

SPEC NO.: 181119

# Specification

TO:STE  
Model Name: Ceramic Resonator  
PART NO: ZTTWS6.00MG  
CUSTOMER PART NO.:

Approval sheet:



Approved	Yes
	No.
Customer's comments are welcomed here.	
Please return this copy as a certificate of your approval by Email.	
Approved By	Date: _____

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## History Record

Date	Part No.	SPEC No.	Description.	Remarks.
				
ISO9001:2000	ISO14001:2004	<b>Approved by</b> <b>Nov-17-2017</b>	<b>Check by</b> <b>NOV-17-2017</b>	<b>Design by</b> <b>NOV-17-2017</b>
<b>Reversions</b>	<b>Total Page</b>	<i>Xu gang dong</i>	<i>Liu jun</i>	<i>Wang kon</i>

1. SCOPE

This specification shall cover the characteristics of the ceramic resonator with the type ZTTWS6.00MG

2. PART NO:

PART NUMBER	CUSTOMER PART NO	SPECIFICATION NO
ZTTWS6.00MG		

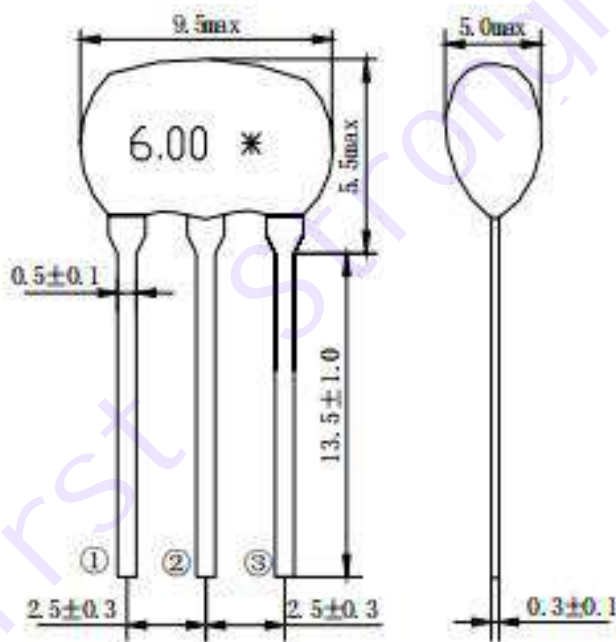
3. OUTLINE DRAWING AND STRUCTURE

3.1 Appearance: No visible damage and dirt.

3.2 Construction: Leads are soldered on electrode and body is molded by resin.

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

3.4 Dimension



- ① Input
- ② Ground
- ③ Output
- \* EIAJ MONTHLY CODE

**4 RATING AND ELECTRICAL SPECIFICATIONS**

**4.1 RATING**

Items	Content
Withstanding Voltage (V)	50 (DC, 1min)
Insulation Resistance Ri, (MΩ) min.	100 (100V, 1min)
Operating Temperature Range (°C)	-20~+80
Storage Temperature Range (°C)	-40~+85

**4.2 ELECTRICAL SPECIFICATIONS**

Items	Content
Oscillation Frequency Fosc (MHz)	6.000
Frequency Accuracy (%)	±0.5
Resonant Impedance Ro (Ω) max.	30
Temperature Coefficient of Oscillation Frequency (%) max.	±0.3 (Oscillation Frequency drift, -25°C~+85°C)
Rating Voltage UR (V) max.	6V DC
	15Vp-p
Aging Rate (%) max.	±0.3 (For Ten Years)

**5 MEASUREMENT**

5.1 Measurement Conditions: Parts shall be measured under a condition (Temp.: 20±15°C, Humidity : 65±20% R.H.) unless the standard condition (Temp.: 25±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	Subject the resonator at +40°C ± 2°C and 90%-95% R.H. for 500h, resonator shall be measured after being placed in natural conditions for 1h.	It shall fulfill the specifications in Table 1.
6.2	High Temperature Exposure	Subject the resonator to +85°C ± 5°C for 500h, resonator shall be measured after being placed in natural conditions for 1hr.	It shall fulfill the specifications in Table 1.
6.3	Low Temperature Exposure	Subject the resonator to -25°C ± 5°C for 500h, resonator shall be measured after being placed in natural conditions for 1h.	It shall fulfill the specifications in Table 1.

6.4	Temperature Cycling	Subject the resonator to $-25^{\circ}\text{C}$ for 30 min. followed by a high temperature of $+85^{\circ}\text{C}$ for 30 min. Cycling shall be repeated 5 times. Resonator shall be measured after being placed in natural conditions for 1h.	It shall fulfill the specifications in Table 1.
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 10Hz-55Hz and then resonator shall be measured.	It shall fulfill the specifications in Table 1.
6.6	Mechanical Shock	Resonator shall be measured after 3 times' random dropping from the height of 100cm on concrete floor.	No visible damage and it shall fulfill the specifications in Table 1.
6.7	Resistance to Soldering Heat	Lead terminals are immersed up to 2 mm from resonator's body in soldering bath of $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for $5\text{s} \pm 1\text{s}$ and then resonator shall be measured after being placed in natural conditions for 1h	It shall fulfill the specifications in Table 1.
6.8	Solder ability	Lead terminals are immersed up to 2mm from resonator's body in soldering bath of $250^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for $2\text{s} \pm 0.5\text{s}$ .	More than 95% of the terminal surface of the resonator shall be covered with fresh solder.

**6 PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS**

6.9	Terminal Strength		
6.9.1	Terminal Pulling	Force of 5N is applied to each lead in axial direction for 10s±1s.	No visible damage and it shall fulfill the specifications in Table 1.
6.9.2	Terminal Bending	When force of 5N is applied to each lead in axial direction,the lead shall folded up 90° from the axial direction and folded back to the axial direction. The speed of folding shall be each 3s.	

Table 1

Item	Specification after test
Oscillation Frequency Change $\Delta f_{osc}/f_{osc}$ (%) max	±0.3 (Refer to the initial value)
Resonant Impedance $R_o$ (Ω) max	30

## 7 PACKAGE

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

### 7.1 Section of package

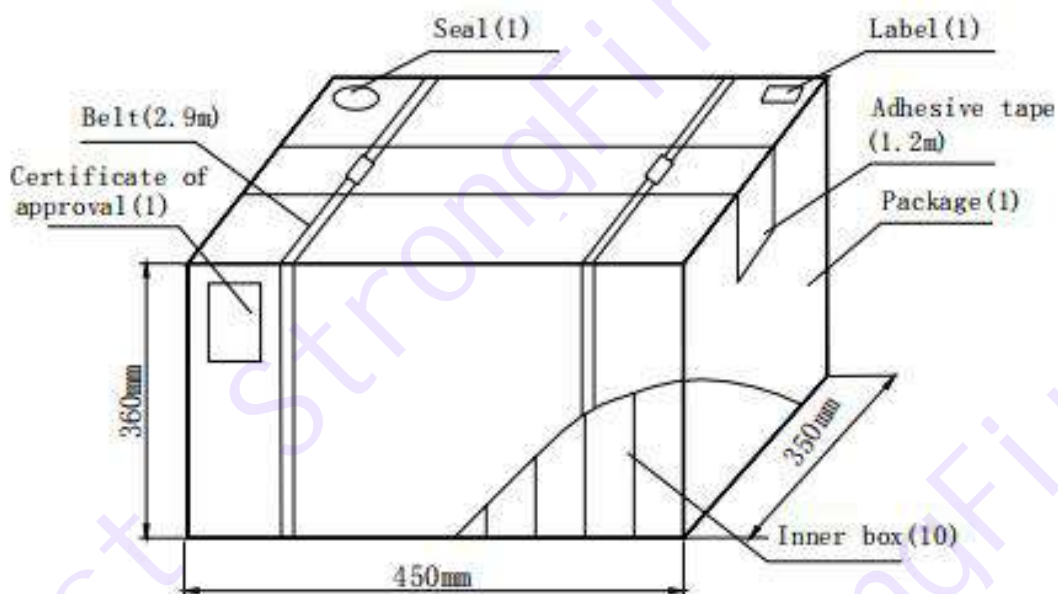
Package is made of corrugated paper with thickness of 0.8cm. Package has 10 inner boxes.

### 7.2 Quantity of package

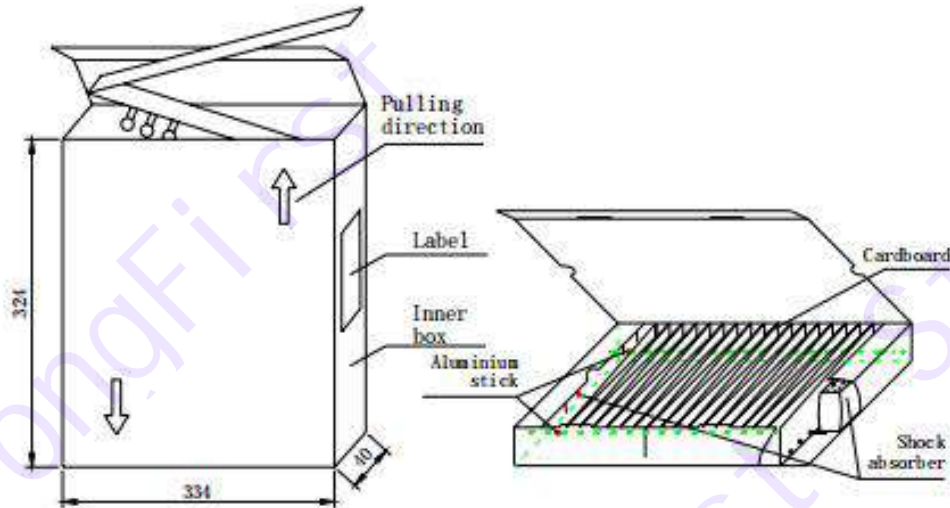
Per inner box      2000 pieces  
Per package        10 inner boxes  
(20000 pieces part)

### 7.3 Dimensions and mark of package

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



#### 7.4 Dimensions and mark of inner box



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

##### 7.4.1 Leader Tape

More than 300mm leader tape with no products shall be provided at both end of the tape.

##### 7.4.2 Packing Style:

Tape is folded at every 25 pitches in zigzag way, and contained in the box. Aluminum sticks are inserted the third hole from both edge of the tape. Those are used to keep steady state. Shock absorber shall be placed between products and box.

##### 7.4.3 Packing Quantity:

2000pcs are contained in box.

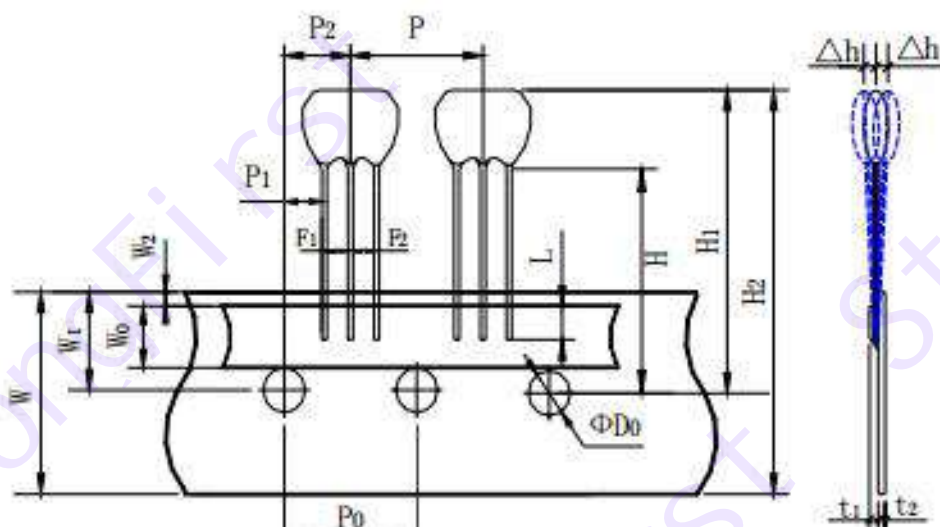
##### 7.4.4 Label:

The minimum packaging unit shall be one box. and each box shall have a label which shows part number, inspection number and the number of contents.



7.5 TAPING

7.5.1 Dimensions of taping:



MARK	SIZE(mm)
P	12.7±0.5
P <sub>0</sub>	12.7±0.2
P <sub>1</sub>	3.85±0.5
P <sub>2</sub>	6.35±1.30 (include the slant of product)
F <sub>1</sub>	2.5±0.3
F <sub>2</sub>	2.5±0.3
W <sub>0</sub>	5.5±0.5
W <sub>1</sub>	9.0±0.5
W <sub>2</sub> max.	1.0
W	18.0±0.5
H	18.0 <sup>+0.5</sup> <sub>-1.0</sub>
H <sub>1</sub>	27.0 max. (Varies with part number)
H <sub>2</sub>	36.0 max. (Varies with part number)
L min.	3.0
ΦD <sub>0</sub>	4.0±0.2
t <sub>1</sub>	0.6±0.2
t <sub>2</sub> max	1.5.
Δh max.	1.0

7.5.2 Stipulation of Products Alignment

7.5.2.1. Dropout of parts shall be confined to no more than 3 continuous parts.

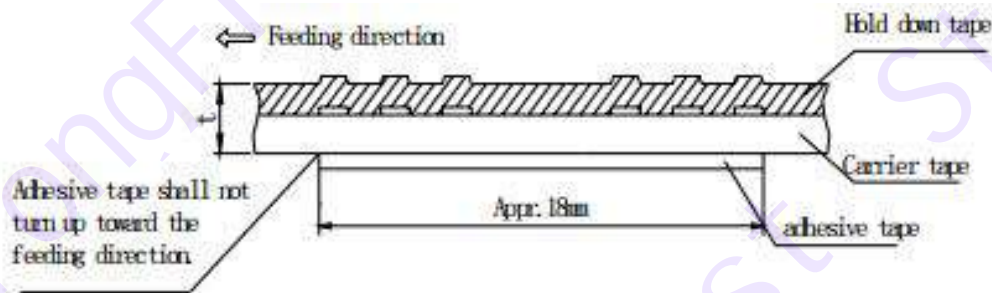
7.5.2.2. Dropout of parts on a reel shall be less than 0.25% of net quantity.

7.5.2.3. All products shall face their marking side toward the hold down tape.

(Upward in the figure below in this page)

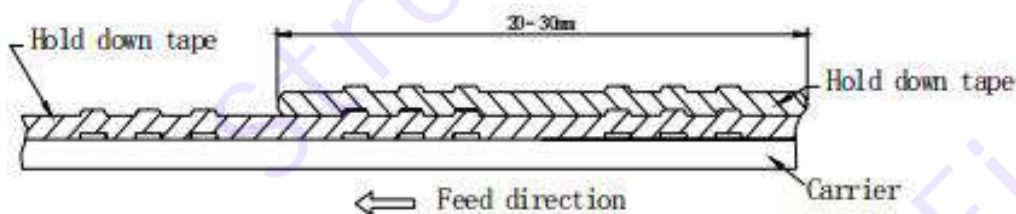
7.5.3 Tape Connection

7.5.3.1. in the case of a carrier tape running out



Connect the back face of tapes together with a adhesive tape.Total thickness of tape 1.05mm max.

7.5.3.2. In the case of a hold down tape running out



Overlap the hold down tape for connection.Total thickness of tape 1.05mm max.

7.5.3.3. In the case of connecting both carrier tape and hold down tape. Connect both carrier tape and hold down tape together with adhesive tape. Without pulling out the products.

## 8 EIAJ Monthly Code

2003 / 2005 / 2007 / 2009		2004 / 2006 / 2008 / 2010	
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

## 9 OTHER

## 9.1 Caution of use

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

9.1.2 Don't be close to fire

9.1.3 Don't apply excess mechanical stress to the component.

9.1.4 Don't bend terminals of the component

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

## 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.

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