

深圳市维拓精电科技有限公司

WTL International Limited

APPROVAL SHEET

DESCRIPTION :	7.2*3.0mm Ceramic Resonator			
NOMINAL FREQ.:	3.580MHz			
WTL P/N:	WTL6R35082PZ			
VERSION:	1			
DATE:	2019.07.17			
Customer	Customer P/N			
MICROS sp.j.	/			
Customer Signature	WTL			
	Approved by: <i>Kavin Liu</i>			
	Checked by: <i>Shu Ping</i>			
	Issued by: <i>Shengbiao</i>			
REVISION HISTORY				
Revised	Revision	Date	Ref. No.	Reviser



1. SCOPE

This specification shall cover the characteristics of the ceramic resonator with the type WTL6R35082PZ.

2. PART NO : WTL6R35082PZ

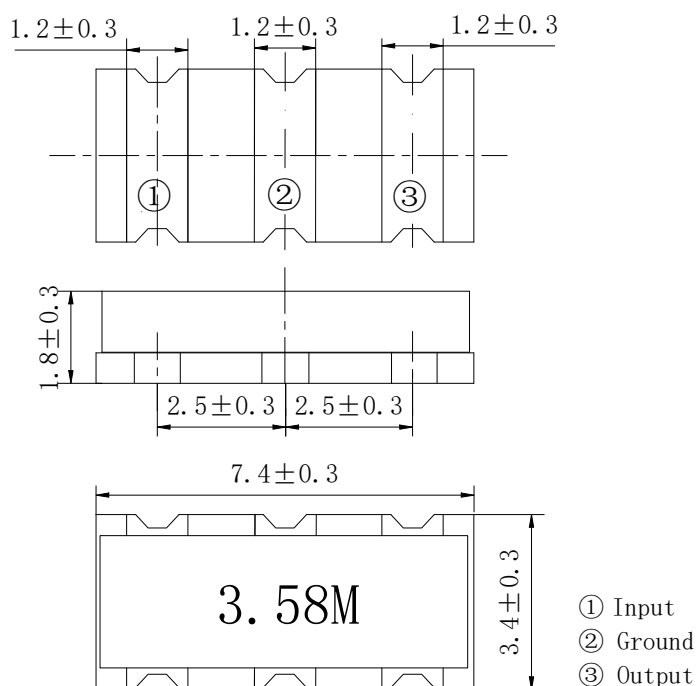
3. OUTLINE DIMENSIONS AND MARK

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)	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

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Rating Voltage U_R (V)	6V DC
	15V p-p

4.2 ELECTRICAL SPECIFICATIONS

Items	Requirement
Oscillation Frequency F_{osc} (MHz)	3.580
Frequency Accuracy (%)	± 0.5
Resonant Impedance R_o (Ω) max.	30
Temperature Coefficient of Oscillation Frequency (%) max.	± 0.3 (Oscillation Frequency drift, $-25^\circ\text{C} \sim +85^\circ\text{C}$)
Oscillation Frequency Aging Rate (10years) (%) max	± 0.3 (From initial value)

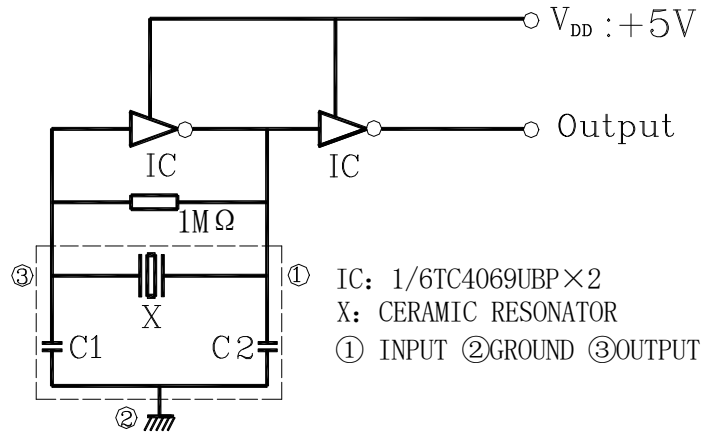
* Components shall be left in a chamber of $+85 \pm 2^\circ\text{C}$ for 1000 hours, then measured after leaving in natural condition for 1 hour.

5. TEST

5.1 Test Conditions

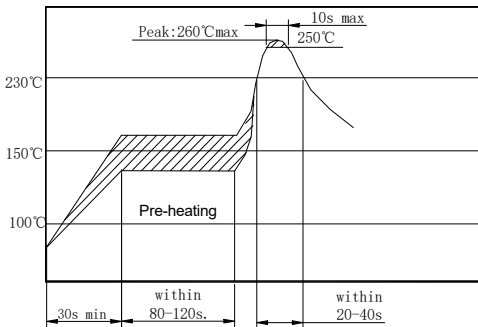
Parts shall be tested under the condition (Temp.: $20 \pm 15^\circ\text{C}$, Humidity : $65 \pm 20\%$ R.H.) unless the standard condition (Temp.: $25 \pm 3^\circ\text{C}$, Humidity : $65 \pm 10\%$ R.H.) is regulated to measure.

5.2 Test Circuit



6 PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

No	Item	Condition of Test	Performance Requirements
6.1	Humidity	Keep the resonator at $40^\circ\text{C} \pm 2^\circ\text{C}$ 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	Subject the resonator to $85^\circ\text{C} \pm 2^\circ\text{C}$ for 96h, then release the resonator into the room	It shall fulfill the

	Exposure	conditions for 1h prior to the measurement.	specifications in Table 1.	
6.3	Low Temperature Exposure	Subject the resonator to $-55^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 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.	
		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	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, 150, and 230. The x-axis represents time. The profile starts at 100°C, rises to a peak of 260°C (labeled 'Peak: 260°C max'), and then cools. A 'Pre-heating' phase is indicated with a hatched area. Time constraints are shown: '30s min' for the initial rise, 'within 80-120s.' for the pre-heating phase, and 'within 20-40s' for the cooling phase. A '10s max' constraint is also shown for the cooling phase near the 250°C mark.</p>		

(To be continued)

6 PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

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 $3s \pm 0.5$ s with rosin flux (25wt% ethanol solution.)	The terminals shall be at least 95% covered by solder.
6.9	Board Bending	Mount a glass-epoxy board (Width=40mm, thickness=1.6mm), then	Mechanical damage such as

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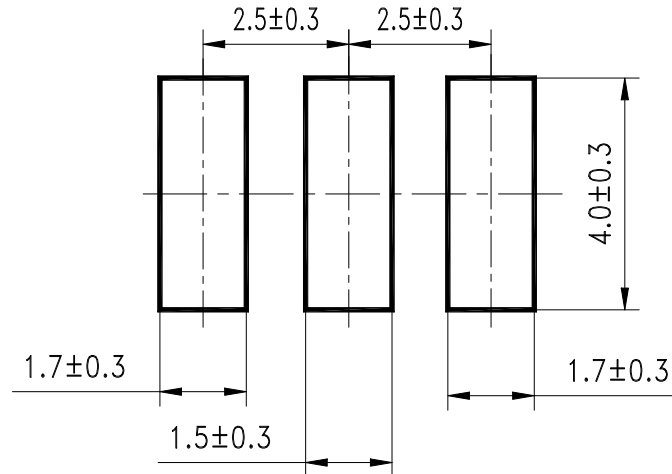
		<p>bend it to 1mm displacement and keep it for 5s. (See the following figure)</p>	<p>breaks shall not occur.</p>
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Table 1

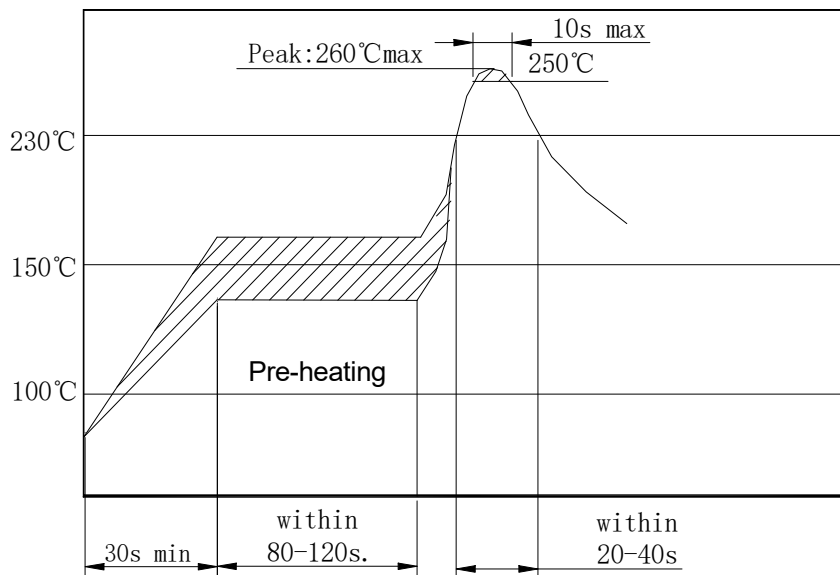
Item	Specification after test
Oscillation Frequency Change $\Delta F_{osc}/F_{osc}$ (%) max	±0.3
Resonant Impedance (Ω) max	35
The limits in the above table are referenced to the initial measurements.	

7 RECOMMENDED LAND PATTERN AND REFLOW SOLDERING STANDARD CONDITIONS

7.1 Recommended land pattern



7.2 Recommended reflow soldering standard conditions

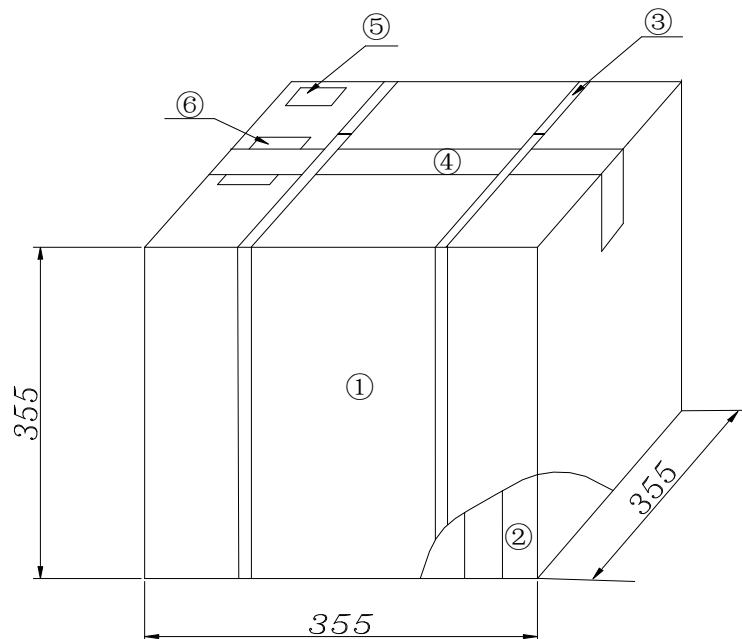


8. PACKAGE

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 10 inner

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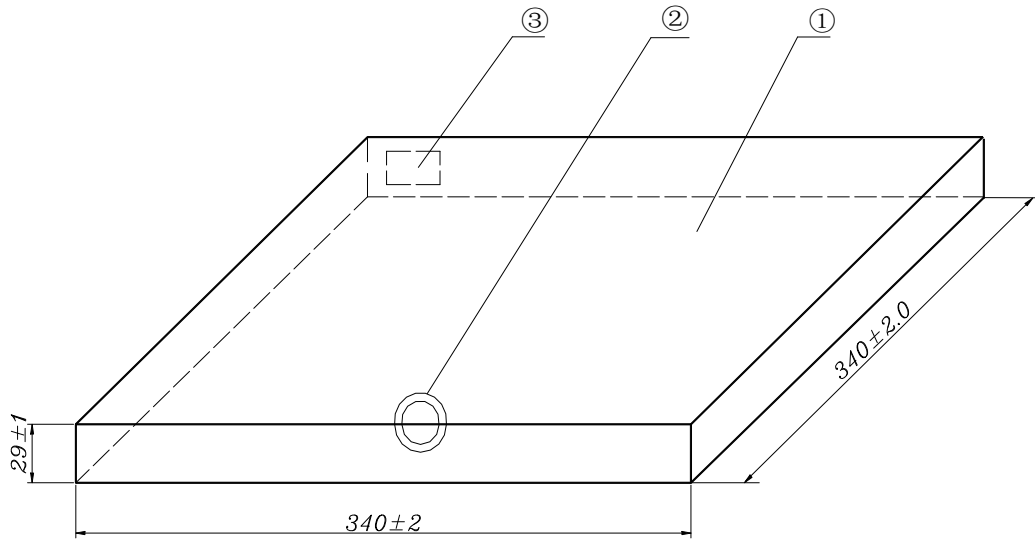


boxes, each box has 1 reel(each reel for plastic bag)

8.1.3 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)

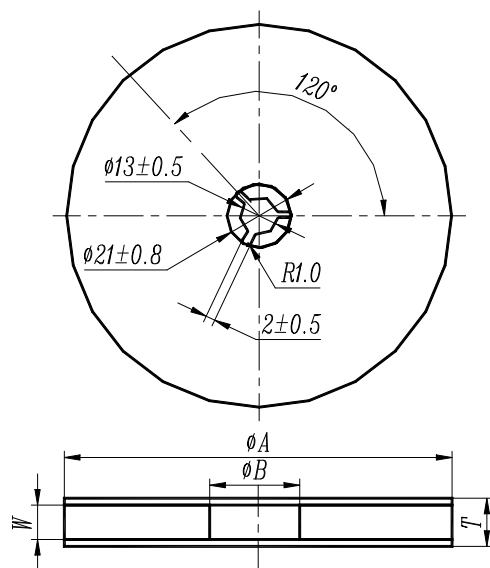
8.1.4 Inner Box Dimensions



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

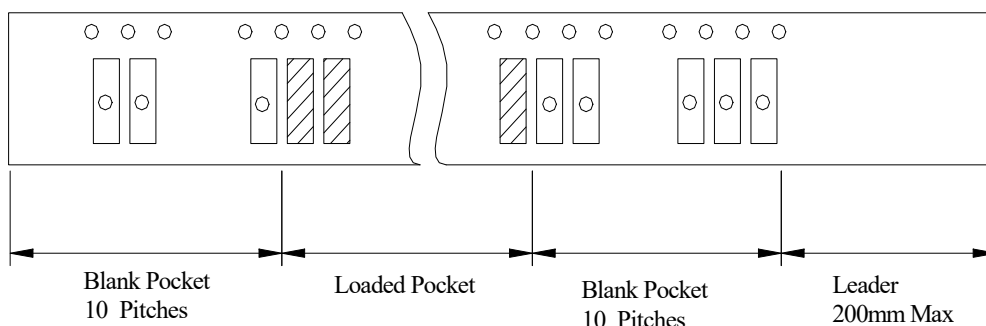
8.2 On reel pack, the following requirements are requested.

8.2.1 Reel Dimensions

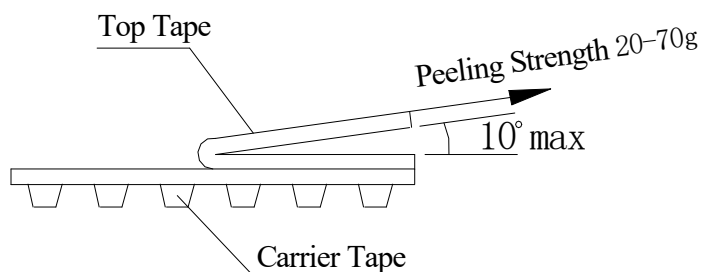


ϕA	ϕB	W	T	Pieces per reel	Carrier tape size
330 ± 3	80mm	16.4mm	22.4max	4000typ.	16

8.2.3 Packing Method Sketch Map



8.2.4 Test Condition Of Peeling Strength



9. OTHER

9.1 Caution

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

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

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

9.1.4 Don't be close to fire.

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

9.1.6 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 solder ability and characteristics for the products regularly.

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

9.2 Notice

9.2.1 Please return one of these specifications after your signature of acceptance.

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

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10.WTL PARTd NUMBER SYSTEM :

For example: WTL6R25835CH

[Instructions: for project management, WTL will trace back the part number to developer wherever it goes]

WTL - 6R - 25835 - CH

WTL: Brand

6R : Package Code

25835: Serial number , flow code , without any rules

CH: WTL Developer Code, for example: VH,CH,PZ,RZ,ML