



Customer	WTL
	Approved by: XoXo Lee
	Checked by: Susan He
	Issued by: Sheryl Xia

SPECIFICATION

WTL International Limited

P/N: WTL6R11018
Ceramic Resonator 3.7*3.1mm



1. SCOPE

This specification shall cover the characteristics of the ceramic resonator with the type WTL6R11018

2. Part NO.

WTL6R11018

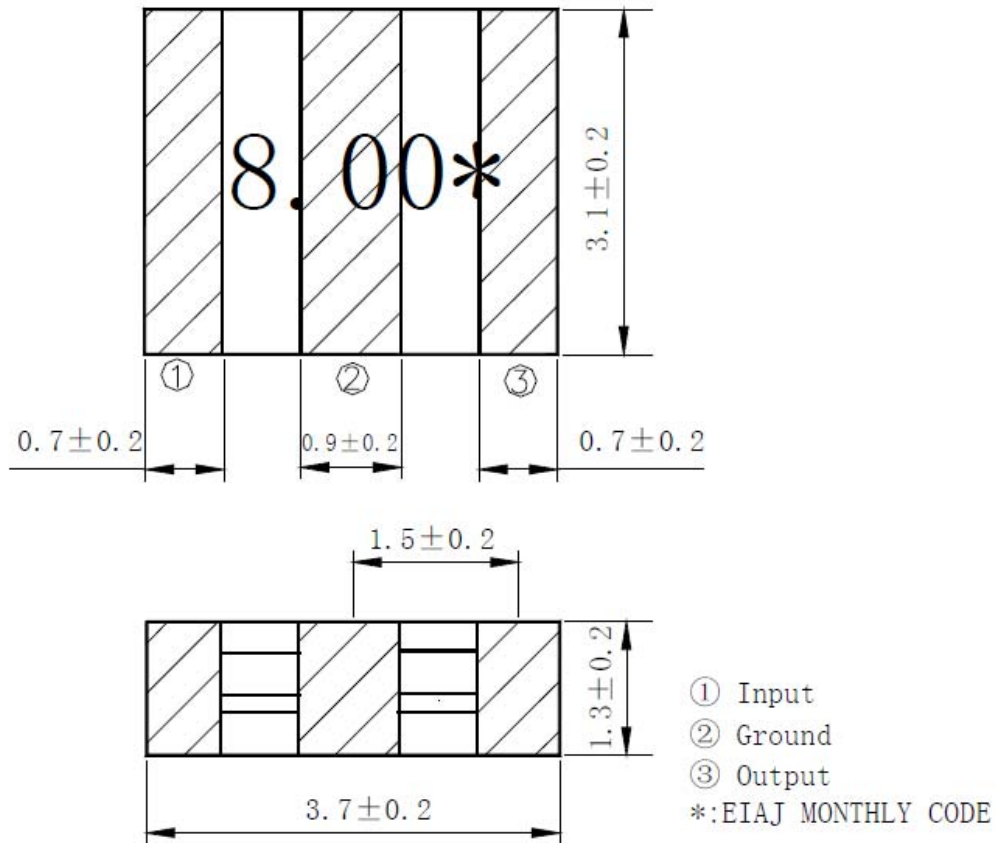
3. Outline Dimensions and mark

3.1 Appearance: No visible damage and dirt.

3.2 Construction: SMD ceramic package.

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)	50 (DC, 1min)
Insulation Resistance R_i (M Ω) min.	500 (10V, 1min)
Operating temperature	-25 $^{\circ}$ C ~ 85 $^{\circ}$ C
Storage temperature	-55 $^{\circ}$ C ~ 85 $^{\circ}$ C
Rating Voltage U_R (V)	6V DC
	15V p-p

4.2 ELECTRICAL SPECIFICATIONS

Items	Requirement
Oscillation Frequency F_{osc} (MHz)	8.000
Frequency Accuracy (%)	± 0.5
Resonant Impedance R_o (Ω) max.	30
Temperature Coefficient of Oscillation Frequency (%) max.	± 0.3 (Oscillation Frequency drift, -25 $^{\circ}$ C ~ +85 $^{\circ}$ C)
Oscillation Frequency Aging Rate (10years) (%) max *	± 0.3 (From initial value)

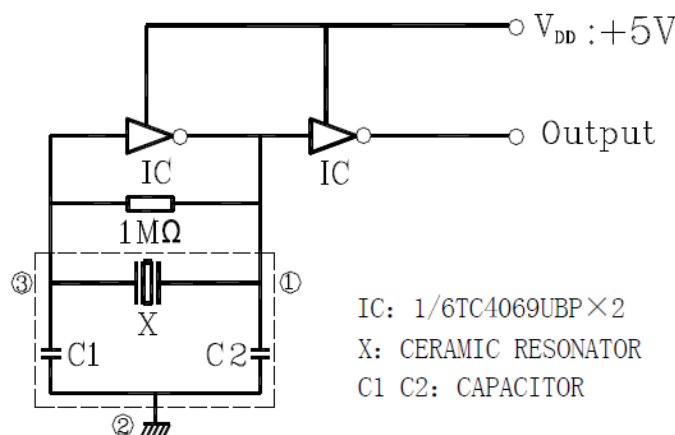
* Components shall be left in a chamber of +85 \pm 2 $^{\circ}$ C for 1000 hours, then measured after leaving in natural condition for 1 hour.

5. TEST

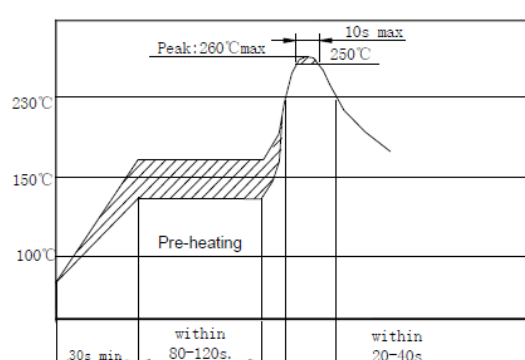
5.1 Test Conditions

Parts shall be tested under the condition (Temp.: 20 \pm 15 $^{\circ}$ C, Humidity : 65 \pm 20% R.H.) unless the standard condition (Temp.: 25 \pm 2 $^{\circ}$ C, Humidity : 65 \pm 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. 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°C±2°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 -55°C±2°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.	
		Temperature		Time
		-25 ± 3°C		30 ± 3 min
		85 ± 3°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	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.	
		 <p>The graph shows a temperature profile for a soldering test. The y-axis represents temperature in degrees Celsius, with markers at 100°C, 150°C, and 230°C. The x-axis represents time. The profile starts with a pre-heating phase from 100°C to 150°C, labeled 'Pre-heating' with a duration of '30s min'. This is followed by a ramp up to a peak of 260°C, labeled 'Peak: 260°Cmax'. The time to reach the peak is 'within 80-120s'. At the peak, there is a dwell time of '10s max'. The temperature then drops to 250°C, labeled '250°C', and continues to cool. The cooling phase is labeled 'within 20-10s'.</p>		

(To be continued)

6 PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

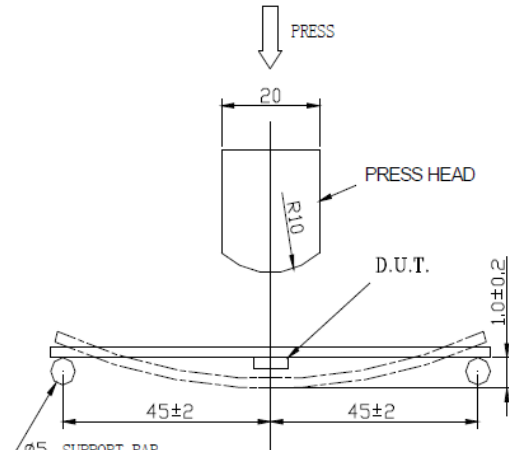
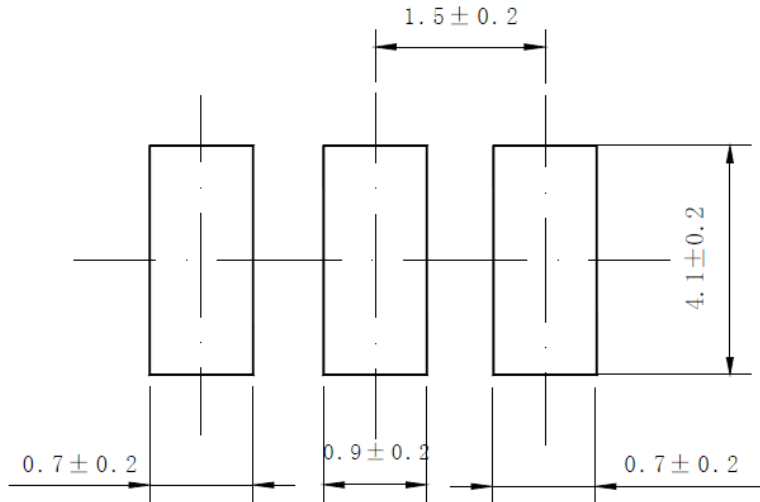
No	Item	Condition of Test	Performance Requirements
6.8	Solder Ability	Dipped in 245 °C ±5 °C solder bath for 3s±0.5 s with rosin flux (25wt% ethanol solution.)	The terminals shall be at least 95% covered by solder.
6.9	Board Bending	<p>Mount a glass-epoxy board (Width=40mm,thickness=1.6mm),then bend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

Table 1

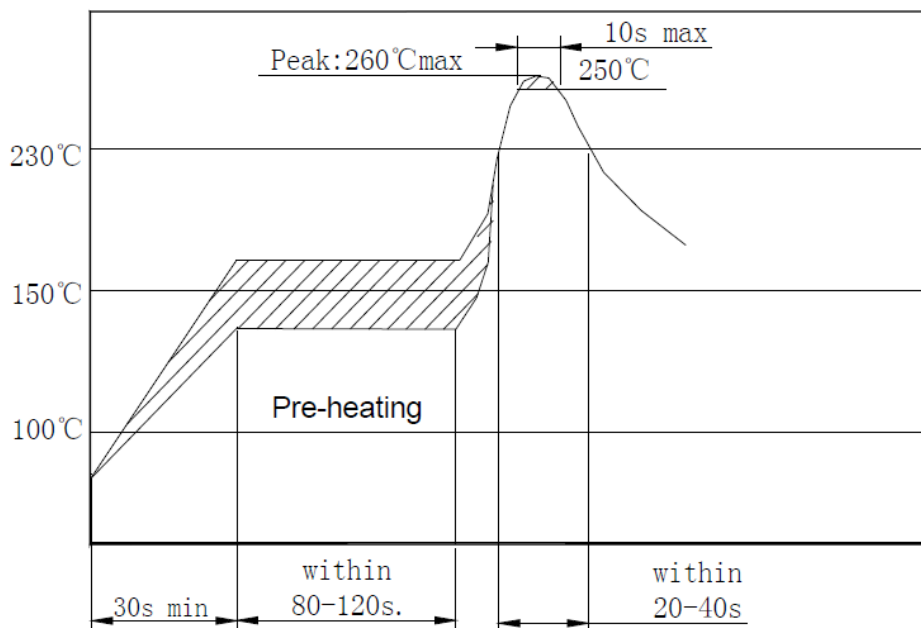
Item	Specification after test
Oscillation Frequency Change $\Delta f_{osc}/f_{osc}$ (%) max.	±0.3
Resonant Impedance R_o (Ω) max.	35
The limits in the above table are referenced to the initial measurements.	

7 RECOMMENDED LAND PATTERN AND REFLOW SOLDERING STANDARD CONDITIONS

7.1 Recommended land pattern



7.2 Recommended reflow soldering standard conditions

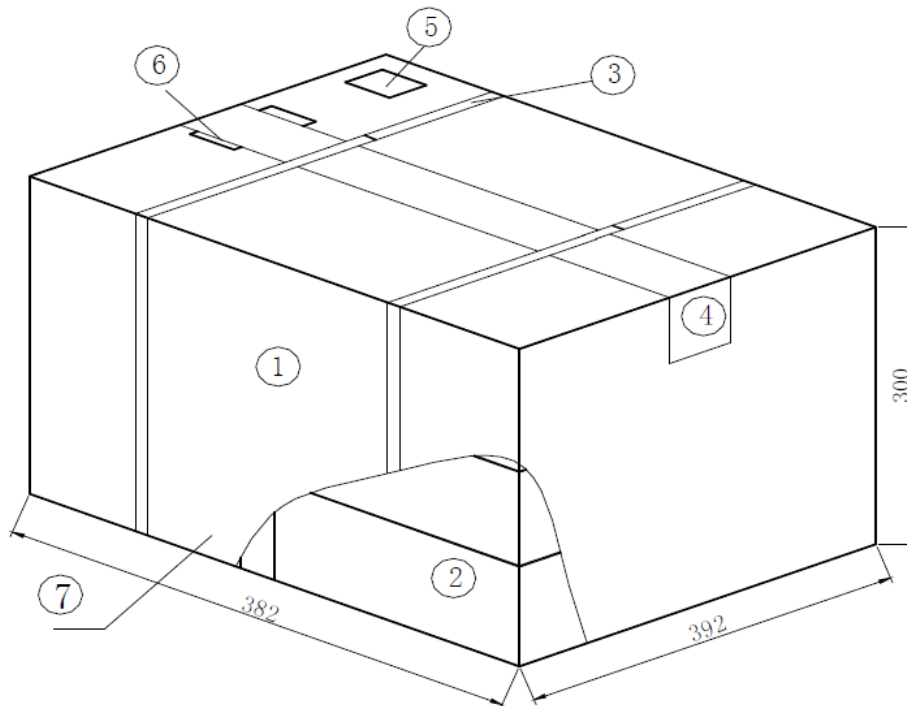


8. PACKAGE

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 Dimensions and Mark



NO.	Name	Quantity
①	Package	1
②	Inner Box	12
③	Belt	2.9 m
④	Adhesive tape	1.2 m
⑤	Label	1
⑥	Certificate of approval	1
⑦	Company name ,Address etc.	

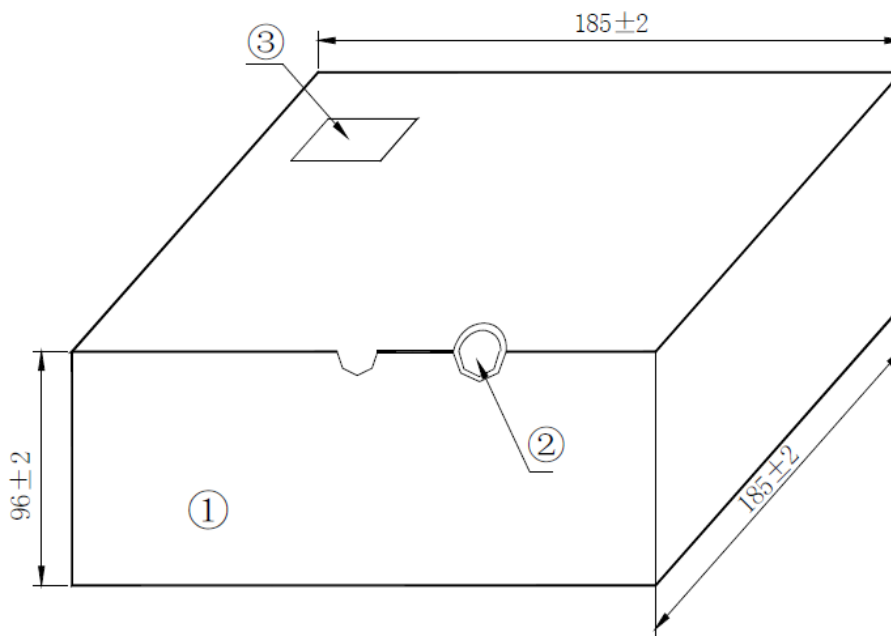
8.1.2 Section of package

Package is made of corrugated paper with thickness of 0.8cm. Package has 12 inner boxes, each box has 5 reels(each reel for plastic bag)

8.1.3 Quantity of package

- Per plastic reel 1000 pieces of piezoelectric ceramic part
- Per inner box 5 reels
- Per package 12 inner boxes
- (60000 pieces of piezoelectric ceramic part)

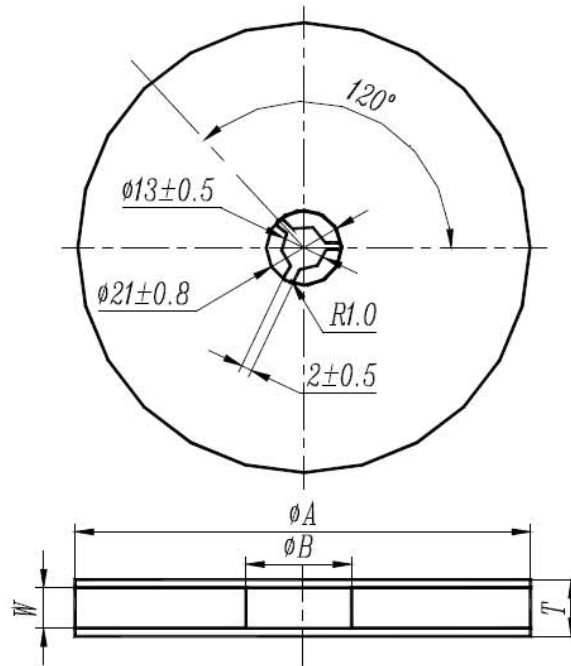
8.1.4 Inner Box Dimensions



NO.	Name	Quantity
①	Inner Box	1
②	QC Label	1
③	Label	1

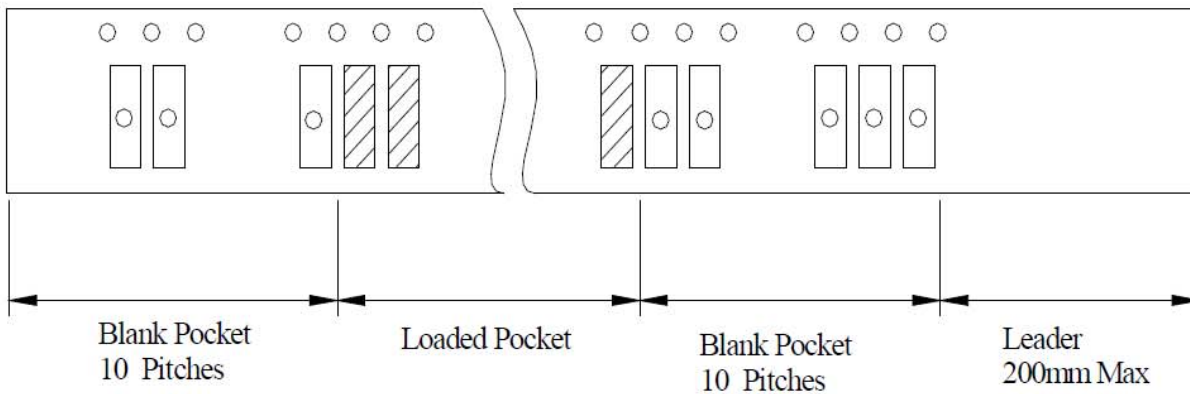
8.2 On reel pack, the following requirements are requested.

8.2.1 Reel Dimensions



ϕA	ϕB	W	T	Pieces per reel	Carrier tape size
180 ± 3	60min	12.4min	19.4max	1000typ.	12

8.2.3 Packing Method Sketch Map



8.2.4 Test Condition Of Peeling Strength

