



ShenZhen Topmay Electronic Co., Ltd

深圳市亿普电子有限公司

Rm 3306, International Science and Technology Bldg, Central ShenNan Rd3007, FuTian, Shenzhen City, CN.
 深圳市深南中路国际科技大厦 3306 室 TEL: 0755-33341571/2, 33340231, 83279523; FAX: 0755-33341573

SPECIFICATION

ShenZhen Topmay Electronic Co., Ltd

Product : Multi-layer Ceramic Capacitor

A. Main product specification (For example)

TMCC05 225 K 100V I 0805 X7R
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Series : Topmay SMD Multi-layer Ceramic Capacitor
- ② Capacitance: 102-1nF, 104-0.1uF, 225-2.2uF, 477-470uF...ect
- ③ Capacitance Tolerance: C($\pm 0.25pF$), D($\pm 0.5pF$), J ($\pm 5\%$), K ($\pm 10\%$), M ($\pm 10\%$), Z ($+80\% -20\%$)...
 (C、D 级误差适用于容量小于 10pF 的产品)
- ④ Rated Voltage: 100V
- ⑤ Packaging: Tape & Reel packing
- ⑥ Size: 1210(inch code, refer to the Graph 2)
- ⑦ Dielectric: X7R, COG, COH, SL, X5R, Z5U, Y5V... (refer to the Graph 1)
- ⑧ Inner electrode: Ni
 Termination: Soft termination
 Plating: Sn 100% (Pb Free)

介质种类 Dielectric	参考温度点 Reference Temperature Point	标称温度系数 Temperature Coefficient	工作温度范围 Operation Temperature Range
COG	20°C	$\pm 30 \text{ ppm}/^\circ\text{C}$	-55°C ~ 125°C
COH	20°C	$\pm 60 \text{ ppm}/^\circ\text{C}$	-55°C ~ 125°C
HG	20. c	$-33 \pm 30 \text{ ppm}/^\circ\text{C}$	-25°C ~ 85°C
LG	20. c	$-75 \pm 30 \text{ ppm}/^\circ\text{C}$	-25°C ~ 85°C
PH	20. c	$-150 \pm 60 \text{ ppm}/^\circ\text{C}$	-25°C ~ 85°C
RH	20. c	$-220 \pm 60 \text{ ppm}/^\circ\text{C}$	-25°C ~ 85°C
SH	20. c	$-330 \pm 60 \text{ ppm}/^\circ\text{C}$	-25°C ~ 85°C
TH	20. c	$-470 \pm 60 \text{ ppm}/^\circ\text{C}$	-25°C ~ 85°C
UJ	20°C	$-750 \pm 120 \text{ ppm}/^\circ\text{C}$	-25°C ~ 85°C
SL	20. c	$-1000 \sim +140 \text{ ppm}/^\circ\text{C}$	-25°C ~ 85°C
X7R	20. c	$\pm 15\%$	-55°C ~ 125°C
X5R	20. c	$\pm 15\%$	-55°C ~ 85°C
Z5U	20°C	$-56\% \sim +22\%$	10°C ~ 85°C
Y5V	20. c	$-80\% \sim +30\%$	-25°C ~ 85°C

Graph 1

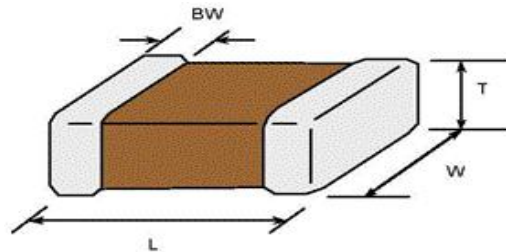


ShenZhen Topmay Electronic Co., Ltd

深圳市亿普电子有限公司

Rm 3306, International Science and Technology Bldg, Central ShenNan Rd3007, FuTian, Shenzhen City, CN.
深圳市深南中路国际科技大厦 3306 室 TEL: 0755-33341571/2, 33340231, 83279523; FAX: 0755-33341573

B. Structure & Dimension



		Dimensions (mm)			
英制表示 British expression	公制表示 Metric expression	L	W	T	
0402	1005	1.00 ± 0.05	0.50 ± 0.05	0.50 ± 0.05	0.25 ± 0.10
0603	1608	1.60 ± 0.10	0.80 ± 0.10	0.80 ± 0.10	0.30 ± 0.10
0805	2012	2.00 ± 0.20	1.25 ± 0.20	0.80 ± 0.20	0.50 ± 0.20
				1.00 ± 0.20	
				1.25 ± 0.20	
1206	3216	3.20 ± 0.30	1.60 ± 0.30	0.80 ± 0.20	0.60 ± 0.30
				1.00 ± 0.20	
				1.25 ± 0.20	
				1.60 ± 0.30	
1210	3225	3.20 ± 0.30	2.50 ± 0.30		0.80 ± 0.30
1808	4520	4.50 ± 0.40	2.00 ± 0.20		0.80 ± 0.30
1812	4532	4.50 ± 0.40	3.20 ± 0.30		0.80 ± 0.30
2220	5750	5.70 ± 0.40	5.00 ± 0.40		1.00 ± 0.40
2225	5763	5.70 ± 0.50	6.30 ± 0.50		1.00 ± 0.40
3035	7690	7.60 ± 0.50	9.00 ± 0.50		1.00 ± 0.40

Graph 2



ShenZhen Topmay Electronic Co., Ltd

深圳市亿普电子有限公司

Rm 3306, International Science and Technology Bldg, Central ShenNan Rd3007, FuTian, Shenzhen City, CN.
 深圳市深南中路国际科技大厦 3306 室 TEL: 0755-33341571/2, 33340231, 83279523; FAX: 0755-33341573

C. Reliability Test and Judgment Condition

	Judgement	Test condition
Capacitance	Within specified tolerance	1 kHz $\pm 10\%$ / 1.0 ± 0.2 Vrms
Tan δ (DF)	0.1 max.	*A capacitor prior to measuring the capacitance is heat treated at 150°C $\pm 0/-10$ °C for 1hour and maintained in ambient air for 24 ± 2 hours.
Insulation Resistance	10,000Mohm or 100Mohm $\times \mu F$ Whichever is smaller	Rated Voltage 60 ± 5 sec.
Appearance	No abnormal exterior appearance	Microscope ($\times 10$)
Withstanding Voltage	No dielectric breakdown or mechanical breakdown	200% of the rated voltage
Temperature Characteristics	X7R (From -55°C to 125°C, Capacitance change should be within $\pm 15\%$)	
Adhesive Strength of Termination	No peeling shall be occur on the terminal electrode	500g-f, for 10 ± 1 sec.
Bending Strength	Capacitance change : within $\pm 12.5\%$	Bending to the limit (1 mm) with 1.0mm/sec.
Solderability	More than 95% of terminal surface is to be soldered newly	SnAg3.0Cu0.5 solder 245 ± 5 °C, 3 ± 0.3 sec. (preheating : 80~120°C for 10~30sec.)
Resistance to Soldering Heat	Capacitance change : within $\pm 7.5\%$ Tan δ , IR : initial spec.	Solder pot : 270 ± 5 °C, 10 ± 1 sec.
Vibration Test	Capacitance change : within $\pm 5\%$ Tan δ , IR : initial spec.	Amplitude : 1.5mm From 10 Hz to 55 Hz (return : 1min.) 2hours \times 3 direction (x, y, z)
Moisture Resistance	Capacitance change : within $\pm 12.5\%$ Tan δ : 0.125 max IR : 500Mohm or 12.5Mohm $\times \mu F$ Whichever is smaller	With rated voltage 40 ± 2 °C, 90~95%RH, 500+12/-0hrs
High Temperature Resistance	Capacitance change : within $\pm 12.5\%$ Tan δ : 0.125 max IR : 1,000Mohm or 25Mohm $\times \mu F$ Whichever is smaller	With 150% of the rated voltage Max. operating temperature 1,000+48/-0hrs
Temperature Cycling	Capacitance change : within $\pm 7.5\%$ Tan δ , IR : initial spec.	1 cycle condition Min. operating temperature \rightarrow 25°C \rightarrow Max. operating temperature \rightarrow 25°C 5 cycle test

※ The reliability test condition can be replaced by the corresponding accelerated test condition.

D. Recommended Soldering method :

Reflow (Reflow Peak Temperature : 250°C, 6 sec max.)



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.



ShenZhen Topmay Electronic Co., Ltd

深圳市亿普电子有限公司

Rm 3306, International Science and Technology Bldg, Central ShenNan Rd3007, FuTian, Shenzhen City, CN.

深圳市深南中路国际科技大厦 3306 室 TEL: 0755-33341571/2, 33340231, 83279523; FAX: 0755-33341573

- Disclaimer & Limitation of Use and Application -

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

Please note that any misuse of the products deviating from products specifications or information provided in this Spec sheet may cause serious property damages or personal injury.

*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.*

If you have any questions regarding this 'Limitation of Use and Application', you should first contact our sales personnel or application engineers.

- 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 *Any other applications with the same as or similar complexity or reliability to the applications set forth above.*