



# TAI-SAW TECHNOLOGY CO., LTD.

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## Approval Sheet For Product Specification

Issued Date: 6/16/2008 (REV. NO: 1)

Product Name: SMD 5.0x3.2 50.7167MHz Crystal Unit

TST Parts No.: TZ1386A

Customer Parts No. : \_\_\_\_\_

|   |
|---|
| <p>Company: _____</p> <p>Division: _____</p> <p>Approved by: _____</p> <p>Date: _____</p> |
|---|

Checked by: Rodic Chen

Approval by: Robert Chang

Date: 6/16/2008



**TAI-SAW TECHNOLOGY CO., LTD.**  
**SMD 5.0x3.2 50.7167MHz Crystal Unit**

MODEL NO.: TZ1386A

REV. NO.: 1

**Revise:**

| Rev. | Rev. Page | Rev. Account    | Date     | Ref. No. | Reviser    |
|------|-----------|-----------------|----------|----------|------------|
| 1    | N/A       | Initial release | 6/16/08' | N/A      | Rodic Chen |



MODEL NO.: TZ1386A

REV. NO.: 1

## Features:

- Surface Mount Hermetic Package
- Excellent Reliability Performance
- Good Frequency Perturbation and Stability over temperature
- Ultra Miniature Package

RoHS Compliant  
 Lead free  
 Lead-free soldering

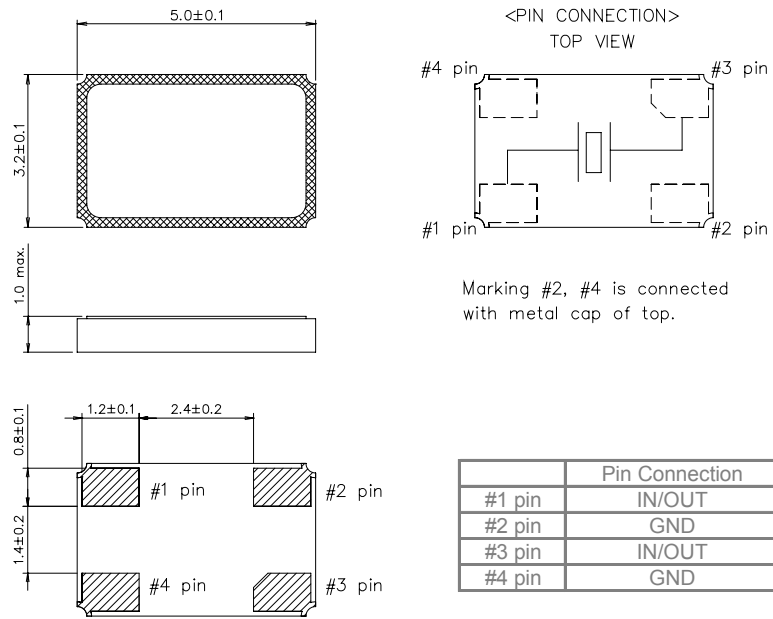
## Description and Applications:

Surface mount 5.0mmx3.2mm crystal unit for use in wireless communications devices, especially for a need of ultra miniature package for mobility.

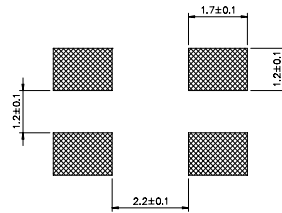
## Electrical Specifications:

| <b>TZ1386A</b>                                       | <b>Specification</b>                    |
|--|---|
| Nominal Frequency                                    | 50.716700 MHz                           |
| Mode of Oscillation                                  | 3 <sup>rd</sup> Overtone                |
| Storage Temperature Range                            | -50°C to +125°C                         |
| Operating Temperature Range                          | -40°C to +85°C                          |
| Frequency Stability over Operating Temperature Range | ±50 ppm (referred to the value at 25°C) |
| Frequency Make Tolerance (FL)                        | ±20 ppm @ 25°C ± 3°C                    |
| Equivalent Series Resistance (ESR)                   | 80 Ω max                                |
| Nominal Drive Level                                  | 10 μW                                   |
| Shunt Capacitance (Co)                               | 7 pF max                                |
| Load Capacitance (CL)                                | 6 pF                                    |
| Insulation Resistance                                | 500 MΩ min./DC 100V                     |
| Marking  | Laser Marking                           |
| Unit Weight  | 0.037+/-0.005g                          |

### Mechanical Dimensions (mm):



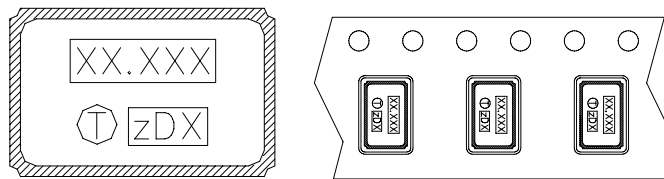
### Recommended Land Pattern: (unit: mm)



### Marking:

Line 1: Frequency (50.716)

Line 2: TST Logo + Crystal Product Code + Date Code



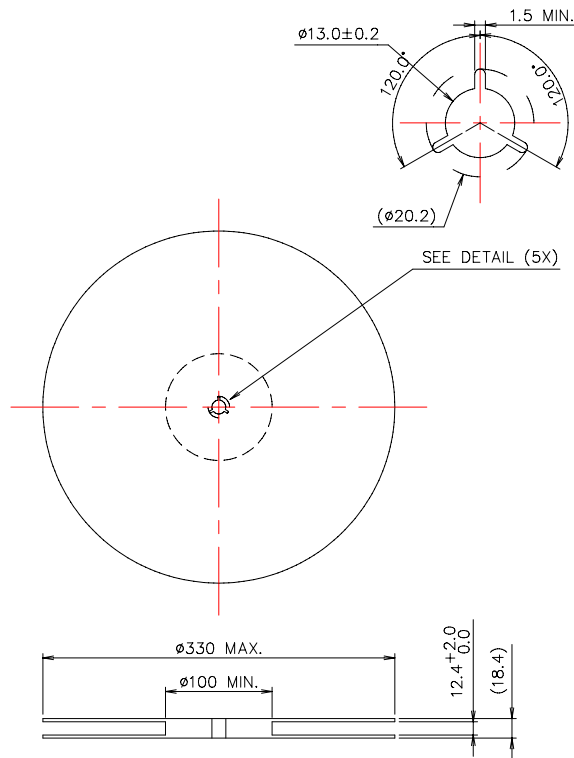
### Product Code Table

| Year         | 2008     | 2009 | 2010 | 2011     |
|--------------|----------|------|------|----------|
|              | 2012     | 2013 | 2014 | 2015     |
| Product code | <u>Z</u> | Z    | Z    | <u>Z</u> |

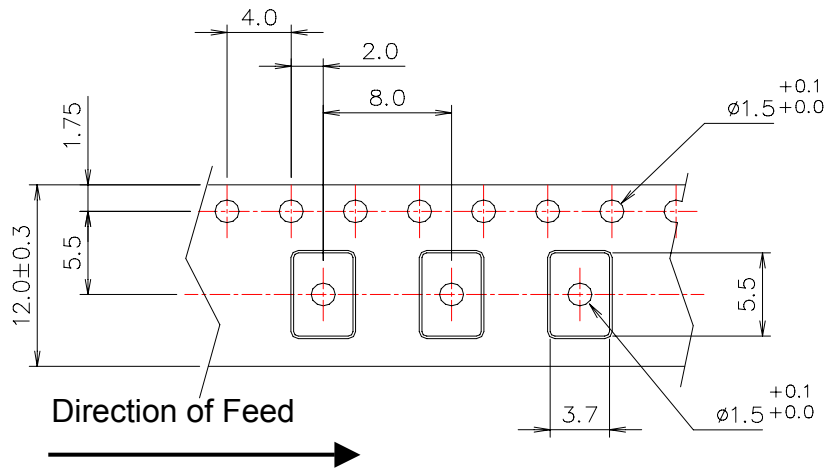
### Date Code Table

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| WK01 | WK02 | WK03 | WK04 | WK05 | WK06 | WK07 | WK08 | WK09 | WK10 | WK11 | WK12 | WK13 |
| A    | B    | C    | D    | E    | F    | G    | H    | I    | J    | K    | L    | M    |
| WK14 | WK15 | WK16 | WK17 | WK18 | WK19 | WK20 | WK21 | WK22 | WK23 | WK24 | WK25 | WK26 |
| N    | O    | P    | Q    | R    | S    | T    | U    | V    | W    | X    | Y    | Z    |
| WK27 | WK28 | WK29 | WK30 | WK31 | WK32 | WK33 | WK34 | WK35 | WK36 | WK37 | WK38 | WK39 |
| a    | b    | c    | d    | e    | f    | g    | h    | i    | j    | k    | l    | m    |
| WK40 | WK41 | WK42 | WK43 | WK44 | WK45 | WK46 | WK47 | WK48 | WK49 | WK50 | WK51 | WK52 |
| n    | o    | p    | q    | r    | s    | t    | u    | v    | w    | x    | y    | z    |

### Reel Dimensions (mm):



### Tape Dimensions (mm):

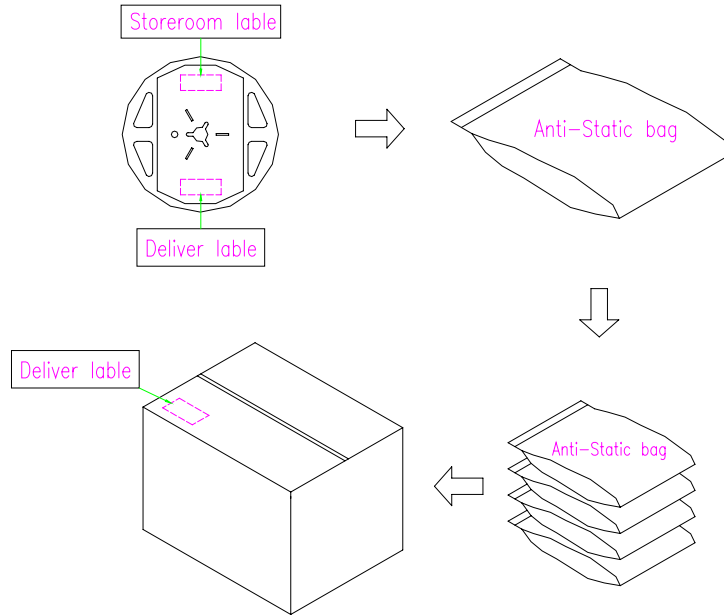


[NOTE]:

1. Unless otherwise specified tolerance on dimension +/-0.1 mm.
2. Material: conductive polystyrene with color black.
3. 10 pitch cumulative tolerance +/-0.2 mm.

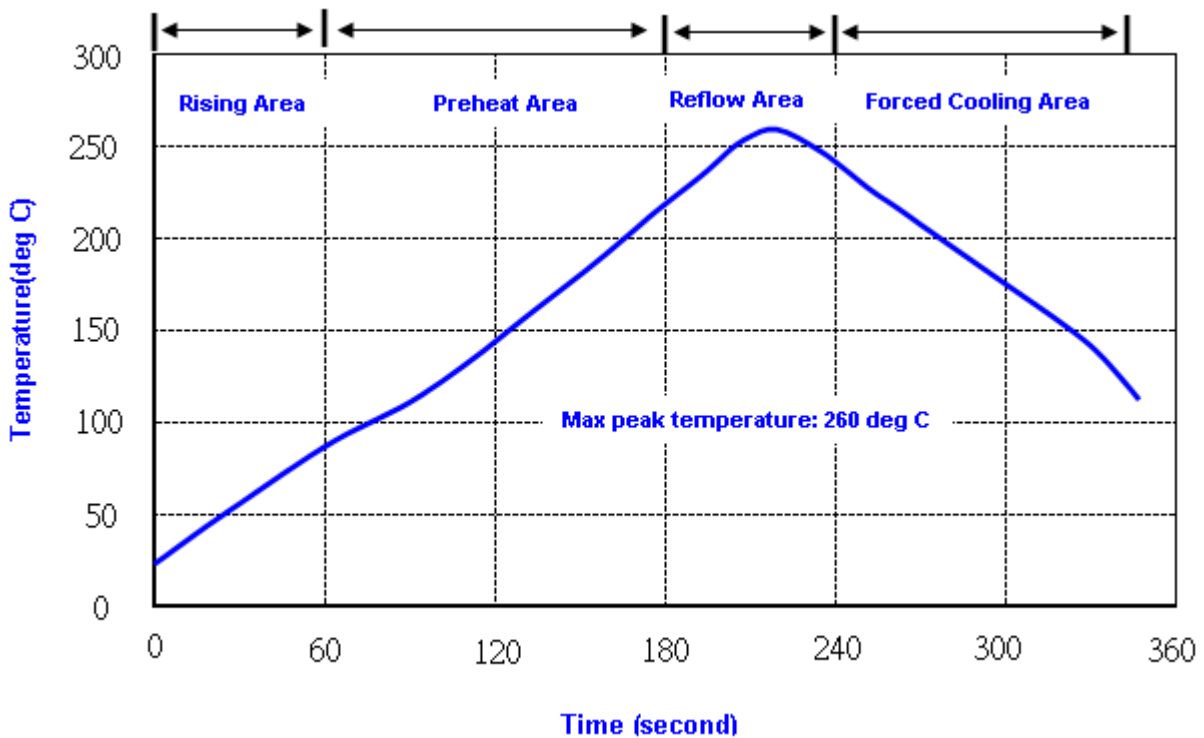
# Packing Quantity/Packing:

3K pcs maximum per reel



Deliver package carton  
 1. L36xW35xH21cm-10 reel max.  
 2. L38xW36xH32cm-15 reel max.

## Reflow Profile:



**Note: 1. Max peak temperature: 260+/-5 deg C; Time: 10+/-2 sec**  
**2. Temperature: 217+/-5 deg C; Time: 90~100 sec**

## Reliability Specifications

| Test name                                | Test process / method   | Reference standard                           |
|--|---|--|
| <b>Mechanical characteristics</b>        |   |  |
| resistance to Soldering heat (IR reflow) | Temp./ Duration : 260°C /10sec ×2 times<br>Total time : 4min.(IR-reflow)  | EIAJED-4701<br>-300(301)M(II)                |
| Vibration                                | Total peak amplitude : 1.5mm<br>Vibration frequency : 10 to 55 Hz<br>Sweep period : 1.0 minute<br>Vibration directions : 3 mutually perpendicular<br>Duration : 2 hr / direc. | MIL-STD 202F<br>method 201A                  |
| Mechanical Shock                         | directions : 3 impacts per axis<br>Acceleration : 3000g's, +20/-0 %<br>Duration : 0.3 ms (total 18 shocks)<br>Waveform : Half-sine  | MIL-STD 202F<br>method 213C                  |
| Solderability                            | Solder Temperature:265±5°C<br>Duration time: 5±0.5 seconds.   | MIL-STD 883G<br>method 2003                  |
| <b>Environmental characteristics</b>     |   |  |
| Thermal Shock                            | Heat cycle conditions<br>-55 °C (30min) ↔ 125 °C (30min)<br>* cycle time : 10 times   | MIL-STD 883G<br>method 1010.7                |
| Humidity test                            | Temperature : 70 ± 2 °C<br>Relative humidity : 90~95%<br>Duration : 96 hours  | MIL-STD 202F<br>method 103B                  |
| Dry heat ( Aging test )                  | Temperature : 125 ± 2 °C<br>Duration : 168 hours  | MIL-STD 883G<br>method 1008.2<br>condition C |
| PCT test                                 | Pressure: 2.06kg/cm <sup>2</sup> (2.03*10 <sup>5</sup> pa)<br>Temperature : 121 ± 2 °C<br>Relative humidity : 100%<br>Duration : 24 hours                                     | EIAJED-4701-3<br>B-123A                      |