



TAI-SAW TECHNOLOGY CO., LTD.

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

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Product Specifications Approval Sheet

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

TST Part No.: TZ2754A

Customer Part No.: _____

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

Checked by: _____ Yifan Chen *Yifan*

Approved by: _____ Kelly Huang *Kelly Huang*

Date: _____ 10/04/2021

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.: TZ2754A

REV. NO.: 7.0

Revise:

Rev.	Rev. Page	Rev. Account	Date	Ref. No.	Reviser
1	N/A	Initial release	05/22/13'	N/A	Ginger Huang
2	P4	Change Marking	06/06/13'	ECN-201300203	Ginger Huang
3	P5	Change Packing & Reliability Specifications	05/20/14'	ECN-201400229	Ginger Huang
4	P8, P3	Revised the RA spec and Co 1.8 pF max.	12/17/15'	ECN-201500573	Ginger Huang
5	P5	Update Marking	07/28/16'	ECN-201600308	Yifan Chen
6	P1,P3	Update to AEC-Q200	09/16/21'	ECN-202100537	Yifan Chen
3	3	Update SPEC	10/04/21'	ECN-202100567	Yifan Chen



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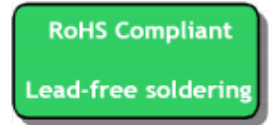
Tuning Fork 3.2x1.5 32.768KHz Crystal Unit

MODEL NO.: TZ2754A

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Features:

- Ceramic Seam Weld Package
- Excellent Reliability Performance
- Ultra Miniature Package
- AEC-Q200 compliance
- Available to Surface Mount Technology and IR Reflow Process



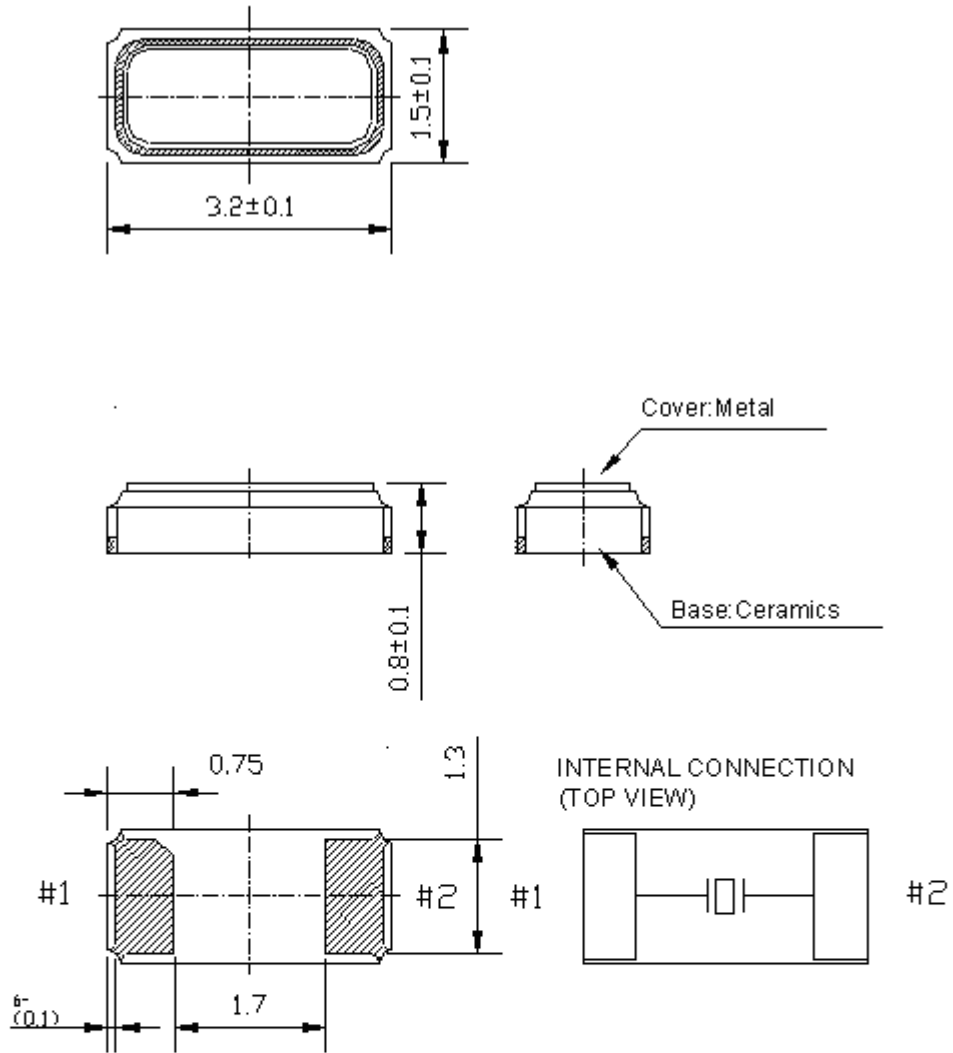
Description and Applications:

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

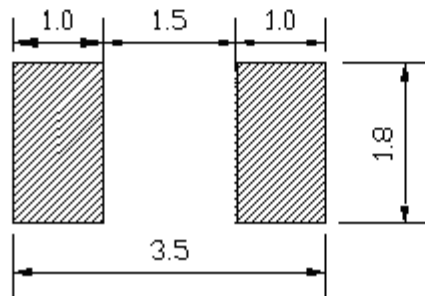
Electrical Specifications:

TZ2754A	Specification
Nominal Frequency	32.768000 KHz
Storage Temperature Range	-55°C to +125°C
Operating Temperature Range	-40°C to +125°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)	80 kΩ max.
Drive Level	0.1 uW typical and 0.5uW max.
Load Capacitance (CL)	12.5 pF
Shunt Capacitance (Co)	1.1 pF typ.
Motional Capacitance (C1)	4.7 fF typ.
Aging	+/-3.0 ppm/year @25°C
Marking	Laser marking
Insulation Resistance	500M Ω min at DC 100V

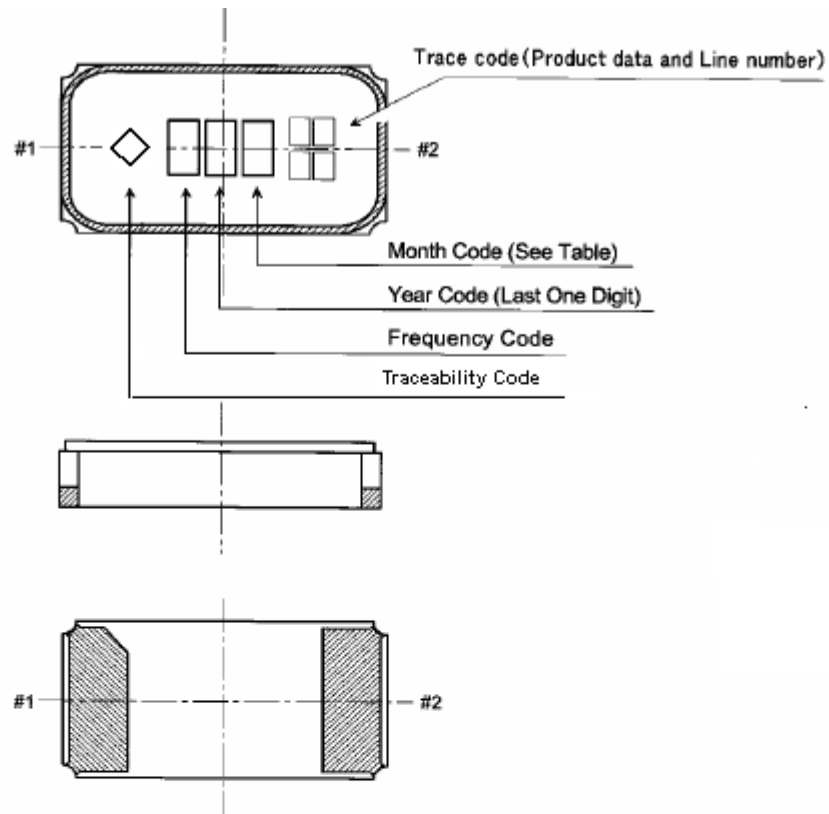
Mechanical Dimensions (mm):



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)

Packing:

- 1 All Parts shall be packaged for shipping in such a manner as to ensure their ability to withstand normal shipping and handling without damage by a common carrier.
- 2 All parts shall be shipped in waffle pack per the waffle pack mechanical drawing in Figure 2. Crystals in waffle pack cavities shall be oriented per the definition in the Figure 3.
- 3 Crystals loading order shall be as shown in Figure 4.
- 4 Tyvek paper sheet shall be inserted in waffle packs while closing the waffle pack with the lid.
- 5 All parts shall meet all requirements defined in this specification after being loaded into waffle packs.
- 6 One waffle pack shall only contain one assembly lot. No mixed lots are allowed in one waffle pack.
- 7 A yield report shall be included with each shipment.
- 8 A copy of process Traveler for each lot shall be included in the shipment.

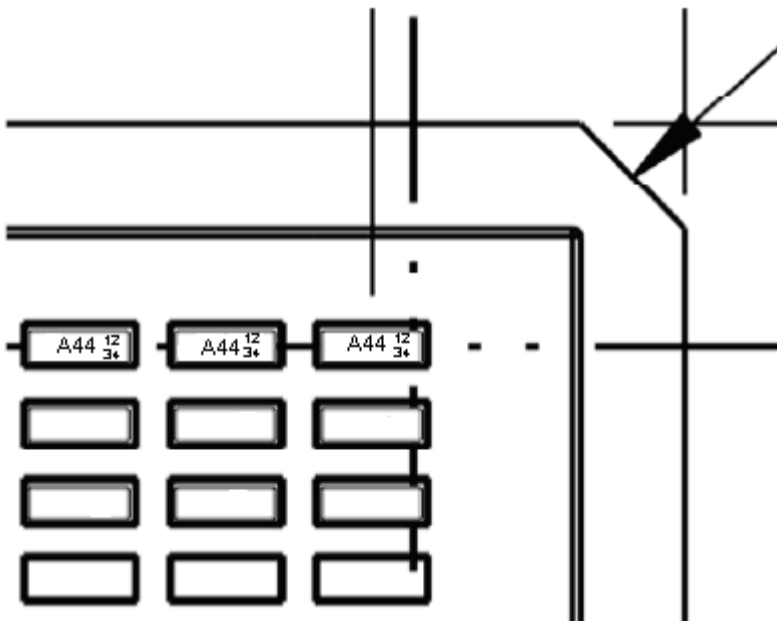
Waffle tray 23 x 16 = 368 pcs

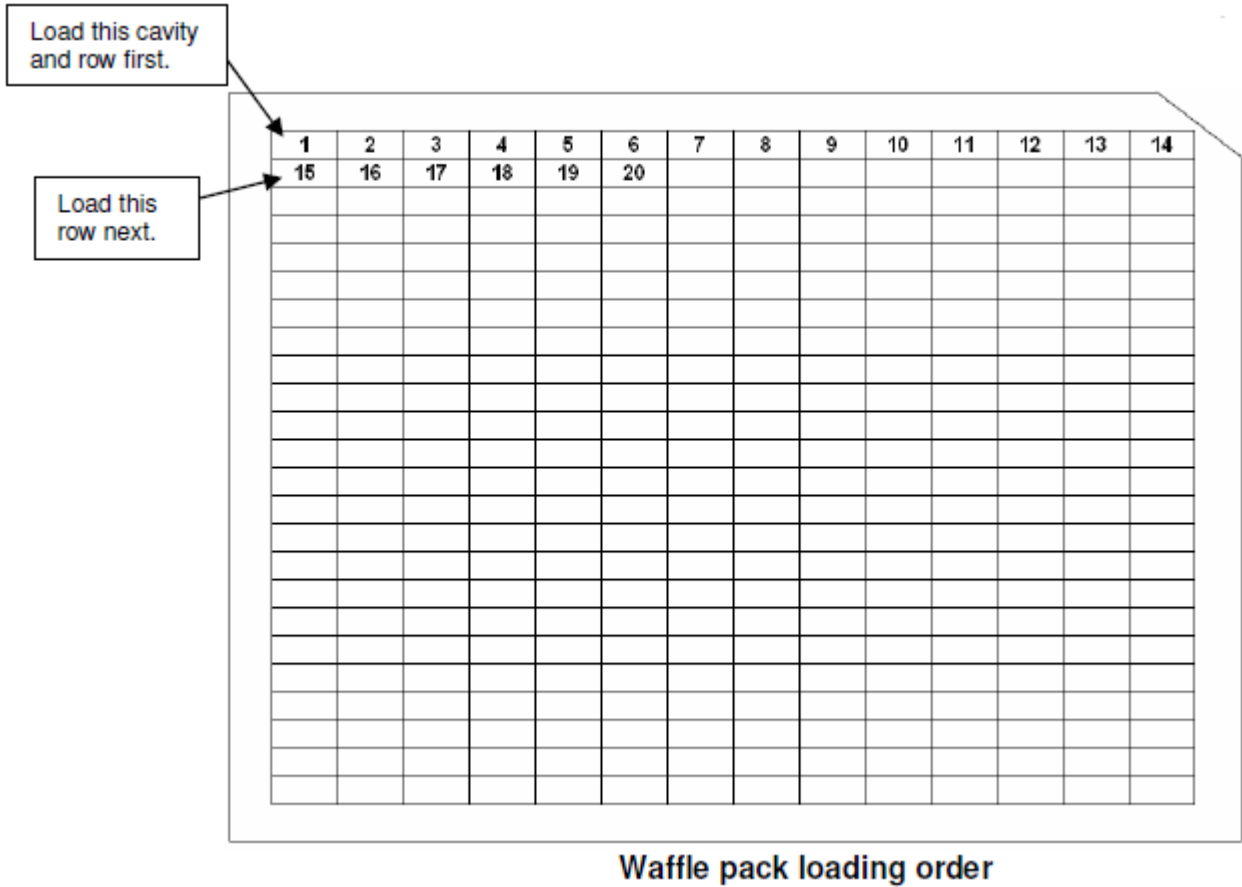
Waffle package spec :

Trays Entegris PN: H44-N312619-74D02

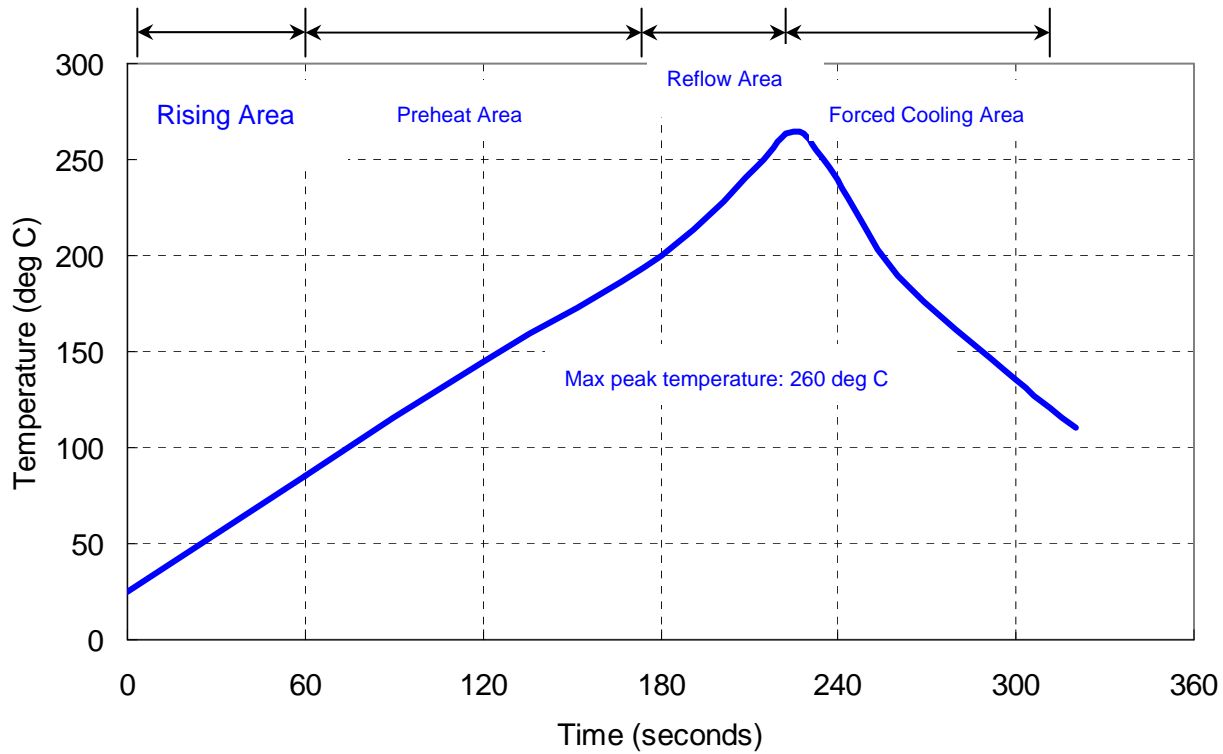
H44-04 "STAT- PRO" clips.

Covers Entegris PN: H44-02-66C02



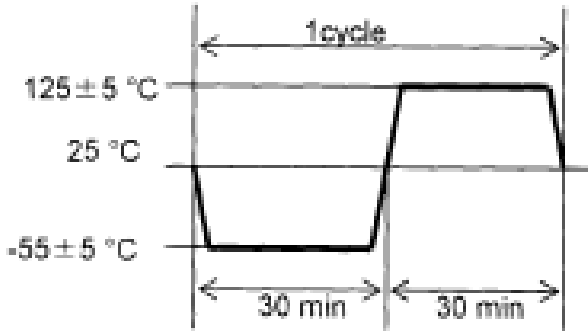


Reflow Profile:



Reliability assurance item

(page: 1/1)

No.	Test Item	Test Methods	Specification Code
1	Drop	Devices are dropped from the height 1.2m onto iron plate. Execution 3 times random drops.	A
2	Shock	Acceleration: 49000 m/s ² Duration: 0.15 ms Half-Sine pulse 1 Shocks in 6 mutually perpendicular planes, Total 6 shocks	A
3	Vibration	Frequency range: 10 to 2000 Hz Amplitude or Acceleration: 1.52 mm or 196 m/s ² Sweep time: 20 min Test time: 4 h × 3	A
4	Resistance to heat	Leave at +125 ± 2 °C for 1000 h	A
5	Resistance to cold	Leave at -40 ± 2 °C for 1000 h	A
6	Thermal shock	Device are left into the following temperature cycle as shown in (Figure1) for 1000 consecutive cycle.  <p style="text-align: center;">(Figure1)</p>	A
7	Humidity	Device are left in temperature at +85 ± 2 °C with relative humidity of 80~85 % for 1000 h	A
8	Shear Stress	10N press the side of product for 10 ± 1s. Ref: 60068-2-21 (Mechanical strength test for SMD)	B
9	Resistance to soldering heat	Pre-heat temperature : 150 °C Pre-heat time : 60 ~ 120 s Test temperature : 260 ± 5 °C Test time : 10 ± 1 s	A
10	Solderability	Pre-heat temperature : 150 °C Pre-heat Time : 60 ~ 120 s Peak temperature : 240 ± 5 °C 215 °C Over time : 10 ~ 30 s	C

Specification code	Specification
A	d/f ≤ ±20ppm, C/I ≤ 100kΩ
B	No peeling-off soldered part.
C	The leads shall acquire a new solder coat cover at 90 % of immersed area.