



SPECIFICATION

(Reference sheet)

· Supplier : Samsung electro-mechanics · Samsung P/N : CL21B106KQQNNNF

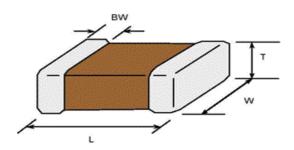
· Product : Multi-layer Ceramic Capacitor · Description : CAP, 10uF, 6.3V, ±10%, X7R, 0805

A. Samsung Part Number

<u>CL</u> <u>21</u> <u>B</u> <u>106</u> <u>K</u> <u>Q</u> <u>Q</u> <u>N</u> <u>N</u> <u>N</u> <u>N</u> <u>F</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: 2.00 ± 0.15 mm	W:	1.25 ± 0.15 mm	
(3)	Dielectric	X7R	Inner electrode		Ni	
_	Capacitance	10 uF	Termination		Cu	
(5)	Capacitance	±10 %	Plating		Sn 100% (Pb Free)	
	tolerance		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, 13" reel	

B. Structure & Dimension



Samsung P/N	Dimension(mm)				
Samsung F/N	L	W	Т	BW	
CL21B106KQQNNNF	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. A capacitor prior to measuring the capacitance is heat treated at 150°C+0.1°C for 1hour and maintained in ambient air for 24±2 hours. Insulation 10,000Mohm or 100Mohm×μF Rated Voltage 60−120 sec. Whichever is smaller No abnormal exterior appearance No abnormal exterior appearance No dielectric breakdown or mechanical breakdown or mechanical breakdown Temperature Characteristics (From-55°C to 125°C, Capacitance change should be within ±15%) Adhesive Strength of Termination Bending Strength Capacitance change: within ±12.5% Bending to the limit (1mm) with 1.0mm/sec. Solderability More than 75% of terminal surface is to be soldered newly (preheating: 80~120°C for 10~30sec.) Resistance to Soldering Heat Tan δ, IR: initial spec. Vibration Test Capacitance change: within ±7.5% Solder pot: 270±5°C, 10±1sec. Solder pot: 270±5°C, 10±1sec. Solder pot: 270±5°C, 10±1sec. Solder pot: 270±5°C, 10±1sec. With ±5% Tan δ, IR: initial spec. Within ±5% Tan δ, IR: initial spec. Within ±2.5% With rated voltage Max. operating temperature 1,000+48/-0hrs Max. operating temperature → 25°C Max. operating temperature → 25°C Max. operating temperature → 25°C		Judgement	Test condition		
Tan δ (DF) 0.1 max. treated at 150 ℃ +0/-10 ℃ for 1hour and maintained in ambient air for 24±2 hours. Insulation 10,000Mohm or 100Mohm×/⊭ Rated Voltage 60~120 sec. Resistance Whichever is smaller Rated Voltage 60~120 sec. Appearance No abnormal exterior appearance Microscope (×10) Withstanding No delectric breakdown 250% of the rated voltage Voltage mechanical breakdown 250% of the rated voltage Temperature X7R (From-55℃ to 125℃, Capacitance change should be within ±15%) Adhesive Strength No peeling shall be occur on the of Termination 500g-f, for 10±1 sec. Bending Strength Capacitance change: within ±12.5% Bending to the limit (1mm) with 1.0mm/sec. Solderability More than 75% of terminal surface is to be soldered newly SnAg3.0Cu0.5 solder Soldering Heat Tan δ, IR: initial spec. Solder pot: 270±5℃, 10±1sec. Soldering Heat Tan δ, IR: initial spec. Amplitude: 1.5mm From 10Hz to 55Hz (return: 1min.) Vibration Test Capacitance change: within ±12.5% Amplitude: 1.5mm From 10Hz to 55Hz (return: 1min.) Moisture Capacitance change: within ±12.5% With rated voltage 40±2°C, 90~95%RH, 500+12/-0hrs <th>Capacitance</th> <th>Within specified tolerance</th> <th colspan="3">1kHz ±10% / 1.0±0.2Vrms</th>	Capacitance	Within specified tolerance	1kHz ±10% / 1.0±0.2Vrms		
Resistance Whichever is smaller Microscope (×10) Withstanding No dielectric breakdown or wotage 250% of the rated voltage Voltage mechanical breakdown 250% of the rated voltage Temperature X7R (From-55°C to 125°C, Capacitance change should be within ±15%) Adhesive Strength of Termination No peeling shall be occur on the terminal electrode 500g·f, for 10±1 sec. Bending Strength Capacitance change: within ±12.5% Bending to the limit (1mm) with 1.0mm/sec. Solderability More than 75% of terminal surface is to be soldered newly SnAg3.0Cu0.5 solder 24±5°C, 3±0.3sec. (preheating: 80~120°C for 10~30sec.) Resistance to Capacitance change: within ±7.5% Solder pot: 270±5°C, 10±1 sec. Soldering Heat Tan 5, IR: initial spec. Amplitude: 1.5mm From 10Hz to 55Hz (return: 1min.) 2hours × 3 direction (x, y, z) Wibration Test Capacitance change: within ±12.5% With rated voltage Moisture Capacitance change: within ±12.5% With rated voltage Resistance Tan δ: 0.125 max With 1.0mm/sec. IR: 500Mohm or 12.5Mohm × μF With 1.0mm/sec. With 1 rated voltage 40±2°C, 90–95%RH, 500+12/-0hrs	Tan δ (DF)	0.1 max.	treated at 150 °C+0/-10 °C for 1hour and maintained in		
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MoistureCapacitance change :within $\pm 12.5\%$ With rated voltageResistanceTan δ : 0.125 max IR : 500Mohm or 12.5Mohm × μ F Whichever is smaller $40\pm 2^{\circ}$ C, $90\sim 95\%$ RH, $500+12$ J-0hrsHigh TemperatureCapacitance change :within $\pm 12.5\%$ With 150% of the rated voltageResistanceTan δ : 0.125 max IR : 1,000Mohm or 25Mohm × μ F Whichever is smallerMax. operating temperatureTemperatureCapacitance change :within $\pm 7.5\%$ Min. operating temperature1 cycle conditionCyclingTan δ , IR : initial spec.Min. operating temperature \rightarrow 25°C \rightarrow Max. operating temperature \rightarrow 25°C	Vibration Test	, ,	From 10Hz to 55Hz (return : 1min.)		
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IR: 1,000Mohm or 25Mohm × μ F Whichever is smaller Temperature Cycling Capacitance change: within ±7.5% Tan δ , IR: initial spec. Min. operating temperature \rightarrow 25°C \rightarrow Max. operating temperature \rightarrow 25°C	High Temperature	Capacitance change : within ±12.5%	With 150% of the rated voltage		
	Resistance	Tan δ : 0.125 max	Max. operating temperature		
Cycling Tan δ , IR : initial spec. Min. operating temperature \rightarrow 25°C \rightarrow Max. operating temperature \rightarrow 25°C			1,000+48/-0hrs		
→ Max. operating temperature → 25°C	Temperature	Capacitance change: within ±7.5%	1 cycle condition		
	Cycling	Tan δ, IR : initial spec.	Min. operating temperature → 25°C		
5 avala taat			→ Max. operating temperature → 25°C		
jo dycie test			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±5°C, 30sec.)



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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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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- ① Aerospace/Aviation equipment
- 2 Automotive or Transportation equipment (vehicles, trains, ships, etc)
- 3 Medical equipment
- 4 Military equipment
- ⑤ Disaster prevention/crime prevention equipment
- 6 Power plant control equipment
- Atomic energy-related equipment
- Undersea equipment
- Traffic signal equipment
- Data-processing equipment
- ## Electric heating apparatus, burning equipment
- Safety equipment
- ® Any other applications with the same as or similar complexity or reliability to the applications