



TAI-SAW TECHNOLOGY CO., LTD.

No. 3, Industrial 2nd Rd., Ping-Chen Industrial District,
Taoyuan, 324, Taiwan, R.O.C.

TEL: 886-3-4690038 FAX: 886-3-4697532

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Product Specifications Approval Sheet

Product Description: Tuning Fork Crystal Unit 3.2x1.5 32.768KHz

TST Part No.: TZ1006A

Customer Part No.: _____

Customer signature required
Company: _____
Division: _____
Approved by : _____
Date: _____

Checked by: _____ Yifan Chen *Yifan*

Approved by: _____ Kelly Huang *Kelly Huang*

Date: _____ 11/17/2017

1. Customer signed back is required before TST can proceed with sample build and receive orders.
2. Orders received without customer signed back will be regarded as agreement on the specifications.
3. Any specifications changes must be approved upon by both parties and a new revision of specifications shall be released to reflect the changes.



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Tuning Fork 3.2x1.5 32.768KHz Crystal Unit

MODEL NO.: TZ1006A

REV. NO.: 14

Revise:

Rev.	Rev. Page	Rev. Account	Date	Ref. No.	Reviser
5	P.4	ECN.#201000116	03/24/10'	5.0	Quinton Lo
6	P.3~4	Change Features & Mechanical Dimensions	12/02/11'	ECN-201100424	Ginger Huang
7	P.4~5	Change base 1 drawing and making rule	05/30/12'	ECN-201200175	Ginger Huang
8	P.3	Add Shunt Capacitance Spec	10/11/12'	ECN-201200289	Ginger Huang
9	P.3	Change Electrical Spec	01/04/13'	ECN-201300009	Ginger Huang
10	P3,4	Change Mechanical Dimensions, ESR	05/07/15'	ECN-201500212	Yifan Chen
11	P4~6	Delete Base 2,update Base Marking	05/19/15'	ECN-201500240	Yifan Chen
12	P5	Update Marking	07/28/16'	ECN-201600308	Yifan Chen
13	P3	Change Drive Level	10/03/17'	ECN-201700411	Yifan Chen
14	P2	Update Rev. number	11/17/17'	ECN-201700470	Yifan Chen



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Tuning Fork 3.2x1.5 32.768KHz Crystal Unit

MODEL NO.: TZ1006A

REV. NO.: 14

Features:

- Ceramic Seam Weld Package or Ceramic Glass Seal Package
- Excellent Reliability Performance
- Ultra Miniature Package
- Available to Surface Mount Technology and IR Reflow Process

RoHS Compliant
Lead free
Lead-free soldering

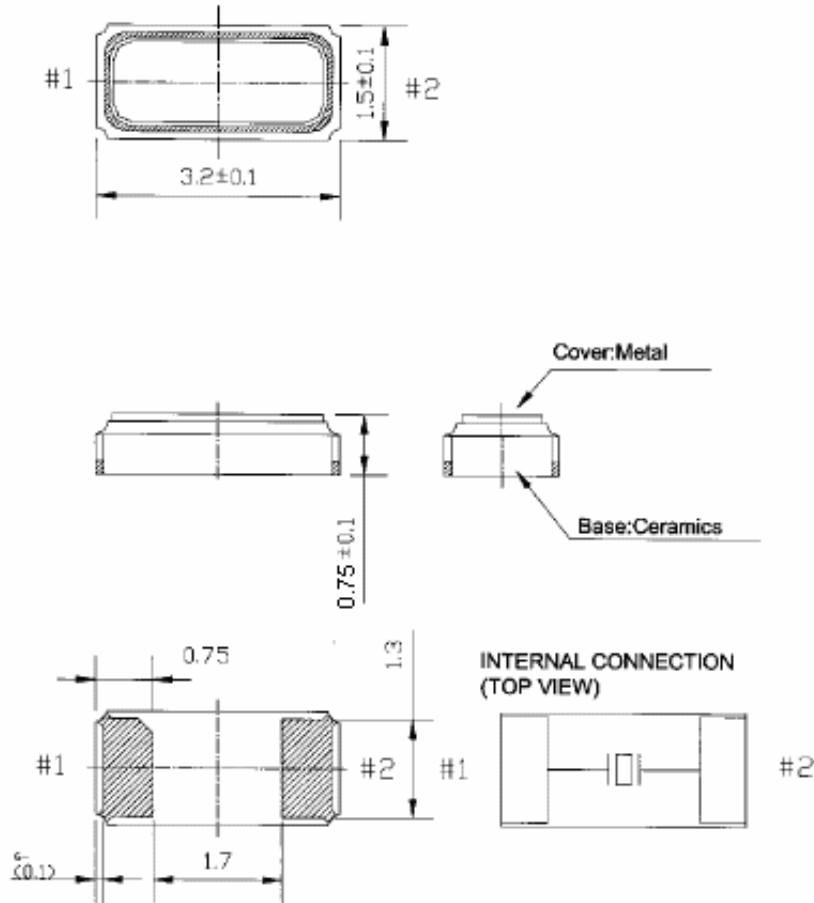
Description and Applications:

Surface mount 3.2mmx1.5mm crystal unit for use in communications devices,.

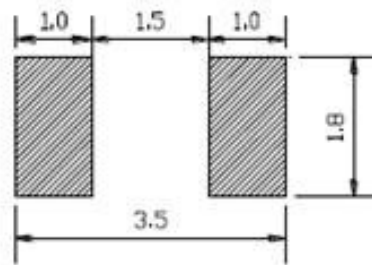
Electrical Specifications:

TZ1006A	Specification
Nominal Frequency	32.768000 KHz
Storage Temperature Range	-55°C to +125°C
Operating Temperature Range	-40°C to +85°C
Turnover Temperature	25 +/- 5 °C
Parabolic Curvature Constant	-0.04 ppm / °C ² max.
Frequency Make Tolerance (FL)	+/-20 ppm @ 25°C +/- 2°C
Equivalent Series Resistor (ESR)	70 kΩ max.
Drive Level	0.1uW typical and 1.0 uW max.
Load Capacitance (CL)	12.5 pF
Shunt Capacitance (Co)	2.0 pF max ; 0.9 pF typ.
Aging	+/-3.0 ppm/year @25°C
Insulation Resistance	500M Ω min at DC 100V
Marking	Laser marking

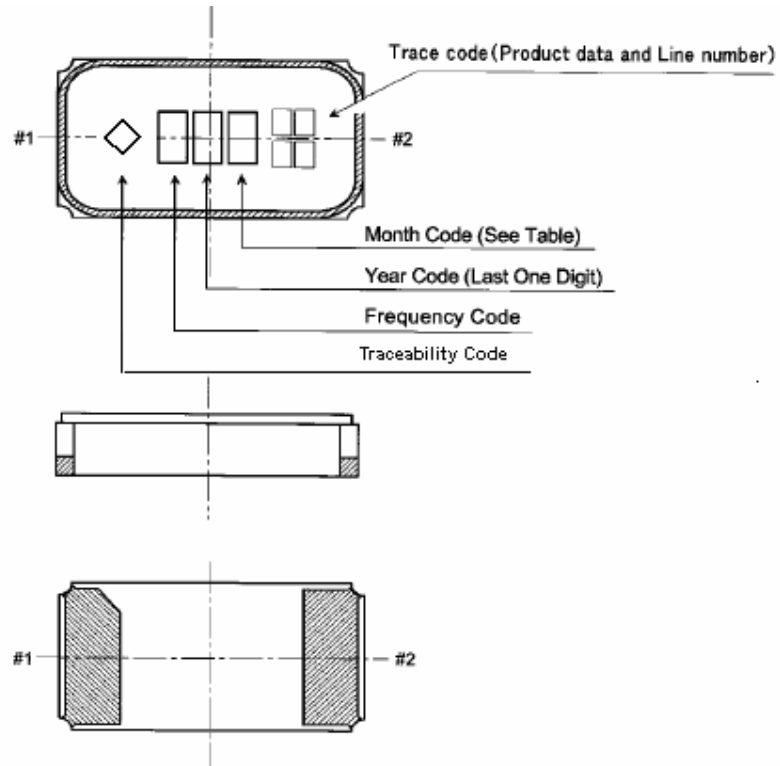
Mechanical Dimensions (mm):



Recommended soldering pattern:



Marking:



NOTE

1. **Month Code**

Month	1 Jan.	2 Feb.	3 Mar.	4 Apr.	5 May	6 June	7 July	8 Aug.	9 Sep.	10 Oct.	11 Nov.	12 Dec.
Month Code	1	2	3	4	5	6	7	8	9	X	Y	Z

2. **Frequency Code**

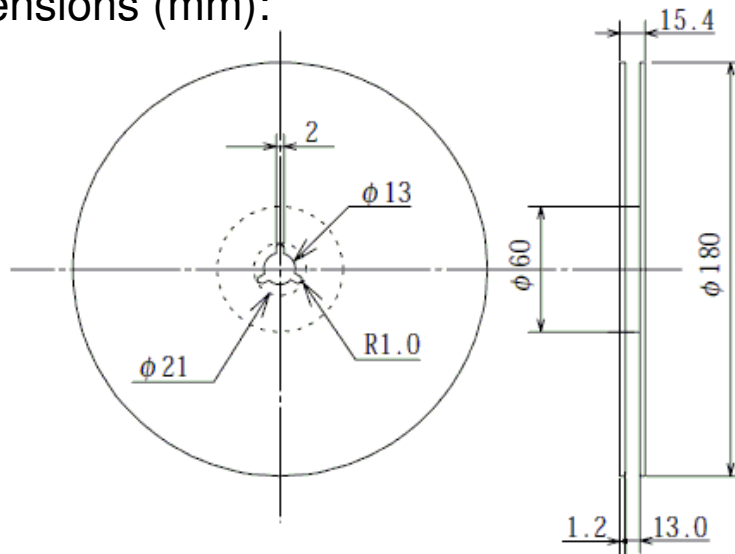
A : 32.768kHz

3. **Marking Method**

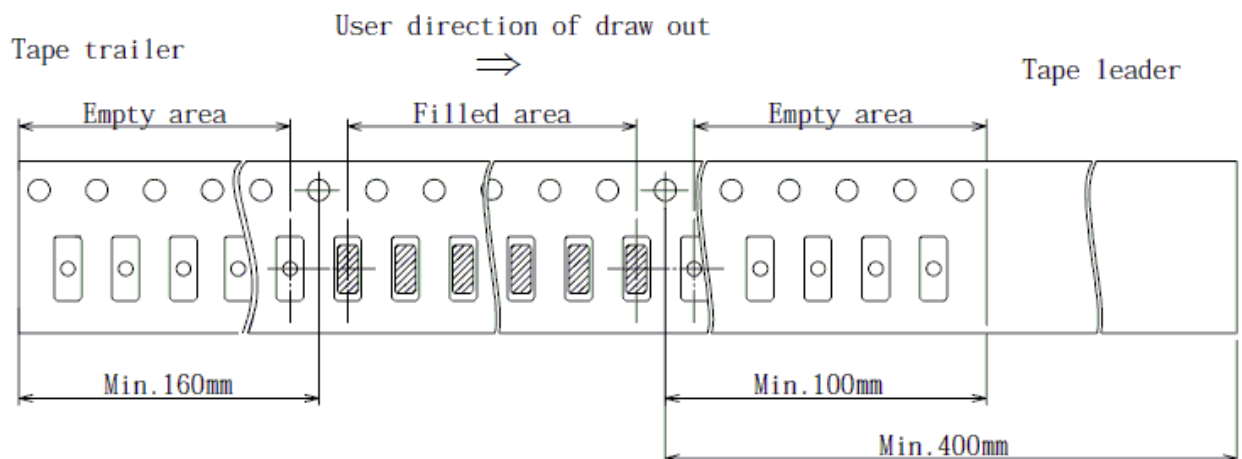
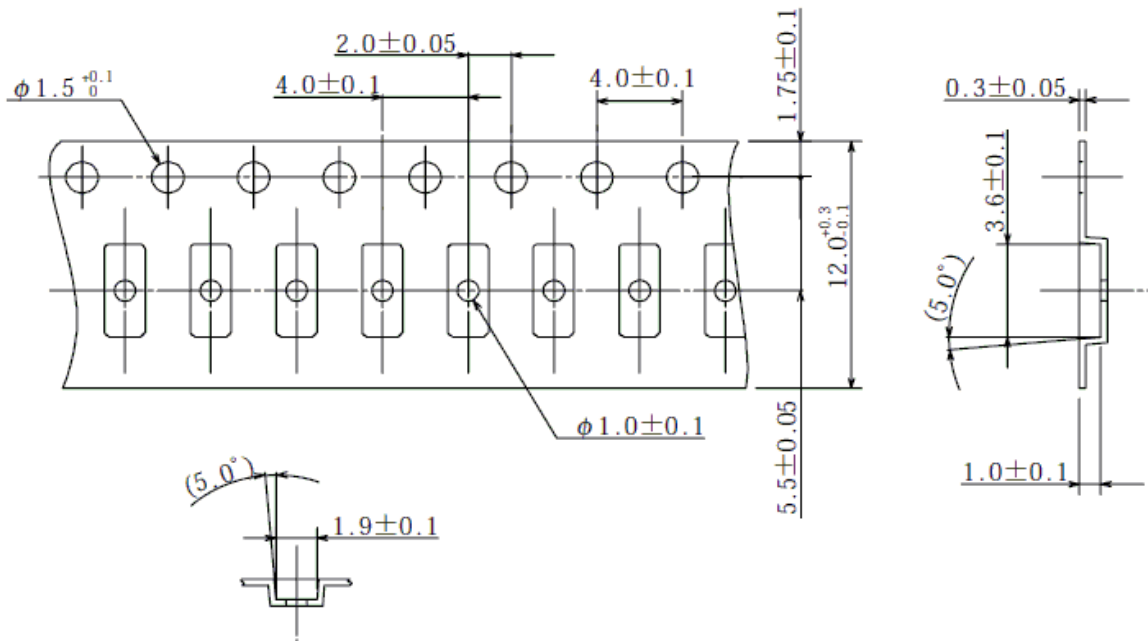
Marking Method is Laser Trimming.

4. **Traceability Code (◇: II or space)**

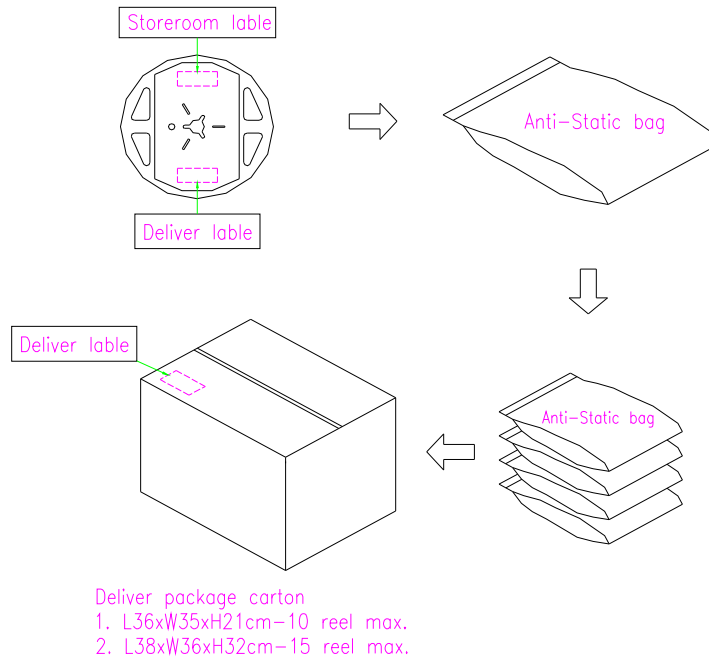
Reel Dimensions (mm):



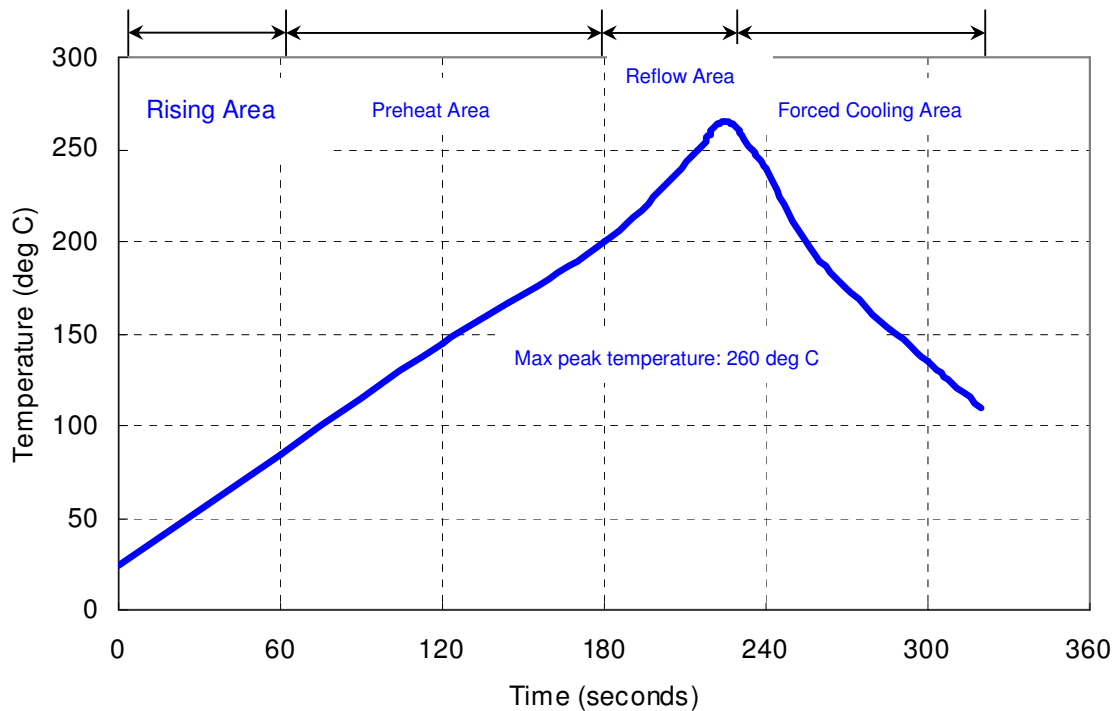
Tape Dimensions (mm):



Packing Quantity/Packing: 3K pcs maximum per reel



Reflow Profile:



Reliability Specifications

Test name	Test process / method	Reference standard
Mechanical characteristics		
resistance to Soldering heat (IR reflow)	Temp/ Duration : 265°C / 10sec × 2 times Total time : 4min. (IR-reflow)	EIAJED-4701 -300(301)M(II)
Vibration	Total peak amplitude : 1.5mm Vibration frequency : 10 to 2000 Hz Sweep period : 20 minute Vibration directions : 3 mutually perpendicular Duration : 2 hr / direc.	MIL-STD 202G method 204
Mechanical Shock	directions : 3 impacts per axis Acceleration : 3000g's, +20/-0 % Duration : 0.3 ms (total 18 shocks) Waveform : Half-sine	MIL-STD 202G method 213
Solderability	Solder Temperature: 265±5 °C Duration time: 5±0.5 seconds.	J-STD-002
Environmental characteristics		
Thermal Shock	Heat cycle conditions -40 °C (30min) ↔ 85 °C (30min) * cycle time : 10 times	MIL-STD 883G method 1010.8
Humidity test	Temperature : 85 ± 2 °C Relative humidity : 85% Duration : 96 hours	MIL-STD 202G method 103
Dry heat (Aging test)	Temperature : 125 ± 2 °C Duration : 168 hours	MIL-STD 202G method 108A
Cold resistance (Low Temp Storage)	Temperature : -40 ± 2 °C Duration : 96 hours	IEC 60068-2-1