



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 27.12MHz

TST Part No.: TZ1046B

Customer Part No.: _____

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

Checked by: _____ Chai Haur Rau *CH*

Approved by: _____ Kelly Huang *Kelly Huang*

Date: _____ 05/15/2018

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 27.12MHz

MODEL NO.: TZ1046B

REV. NO.: 1

Revise:

| Rev. | Rev. Page | Rev. Account | Date | Ref. No. | Revised by |
|------|-----------|-----------------|-----------|----------|---------------|
| 1 | N/A | Initial release | 05/15/18' | N/A | Chia Haur Rau |



TAI-SAW TECHNOLOGY CO., LTD.

Crystal Unit SMD 3.2x2.5 27.12MHz

MODEL NO.: TZ1046B

REV. NO.: 1

Features:

- Surface Mount Hermetic Package
- Excellent Reliability Performance
- Good Frequency Perturbation and Stability over temperature
- Ultra Miniature Package
- Moisture Sensitivity Level (MSL) : Level-1

RoHS Compliant
Lead free
Lead-free soldering

Description and Applications:

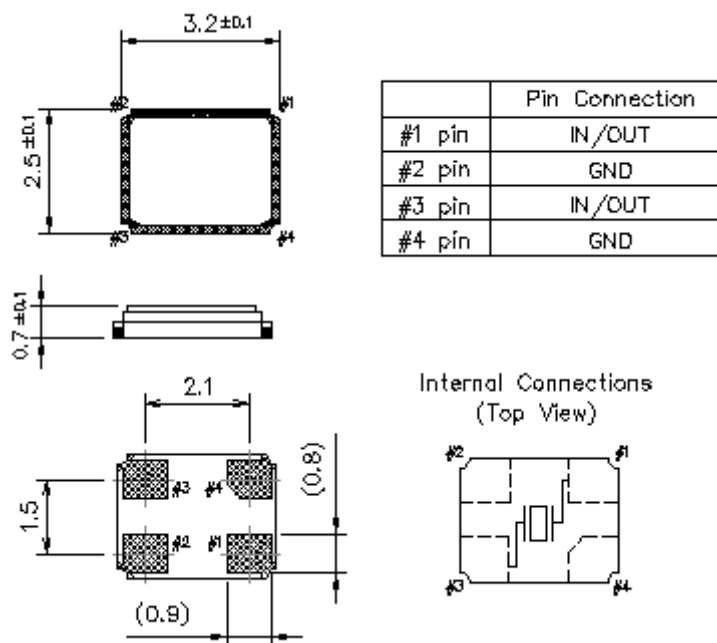
Surface mount 3.2mmx2.5mm crystal unit for customer for use in wireless communications devices, especially for a need of ultra miniature package for mobility.

Electrical Specifications:

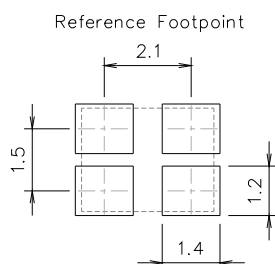
| TZ1046B | Specification |
|--|--|
| Nominal Frequency | 27.12000 MHz |
| Mode of Oscillation | Fundamental |
| Storage Temperature Range | -40°C to +105°C |
| Operating Temperature Range | -40°C to +85°C |
| Frequency Stability over Operating Temperature | +/- 30 ppm (referred to the value at 25°C) |
| Frequency Make Tolerance (FL) | +/- 10 ppm @ 25°C +/- 3°C |
| Equivalent Series Resistance (ESR) | 50 Ω max. |
| Nominal Drive Level | 10uW typical and 200uW max |
| Shunt Capacitance (Co) | 3.0 pF max |
| Load Capacitance (CL) | 12 pF |
| Aging | +/-2ppm/year |
| Insulation Resistance | 500 MΩ min./DC 100V |
| Marking | Laser Marking |
| Unit Weight | 0.017+/-0.005 g |

Mechanical Dimensions (mm):

Base



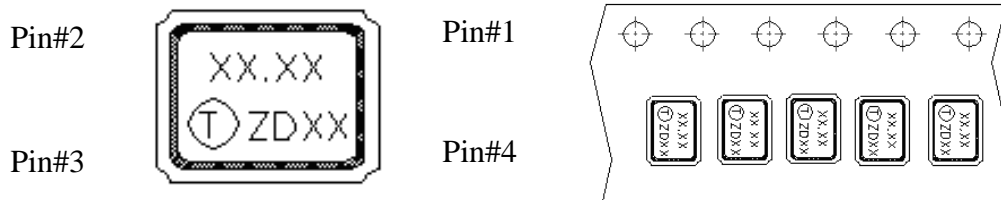
Recommended Land Pattern: (unit: mm)



Marking:

Line 1: Frequency (27.12)

Line 2: TST Logo + Crystal Product Code + Date Code + Traceability code (1 or 2 letters, underline or no underline)



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

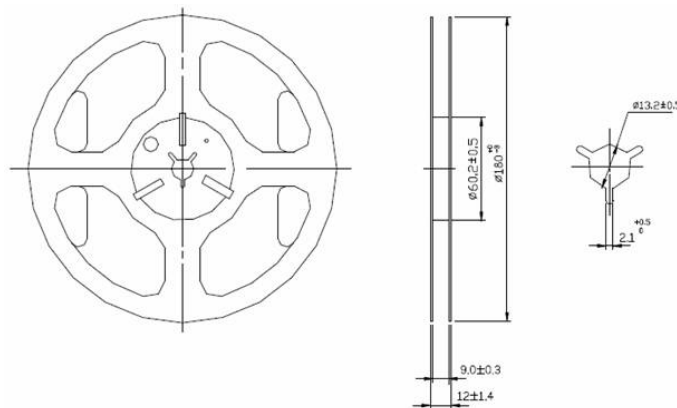
Product Code Table

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

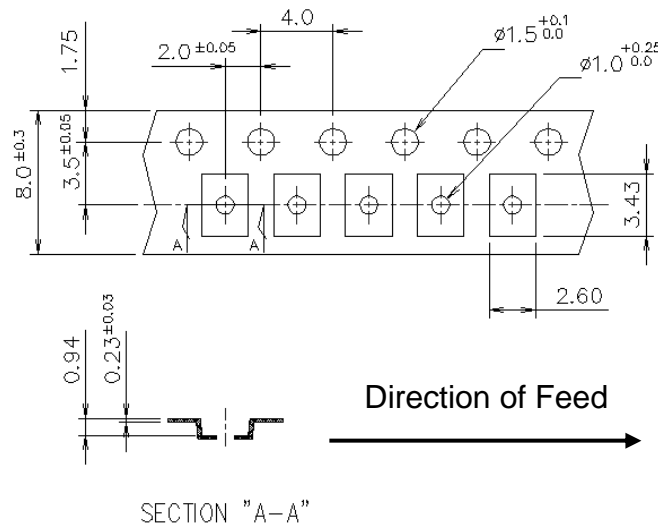
Date Code Table

| | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 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):

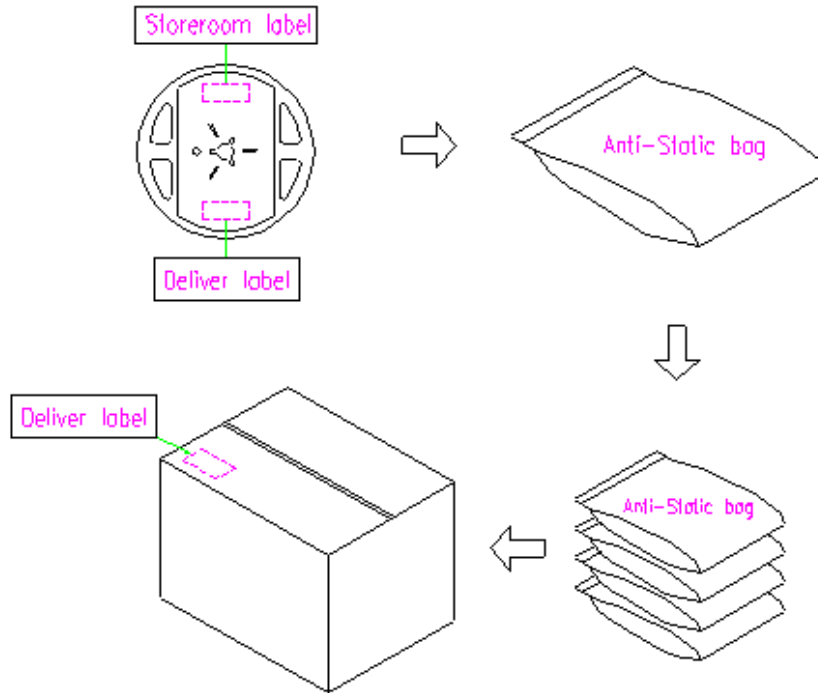


[NOTE]

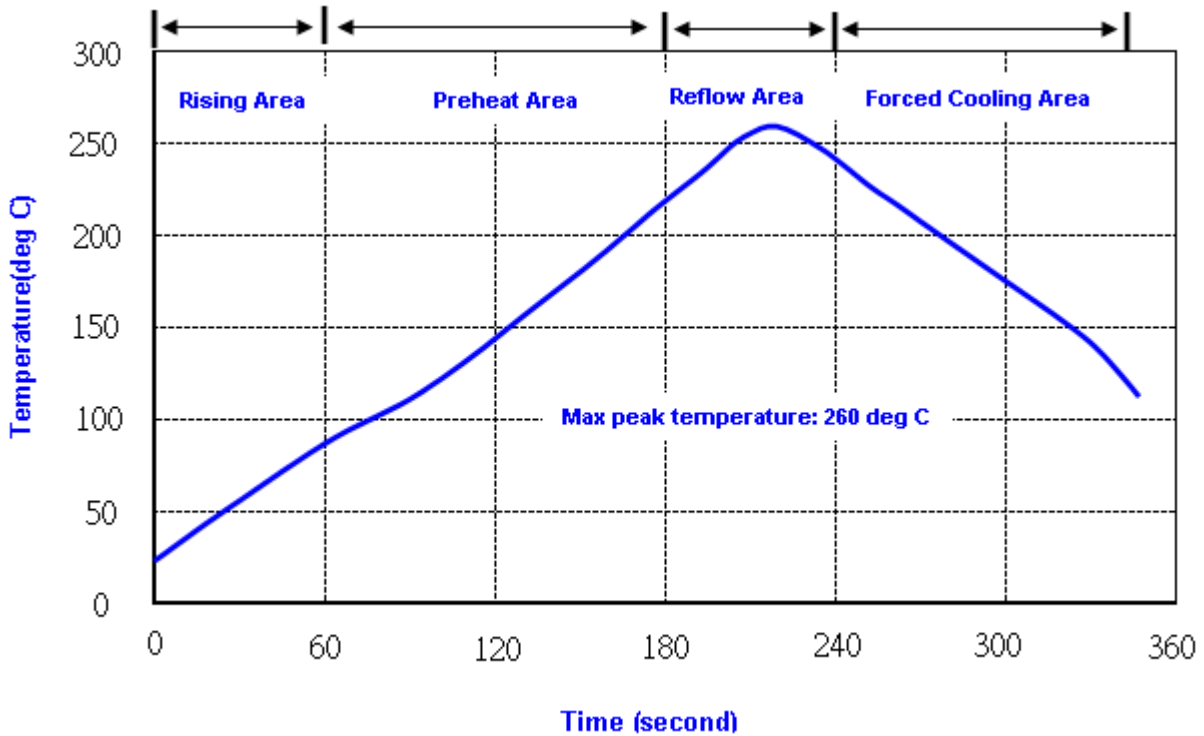
- 1 UNIT : mm.
- 2 UNLESS OTHERWISE SPECIFIED TOLERANCE ON DIM. +/-0.1mm.
- 3 MATERIAL : CONDUCTIVE POLYSTYRENE.
- 4 COLOR : BLACK.
- 5 10 PITCHES CUMULATIVE TOLERANCE +/-0.2mm.

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 x2 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 Duration : 2 hr / direc. | MIL-STD 202G method 204 |
| Mechanical Shock | directions : 3 impacts per axis Acceleration : 3000g's, +20/-0 % Duration : 0.3 ms (total 18 shocks) Waveform : Half-sine | MIL-STD 202G method 213 |
| Solderability | Solder Temperature:265±5°C Duration time: 5±0.5 seconds. | J-STD-002 |
| Environmental characteristics | | |
| Thermal Shock | Heat cycle conditions -40 °C (30min) ↔ 85 °C (30min) * cycle time : 10 times | MIL-STD 883G method 1010.8 |
| Humidity test | Temperature : 85 ± 2 °C Relative humidity : 85% Duration : 96 hours | MIL-STD 202G method 103 |
| Dry heat (Aging test) | Temperature : 125 ± 2 °C Duration : 168 hours | MIL-STD 202G method 108A |
| Cold resistance (Low Temp Storage) | Temperature : -40 ± 2 °C Duration : 96 hours | IEC 60068-2-1 |

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Crystals](#) category:

Click to view products by [Touchstone](#) manufacturer:

Other Similar products are found below :

[CS325S24000000ABJT](#) [718-13.2-1](#) [MC405 32.0000K-R3:PURE SN](#) [FC-135R 32.7680KF-A3](#) [7A-40.000MAAE-T](#) [7B-27.000MBBK-T](#)
[FL2000085](#) [9B-15.360MBBK-B](#) [9C-7.680MBBK-T](#) [ASH7K-32.768KHZ](#) [AT-41.600MAGQ-T](#) [BTD1062E05A-513](#) [LFX TAL066198Cutt](#)
[9C-14.31818MBBK-T](#) [FA-238 50.0000MB30X-K3](#) [FC-12M 32.7680KA-AC3](#) [SSPT7F-9PF20-R](#) [FX325BS-38.88EEM1201](#)
[LFX TAL065253Cutt](#) [LFX TAL066431Cutt](#) [XT9S20ANA14M7456](#) [XT9SNLANA16M](#) [646G-24-2](#) [7A-24.576MBBK-T](#) [7B-30.000MBBK-T](#)
[WX26-32.768K-6PF](#) [9B-14.31818MBBK-B](#) [CD1AM](#) [7B-25.000MAAE-T](#) [7A-14.31818MBBK-T](#) [6504-202-1501](#) [6526-202-1501](#) [FA-118T](#)
[27.1200MB50P-K0](#) [FC-135R 32.7680KA-A3](#) [ABM12-104-37.400MHZT](#) [ABLS-10.000MHZ-D3W-T](#) [BTJ112E01E-513](#) [BTJ722K01C-7067](#)
[BTL-20-513](#) [TSX-3225 24.0000MF15X-AC](#) [TSX-3225 16.0000MF18X-AC](#) [BTJ120E02C](#) [BTL-12-513](#) [7A-10.000MBBK-T](#) [7A-](#)
[11.0592MBBK-T](#) [ABM12-103-24.000MHZT](#) [CS325S25000000ABJT](#) [ABM3B-25.000MHZ-B2-X-T](#) [FC-135 32.7680KA-A5](#) [FX0800015](#)