SAMSUNG ELECTRO-MECHANICS

SPECIFICATION

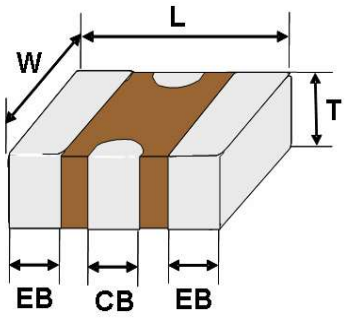
- **Supplier :** Samsung electro-mechanics
- **Product :** Multi-layer Ceramic Capacitor
- **Part Number :** CL10A474MP6NXNC
- **Discription :** Cap, 470nF, 10V, ±20%, X5R, 0603

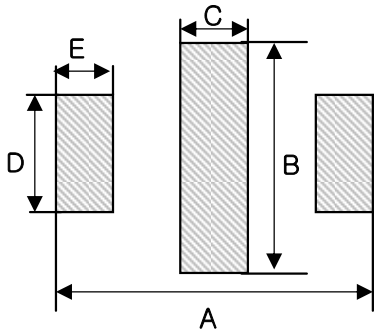
A. Samsung Part Number

CL	10	A	474	M	P	6	N	X	N	C
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪

①	**Series**	Samsung Multi-layer Ceramic Capacitor			
②	**Size**	0603 (inch code)	L: 1.6 ±0.1mm	W:	0.8 ±0.1 mm
③	**Dielectric**	X5R	⑧	**Inner electrode**	Ni
④	**Capacitance**	470 nF		**Termination**	Cu
⑤	**Capacitance tolerance**	±20 %		**Plating**	Sn 100% (Pb Free)
			⑨	**Product**	X2Y
⑥	**Rated Voltage**	10 V	⑩	**Special**	Reserved for future use
⑦	**Thickness**	0.6 ±0.1 mm	⑪	**Packaging**	Cardboard Type, 7" reel

B. Structure and Dimensions





<Recommended Land pattern design>

	Dimmension(mm)
L	1.6 ± 0.15
W	0.8 ± 0.1
T	0.6 ± 0.1
CB	0.45 ± 0.15
EB	0.25 ± 0.15

	Dimmension(mm)
A	2.30
B	1.52
C	0.51
D	0.89
E	0.64

C. Samsung Reliablility Test and Judgement condition

	Judgement	Test condition
Capacitance	Within specified tolerance	1kHz±10% 1.0±0.2Vrms
Tan δ (DF)	0.10 max.	
Insulation Resistance	100MΩ·μF min.	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 Characterisitcs	X5R (From -55℃ to 85℃, Capacitance change shoud 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) for 5 sec. with 1.0mm/sec.
Solderability	More than 75% of terminal surface is to be soldered newly	1) Sn63Pb37 solder 235±5℃, 5±0.5sec. 2) 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 10Hz to 55Hz (return : 1min.) 2hours × 3 direction (x, y, z)
Humidity	Capacitance change : within ±12.5% Tan δ : 0.125 max. IR : 25MΩ·μF min.	40±2℃, 90~95%RH, 500+12/-0hrs
Moisture Resistance	Capacitance change : within ±12.5% Tan δ : 0.125 max. IR : 12.5MΩ·μF min.	With rated voltage 40±2℃, 90~95%RH, 500+12/-0hrs Note : Since the residue of flux may affect resistivity, it is recommended to use proper solder paste and cleaning fluid to remove flux residue thoroughly.
High Temperature Resistance	Capacitance change : within ±12.5% Tan δ : 0.125 max. IR : 25MΩ·μF min.	With 150% of the rated voltage Max. operating temperature 1000+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

D. Recommended Soldering method :

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

Multi Layer Ceramic Capacitor (MLCC)

Ⅰ. Electrical Characteristics Data

1. Model : CL10A474MP6NXNC

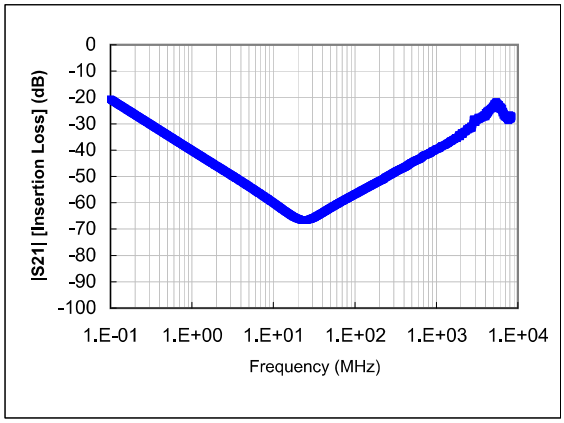
2. Description

Part no.	Size (inch(mm))	Thickness (mm)	Temperature charateristics	Capacitance value(nF)	Capacitance tolerance(%)	Voltage (V)
CL10A474MP6NXNC	0603/1608	0.6mm	X5R	470nF	± 20 %	10

3. Characteristics Data

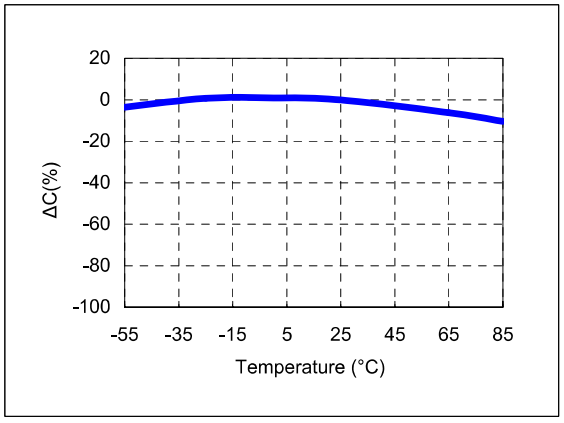
1)Frequency Characeristics

Agilent 5071A , 0.1MHz to 8.5GHz



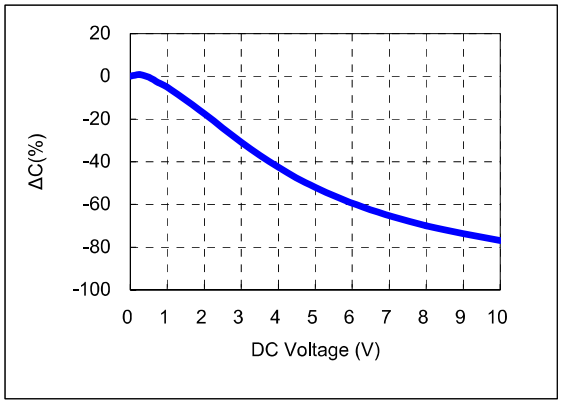
2)Temperature Characteristics (TCC)

Agilent 4284A, 1kHz, 1.0Vrms



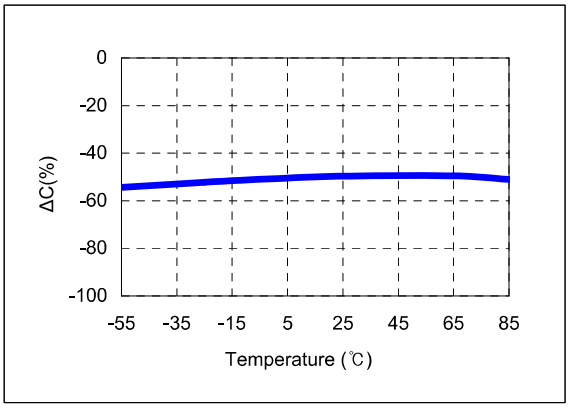
3)DC Bias Characteristics

Agilent 4284A,1kHz, 1.0Vrms



4) Bias TCC characteristics

Agilent 4284A, 1kHz, 1.0Vrms, 5Vdc



5)AC Voltage Characteristics

Agilent 4284A,1kHz