



**THE DATASHEET OF  
CL05A226MQ5N6J8**





## SPECIFICATION (Reference sheet)

- Supplier : Samsung electro-mechanics
- Product : Multi-layer Ceramic Capacitor

- Samsung P/N : **CL05A226MQ5N6J8**
- Description : **CAP, 22 $\mu$ F, 6.3V,  $\pm$ 20%, X5R, 0402**

### A. Samsung Part Number

**CL** **05** **A** **226** **M** **Q** **5** **N** **6** **J** **8**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪


① <b>Series</b>	Samsung Multi-layer Ceramic Capacitor		
② <b>Size</b>	0402 (inch code)	L: 1.00 $\pm$ 0.20 mm	W: 0.50 $\pm$ 0.25 mm
③ <b>Dielectric</b>	X5R	⑧ <b>Inner electrode</b>	Ni
④ <b>Capacitance</b>	22 $\mu$ F	<b>Termination</b>	Cu
⑤ <b>Capacitance tolerance</b>	$\pm$ 20 %	<b>Plating</b>	Sn 100% (Pb Free)
⑥ <b>Rated Voltage</b>	6.3 V	⑨ <b>Product</b>	Size Control Code
⑦ <b>Thickness</b>	0.50 $\pm$ 0.25 mm	⑩ <b>Special</b>	Size Control Code
		⑪ <b>Packaging</b>	Cardboard Type, 7" reel

### B. Samsung Reliability Test and Judgement condition

	Performance	Test condition
<b>Capacitance</b>	Within specified tolerance	120Hz $\pm$ 20% 0.5 $\pm$ 0.1Vrms
<b>Tan <math>\delta</math> (DF)</b>	0.15 max.	*A capacitor prior to measuring the capacitance is heat treated at 150 $\pm$ 10 $\circ$ C for 1 hour and maintained in ambient air for 24 $\pm$ 2hours.
<b>Insulation Resistance</b>	10,000Mohm or 10Mohm $\times$ $\mu$ F Whichever is Smaller	Rated Voltage 60~120 sec.
<b>Appearance</b>	No abnormal exterior appearance	Visual inspection
<b>Withstanding Voltage</b>	No dielectric breakdown or mechanical breakdown	250% of the rated voltage
<b>Temperature Characteristics</b>	X5R (From -55 $\circ$ C to 85 $\circ$ C, Capacitance change should be within $\pm$ 15%)	
<b>Adhesive Strength of Termination</b>	No peeling shall be occur on the terminal electrode	500g $\cdot$ F, for 10 $\pm$ 1 sec.
<b>Bending Strength</b>	Capacitance change : within $\pm$ 12.5%	Bending to the limit (1mm) with 1.0mm/sec.
<b>Solderability</b>	More than 75% of terminal surface is to be soldered newly	SnAg3.0Cu0.5 solder 245 $\pm$ 5 $\circ$ C, 3 $\pm$ 0.3sec. (preheating : 80~120 $\circ$ C for 10~30sec.)
<b>Resistance to Soldering heat</b>	Capacitance change : within $\pm$ 15% Tan $\delta$ , IR : initial spec.	Solder pot : 270 $\pm$ 5 $\circ$ C, 10 $\pm$ 1sec.

	Performance	Test condition
<b>Vibration Test</b>	Capacitance change : initial spec. Tan $\delta$ , IR : initial spec.	Amplitude : 1.5mm From 10Hz to 55Hz (return : 1min.) 2hours ´ 3 direction (x, y, z)
<b>Moisture Resistance</b>	Capacitance change : within $\pm 12.5\%$ Tan $\delta$ : 0.25 max IR : 500Mohm or 1Mohm $\times \mu F$ Whichever is Smaller	With rated voltage 40 $\pm 2$ °C, 90~95%RH, 500+12/-0 hour
<b>High Temperature Resistance</b>	Capacitance change : within $\pm 12.5\%$ Tan $\delta$ : 0.25 max IR : 1,000Mohm or 2Mohm $\times \mu F$ Whichever is Smaller	With 100% of the rated voltage Max. operating temperature 1000+48/-0 hour
<b>Temperature Cycling</b>	Capacitance change : within $\pm 15\%$ Tan $\delta$ , IR : initial spec.	1 cycle condition Min. operating temperature $\rightarrow 25$ °C $\rightarrow$ Max. operating temperature $\rightarrow 25$ °C  5 cycles test

Reflow ( Reflow Peak Temperature : 260+0/-5 °C, 10sec. Max )

 Product specifications included in the specifications are effective as of March 1, 2014. 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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