



# **SPECIFICATION**

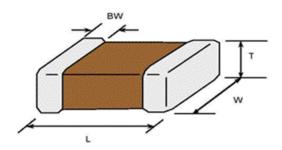
(Reference sheet)

- Supplier : Samsung electro-mechanics
- Product : Multi-layer Ceramic Capacitor
- Samsung P/N :
  Description :
- CL31C470JIFNNNF CAP, 47pF, 1000V, ± 5%, C0G, 1206

A. Samsung Part Number

			<u>CL</u>	<u>31</u>	<u>C</u>	<u>470</u>	J	<u> </u>	E	N	N	N	E	
			1	2	3	4	5	6	1	8	9	10	1	
1	Series	Samsung Multi-layer Ceramic Capacitor												
2	Size	1206	(inch co	de)		L:	3.20	± 0.15	mm			W:	1.60 ± 0.15 mm	
3	Dielectric	C0G					8	Inner	elect	rode			Ni	
4	Capacitance	47	рF					Term	inatio	n			Cu	
(5)	Capacitance	± 5%	6					Platir	ng				Sn 100%	(Pb Free)
	tolerance						9	Prod	uct				Normal	
6	Rated Voltage	1000	V				10	Spec	ial				Reserved for fut	ure use
$\bigcirc$	Thickness	1.25 ± 0.15	5 mm				1	Packa	aging				Embossed Type	, 13" reel

## B. Structure and dimension



Samsung P/N	Dimension(mm)								
(Lead Free)	L	W	Т	BW					
CL31C470JIFNNNF	3.20 ± 0.15	1.60 ± 0.15	1.25 ± 0.15	0.50 ± 0.30					

#### C. Samsung Reliability Test and Judgement condition

	Performance	Test condition				
Capacitance	Within specified tolerance	1 <sup>Mi</sup> <sup>2</sup> ±10% / 0.5~5Vrms				
Q	1,000 min					
Insulation	10,000Mohm or 500Mohm×µF	500 ±50 Vdc 60±5 sec.				
Resistance	Whichever is smaller					
Appearance	No abnormal exterior appearance	Microscop (X10)				
Withstanding	No dielectric breakdown or	120% of the rated voltage				
Voltage	mechanical breakdown					
Temperature	COG					
Characteristics	(From -55℃ to 125℃, Capacitance change should be within ±30PPM/℃)					
Adhesive Strength	No peeling shall be occur on the	500g×F, for 10±1 sec.				
of Termination	terminal electrode					
Bending Strength	Capacitance change :	Bending to the limit (1mm)				
	within $\pm 5\%$ or $\pm 0.5$ pF whichever is larger	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 :	Solder pot : 270±5℃, 10±1sec.				
Soldering heat	within $\pm 2.5\%$ or $\pm 0.25$ pF whichever is larger					
	Tan δ, IR : initial spec.					
Vibration Test	Capacitance change :	Amplitude : 1.5mm				
	within $\pm 2.5\%$ or $\pm 0.25 \text{pF}$ whichever is larger	From 10Hz to 55Hz (return : 1min.)				
	Tan δ, IR : initial spec.	2hours ´ 3 direction (x, y, z)				
High Temperature	Capacitance change :	With 100% of the rated voltage				
Resistance	within $\pm 3\%$ or $\pm 0.3$ pF whichever is larger	Max. operating temperature				
	Q: 350 min	1000+48/-0hrs				
	IR : 1,000Mohm or 50Mohm × μF					
	Whichever is smaller					
Temperature	Capacitance change :	1 cycle condition				
Cycling	within $\pm 2.5\%$ or $\pm 0.25 \text{ pF}$ whichever is larger	Min. operating temperature $\rightarrow$ 25 °C				
	Tan δ, IR : initial spec.	$\rightarrow$ Max. operating temperature $\rightarrow$ 25 °C				
		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+0/-5 °C, 10sec. Max )

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.

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- Aerospace/Aviation equipment
- ② Automotive or Transportation equipment (vehicles, trains, ships, etc)
- 3 Medical equipment
- *④ Military equipment*
- *5* Disaster prevention/crime prevention equipment
- *ⓐ* Any other applications with the same as or similar complexity or reliability to the applications set forth above.