

**TAI-SAW TECHNOLOGY CO., LTD.**

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## Product Specifications Approval Sheet

Product Description: Crystal Unit SMD 2.5x2.0 26.0MHz

TST Part No.: TZ1204A

Customer Part No.: \_\_\_\_\_

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

Checked by: \_\_\_\_\_ Kelly Huang

Approved by: \_\_\_\_\_ Robert Chang

Date: \_\_\_\_\_ 6/15/2009

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.





MODEL NO.: TZ1204A

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

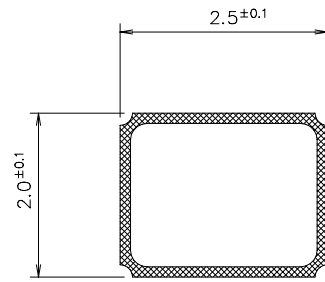
## Description and Applications:

Surface mount 2.5mmx2.0mm crystal unit for use in wireless communications devices, especially for a need of ultra miniature package for mobility.

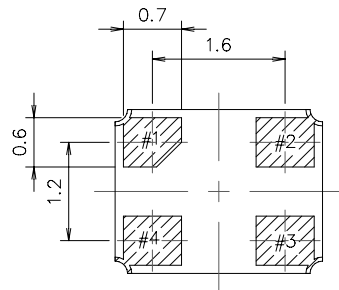
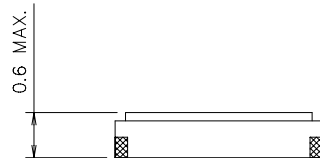
## Electrical Specifications:

| <b>TZ1204A</b>                                       | <b>Specification</b>                      |
|------------------------------------------------------|-------------------------------------------|
| Nominal Frequency                                    | 26.000000 MHz                             |
| Mode of Oscillation                                  | Fundamental                               |
| Storage Temperature Range                            | -40°C to +85°C                            |
| Operating Temperature Range                          | -20°C to +70°C                            |
| Frequency Stability over Operating Temperature Range | +/-10 ppm (referred to the value at 25°C) |
| Frequency Make Tolerance (FL)                        | +/-10 ppm @ 25°C +/- 3°C                  |
| Equivalent Series Resistance (ESR)                   | 100 $\Omega$ max                          |
| Nominal Drive Level                                  | 10uw typical, 100 uW max.                 |
| Shunt Capacitance (Co)                               | 3.0 pF max                                |
| Load Capacitance (CL)                                | 7 pF                                      |
| Insulation Resistance                                | 500 M $\Omega$ min./DC 100V               |
| Aging                                                | +/-1ppm/year                              |
| Marking                                              | Laser Marking                             |
| Unit Weight                                          | 9.5 +/-0.5mg                              |

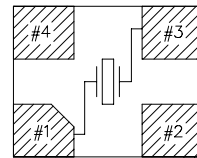
## Mechanical Dimensions (mm):



|        | Pin Connection |
|--------|----------------|
| #1 pin | IN/OUT         |
| #2 pin | GND            |
| #3 pin | IN/OUT         |
| #4 pin | GND            |

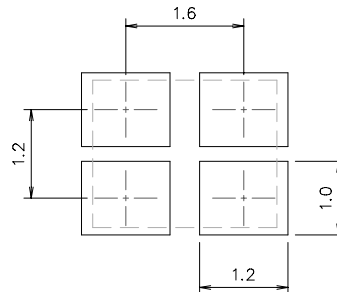


Internal Connections  
(Top View)



[NOTE] #2, #4 is connected with a cover  
(Please connect with a GND or a power supply)

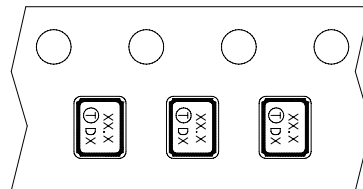
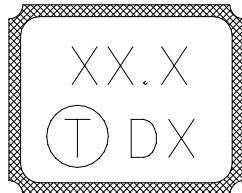
## Recommended Land Pattern: (unit: mm)



## Marking:

Line 1: Frequency (26.0)

Line 2: TST Logo + Date Code + Product Code

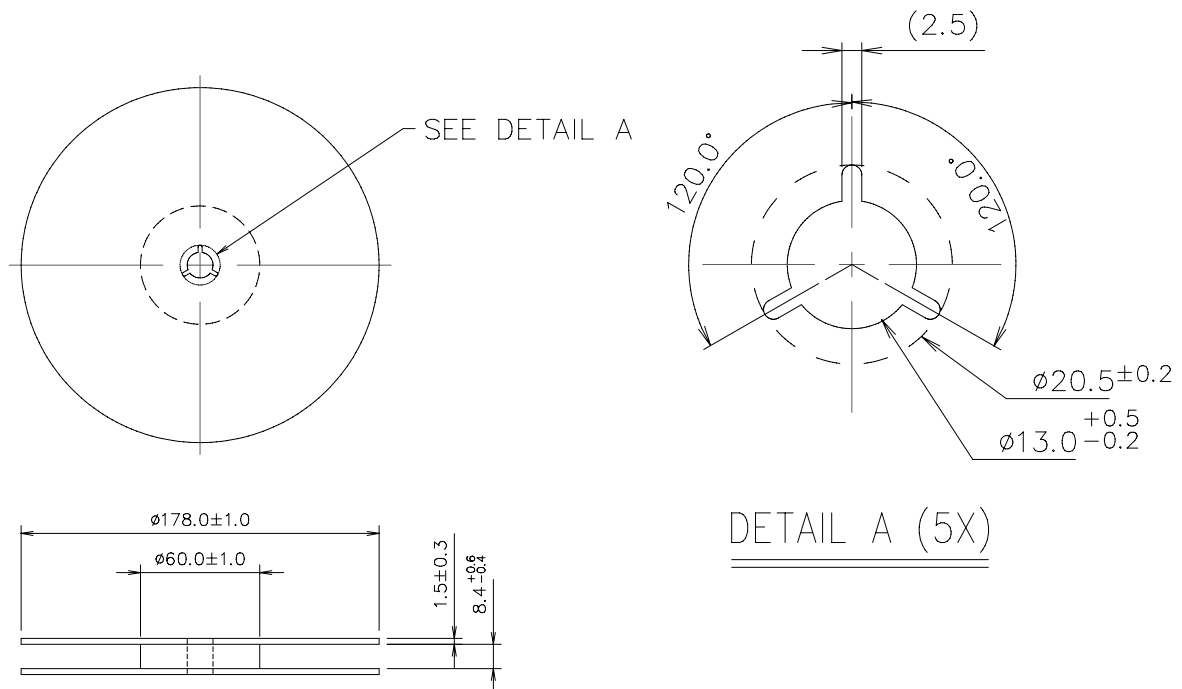
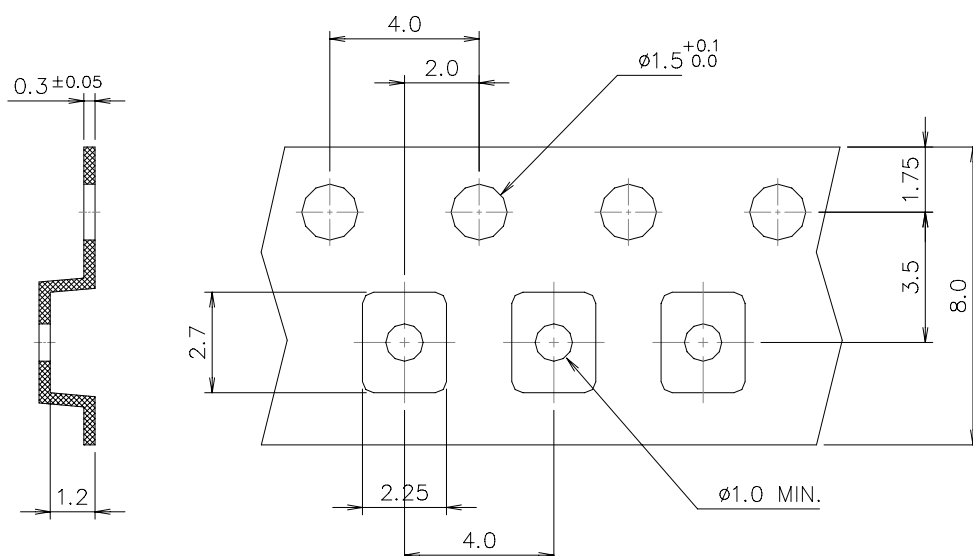


## Date Code Table

|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 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    |

**Product Code Table:**

| Year |      |      |      |      |      | product code |
|------|------|------|------|------|------|--------------|
| 2009 | 2011 | 2013 | 2015 | 2017 | 2019 | X            |
| 2010 | 2012 | 2014 | 2016 | 2018 | 2020 | X            |

**Reel Dimensions (mm):****Tape Dimensions (mm):****[NOTE]:**

1. Unless otherwise specified tolerance on dimension  $\pm 0.1$  mm.
2. Material: conductive polystyrene with color black.
3. 10 pitch cumulative tolerance  $\pm 0.2$  mm.

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**TST DCC**  
 Release document

## Packing Quantity/Packing:

3K pcs maximum per reel



## Reflow Profile:



**Note:** 1. Max peak temperature: 260 $\pm$ 5 deg C; Time: 10 $\pm$ 2 sec  
 2. Temperature: 217 $\pm$ 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<br>( 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                      |