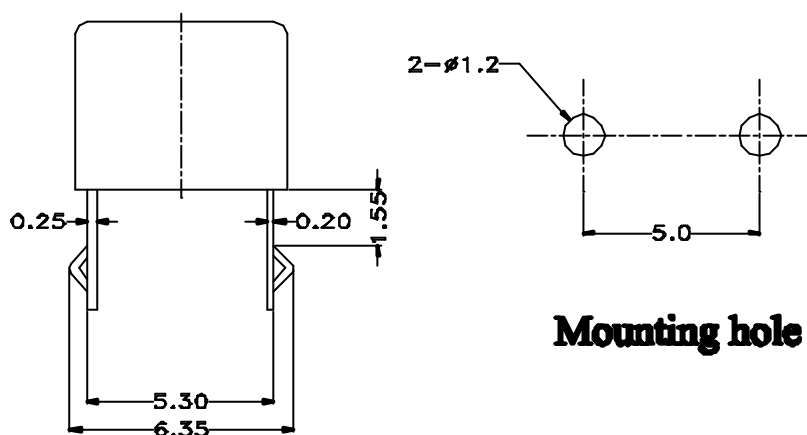
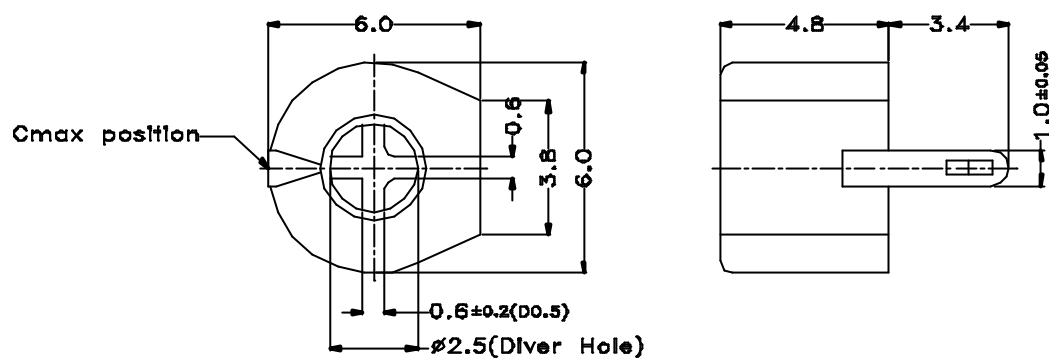


6MM Trimmer Capacitor

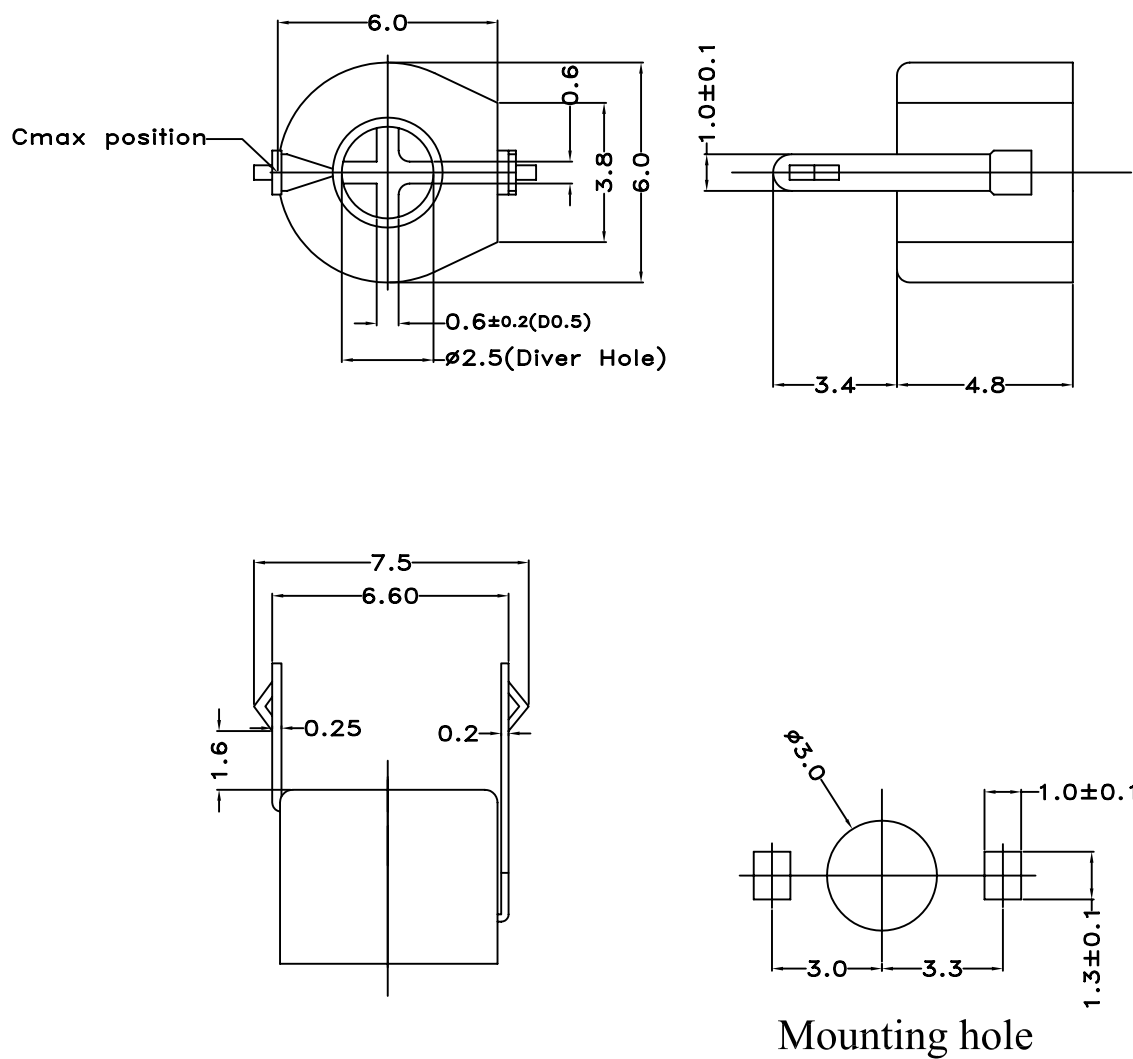
Outline drawing



Mounting hole

REVISIONS	APPEARANCE		PART NO	
	UNIT: mm	SCALE: 5/1	TC03	
	DIMENSION TOLERANCE GENERAL ± 0.5		TERMINAL	ROTOR
			H	169
	DESIGNED BY: YANQINGKUN			
	DRAWN BY: YANQINGKUN			
	CHECKED BY: YANQINGKUN			
	APPROVED BY: X.L.BAO			

Outline drawing



Mounting hole

REVISIONS	APPEARANCE		PART NO
	UNIT: mm	SCALE: 5/1	TCB4
	DIMENSION TOLERANCE GENERAL ± 0.5		COLOR
	DESIGNED BY:	WISDOM TIAN	
	DRAWN BY:	WISDOM TIAN	
	CHECKED BY:	WISDOM TIAN	
	APPROVED BY:	X.L.BAO	

1. Scope

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

2. Main characteristics

Table 1

Part No.	Capacitance(pF)		Temperature coefficient(ppm/)	Q factor (1MHz,Cmax)	Marking color
	Min	Max			
TC03Z050H169B00	2.0 or less	5.0+50% 0	NP0 ± 300	500	Blue
TC03Z100H169B00	3.0 or less	10.0+100% 0	NP0 ± 300	500	White + Red dot
TC03R100H169B00	3.0 or less	10.0+100% 0	N750 ± 300	500	White
TC03R200H169B00	5.5 or less	20.0+100% 0	N750 ± 300	500	Red
TC03R300H169B00	6.5 or less	30.0+100% 0	N750 ± 300	500	Green
TC03SL400H169B00	7.0 or less	40.0+100% 0	N1200 ± 500	500	Yellow
TC03DL500H169B00	12.0 or less	50.0+100% 0	N2200 ± 800	300	Orange
TC03DL600H169B00	14.0 or less	60.0+100% 0	N2200 ± 800	300	Brown
TC03D900H169B00	25.0 or less	90.0+100% 0	N3300 ± 1200	300	Brown+ black dot
TC03D121H169B00	35.0 or less	120.0+100% 0	N3300 ± 1200	300	Black

Part number:

(Global Part Number)

TC - 03 - Z - 050 - H - 169 - B00

Ceramic trimmer capacitors

6mm Size

Temperature characteristics

Cmax

Terminal type(H—— Top Adjustment, N—— Rear Adjustment)

Rotor type(169----- “ + ” type ; 269----- “ T ” type)

Packaging

CERAMIC TRIMMER CAPACITORS

NCE

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 \pm 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	2.0~20.0Nm (20~200gf.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	Terminal strength	A static load of 5N (510gf) shall be applied to the terminal for 10 sec. Terminals shall be inclined through an angle of 45° in the vertical plane and then returned to its initial position . This cycle shall be made for twice	Without excessive looseness of terminals
4	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

3-2 Electrical characteristics:

	Items	Conditions	Specification
1	Rated voltage		100 V d.c.
2	Nominal capacitance	Maximum capacitance(Measured at 1MHz)	Table 1 shall be satisfied.
		Minimum capacitance(Measured at 1MHz)	Table 1 shall be satisfied.

CERAMIC TRIMMER CAPACITORS

	Items	Conditions	Specifications														
3	Q	Measured at 1MHz, Cmax	Table 1 shall be satisfied.														
4	Insulation resistance	A voltage of 100 V d.c. shall be applied for 1 min, after which measurement shall be made	10000 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)	± 1% within														
7	Temperature characteristics and change in capacitance	<p>Test condition :</p> <p>Capacitance shall be 80% to 90% of the maximum value.</p> <table><tr><th>Step</th><th>Temperature</th><th>Duration</th></tr><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></table> <p><u>Temperature coefficient</u></p> <p>$=(C2-C1)/C1(T2-T1) \times 10^6(\text{ppm/ } ^\circ\text{C})$</p> <p>however:</p> <p>C1= capacitance at step3 C2= capacitance at step2/or step4 T1= measuring temperature at step3 T2= measuring temperature at step2/or step4</p> <p><u>Change in capacitance</u></p> <p>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>Table 1 shall be satisfied</p> <p>5% within</p>
Step	Temperature	Duration															
1	20 ± 2	60min															
2	-25 ± 3																
3	20 ± 2																
4	85 ± 2																
5	20 ± 2																

CERAMIC TRIMMER CAPACITORS

3-3 Endurance characteristics:

Test capacity shall be 80% to 90% of the maximum value excluding clauses 3-3-1, 3-3-3 and 3-3-10.

	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	Resistance to soldering heat	<u>Solder bath method</u> Solder temperature : 260 ± 5 Immersion time : 7 ± 0.5 sec Immersion dept : up to the surface of the board. <u>Solder iron method</u> Bit temperature : 390 ± 10 Application time of solder iron : 3 ± 0.5 sec	Table 2 shall be satisfied.
3	Resistance to flux penetration	The printed wiring board shall be fully immersed in the flux for 3 to 5 s and then taken out of the flux . the capacitor shall be inserted completely into the board as soon as the board is removed from the flux . either the flux bath method or the foaming method shall be used to apply flux to the board . in either case , flux should not come into contact with the component side surface and fluxing time shall be 3 to 4 s. Note :after fluxing , if preheating is necessary before mounting ,then the surface of the solder side shall be heated to 75 to 90 for 1 min or less. Using an automatic soldering system or a hand dipping system. The board shall be soldered up the component side surface (but the solder shall not come into contact with the component side)for 5 ± 1 s at 250 to 260 ,the board shall be subjected to standard atmospheric conditions for 24 h or more after the soldering .tests shall then be carried out as specified below. visual inspection of appearance . measurement of characteristics as specified.	Electrical characteristics and mechanical characteristics shall be satisfied.
4	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.
5	Shock	At maximum capacitance. Peak acceleration : 490 m/s^2 (50G) Duration of pulse : 11 ms Three successive shall be applied in both directions of mutually perpendicular axis (a total of 18 shock).	Table 2 shall be satisfied.

CERAMIC TRIMMER CAPACITORS

	Items	Conditions	Specification															
6	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.															
7	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.															
8	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.															
9	Change of temperature	<div>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.</div> <table><tr><th>Step</th><th>Temperature</th><th>Duration(min)</th></tr><tr><td>1</td><td>-25 ± 3</td><td>30</td></tr><tr><td>2</td><td>20 ± 2</td><td>10~15</td></tr><tr><td>3</td><td>85 ± 2</td><td>30</td></tr><tr><td>4</td><td>20 ± 2</td><td>10~15</td></tr></table>	Step	Temperature	Duration(min)	1	-25 ± 3	30	2	20 ± 2	10~15	3	85 ± 2	30	4	20 ± 2	10~15	Table 2 shall be satisfied.
Step	Temperature	Duration(min)																
1	-25 ± 3	30																
2	20 ± 2	10~15																
3	85 ± 2	30																
4	20 ± 2	10~15																
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.	Table 2 shall be satisfied.															

CERAMIC TRIMMER CAPACITORS

Table 2

	Items	Conditions	Specification
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. Package

	Components	Materials	Supplier	Q'TY
1	Inner packaging	PE	Changde Zhengda Plastics Factory	10/500
2	Packaging case	Paper	Changde Jiehao Packing-Color Printing Co., Ltd.	1/5000

CERAMIC TRIMMER CAPACITORS