SAMSUNG ELECTRO-MECHANICS

RoHS+Halogen Compliant
Ecoparts

SPECIFICATION

- **Supplier : Samsung electro-mechanics**
- **Product : Multi-layer Ceramic Capacitor**
- **Samsung P/N : CL31B225KAHNNNE**
- **Description : CAP, 2.2㎌, 25V, ±10%, X7R, 1206**

A. Samsung Part Number

CL	31	B	225	K	A	H	N	N	W	E
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪

①	**Series**	Samsung Multi-layer Ceramic Capacitor			
②	**Size**	1206 (inch code) L: 3.2 ± 0.2 mm W: 1.6 ± 0.2 mm			
③	**Dielectric**	X7R	⑧	**Inner electrode**	Ni
④	**Capacitance**	2.2 ㎌		**Termination**	Cu
⑤	**Capacitance tolerance**	±10 %		**Plating**	Sn 100% (Pb Free)
			⑨	**Product**	Normal
⑥	**Rated Voltage**	25 V	⑩	**Special**	Product for Network application
⑦	**Thickness**	1.6 ± 0.2 mm	⑪	**Packaging**	Embossed Type, 7" reel

B. Samsung Reliability Test and Judgement condition

	Performance	**Test condition**
Capacitance	Within specified tolerance	1㎑±10% 1.0±0.2Vrms
Tan δ (DF)	0.035 max.	
Insulation Resistance	10,000Mohm or 500Mohm·㎌ Whichever is Smaller	Rated Voltage 60~120 sec.
Appearance	No abnormal exterior appearance	Microscope (×10)
Withstanding Voltage	No dielectric breakdown or mechanical breakdown	250% of the rated voltage
Temperature Characteristics	X7R (From -55℃ to 125℃, 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 245±5℃, 3±0.3sec. (preheating : 80~120℃ for 10~30sec.)
Resistance to Soldering heat	Capacitance change : within ±7.5% Tan δ, IR : initial spec.	Solder pot : 270±5℃, 10±1sec.

	Performance	Test condition
Vibration Test	Capacitance change : within ±5% Tan δ, IR : initial spec.	Amplitude : 1.5mm From 10㎐ to 55㎐ (return : 1min.) 2hours × 3 direction (x, y, z)
Moisture Resistance	Capacitance change : within ±12.5% Tan δ : 0.05 max IR : 500Mohm or 25Mohm · ㎌ Whichever is Smaller	With rated voltage 40±2℃, 90~95%RH, 500+12/-0hrs
High Temperature Resistance	Capacitance change : within ±12.5% Tan δ : 0.05 max IR : 1000Mohm or 50Mohm · ㎌ Whichever is Smaller	With 200% of the rated voltage Max. operating temperature 1000+48/-0hrs
Temperature Cycling	Capacitance change : within ±7.5% Tan δ, IR : initial spec.	1 cycle condition Min. operating temperature → 25℃ → Max. operating temperature → 25℃ 5 cycle test

C. Recommended Soldering method :

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

* For the more detail Specification, Please refer to the Samsung MLCC catalogue.