δ, IR : initial spec.	Min. operating temperature $ ightarrow$ 25 $^{\circ}$ C			
→ Max. operating temperature → 25 °C			$ ightarrow$ Max. operating temperature $ ightarrow$ 25 $^{\circ}\!$			
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±5 °C, 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.

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.

- Caution of Application -

Disclaimer

The products listed as follows 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.

- 1) Aerospace/Aviation equipment
- 2 Automotive of Transportation equipment (vehicles, trains, ships, etc)
- 3 Military equipment
- 4) Atomic energy-related equipment
- **5** Undersea equipment
- (f) Any other applications with the same as or similar complexity or reliability to the applications

Limitation

Please contact us with usage environment information such as voltage, current, temperature, or other special conditions before using our products for the applications listed below. The below application conditions require especially high reliability products to prevent defects that may directly cause damages or loss to third party's life, body or property.

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

- ① Medical equipment
- 2 Disaster prevention/crime prevention equipment
- 3 Power plant control equipment
- 4 Traffic signal equipment
- 5 Data-processing equipment
- 6 Electric heating apparatus, burning equipment
- Safety equipment
- ® Any other applications with the same as or similar complexity or reliability to the applications