



# **SPECIFICATION**

(Reference sheet)

· Supplier : Samsung electro-mechanics · Samsung P/N: CL21A226MQQNNNE

· Product : Multi-layer Ceramic Capacitor · Description : CAP, 22uF, 6.3V, ±20%, X5R, 0805

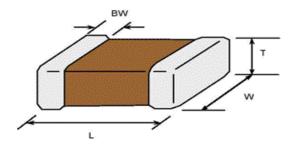
### A. Samsung Part Number

 CL
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1	Series	Samsung Multi-layer Ceramic Capacitor					
2	Size	0805 (inch code)	L: $2.00 \pm 0.15 \text{ mm}$		W:	$1.25 \pm 0.15 \text{ mm}$	
3	Dielectric	X5R	8	Inner electrode		Ni	
4	Capacitance	22 uF		Termination		Cu	
(5)	Capacitance	±20 %		Plating		Sn 100% (Pb Free)	
	tolerance		9	Product		Normal	
6	Rated Voltage	6.3 V	10	Special		Reserved for future use	
7	Thickness	1.25 ± 0.15 mm	11)	Packaging		Embossed Type, 7" reel	

#### **B. Structure & Dimension**



Samsung P/N	Dimension(mm)					
Samsung F/N	L	W	Т	BW		
CL21A226MQQNNNE	2.00 ± 0.15	1.25 ± 0.15	1.25 ± 0.15	0.50 +0.20/-0.30		

#### C. Samsung Reliablility Test and Judgement Condition

Tan δ (DF)0.1 max.treated at 150 ℃ +0/-10 ℃ ambient air for 24±2 hou ambient air for	asuring the capacitance is heat c for 1 hour and maintained in urs. ~120 sec.
Tan δ (DF)       0.1 max.       treated at 150 ℃ +0/-10 ℃ ambient air for 24±2 hou are for a for	c for 1 hour and maintained in irs. ~120 sec.
Resistance       Whichever is smaller         Appearance       No abnormal exterior appearance       Microscope (×10)         Withstanding       No dielectric breakdown or wechanical breakdown       250% of the rated voltage         Temperature       X5R         Characteristics       (From-55 ℃ to 85 ℃, Capacitance change should be within ±15%)	
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Withstanding       No dielectric breakdown or voltage       250% of the rated voltage         Temperature       X5R         Characteristics       (From-55 ℃ to 85 ℃, Capacitance change should be within ±15%)	oltage
Voltage       mechanical breakdown         Temperature       X5R         Characteristics       (From-55 ℃ to 85 ℃, Capacitance change should be within ±15%)	oltage
Temperature       X5R         Characteristics       (From-55 ℃ to 85 ℃, Capacitance change should be within ±15%)	
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( compared to the second to th	
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°C, 3±0.3sec.	
(preheating : 80~120°C f	for 10~30sec.)
Resistance to Capacitance change: within ±7.5% Solder pot: 270±5℃, 10	±1sec.
Soldering Heat Tan δ, IR : initial spec.	
Vibration TestCapacitance change : within $\pm$ 5%Amplitude : 1.5mmTan δ, IR : initial spec.From 10Hz to 55Hz (return 2hours × 3 direction (x, y))	-
Moisture Capacitance change: within ±12.5% With rated voltage	
<b>Resistance</b> Tan δ: 0.125 max 40±2°C, 90~95%RH, 500	0+12/-0hrs
IR : 500Mohm or 12.5Mohm × <i>μ</i> F	
Whichever is smaller	
High Temperature Capacitance change: within ±12.5% With 150% of the ra	ted voltage
Resistance       Tan δ : 0.125 max       Max. operating temperate	ture
IR : 1,000Mohm or 25Mohm ×	
Whichever is smaller	
Temperature Capacitance change : within ±7.5% 1 cycle condition	
Cycling    Tan δ, IR : initial spec.    Min. operating temperating	
→ Max. operating ten	nperature → 25°C
5 cycle test	

X 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,

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The products listed in this Specification sheet are **NOT** designed and manufactured for any use and applications set forth below.

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We will **NOT** be liable for any damages resulting from any misuse of the products, specifically including using the products for high reliability applications as listed below.

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- ② Automotive or Transportation equipment (vehicles, trains, ships, etc)
- 3 Medical equipment
- 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.