



## **SPECIFICATION**

• Supplier : Samsung electro-mechanics • Samsung P/N : CL21X475KAQNNNE

• Product : Multi-layer Ceramic Capacitor • Description : CAP, 4.7 µF, 25V, ±10%, X6S, 0805

## A. Samsung Part Number

<u>CL</u> <u>21</u> <u>X</u> <u>475</u> <u>K</u> <u>A</u> <u>Q</u> <u>N</u> <u>N</u> <u>N</u> <u>E</u> 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	± 0.15	mm	W:	1.25 ±	± 0.15	mm
3	Dielectric	X6S		8	Inner el	ectrode		Ni		
4	Capacitance	4.7	μF		Termina	ation		Cu		
(5)	Capacitance	±10	%		Plating			Sn 1009	%	(Pb Free)
	tolerance			9	Produc	t		Normal		
6	Rated Voltage	25	V	10	Special			Reserve	ed for	future use
7	Thickness	1.25	± 0.15 mm	11	Packag	ing		Emboss	sed Ty	pe, 7" reel

## **B. Samsung Reliability Test and Judgement condition**

	Performance	Test condition					
Capacitance	Within specified tolerance	1kHz±10% 1.0±0.2Vrms					
Tan δ (DF)	0.1 max.						
Insulation	10,000Mohm or 100Mohm⋅ <i>μ</i> F	Rated Voltage 60~120 sec.					
Resistance	Whichever is Smaller						
Appearance	No abnormal exterior appearance	Microscope (×10)					
Withstanding	No dielectric breakdown or	250% of the rated voltage					
Voltage	mechanical breakdown						
Temperature	X6S						
Characteristics	(From -55℃ to 105℃, Capacitance change should be within ±22%)						
Adhesive Strength	No peeling shall be occur on the	500g⋅F, for 10±1 sec.					
of Termination	terminal electrode						
Bending Strength	Capacitance change : within ±12.5%	Bending to the limit (1mm)					
		with 1.0mm/sec.					
Solderability	More than 75% of terminal surface	SnAg3.0Cu0.5 solder					
	is to be soldered newly	245±5℃, 3±0.3sec.					
		(preheating : 80~120 ℃ for 10~30sec.)					
Resistance to	Capacitance change: within ±7.5%	Solder pot : 270±5°C, 10±1sec.					
Soldering heat	Tan δ, IR : initial spec.	, ,					

	Performance	Test condition
Vibration Test	Capacitance change: within ±10%	Amplitude : 1.5mm
	Tan δ, IR : initial spec.	From 10Hz to 55Hz (return : 1min.)
		2hours × 3 direction (x, y, z)
Moisture	Capacitance change: within ±12.5%	With rated voltage
Resistance	Tan δ: 0.2 max	40±2℃, 90~95%RH, 500+12/-0hrs
	IR: $12.5 \text{M}\Omega \cdot \mu\text{F}$ or Over	
High Temperature	Capacitance change : within ±25%	With 100% of the rated voltage
Resistance	Tan δ : 0.2 max	Max. operating temperature
	IR: 25MΩ·μF or Over	
		1000+48/-0hrs
Temperature	Capacitance change : within ±15%	1 cycle condition
Cycling	Tan δ, IR : initial spec.	Min. operating temperature → 25°C
		→ Max. operating temperature → 25 °C
		5 cycle test

## C. Recommended Soldering method :

Reflow ( Reflow Peak Temperature : 260+0/-5  $^{\circ}\!\text{C}$  , 10sec. Max )

<sup>\*</sup> For the more detail Specification, Please refer to the Samsung MLCC catalogue.