



# **SPECIFICATION**

(Reference sheet)

- Supplier : Samsung electro-mechanics - Samsung P/N : CL31C220JIFNFNE

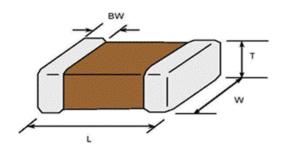
Product : Multi-layer Ceramic Capacitor
Description : CAP, 22pF, 1000V, ± 5%, C0G, 1206

# A. Samsung Part Number

<u>CL</u> <u>31</u> <u>C</u> <u>220</u> <u>J</u> <u>I</u> <u>F</u> <u>N</u> <u>F</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	1206 (inch code)	L: 3.20 ± 0.15 mm	W: 1.60 ± 0.15 mm	
			_		
3	Dielectric	C0G	Inner electrode	Ni	
4	Capacitance	<b>22</b> pF	Termination	Cu	
(5)	Capacitance	± 5%	Plating	Sn 100% (Pb Free)	
	tolerance		Product	Product for POWER application	
6	Rated Voltage	1000 V	Special	Reserved for future use	
7	Thickness	1.25 ± 0.15 mm	① Packaging	Embossed Type, 7" reel	

## B. Structure and dimension



Samsung P/N	Dimension(mm)				
(Lead Free)	L	W	Т	BW	
CL31C220JIFNFNE	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>Mlz</sup> ±10% / 0.5~5Vrms		
Q	840 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 C0G		-		
Characteristics (From -55 °C to 125 °C, Capacitance change s		hould 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 ±5% or ±0.5pF 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 ±2.5% or ±0.25pF whichever is larger			
	Tan δ, IR : initial spec.			
Vibration Test	Capacitance change :	Amplitude : 1.5mm		
	within ±2.5% or ±0.25pF whichever is larger	From 10Hz to 55Hz (return : 1min.)		
	Tan δ, IR : initial spec.	2hours ' 3 direction (x, y, z)		
Moisture	Capacitance change :	With rated voltage		
Resistance	within ±7.5% or ±0.75pF whichever is larger	40±2℃, 90~95%RH, 500+12/-0hrs		
	Q: 173.33 min			
	IR : 500Mohm or 25Mohm × $\mu$ F			
	Whichever is smaller			
High Temperature	Capacitance change :	With 100% of the rated voltage		
Resistance	within ±3% or ±0.3pF whichever is larger	Max. operating temperature		
	Q: 330 min	1000+48/-0hrs		
	IR: 1,000Mohm or 50Mohm × $\mu$ F			
	Whichever is smaller			
Temperature	Capacitance change :	1 cycle condition		
Cycling	within ±2.5% or ±0.25pF whichever is larger	Min. operating temperature $\rightarrow$ 25 $^{\circ}$ C		
	Tan δ, IR : initial spec.	$\rightarrow$ Max. operating temperature $\rightarrow$ 25°C		
		5 cycle test		

<sup>\*</sup> 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)



A 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.