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
E-mail: tstsales@mail.taisaw.com Web: www.taisaw.com

Product Specifications Approval Sheet

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

TST Part No.: TZ1166C

Customer Part No.:_____

Customer signature required

Company:_____

Division:_____

Approved by :_____

Date:_____

Checked by:_____ Yifan Chen Yifan

Approved by:_____ Kelly Huang Kelly Huang

Date:_____ 01/03/2017

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.

Revise:

Rev.	Rev. Page	Rev. Account	Date	Ref. No.	Reviser
1	N/A	Initial release	01/03/17’	N/A	Yifan Chen

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Tuning Fork 3.2x1.5 32.768KHz Crystal Unit

MODEL NO.: TZ1166C REV. NO.: 1.0

Features:

RoHS Compliant
Lead free
Lead-free soldering

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

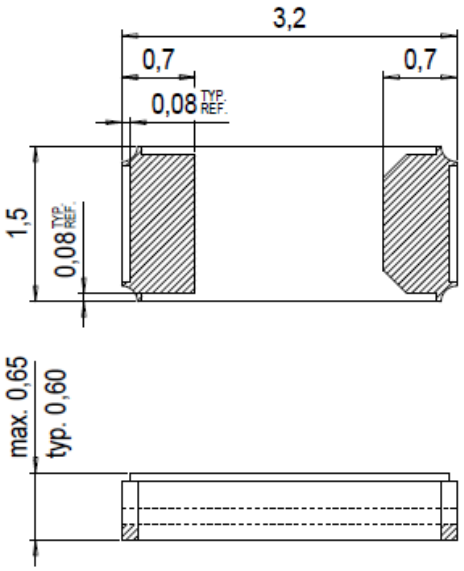
Description and Applications:

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

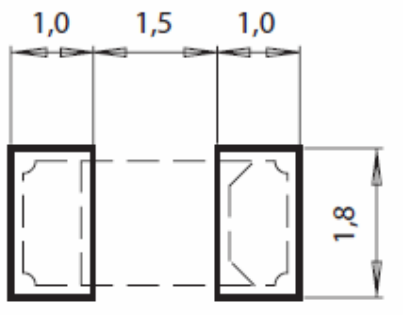
Electrical Specifications:

TZ1166C	**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	-0.035 ppm /°C^2 +/-10%
Frequency Make Tolerance (FL)	+/-20 ppm @ 25°C +/- 2°C
Equivalent Series Resistor (ESR)	70 kΩ max.
Drive Level	1.0 uW max.
Load Capacitance (CL)	7 pF
Shunt Capacitance (Co)	1.2 pF typ
Motional Capacitance (C1)	3.7 fF typ
Aging	+/-3.0 ppm/first year @25°C
Marking	Laser marking
Insulation Resistance	500M Ω min at DC 100V

Mechanical Dimensions (mm):



Recommended Land Pattern: (unit: mm)



Marking:

M425L4

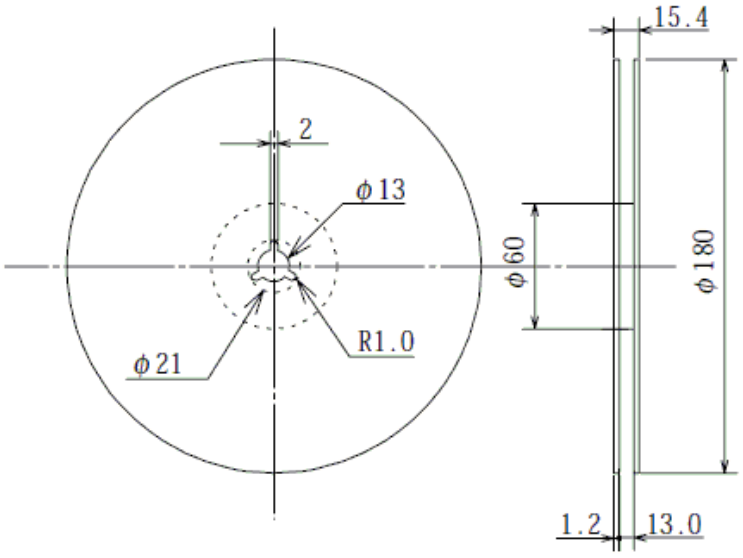
M: Metal Lid

4: Year code : 4 for 2014

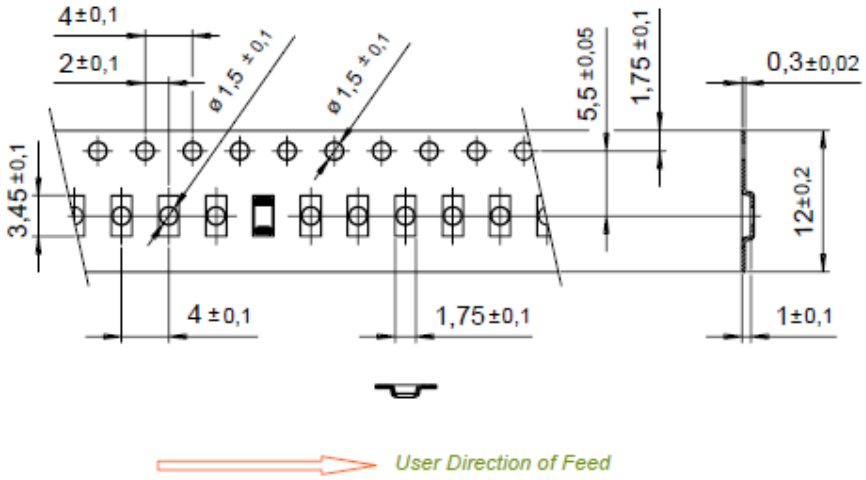
25: Week code

L4: Lot number

Reel Dimensions (mm):

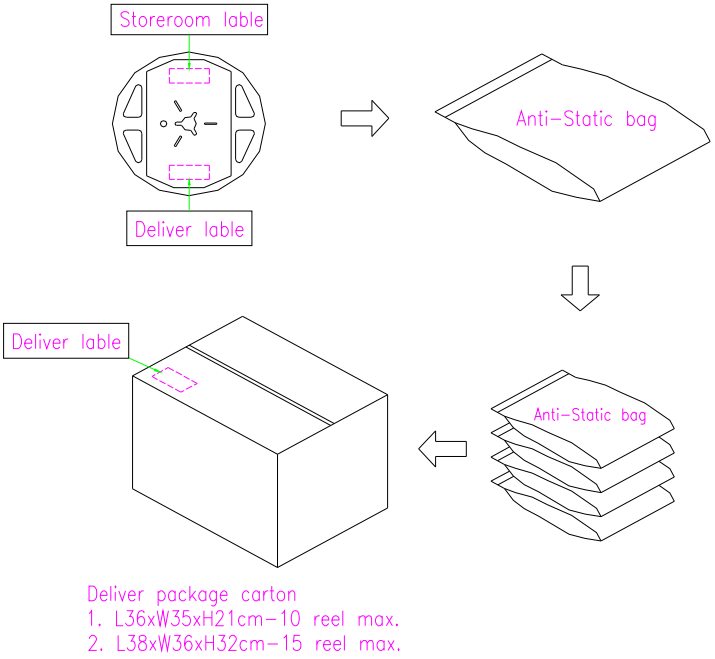


Tape Dimensions (mm):

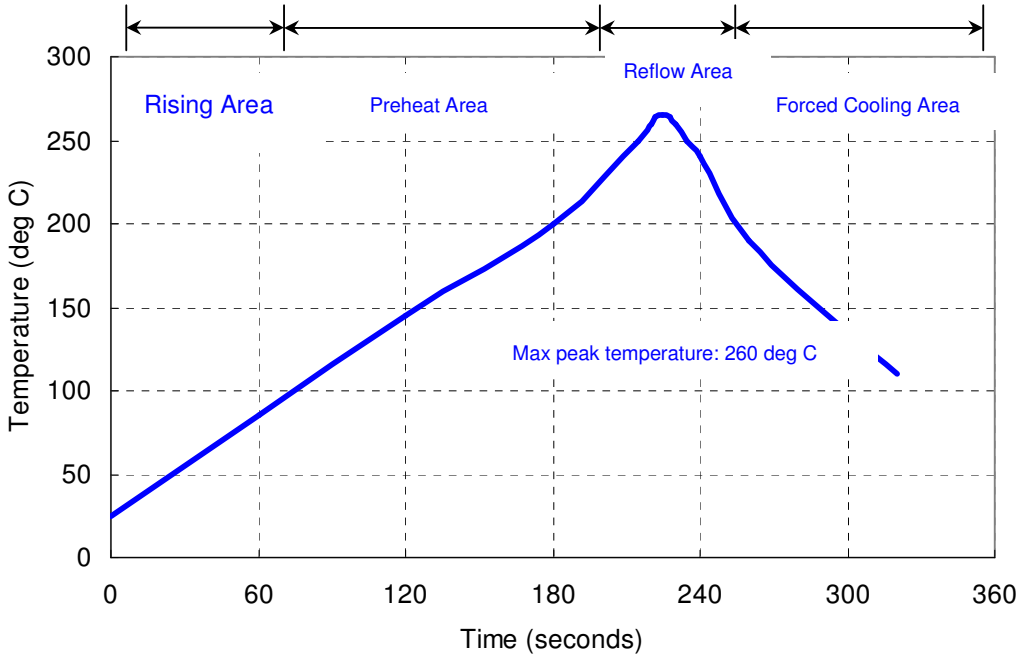


Packing Quantity/Packing:

3K pcs maximum per reel



Reflow Profile:



Reliability Specifications (AEC-Q200)

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	MIL-STD 202G method 204
Mechanical Shock	directions : 3 impacts per axis Acceleration : 6000g's, +20/-0 % Duration : 0.3 ms (total 18 shocks) Waveform : Half-sine	MIL-STD 202G method 213
Solderability	Solder Temperature:265±5℃ Duration time: 5±0.5 seconds.	J-STD-002
Environmental characteristics		
Thermal Shock	Heat cycle conditions -55℃ (30min) ←→ 125℃ (30min) * cycle time : 1000 times	MIL-STD 883G method 1010.8
Humidity test	Temperature : 85 ± 2 ℃ Relative humidity : 85% Duration : 1000 hours	MIL-STD 202G method 103
Dry heat (Aging test)	Temperature : 125 ± 2 ℃ Duration : 1000 hours	MIL-STD 202G method 108A
Cold resistance (Low Temp Storage)	Temperature : -40 ± 3 ℃ Duration : 1000 hours	IEC 60068-2-1