

SPECIFICATIONS FOR APPROVAL

CUSTOMER : .

CERAMIC TRIMMER CAPACITOR

MODEL NO : STC3M Series

Authorized By	Authorized By	Customer

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Chip Trimmer Capacitors for Lead-Free

SPECIFICATIONS FOR APPROVAL

1. SCOPE

This specification covers the general electrical, mechanical and environmental parameters for qualification of the Ceramic Trimmer Capacitor model STC3M Series manufactured by SEHWA Co., Ltd.

2. PART NUMBERING

S TC 3 M □□ - □□
 ① ② ③ ④ ⑤ ⑥

① SEHWA(SEHWA Co., Ltd) – Company Name

② Trimmer Capacitor

③ Package Size(Dia.)

④ Package Type

⑤ Nominal Maximum Capacitance

⑥ Packing Method

T : Taping Type

T1 : 1,000 pcs/reel

T3 : 3,000 pcs/reel

B0 : Bulk Type

[Table-1] Ratings and Characteristics

Part No	STC3M03-T1	STC3M06-T1	STC3M10-T1	STC3M20-T1	STC3M30-T1
Item	Black	Blue	Ivory	Pink	Green
Capacitance(pF Min)	1.5 max	2.0 max	3.0 max	5.0 max	9.0 max
Capacitance(pF Max)	3.0 ⁺⁵⁰ ₋₀ %	6.0 ⁺⁵⁰ ₋₀ %	10.0 ⁺⁵⁰ ₋₀ %	20.0 ⁺⁵⁰ ₋₀ %	30.0 ⁺⁵⁰ ₋₀ %
Temperature Coefficient (ppm / °C)	NP0±200	NP0±200	N750±500	N1500±250	N1500±250
Q Value (at 1 MHz, C max)	500	500	1000	500	500
Insulation Resistance	10 ⁴ MΩMin				
Torque	15 ~ 72 gf.cm				
DC Working Voltage	100 VDC	100 VDC	50 VDC	50 VDC	50 VDC
DC Withstanding Voltage	220 VDC	220 VDC	110 VDC	110 VDC	110 VDC
Operating Temperature	- 25°C to 85°C				

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3. STANDARD TEST CONDITION

Unless otherwise specified, test and measurement shall be conducted at the standard condition

- Ordinary temperature : 15 ~ 30 °C
- Humidity : Relative humidity 45 ~ 85 %
- Atmospheric pressure : 886 mbar to 1060 mbar

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

- Ordinary temperature : 20 ± 2 °C
- Humidity : Relative humidity 65 ± 5 %

4. ELECTRICAL CHARACTERISTICS

4-1. Capacitance

When measured at a frequency of 1 MHz, temperature 20°C and voltage 0.5 ~ 5V
Min. value shall not be greater than that of specified in [Table-1] and Max. Value shall be within the limit that of specified in [Table-1].

4-2. Withstanding voltage

The Capacitor shall withstand the voltage of specified in [Table-1] through the complete rotation of rotor with the voltage applied between the rotor and stator terminal for 5 sec.

4-3. Insulation

The insulation resistance at Max. capacitance setting shall be more than 10,000MΩ when measured at the applied 100VDC between the rotor and stator terminals for one minute.

4-4. " Q " Factor

Q means 1/(dielectric loss ; tan δ). When measured at a frequency of 1 MHz, shall not be less than that of specified in [Table-1].

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4-5. Temperature coefficient

Capacitance adjust measurement at 80 ~ 90 percent of maximum rated capacitance shall be made at the temperatures specified in the Table-2 and at a frequency of 1 MHz. Each measurement shall be made after the capacitor has reached thermal stability.

Capacitance-change shall be within the limits that of specified in [Table-1].

[Table-2]

Step	1	2	3	4	5
Sequence	start at 20±2℃	reduce to 20±2℃	return to 20±2℃	raise to 20±2℃	return to 20±2℃

$$TC = \frac{(C2 - C1) \cdot 10^6}{(T2 - T1) \cdot C1}$$

TC : Temperature coefficient(ppm/℃) in temperature T2

C1 : Initial capacitance value(pF) at step 3.

C2 : Capacitance(pF) at specified temperature.

T1 : 20℃ (step 3)

T2 : Test temperature (step 3 or 4)

5. CONSTRUCTION and MECHANICAL SPECIALITY

5-1. Construction and dimension

refer to [figure-2].

5-2. Strength of terminal

When slowly added the weight of 500g to each terminal to direction of terminal and kept during 10 seconds, there should not be anything unusual mechanically and electrically.

5-3. Rotation torque

Should be within 15 ~ 72 gf.cm in the range of 360° , but the rotation speed should be 5 ~ 20 rpm.

5-4. Solderability

refer to [figure-1].

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6. ENVIRONMENT SPECIALITY

6-1. Moisture resistance

The capacitance set 80 ~ 90% position of maximum capacitance should keep to 40 °C and 90 ~ 95% relative humidity for 96±4 hours.

after removed form the humidity chamber, the capacitor shall be kept for 24 hours at the ambient conditions specified for the initial measurement.

And satisfy [Table-3].

6-2. Rotation life

The capacitance set at the maximum capacitance position, and then it's rotor shall be rotated for 180° clockwise, return to the original position, and then rotated 180° counter clockwise, return to original position, this is counted as 1 cycle.

by changing the direction of rotation successivly, the rotor shall be rotated continuously for 20 cycle.

after that the measured value should be within the limits of specified in [Table-3].

6-3. Life (high temperature loading)

When kept during 1000±12 hours in maximum operating temperature(85±3°C) loaded 2 times of rated voltage at the position of 80 ~ 90% of maximum rated capacitance. After that, characteristics should satisfy the [Table-3].

6-4. Solder-dip heat resistance

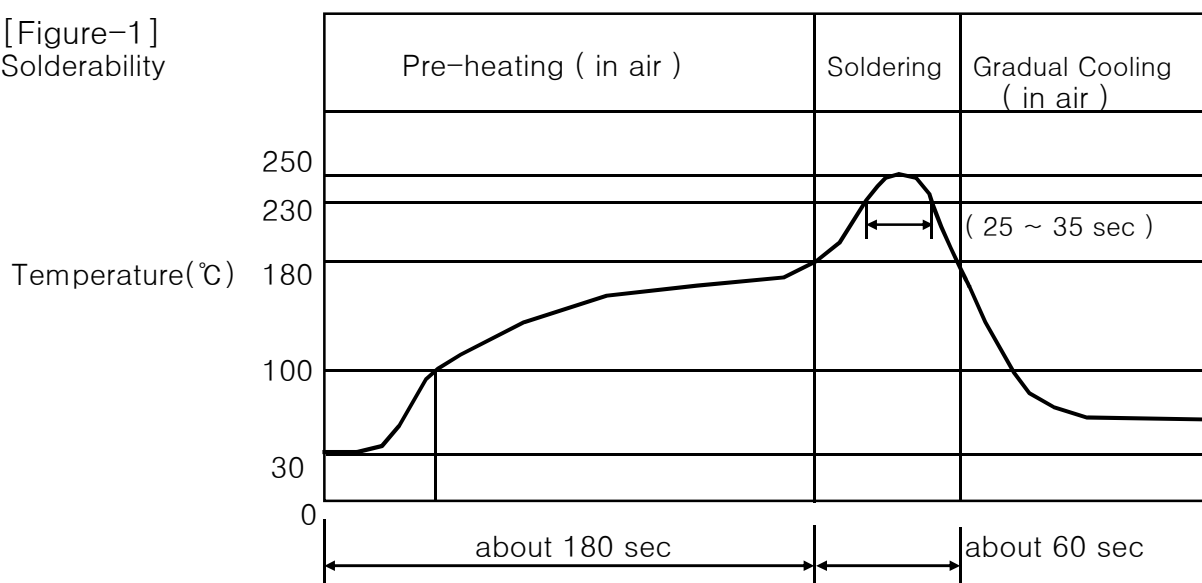
At the position of capacitance set more than 80% of Max. value should be dipped the top of each terminal to 1mm during 3±0.5 second in the condition of soldering temperature 270±5°C should satisfy the [table-3] after kept in ordinary room temperature during 1 ~ 2 hours.

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[Table-3]

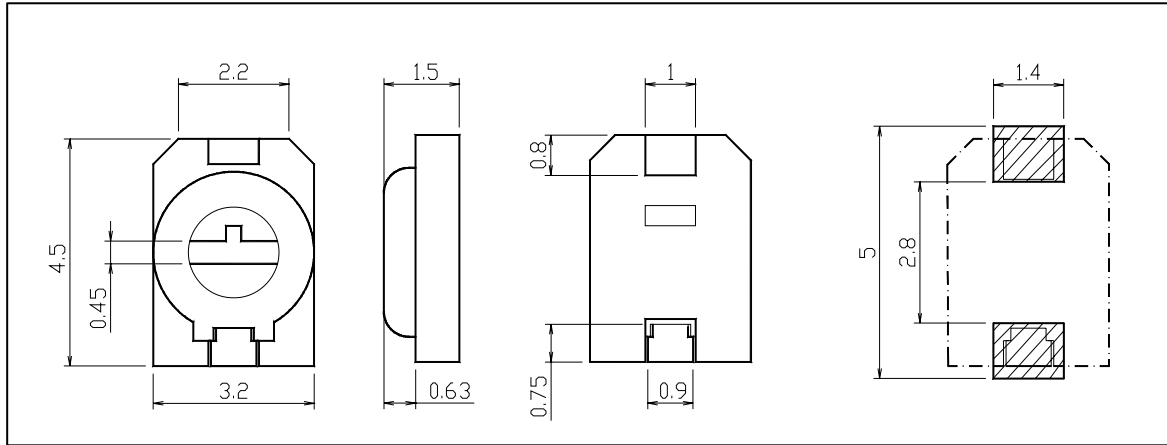
	6-1 Moisture Resistance	6-2 Rotation Life	6-3 Life	6-4 Resistance to Soldering heat
Capacitance Change	± 5% max.	± 12% or 0.75pF Max. whichever is greater	± 12% or 0.75pF Max. whichever is greater	Shall comply with 4-1
Q Value at 1 MHz	- 35% Max.	Shall comply with 4-4	- 50% Max.	Shall comply with 4-4
Insulation Resistance	3,000 MΩ Min.	10,000 MΩ Min.	1,000 MΩ Min.	10,000 MΩ Min.
Withstanding Voltage	Shall comply with 4-2			
Torque	Shall comply with 5-3			
Appearance	No mechanical damage			

[Figure-1]
Solderability



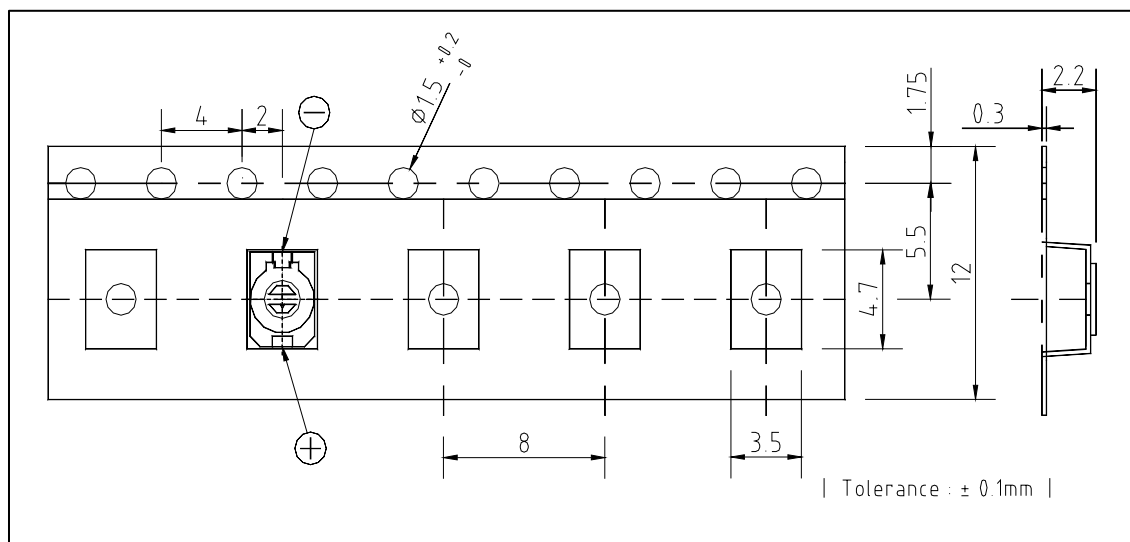
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[Figure-2] Construction and Dimension



7. TAPE & REEL PACKING

[Figure-3] Carrier tape dimension



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Notice

Adjustment :

- 1) After removing from reflow, let cool to room temperature (at least 4 hrs.) before adjustment.
- 2) Maximum pressure of screwdriver should be less than 100g.
- 3) Use recommended screwdriver.

Soldering :

- 1) Recommended reflow temperature curve.
- 2) Do not flow solder.
- 3) Do not touch soldering iron to the body of trimmer capacitor directly.

Store :

- 1) Use trimmer capacitor within 6 months after delivery.
- 2) Do not store the trimmer capacitor in corrosive gases (Cl₂, H₂S, NH₃, SO₂, NO_x, etc)
- 3) Before using trimmer capacitor, please store under the condition of -10 to + 40°C and 30 to 75%RH, without direct sunlight.

Others :

- 1) Please do a prototype build using the trimmer capacitor in the actual application in order to effectively evaluate the part before mass production.
- 2) Do not wash the trimmer capacitor.