

# Shoulder 好达

SHOULDER ELECTRONICS LIMITED

## CERAMIC RESONATOR Data Sheet

PRODUCT 产品: CERAMIC RESONATOR

MODEL NO 型号: ZTTCC...MG

PREPARED 编制: Fengyu

CHECKED 审核: York

APPROVED 批准: Lijiating

DATE 日期: 2008-01-25

## 1 SCOPE

This specification shall cover the characteristics of the ceramic resonator 1.84–8.00MHZ

## 2 PART NO.

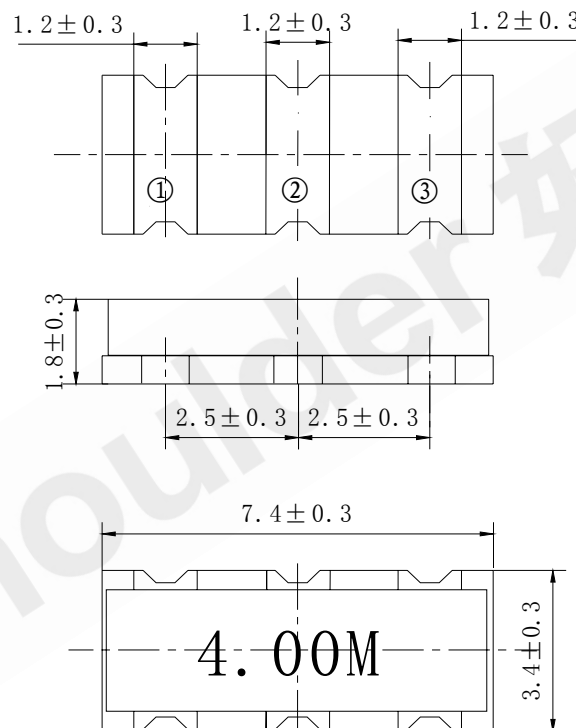
PART NUMBER	CUSTOMER PART NO	SPECIFICATION NO
ZTTCC...MG		

## 3 OUTLINE DRAWING AND DIMENSIONS

3.1 Appearance: No visible damage and dirt.

3.2 Except the chip(ceramic element, ceramic base, capacitance slice), the materials don't contain lead.

3.3 Dimensions



- ① Input
- ② Ground
- ③ Output

## 4 RATING AND ELECTRICAL SPECIFICATIONS

### 4.1 RATING

Items	Content
Withstanding Voltage (V)	50 (DC, 1min)
Insulation Resistance $R_i$ , ( $M\Omega$ ) min.	100 (100V, 1min)
Operating Temperature Range ( $^{\circ}C$ )	-20~+80
Storage Temperature Range ( $^{\circ}C$ )	-55~+85

## 4.2 ELECTRICAL SPECIFICATIONS

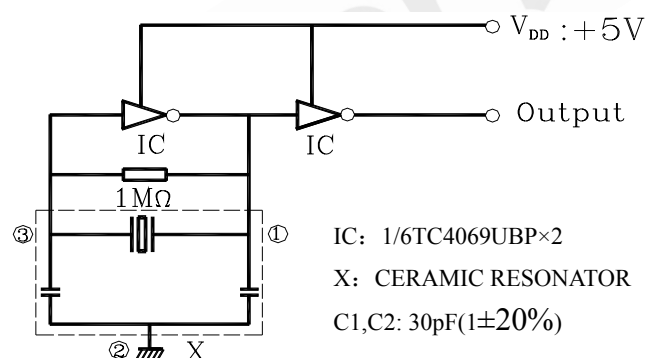
Oscillation Frequency Fosc (MHz)	1.84–8.00
Frequency Accuracy (%)	±0.5
Resonant Impedance Ro (Ω) max.	30
Temperature Coefficient of Oscillation Frequency (%) max.	±0.3 (Oscillation Frequency drift, -20°C~+80°C)
Rating Voltage UR (V) max.	6V DC
	15V p-p
Aging Rate (%) max.	±0.3 (For Ten Years)

## 5 MEASUREMENT

### 5.1 Measurement Conditions

Parts shall be measured under a condition (Temp.: 20°C±15°C, Humidity : 65%±20% R.H.) unless the standard condition (Temp.: 25°C±3°C, Humidity : 65%±5% 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 40°C±2°C and 90%-95% RH for 96h±4h. Then Release the resonator into the room Condition for 1h prior to the Measurement.	It shall fulfill the specifications in Table 1.
6.2	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.
6.3	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.

6.4	Soldering Test	Passed through the re-flow oven under the following condition and left at room temperature for 1h before measurement.		It shall fulfill the specifications in Table 1.
		Temperature at the surface of the substrate	Time	
		Preheat 150°C±5°C	60s±10 s	
		Peak 260°C±5°C	10s±3 s	
6.5	Solder Ability	Dipped in 250°C±5°C solder bath for 3s±0.5 s with rosin flux (25wt% ethanol solution.)		The terminals shall be at least 95% covered by solder.
6.6	High Temperature Exposure	Subject the resonator to 80°C±5°C for 96s, then release the resonator into the room conditions for 1h prior to the measurement.		It shall fulfill the specifications in Table 1.
6.7	Low Temperature Exposure	Subject the resonator to -20°C±5°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.

(To be continued)

## 6 PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

No	Item	Condition of Test	Performance Requirements
6.8	Temperature Cycling	Subject the resonator to -40°C for 30 min. followed by a high temperature of 85°C for 30 min. Cycling shall be repeated 5 times with a transfer time of 15s. At the room temperature for 1h prior to the measurement.	It shall fulfill the specifications in Table 1.
6.9	Board Bending	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)	Mechanical damage such as breaks shall not occur.

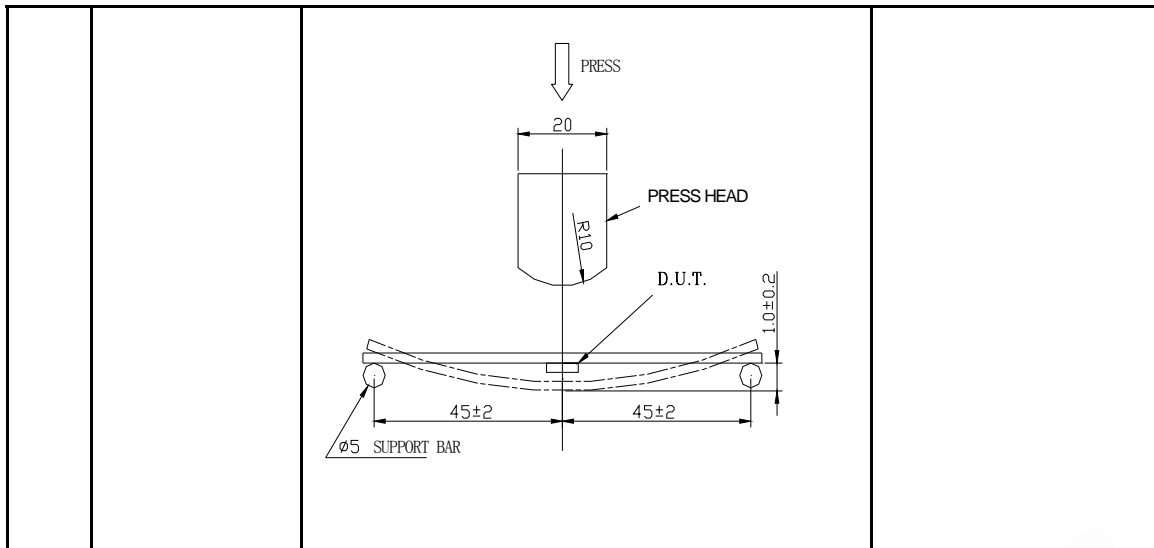
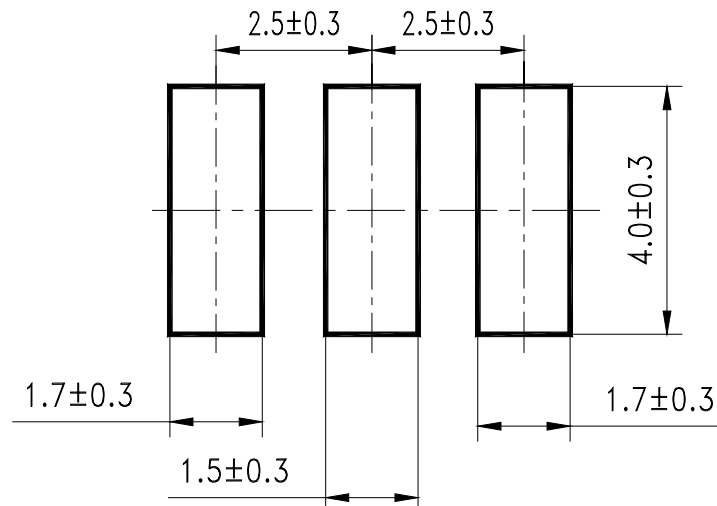


Table 1

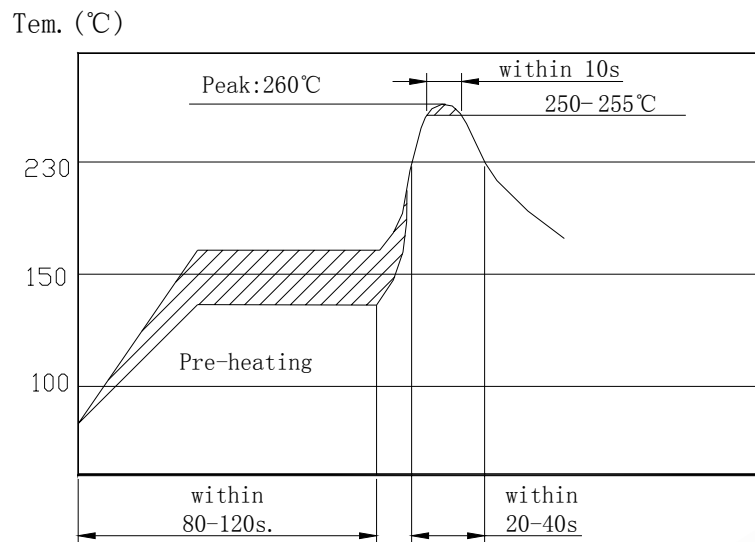
Item	Specification after test
Oscillation Frequency Change $\Delta F_{osc}/F_{osc}$ (%) max	$\pm 0.3$
Resonant Impedance ( $\Omega$ ) max	40
The limits in the above table are referenced to the initial measurements.	

## 7 RECOMMENDED LAND PATTERN AND REFLOW SOLDERING STANDARD CONDITIONS

### 7.1 Recommended land pattern



## 7.2 Recommended reflow soldering standard conditions



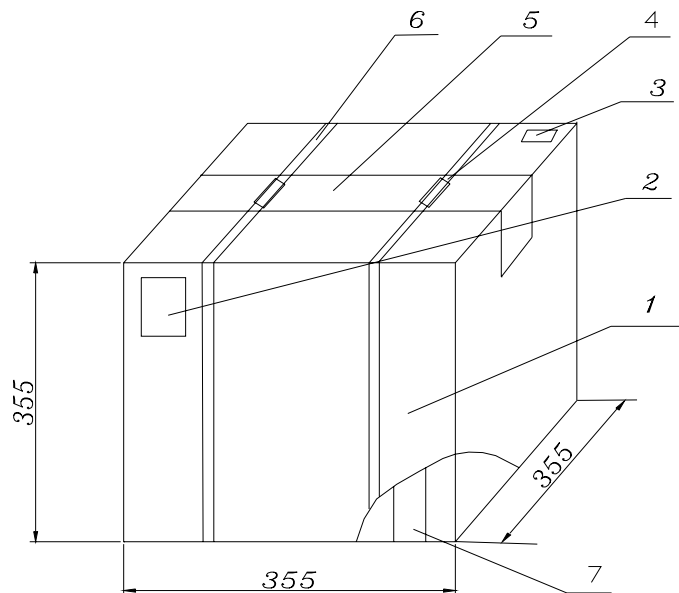
## 8 PACKAGE

To protect the products in storage and transportation, it is necessary to pack them (outer and inner package). On paper pack, the following requirements are requested.

### 8.1 Dimensions and Mark

At the end of package, the warning (moisture proof, upward put) should be stick to it.

Dimensions and Mark (see below)



NO.	Name	Quantity	Notes
1	Package	1	
2	Certificate of approval	1	
3	Label	1	
4	Tying	2	
5	Adhesive tape	1.2m	
6	Belt	2.9m	
7	Inner Box	10	

## 8.2 Section of package

Package is made of corrugated paper with thickness of 0.8cm. Package has 10 inner boxes, each box has 1 reel (each reel for plastic bag)

## 8.3 Quantity of package

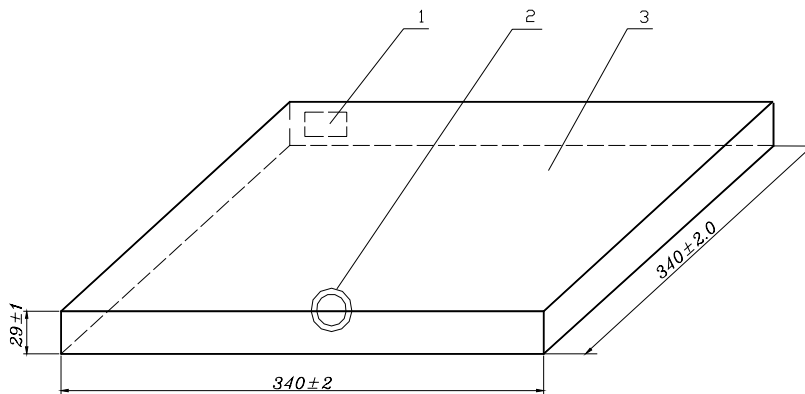
Per plastic reel                      4000 pieces of piezoelectric ceramic part

Per inner box                            1 reel

Per package                            10 inner boxes

(40000 pieces of piezoelectric ceramic part )

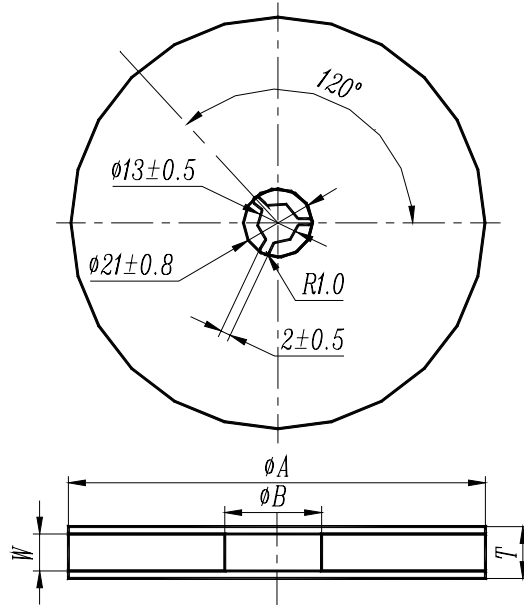
## 8.4 Inner Packing Dimensions



1	Label
2	QC Label
3	Inner Box

Pars shall be packaged in box with hold down tape upside. Part No., quantity and lot No.

## 8.5 Reel

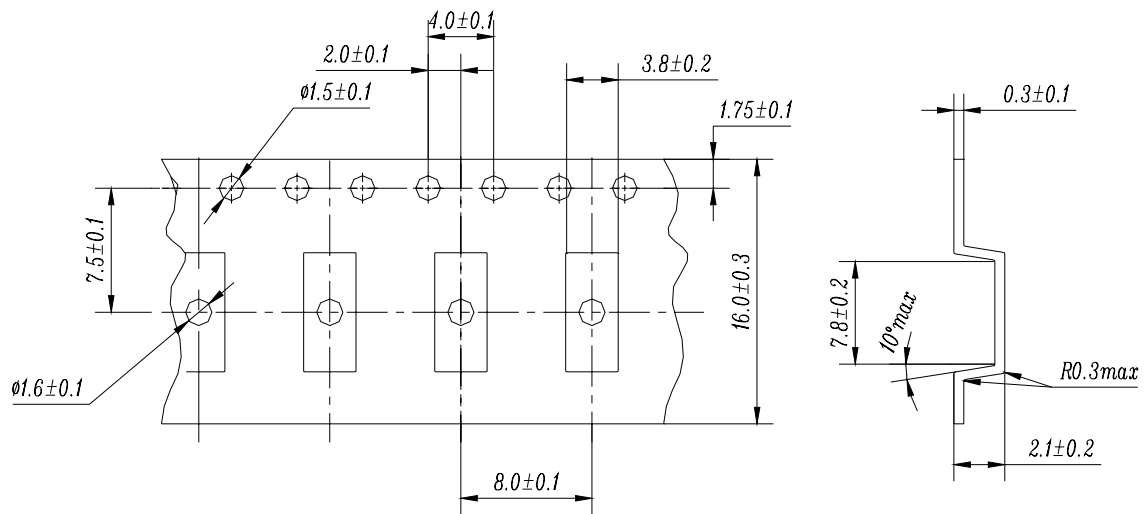


Dimensions

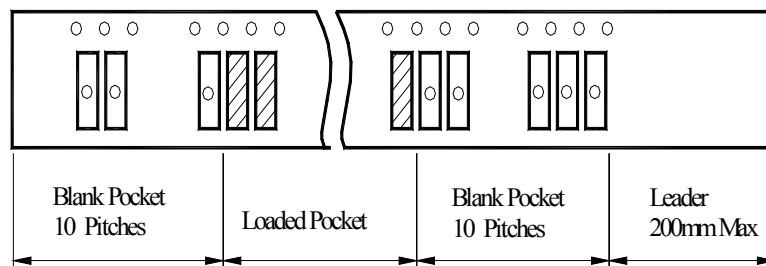
Unit: mm

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

### 8.6 Taping Dimensions

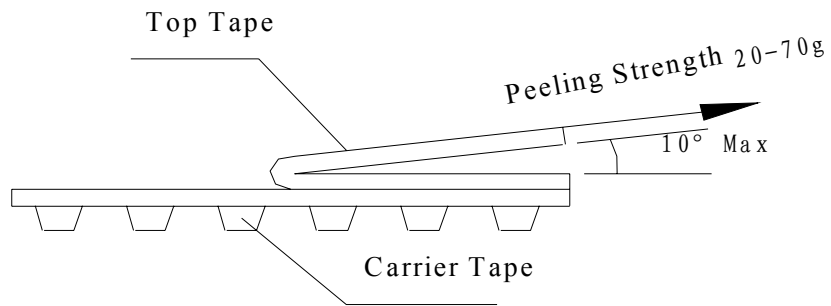


### 8.7 Packing Method Sketch Map





## 8.8 Test Condition Of Peeling Strength



## 9 OTHER

### 9.1 Caution of use

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

9.1.2 The component may be damaged when an excess stress will be applied.

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

### 9.2 Notice

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

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