SAMSUNG ELECTRO-MECHANICS

RoHS+Halogen Compliant
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SPECIFICATION (Reference sheet)

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

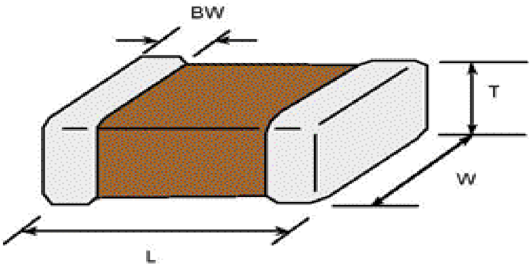
· **Samsung P/N :** **CL05A475MQ3LUNC**
· **Description :** **CAP, 4.7uF, 6.3V, ±20%, X5R, 0402**

A. Samsung Part Number

CL	05	A	475	M	Q	3	L	U	N	C
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪

①	**Series**	Samsung Multi-layer Ceramic Capacitor			
②	**Size**	0402 (inch code)		L : 1.00 ± 0.20 ㎜	W : 0.50 ± 0.20 ㎜
			⑧	**Thickness division**	Low profile
③	**Dielectric**	X5R		**Inner electrode**	Ni
④	**Capacitance**	4.7 uF		**Termination**	Cu
⑤	**Capacitance tolerance**	±20 %		**Plating**	Sn 100% (Pb Free)
			⑨	**Product**	Size control code
⑥	**Rated Voltage**	6.3 V	⑩	**Special**	Reserved for future use
⑦	**Thickness**	0.30 ± 0.05 ㎜	⑪	**Packaging**	Cardboard Type, 7" reel

B. Structure & Dimension



Samsung P/N	Dimension(㎜)			
	L	W	T	BW
CL05A475MQ3LUNC	1.00 ± 0.20	0.50 ± 0.20	0.30 ± 0.05	0.25 ± 0.10

C. Samsung Reliablility Test and Judgement Condition

	Judgement	Test condition
Capacitance	Within specified tolerance	1㎑ ±10% / 0.5±0.1Vrms *A capacitor prior to measuring the capacitance is heat treated at 150℃+0/-10℃ for 1hour and maintained in ambient air for 24±2 hours.
Tan δ (DF)	0.125 max.	
Insulation Resistance	10,000Mohm or 50Mohm×㎌ Whichever is smaller	Rated Voltage 60~120 sec.
Appearance	No abnormal exterior appearance	Microscope (×10)
Withstanding Voltage	No dielectric breakdown or mechanical breakdown	250% of the rated voltage
Temperature Characteristics	X5R (From-55℃ to 85℃, Capacitance change should be within ±15%)	
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 (1㎜) 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 ±7.5% Tan δ, IR : initial spec.	Solder pot : 270±5℃, 10±1sec.
Vibration Test	Capacitance change : within ± 5% Tan δ, IR : initial spec.	Amplitude : 1.5mm From 10㎐ to 55㎐ (return : 1min.) 2hours × 3 direction (x, y, z)
Moisture Resistance	Capacitance change : within ±12.5% Tan δ : 0.25 max IR : 500Mohm or 3.5Mohm × ㎌ Whichever is smaller	With rated voltage 40±2℃, 90~95%RH, 500+12/-0hrs
High Temperature Resistance	Capacitance change : within ±12.5% Tan δ : 0.25 max IR : 1,000Mohm or 7Mohm × ㎌ Whichever is smaller	With 100% of the rated voltage Max. operating temperature 1,000+48/-0hrs
Temperature Cycling	Capacitance change : within ±7.5% 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.
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.