SAMSUNG ELECTRO-MECHANICS

RoHS+Halogen Compliant ecoparts

SPECIFICATION

- **Supplier : Samsung electro-mechanics**
- **Product : Multi-layer Ceramic Capacitor**
- **Samsung P/N : CL21A476MQ9LRNC**
- **Description : CAP, 47㎌, ±20%, 6.3V, X5R, 0805**

A. Samsung Part Number

CL	21	A	476	M	Q	9	L	R	N	C
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪

①	**Series**	Samsung Multi-layer Ceramic Capacitor			
②	**Size**	0805 (inch code)	L: 2.0 ± 0.2 mm	W: 1.25 ± 0.2 mm	
③	**Dielectric**	X5R	⑧	**Thickness division**	Low profile
④	**Capacitance**	47 ㎌		**Inner electrode**	Ni
⑤	**Capacitance tolerance**	±20 %		**Termination**	Cu
				Plating	Sn 100% (Pb Free)
⑥	**Rated Voltage**	6.3 V	⑨	**Product**	L,W size tolerance change code
⑦	**Thickness**	0.9 ± 0.1 mm	⑩	**Special**	Reserved for future use
			⑪	**Packaging**	Cardboard Type,7"reel(4,000ea)

B. Samsung Reliability Test and Judgement condition

	Performance	Test condition
Capacitance	Within specified tolerance	120㎐±20% 0.5±0.1Vrms
Tan δ (DF)	0.1 max.	
Insulation Resistance	More than 50Mohm·㎌	Rated Voltage 60~120 sec.
Appearance	No abnormal exterior appearance	Visual inspection
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 (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 ±7.5% Tan δ, IR : initial spec.	Solder pot : 270±5℃, 10±1sec.

	Performance	Test condition
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 : More than 8.9㏁·㎌	With rated voltage 40±2℃, 90~95%RH, 500 +12/-0 hours
High Temperature Resistance	Capacitance change : within ±12.5% Tan δ : 0.25 max IR : More than 17.7㏁·㎌	With 100% of the rated voltage Max. operating temperature 1000+48/-0 hours
Temperature Cycling	Capacitance change : within ±7.5% Tan δ, IR : initial spec.	1 cycle condition Min. operating temperature → 25℃ → Max. operating temperature → 25℃ 5 cycles test

C. Recommended Soldering method :

Reflow (Reflow Peak Temperature : 260+0/-5℃, 10sec. Max)

* For the more detail Specification, Please refer to the Samsung MLCC catalogue.