

SPECIFICATION

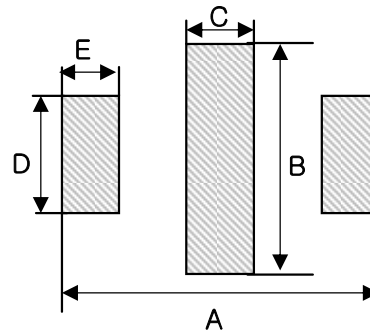
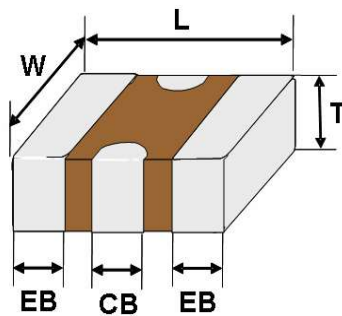
- **Supplier :** Samsung electro-mechanics
- **Product :** Multi-layer Ceramic Capacitor
- **Part Number :** **CL10A474MP6NXNC**
- **Discription :** Cap, 470nF, 10V, ±20%, X5R, 0603

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)
⑥ Rated Voltage	10 V	⑨ Product	X2Y
⑦ Thickness	0.6 ±0.1 mm	⑩ Special	Reserved for future use
		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 Reliability 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 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) 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

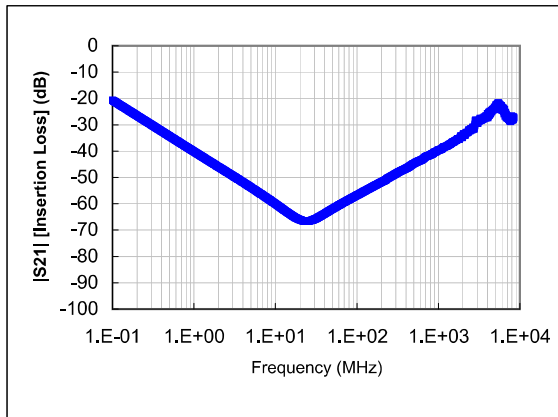
2. Description

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

3. Characteristics Data

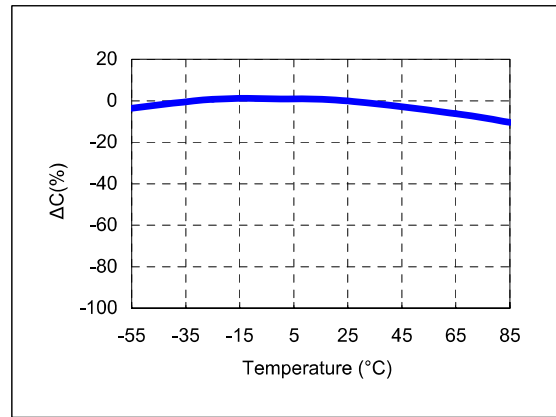
1)Frequency Characteristics

Agilent 5071A , 0.1MHz to 8.5GHz



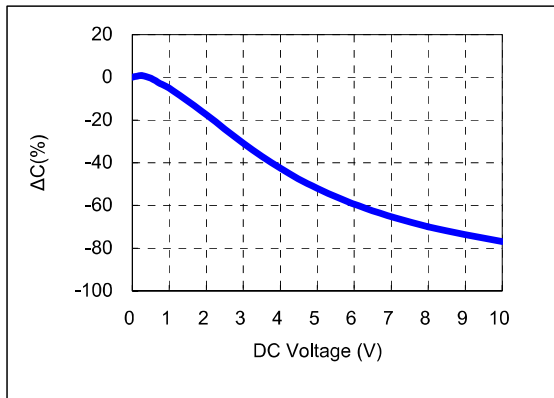
2)Temperature Characteristics (TCC)

Agilent 4284A, 1kHz, 1.0Vrms



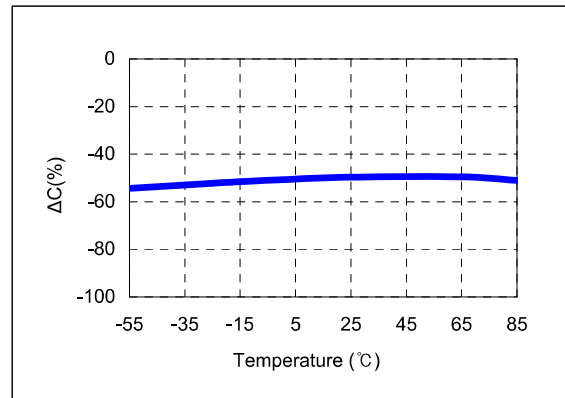
3)DC Bias Characteristics

Agilent 4284A,1kHz, 1.0Vrms



4) Bias TCC characteristics

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



5)AC Voltage Characteristics

Agilent 4284A,1kHz

