深圳市维拓精电科技有限公司
WTL International Limited

APPROVAL SHEET

DESCRIPTION :	3.2*1.5mm 2 Pads SMD Tuning Fork Crystal
NOMINAL FREQ.:	32.768kHz
WTL P/N:	WTL1X80739BEL
VERSION:	1
DATE:	2026.2.12
Customer	Customer P/N
TME	/
Customer Signature	**WTL**
	Approved by: Kavin Liu
	Checked by: Shu Ping
	Issued by: Sheny Xia

REVISION HISTORY

Revised Page	Revision Content	Date	Ref. No.	Reviser

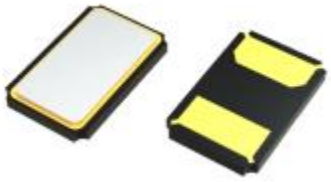
CONTENT CATALOG

Attachment(s):

- ■ 1.Product Specification Sheet
- ☐ 2.Electrical Testing Report
- ☐ 3.Reliability Report
- ☐ 4.ICP Test Report

FEATURE

- Ultra small size 3.2×1.5×0.75 mm
- High reliability environmental performance
- High frequency stability and high precision
- Designed for automatic mounting and reflow soldering
- RoHS Compliant / Pb Free

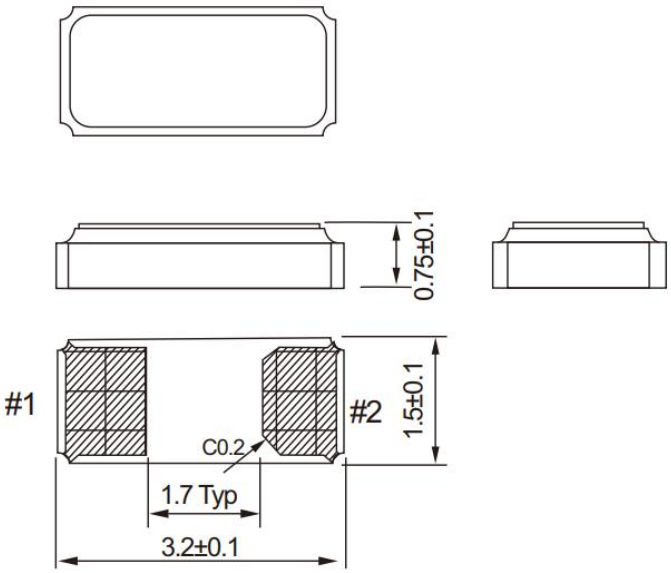


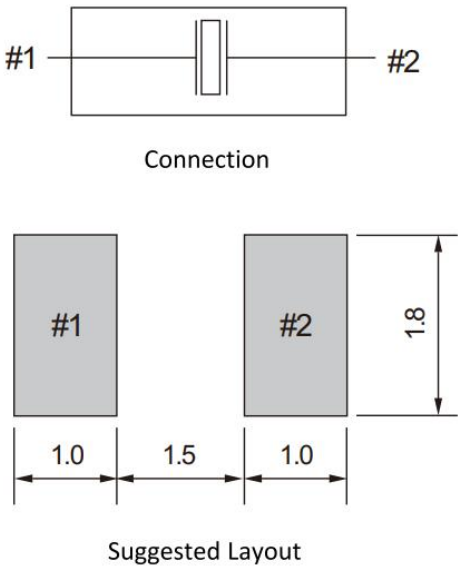
1、ELECTRICAL SPECIFICATIONS

Hold Style	3.2X1.5MM SMD TUNING FORK CRYSTAL
Nominal Frequency	32.768kHz
Frequency Tolerance (at 25°C)	±20ppm
ESR	70Kohm Max
Turnover Temperature	25 ± 5°C
Frequency Temperature Curve	-0.03(±0.01)ppm/℃2
Operating Temperature Range	-40 °C to + 85 °C
Storage Temperature Range	-55 °C to +125 °C
Shunt Capacitance (C_0)	1.1pF Typ.
Dynamic Capacitance (C1)	4.1fF Typ.
Driver Level (Typical)	0.1μW
Driver Level(Max)	0.5μW
Load Capacitance(C_L)	12.5pF
Insulation Resistance	More than 500Mohms at DC100V
Aging @25°C 1st year (Max)	±3ppm/year

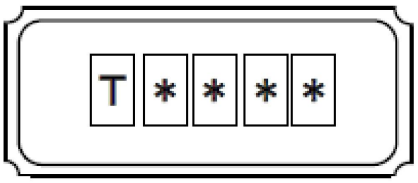
REMARK: SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE. PLEASE CONFIRM WITH OUR SALES ENGINEER.

2、DIMENSIONS (Unit: mm)





3、MARKING



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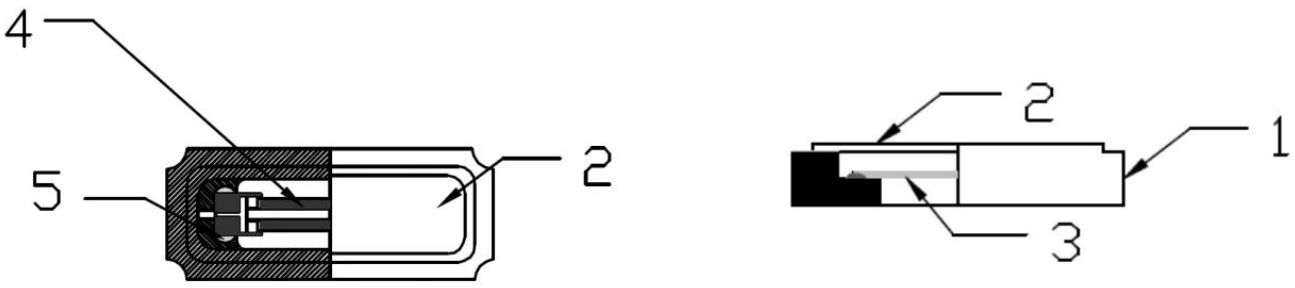
*1 *2 *3 *4 *5

*1 Product name
*2 Year of Production(Last digit of year)
*3 ,4 Week of Production(01～ 52)
*5 CL
#CL : A :12.5pF B:9pF C:7pF D:6pF

Marking Instruction：

The date code was marked on the crystal body, which will be easily traced back in case of quality issue.

4. STRUCTURE ILLUSTRATION



NO	COMPONENT	MATERIALS	OTY	SURFACE
1	Package	Ceramic(Al2O3)	1	Au+NI plated
2	Lid	KOVAR(Fe/Co/Ni)	1	Ni plated
3	Crystal blank	SiO2	1	
4	Electrode	Au+Ag	2	
5	Adhesive	Resin+Ag	2	

5. SUBSTANCES IN PRODUCT

COMPONENT	Harmful substance content statement					
	Pb	Hg	Cd	Cr(VI)	PBB	PBDE
Package	ND	ND	ND	ND	ND	ND
Lid	ND	ND	ND	ND	ND	ND
Crystal blank	ND	ND	ND	ND	ND	ND
Electrode	ND	ND	ND	ND	ND	ND
Adhesive	ND	ND	ND	ND	ND	ND

All the products we provide meet the requirements of RoHS and Reach regulations, and we send SGS for ICP test every year.

6. RELIABILITY SPECIFICATIONS

Item	Conditions	Result
Low Temp. Storage	After storage under -40 ℃ for 1000 hours, measure at room temperature. (*1 *3)	Δf/f0 = ±10ppm
High Temp. Storage	After storage under 125 ℃ for 1000 hours, measure at room temperature. (*1 *3)	Δf/f0 = ±20ppm
High Temp & Humidity	After storage under +85±2℃ , 85 % RH for 1000h, measure at room temperature. (*1 *3)	Δf/f0 = ±20ppm
Thermal Shock	Measure at room temperature after 100 cycles. -55℃ ⇔ +125℃ for 30 minutes. (*1 *3)	Δf/f0 = ±10ppm
FREE FALL	Free dropping from 100 cm height 3 times on a hard (*1)	Δf/f0 = ±20ppm
FINE LEAK	Helium bombing 5.0～5.5 Kgf / cm^2,FOR 2 hours.	<1*1E-9 Pa·m^3/sec
Solder ability	The lead is immersed in a 260 ± 5 ℃ solder bath within 2 ± 0.6 seconds.	>95%
Vibration Test	Amplitude 1.5mm and 10～60Hz with cycle time 2～3 minutes in 3 direction (X,Y,and Z axis) each for 2 h. (*2)	Δf/f0 = ±10ppm
Shear strength	Pressuring force 10N×10±1sec. according to IEC60068-2-21 (*2)	No peeling-off
Peel strength	Pressuring force 10N×10±1sec. according to IEC60068-2-21 (*2)	No peeling-off
Bending test	Bending: 3mm×5±1sec. Thickness of the testing board: 1mm (*2)	No peeling-off

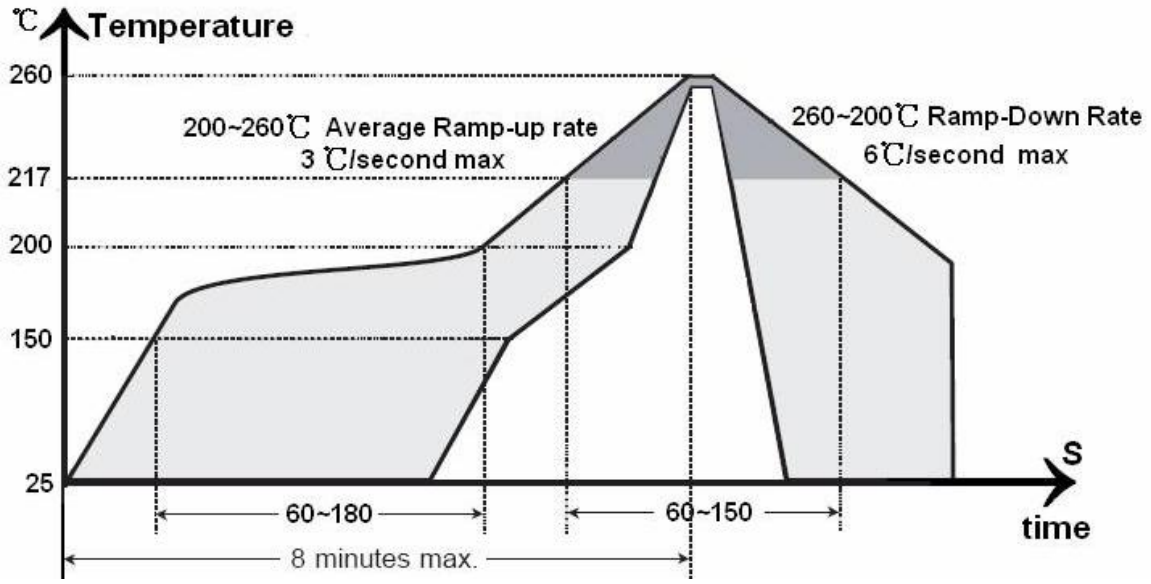
1. Each test shall be done independently. (not in series tests)
2. *1: Measure after 24 hours left at room temperature.
3. *2: Measure after 2 hours left at room temperature.
4. *3: Pre conditions

(1) IR Reflow : 2 times

(2) Initial values shall be measured after 24 hours at room temperature.

5. Shift in series resistance after the above tests shall be less than ±20% or less than ±15kΩ. In case of resistance to IR reflow and high temperature storage(±125℃ for 1000 hours), shift in series resistance after the above tests shall be less than ±30% or ±20kΩ.

7. SUGGESTED REFLOW PROFILE



Peak temperature. 260°C ± 5 °C (10sec. max.) Reflow is permitted 2 times

8. CAUTION

8.1 Ultrasonic cleaning

General cleaning solutions or ultrasonic cleaning method may be used to clean our products. However, under certain circumstances, ultrasonic cleaning machine could generate resonance at the oscillation frequency of our products and thus deteriorate the electrical characteristics in devices, and even damage the overall structure of devices. Therefore, verification test is recommended before cleaning.

8.2 Ultrasonic welding

Avoid mounting and processing by Ultrasonic welding this method has a possibility of an excessive vibration spreading inside the crystal products and becoming the cause of characteristic deterioration and not oscillating.

8.3 Storage temperature description

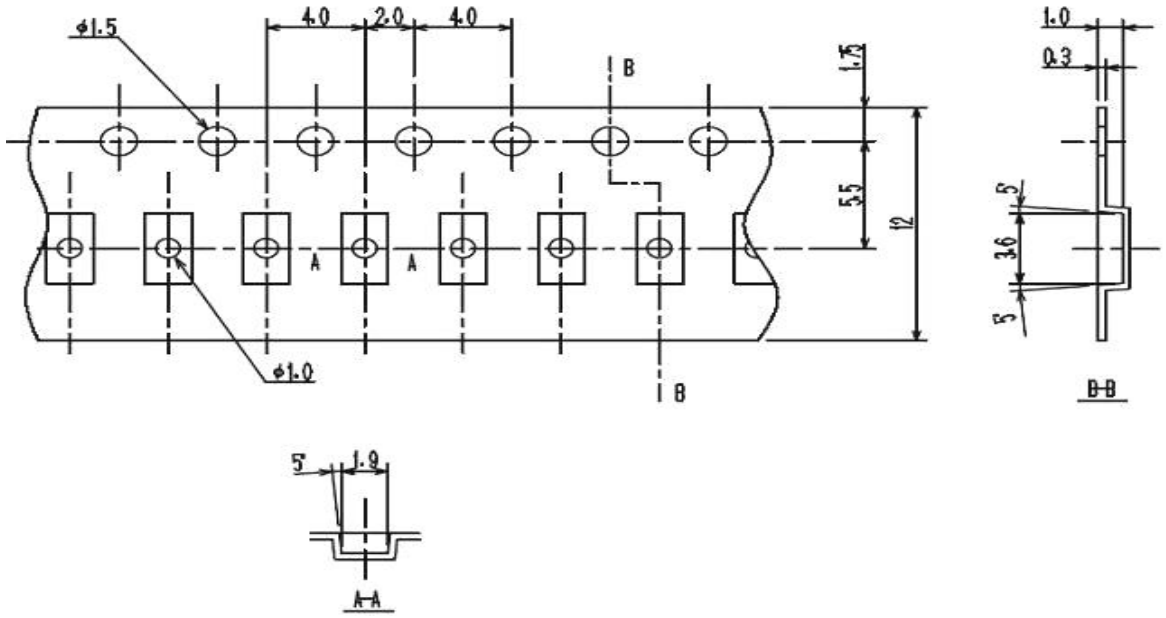
Storage Temperature is only for the product itself, the temperature for the packing material is 5℃ ~40℃.

8.4 Recommended conditions for manual welding

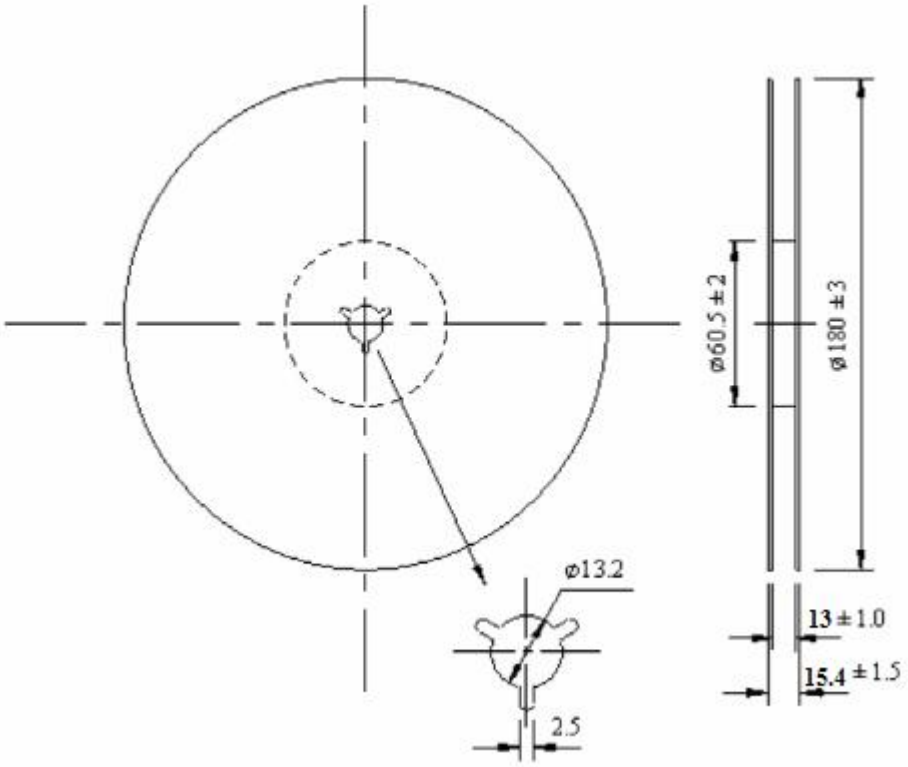
Max .Temperature: 350 ±10 ℃, Time: 3 sec max, Re-solder times: twice max.

9. PACKING SPECIFICATIONS (Unit: mm)

TAPE SPECIFICATION:



OUTLINE DIMENSION:



Q'ty: 3000pcs/Reel

10. WTL PART NUMBER SYSTEM :

For example: WTL1X80739BEL
[Instructions: for project management, WTL will trace back the part number to developer wherever it goes]

WTL - 1X - 80739B - EL

WTL: Brand

1X : Package Code

80739B: Serial number , flow code , without any rules

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