

1. Scope

This specification applies to the type CERAMIC trimmer capacitor using CERAMIC as a dielectric.

2. Construction

2.1 Dimensions and materials

Refer to page 1.

	Items	Contents
1	Dimension	See attached drawing
2	Dielectric	ceramic
3	External	There are not remarkable stain

Table 1

No	Part NO	Capacitance(pf)		Temperature Coefficient(ppm/)	Q factor (1MHZ Cmax)
		MIN	MAX		
1	VTC3M003	1.7 Or less	3 Or more	NPO ± 300PPM	300 Or more
2	VTC3M006	2.5 Or less	6 Or more	NPO ± 300PPM	300 Or more
3	VTC3M010	3.5 Or less	10 Or more	N750 ± 300PPM	300 Or more
4	VTC3M020	5.5 Or less	20 Or more	N1200 ± 500PPM	300 Or more
5	VTC3M030	7.5 Or less	30 Or more	N2200 ± 500PPM	300 Or more

5 *				
4 *				
3 *				
2 *				
1 *				
HISTORY *COUNT	ECN-NO	DATE	REVISION	SIGN

TRIMMER CAPACITORS



3. Characteristics

Standard atmospherics conditions:

Unless otherwise specified, the standard range of atmospherics conditions for making measurements and tests are as follows:

Ambient temperature	:	5	to	35	;
Relative humidity	:	45%	to	85%	;
Air pressure	:	86kPa	to	106kPa.	

If there is any doubt about the results, measurement shall be made within the following limits:

Ambient temperature	:	20	±	2	;
Relative humidity	:	60%	to	70%	;
Air pressure	:	86kPa	to	106kPa.	

Operating temperature range:

The operating temperature range is the range of ambient temperature of which the trimmer capacitor can be operated continuously within rated voltage.

-25 to +85

Storage temperature range:

The Storage temperature range is the range of ambient temperature at which the trimmer capacitor can be Stored without damage, conditions are as specified elsewhere in these specification.

-25 to +85

3.1 Mechanical characteristics:

	Items	Conditions	Specification
1	Rotational torque	When the spindle is rotated at a rate of 10 rpm	1.5~10.0mNm (15~100gf.cm)
2	Difference between the maximum and minimum value of rotational torque	Difference between the maximum value and the minimum value when the shaft is rotated at a rate of 10 rpm	3 : 1 or less
3	Shaft load	A load of 1 N shall be applied perpendicular to the shaft for 10s.	Clauses 3-1-1 and 3-1-2 should be satisfied
4	Backlash		Without backlash When rotating

3-2 Electrical characteristics

	Items	Conditions	Specification
1	Rated voltage		100 V d.c.
2	Nominal capacitance	Nominal capacitance(Measured at 1MHz)	See table 1
3	Q	Measured at 1 MHz	See table 1

	Items	Conditions	Specifications														
4	Insulation resistance	A voltage of 100 V d.c. shall be applied for 1 min, after which measurement shall be made	100 M or more														
5	Dielectric strength	100 V d.c. for 1 min	Without damage														
6	Capacitance drift after adjustment	Rotation shall be made for 1 cycles for 180 degree at a rate of 20 rpm. Difference between the capacitance value immediately after the shaft is stopped at the position of the maximum capacitance value and the value after 1.5min later.(measured at 1 MHZ)	± 2% within														
7	Jump-off and sudden change of capacitance	Within the total capacitance range	Without jump-off and sudden change of capacitance														
8	Temperature characteristics and change in capacitance	<p>Test condition :</p> <p>Capacitance shall be 80% to 90% of the maximum value.</p> <table border="1" data-bbox="528 1077 1075 1417"> <thead> <tr> <th>Step</th> <th>Temperature</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>20 ± 2</td> <td rowspan="5">60min</td> </tr> <tr> <td>2</td> <td>-25 ± 3</td> </tr> <tr> <td>3</td> <td>20 ± 2</td> </tr> <tr> <td>4</td> <td>85 ± 2</td> </tr> <tr> <td>5</td> <td>20 ± 2</td> </tr> </tbody> </table> <p>Temperature coefficient $=(C2-C1)/C1(T2-T1)X10^6(\text{ppm/ })$ however: C1= capacitance at step3 C2= capacitance at step2/or step4 T1= measuring temperature at step3 T2= measuring temperature at step2/or step4</p> <p>Change in capacitance For difference of maximum capacitance at steps 1,3 or 5, refer to the value at step 3</p>	Step	Temperature	Duration	1	20 ± 2	60min	2	-25 ± 3	3	20 ± 2	4	85 ± 2	5	20 ± 2	<p>See table 1</p> <p>5% within</p>
Step	Temperature	Duration															
1	20 ± 2	60min															
2	-25 ± 3																
3	20 ± 2																
4	85 ± 2																
5	20 ± 2																



3-3 Endurance characteristics

Test capacity shall be 80% to 90% of the maximum value excluding clauses 3-3-1, 3-3-3 and 3-3-12

	Items	Conditions	Specification
1	Solder ability	Bit temperature : 390 ± 10 Application time of solder iron : 3sec or less	(1)Solder wetting time shall be 3 s or less. (2)A new uniform coating of solder shall cover a minimum of 95% of the surface being immersed.
2	Vibration	At maximum capacitance , only endurance conditioning by a frequency shall be made .the entire frequency range , from 10Hz to 50Hz and return to 10Hz , shall be transverse in 1 min. Amplitude (total excursion) : 1.5 mm This motion shall be applied for a period of 2 h in each of mutually perpendicular axis (a total of 6 h) The variable capacitance shall be subjected to standard atmospheric for other procedures.	Table 2 shall be satisfied.
3	Shock	At maximum capacitance. Peak acceleration : 981 m/s^2 (100 G) Duration of pulse : 6 ms Three successive shall be applied in both directions of mutually perpendicular axis (a total of 18 shock).	Table 2 shall be satisfied.
4	Cold	Placed in tank at -25 ± 2 for 48 ± 4 hours,left at room temperature for 1 hour after which measurement shall be made.	Table 2 shall be satisfied.
5	Dry heat	Placed in tank at 85 ± 2 for 48 ± 4 hours,left at room temperature for 1 hour after which measurement shall be made.	Table 2 shall be satisfied.
6	Damp heat	Placed in tank at 40 ± 2 ,90% to 95%RH for 96 ± 4 hours,left at room temperature for 1 hour after which measurement shall be made.	Table 2 shall be satisfied.
7	Damp heat with load	Twice as much of the rated voltage shall be applied continuously to the capacitor at a temperature of 40 ± 2 with relative humidity of 90% to 95% for 96 ± 4 h. And then it shall be subjected to the controlled recovery conditions for 1h. after which measurement shall be made.	Table 2 shall be satisfied.
8	Electrical endurance	Twice as much of the rated voltage shall be applied continuously to the capacitor at a temperature of 85 ± 2 for 96 ± 4 h. And then it shall be subjected to the controlled recovery conditions for 1h. after which measurement shall be made.	Table 2 shall be satisfied.

Items	Conditions	Specification
9 Change of temperature	The capacitor shall be subject to 5 continuous cycles, such as shown in table below . And then it shall be subjected to the controlled recovery conditions for 1 hour, after which measurement shall be made.	
	Step	Temperature
	1	-25 ± 3
	2	Standard atmosphere conditions
	3	85 ± 2
10 Operating endurance	The capacitor shall be subject to 10 cycles(5 cycles for each left and right) at a speed of 10 rpm to 15rpm	
	Step	Temperature
	1	-25 ± 3
	2	Standard atmosphere conditions
	3	85 ± 2

Table 2 shall be satisfied.

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Table 2

1	Appearance		There shall be no deformation, excessive looseness, or damage
2	Rotational torque	Refer to clauses 3-1-1 and 3-1-2	Clauses 3-1-1 and 3-1-2 should be satisfied
3	Change in capacitance	Refer to clauses 3-2-2	Relative to previously (± 5%) within specified value
4	Q	Refer to clauses 3-2-3	Clauses 3-2-3 should be satisfied
5	Insulation resistance	Refer to clauses 3-2-4	Clauses 3-2-4 should be satisfied
6	Dielectric strength	Refer to clauses 3-2-5	Clauses 3-2-5 should be satisfied

Change in capacitance = $(C2-C1)/C1 \times 100(\%)$

C1=value measured before test

C2=value measured after test

4. Marking

The following items shall be marked indelibly and legibly on the capacitor or on each unit pack.

4-1 Products name.

4-2 Type name or part number.

4-3 Month and year of or production code (including lot No.)

4-4 Manufacturer's name (abbreviated manufacturer's name permitted) or trademark.

4-5 Country of origin, china.

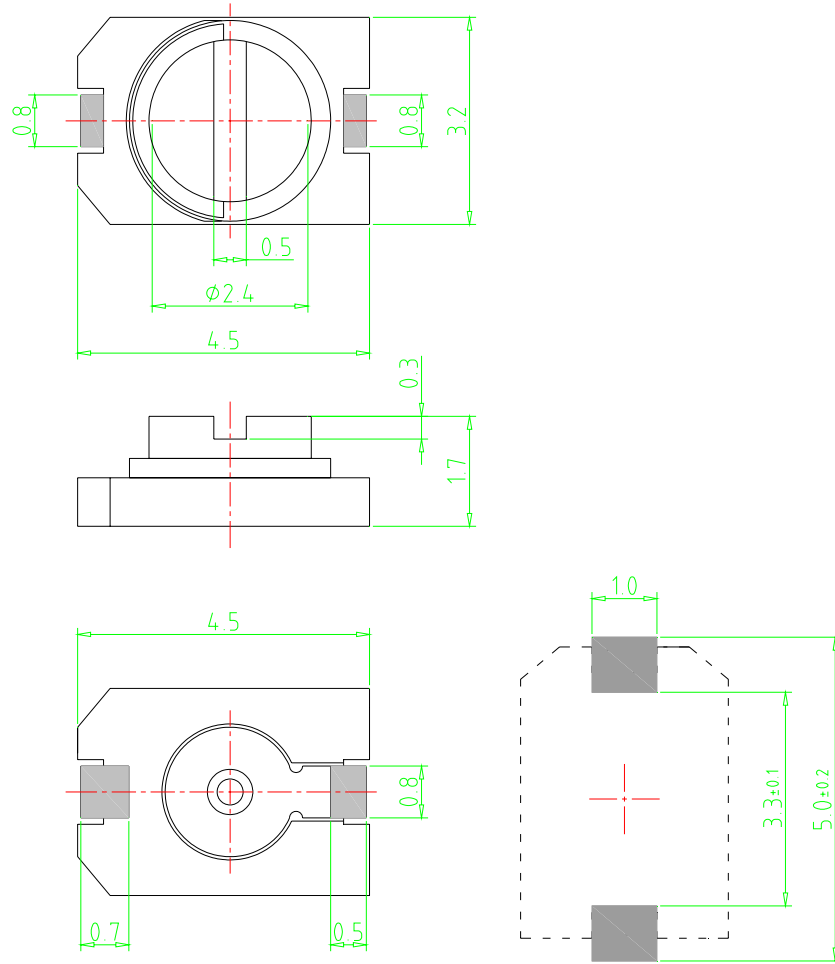
5. The CFCs of not used.

6. The PBDE ,PBBS of not used.

TRIMMER CAPACITORS

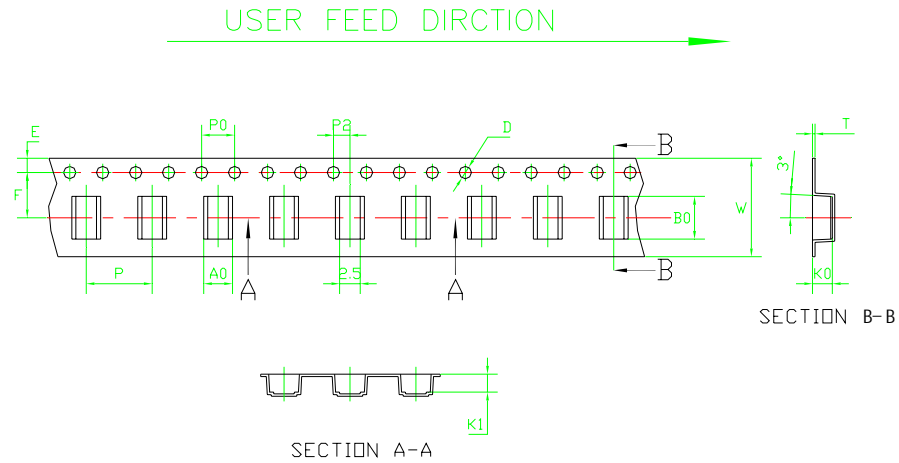


Outline drawing



REVISIONS	APPEARANCE		PART NO
	UNIT: mm	SCALE: 5/1	
	DIMENSION TOLERANCE		
	GENERAL ± 0.1		
	DESIGNED BY:	Yan qinkun	
	DRAWN BY:	Yan qinkun	
	CHECKED BY:	Yan qinkun	
	APPROVED BY:	X.L.BAO	

ITEM	W	A0	B0	K0	K1	P	F	E	D	P0	P2	T	包 装
DIM	12.0	3.60	4.90	2.20	2.00	8.00	5.50	1.75	1.50	4.00	2.00	0.30	直径/盘 数量
TOLE	+0.30 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.05 -0.05	φ180mm 1000PCS



技术要求：

1. 任意10个棘轮的累计误差不超过 $+/-0.20$ ；
2. 材料厚度以在载带边缘测量为准；
3. 载带长度方向100mm距离的非平行度不可超过1mm；
4. 超过250mm不计算累计误差；
5. 除非指明，公差范围为： $+/-0.10mm$ ；
6. A0、B0为型腔内侧最底部向上0.30mm处测量为准；
7. K0为内部深度；
8. 材料为PS, 颜色透明。