

Ceramic Resonator

1 · SCOPE

This specification shall cover the characteristics of the ceramic resonator with the type ZTTCP3.58MG-30P.

2 · PART NO. : ZTTCP3.58MG-30P

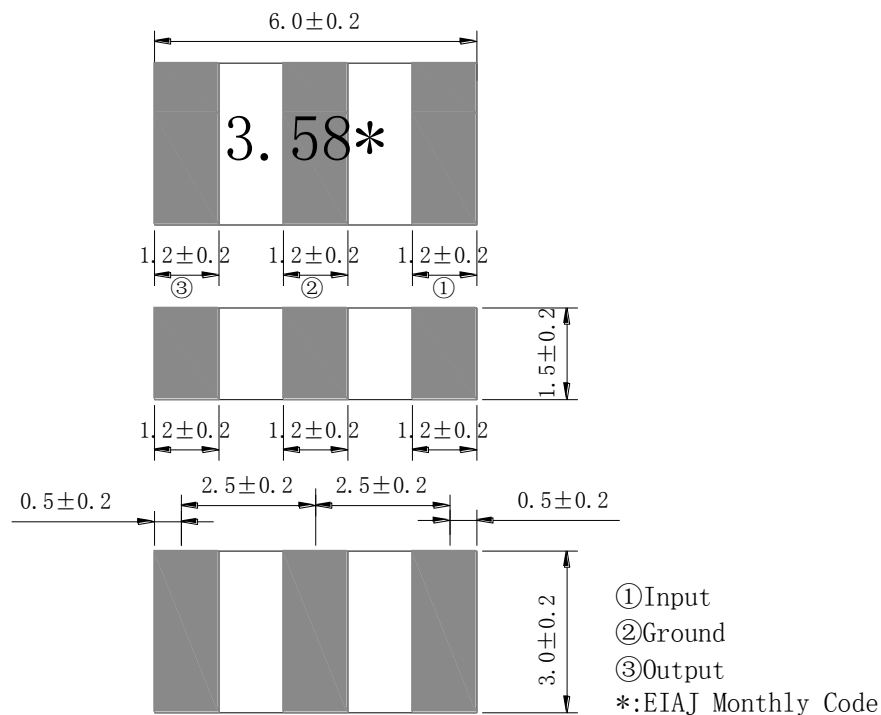
3 · OUTLINE DIMENSIONS AND MARK

3.1 Appearance: No visible damage and dirt.

3.2 Construction: SMD ceramic packaging.

3.3 The products conform to the RoHS directive and national environment protection law.

3.4 Dimensions and mark



4 · ELECTRICAL SPECIFICATIONS

4.1 RATING

Items	Requirement
Withstanding Voltage (V)	100 (DC , 5s max)
Insulation Resistance Ri, (MΩ) min.	500 (10V , 1min)
Operating temperature	-25°C ~ +85°C
Storage temperature	-55°C ~ +85°C
Rating Voltage UR (V)	6V DC
	15V p-p AC

4.2 ELECTRICAL SPECIFICATIONS

Items	Requirement
Oscillation Frequency Fosc (MHz)	3.580
Frequency Accuracy (%)	±0.5
Resonant Impedance Ro (Ω) max.	40
Temperature Coefficient of Oscillation Frequency (%) max.	±0.3 (Oscillation Frequency drift , -25°C ~ +85°C)
Oscillation Frequency Aging Rate (%) max *1	±0.1 (From initial value)

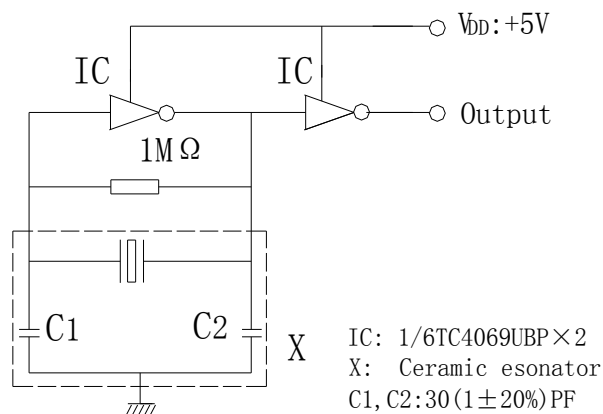
* Components shall be left in a chamber of +85±2°C for 1000 hours, then measured after leaving in natural condition for 1 hours.

5 · TEST

5.1 Test Conditions

Parts shall be tested under the condition (Temp. : 20±15°C, Humidity : 65±20% R.H.) unless the standard condition (Temp. : 25±3°C, Humidity : 65±10% R.H.) is regulated to measure.

5.2 Test Circuit



6 · PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

No	Item	Condition of Test	Performance Requirements						
6.1	Humidity	Keep the resonator at $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and 90%-95% RH for 96h. Then Release the resonator into the room Condition for 1h prior to the Measurement.	It shall fulfill the specifications in Table 1.						
6.2	High Temperature Exposure	Subject the resonator to $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 96h, then release the resonator into the room conditions for 1h prior to the measurement.	It shall fulfill the specifications in Table 1.						
6.3	Low Temperature Exposure	Subject the resonator to $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 96h, then release the resonator into the room conditions for 1h prior to the measurement.	It shall fulfill the specifications in Table 1.						
6.4	Temperature Cycling	After temperature cycling of blow table was performed 5 times, resonator shall be measured after being placed in natural conditions for 1h.	It shall fulfill the specifications in Table 1.						
		<table border="1"> <thead> <tr> <th>Temperature</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>$-25 \pm 3^{\circ}\text{C}$</td> <td>$30 \pm 3$ min</td> </tr> <tr> <td>$85 \pm 3^{\circ}\text{C}$</td> <td>30 ± 3 min</td> </tr> </tbody> </table>		Temperature	Time	$-25 \pm 3^{\circ}\text{C}$	30 ± 3 min	$85 \pm 3^{\circ}\text{C}$	30 ± 3 min
		Temperature		Time					
$-25 \pm 3^{\circ}\text{C}$	30 ± 3 min								
$85 \pm 3^{\circ}\text{C}$	30 ± 3 min								
6.5	Vibration	Subject the resonator to vibration for 2h each in x、y and z axis With the amplitude of 1.5mm, the frequency shall be varied uniformly between the limits of 10 Hz—55Hz.	It shall fulfill the specifications in Table 1.						
6.6	Mechanical Shock	Drop the resonator randomly onto a wooden floor from the height of 100cm 3 times.	It shall fulfill the specifications in Table 1.						
6.7	Soldering Test	Components shall be measured after applying twice of the re-flow soldering with following temperature profile and leaving in natural condition for 1 hour.	It shall fulfill the specifications in Table 1.						
		<p>The graph shows a temperature profile for re-flow soldering. It starts with a ramp up to 150°C, labeled 'Pre-heating' and 'within 80-120s'. This is followed by a sharp rise to a peak of 260°C, labeled 'Peak: 260°C max' and '10s max'. The peak is maintained at 250°C for 10 seconds. The temperature then ramps down, labeled 'within 20-40s'. The initial ramp up is labeled '30s min'.</p>							

(To be continued)

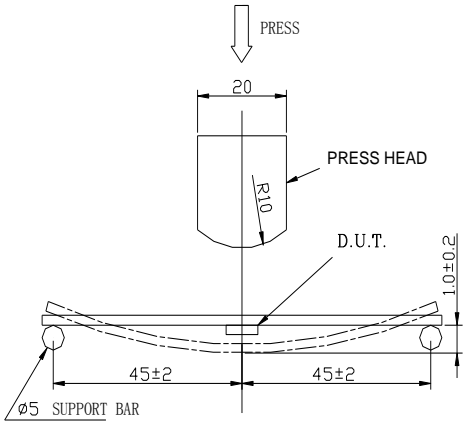
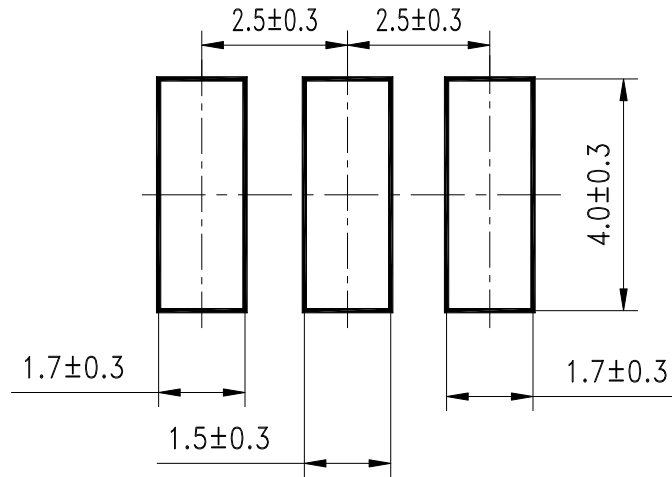
No	Item	Condition of Test	Performance Requirements
6.8	Solder Ability	Dipped in $245^{\circ}\text{C} \pm 5^{\circ}\text{C}$ solder bath for $3\text{s} \pm 0.5\text{ s}$ with rosin flux (25wt% ethanol solution.)	The terminals shall be at least 95% covered by solder.
6.9	Board Bending	<p>Mount a glass-epoxy board (Width=40mm,thickness=1.6mm),then bend it to 1mm displacement and keep it for 5s. (See the following figure)</p> 	Mechanical damage such as breaks shall not occur.

Table 1

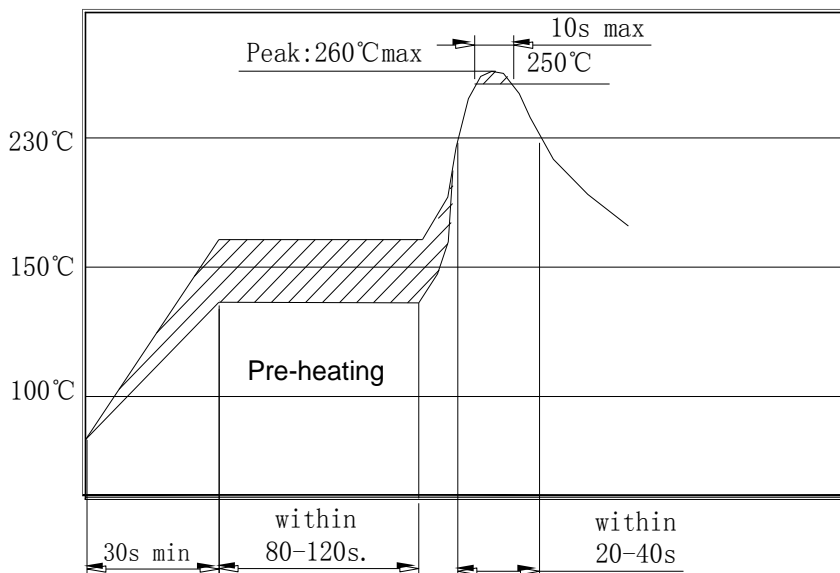
Item	Specification after test
Oscillation Frequency Change $\Delta F_{osc}/F_{osc}$ (%) max	± 0.2
Resonant Impedance R_o (Ω) max.	35
The limits in the above table are referenced to the initial measurements.	

7 · RECOMMENDED LAND PATTERN AND REFLOW SOLDERING STANDARD CONDITIONS

7.1 Recommended land pattern



7.2 Recommended reflow soldering standard conditions



8 · PACKAGE

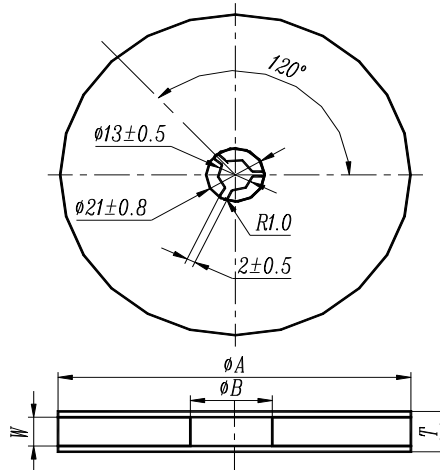
To protect the products in storage and transportation, it is necessary to pack them (outer and inner package).

8.1 On paper pack, the following requirements are requested.

8.1.1 Quantity of package

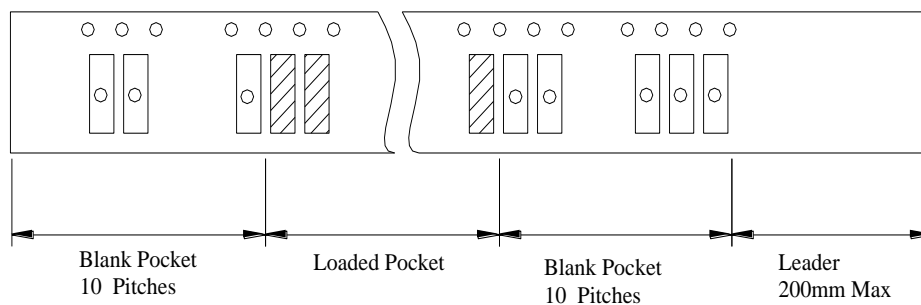
Per plastic reel 4000 pieces of piezoelectric ceramic part

8.2 Reel Dimensions

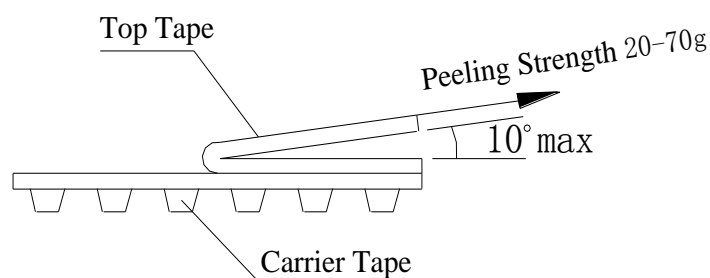


ϕA	ϕB	W	T	Pieces per reel	Carrier tape size
330 ± 3	80min	16.4min	22.4max	4000typ.	16

8.2.1 Packing Method Sketch Map



8.2.2 Test Condition Of Peeling Strength



9 · EIAJ Monthly Code

2019 / 2021 / 2023		2020 / 2022 / 2024	
MONTH	CODE	MONTH	CODE
JAN	A	JAN	N
FEB	B	FEB	P
MAR	C	MAR	Q
APR	D	APR	R
MAY	E	MAY	S
JUN	F	JUN	T
JUL	G	JUL	U
AUG	H	AUG	V
SEP	J	SEP	W
OCT	K	OCT	X
NOV	L	NOV	Y
DEC	M	DEC	Z

10 · OTHER

10.1 Caution

10.1.1 Don't apply excess mechanical stress to the component and terminals at soldering. Do not use this product with bend.

10.1.2 Do not clean or wash the component for it is not hermetically sealed.

10.1.3 Do not use strong acidity flux, more than 0.2wt% chlorine content, in flow soldering.

10.1.4 Don't be close to fire.

10.1.5 This specification mentions the quality of the component as a single unit. Please insure the component is thoroughly evaluated in your application circuit

10.1.6 Expire date (Shelf life) of the products is six months after delivery under the conditions of a sealed and an unopened package. Please use the products within six months after delivery. If you store the products for a long time (more than six months), use carefully because the products may be degraded in the solderability or rusty. Please confirm solderability and characteristics for the products regularly.

10.1.7 Please contact us before using the product as automobile electronic component.

10.2 Notice

10.2.1 Please return one of this specification after your signature of acceptance.

10.2.2 When something gets doubtful with this specifications, we shall jointly work to get an agreement.