**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: Crystal Unit SMD 3.2x2.5 26.00MHz

TST Part No.: TZ0311B

Customer Part No.:_____

Customer signature required

Company:_____

Division:_____

Approved by :_____

Date:_____

Checked by: Chia Haur Rau

Approved by: Kelly Huang

Date: 12/02/2015

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.

# TAI-SAW TECHNOLOGY CO., LTD.

**Crystal Unit SMD 3.2x2.5 26.00MHz**

MODEL NO.: TZ0311B REV. NO.: 9

## Revise:

| Rev. | Rev. Page | Rev. Account | Date | Ref. No. | Revised by |
|---|---|---|---|---|---|
| 1 | N/A | Initial release | 04/15/04’ | N/A | Ann Liu |
| 2 | 3 | Spec updated | 09/20/04 | N/A | Ann Liu |
| 3 | 3 | Spec updated | 09/30/04 | N/A | Ann Liu |
| 4 | 3 | Spec updated | 08/12/05 | N/A | Ann Liu |
| 5 | 3 | Spec updated | 06/12/06 | N/A | Ann Liu |
| 6 | 3 | Spec updated | 08/28/06 | N/A | Ann Liu |
| 7 | 3 | Changed T/R drawing | 07/01/09 | ECN-200900240 | Ann Liu |
| 8 | 4 | Pin connection to be updated | 01/10/12 | ECN-201000472 | Ann Liu |
| 9 | 3 | Change Nominal Drive Level to 100uW max | 12/02/15 | ECN-201500533 | Chia Haur Rau |

# TAI-SAW TECHNOLOGY CO., LTD.

**Crystal Unit SMD 3.2x2.5 26.00MHz**

MODEL NO.: TZ0311B REV. NO.: 9

## Features:

RoHS Compliant
Lead free
Lead-free soldering

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

## Description and Applications:

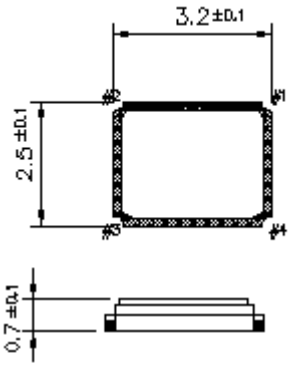
Surface mount 3.2mmx2.5mm crystal unit for customer for use in wireless communications devices, especially for a need of ultra miniature package for mobility.

## Electrical Specifications:

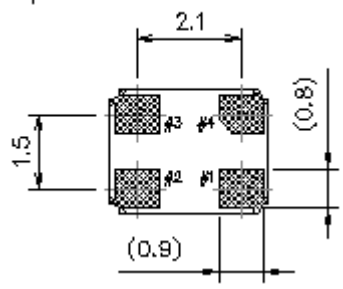
| **TZ0311B** | **Specification** |
|---|---|
| Nominal Frequency | 26.000000 MHz |
| Mode of Oscillation | Fundamental |
| Storage Temperature Range | -40°C to +85°C |
| Operating Temperature Range | -20°C to +75°C |
| Frequency Stability over Operating Temperature | +/- 9 ppm (referred to the value at 25°C) |
| Frequency Make Tolerance (FL) | +/- 10 ppm @ 25°C +/- 3°C |
| Equivalent Series Resistance (ESR) | 40 Ω max. |
| Nominal Drive Level | 10uW typical and 100uW max |
| Shunt Capacitance (Co) | 2.0 pF max |
| Load Capacitance (CL) | 9 pF |
| Pulling Sensitivity | 16.5 ppm/pF +/-10% (@ 9 pF Load) |
| Insulation Resistance | 500 MΩ min./DC 100V |
| Aging | +/-1ppm/year |
| Marking | Laser Marking |
| Unit Weight | 0.017+/-0.005 g |

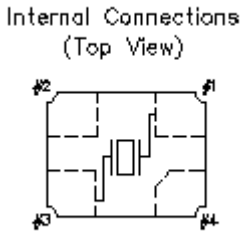
# Mechanical Dimensions (mm):

## Base 1

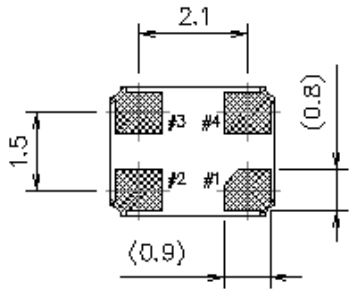


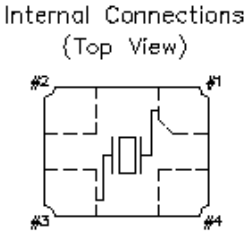

| | Pin Connection |
|---|---|
| #1 pin | IN/OUT |
| #2 pin | GND |
| #3 pin | IN/OUT |
| #4 pin | GND |



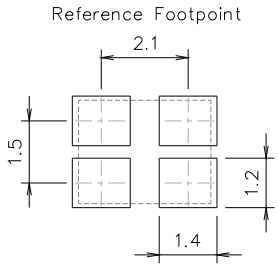




## Base 2




# Recommended Land Pattern: (unit: mm)



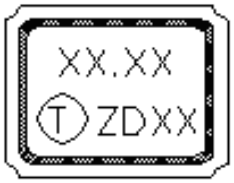

# Marking:

Line 1: Frequency (26.00)

Line 2: TST Logo + Crystal Product Code + Date Code + Traceability code ( 1 or 2 letters)

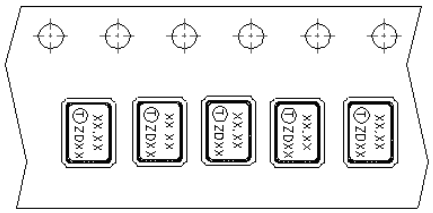
Pin#2

Pin#3




Pin#1

Pin#4



**The inner vision of Pin#1, Pin#4 side is XTAL blank mounting pad.**

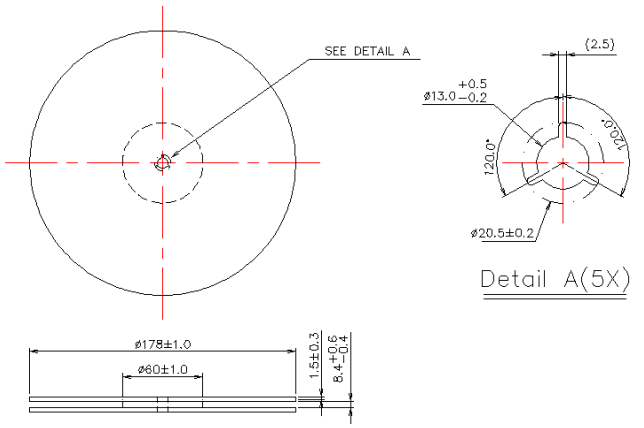
## Product Code Table

| Year | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2020 |
| | 2021 | 2022 | 2023 | 2024 |
| product code | Z | z | Z | z |

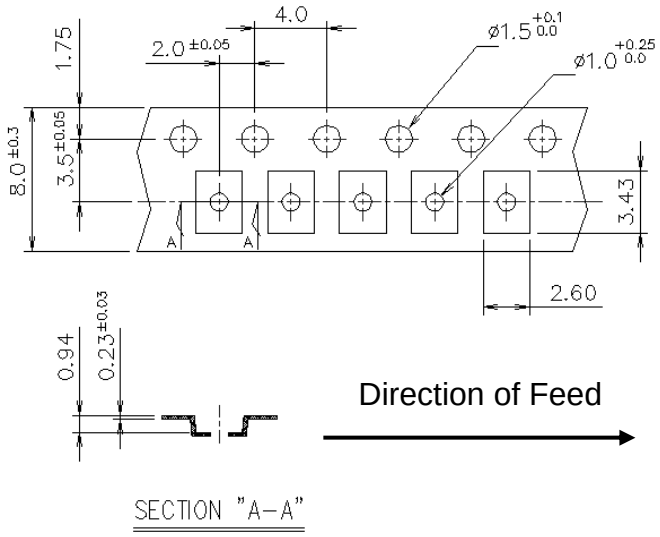
## Date Code Table

| 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 UNIT : mm.

2 UNLESS OTHERWISE SPECIFIED TOLERANCEON DIM. +/-0.1mm.

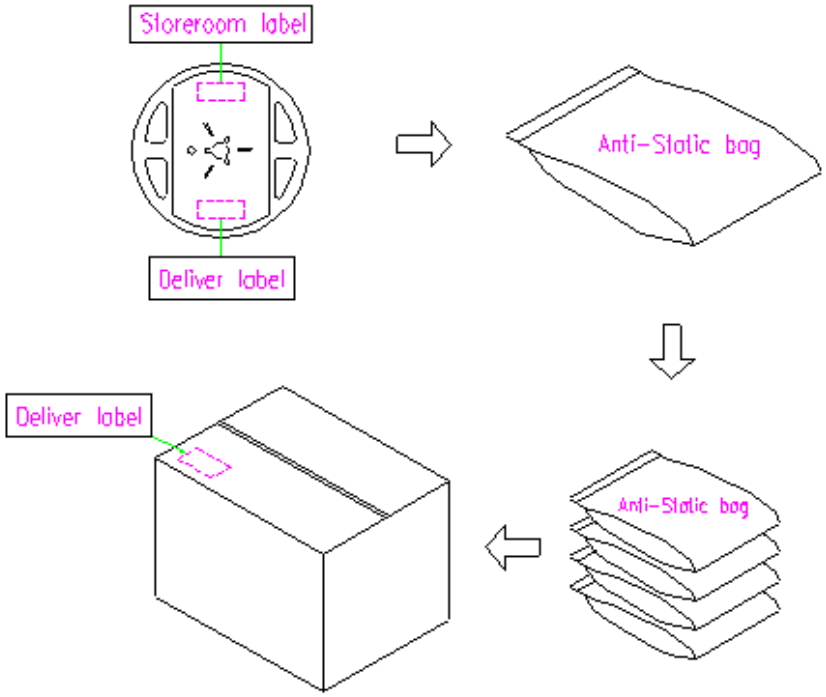
3 MATERIAL : CONDUCTIVE POLYSTYRENE.

4 COLOR : BLACK.

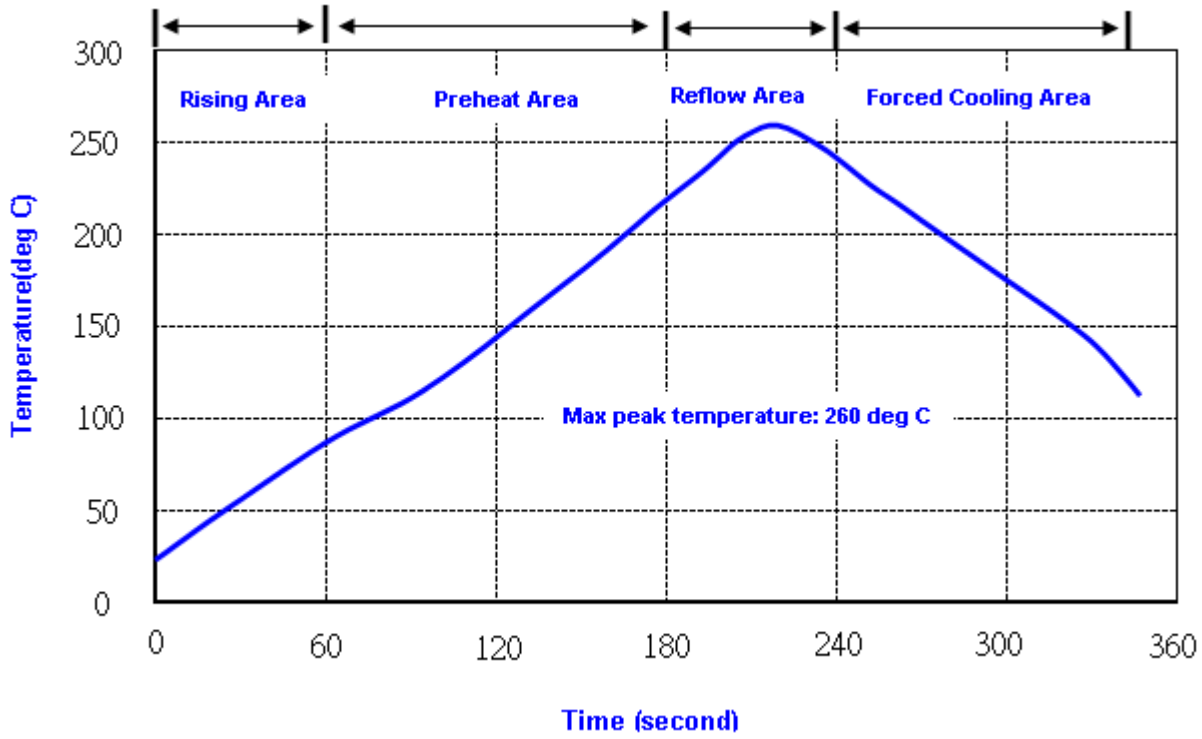
5 10 PITCHES CUMULATIVETOLERANCE +/-0.2mm.

# Packing Quantity/Packing:

**3K pcs maximum per reel**




## 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 |
|---|---|---|
| **Mechanical characteristics** | | |
| resistance to Soldering heat (IR reflow) | Temp./ Duration : 265°C /10sec ×2 times<br>Total time : 4min.(IR-reflow) | EIAJED-4701<br><br>-300(301)M(II) |
| Vibration | Total peak amplitude : 1.5mm<br>Vibration frequency : 10 to 2000 Hz<br>Sweep period : 20 minute<br>Vibration directions : 3 mutually perpendicular<br>Duration : 2 hr / direc. | MIL-STD 202G method 204 |
| 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 202G method 213 |
| Solderability | Solder Temperature:265±5°C<br>Duration time: 5±0.5 seconds. | J-STD-002 |
| **Environmental characteristics** | | |
| Thermal Shock | Heat cycle conditions<br>-40 ℃ (30min) ←→ 85 ℃ (30min)<br>* cycle time : 10 times | MIL-STD 883G method 1010.8 |
| Humidity test | Temperature : 85 ± 2 °C<br>Relative humidity : 85%<br>Duration : 96 hours | MIL-STD 202G method 103 |
| Dry heat ( Aging test ) | Temperature : 125 ± 2 °C<br>Duration : 168 hours | MIL-STD 202G method 108A |
| Cold resistance (Low Temp Storage) | Temperature : -40 ± 2 °C<br>Duration : 96 hours | IEC 60068-2-1 |