



TAI-SAW TECHNOLOGY CO., LTD.

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Product Specifications Approval Sheet

Product Description: Crystal Unit SMD 3.2x2.5 20.00MHz

TST Part No.: TZ3807AA4414

Customer Part No.: _____

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

Checked by: _____ Yifan Chen *Yifan*

Approved by: _____ Kelly Huang *Kelly Huang*

Date: _____ 09/24/2020

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 20.00MHz

MODEL NO.: TZ3807AA4414

REV. NO.: 1

Revise:

| Rev. | Rev. Page | Rev. Account | Date | Ref. No. | Revised by |
|------|-----------|-----------------|-----------|----------|------------|
| 1 | N/A | Initial release | 09/24/20' | N/A | Yifan Chen |

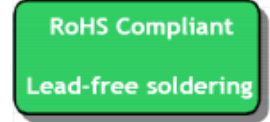


MODEL NO.: TZ3807AA4414

REV. NO.: 1

Features:

- Surface Mount Hermetic Package
- Excellent Reliability Performance
- Good Frequency Perturbation and Stability over temperature
- Ultra Miniature Package
- AEC-Q200 compliance
- Moisture Sensitivity Level (MSL) : Level-1



Description and Applications:

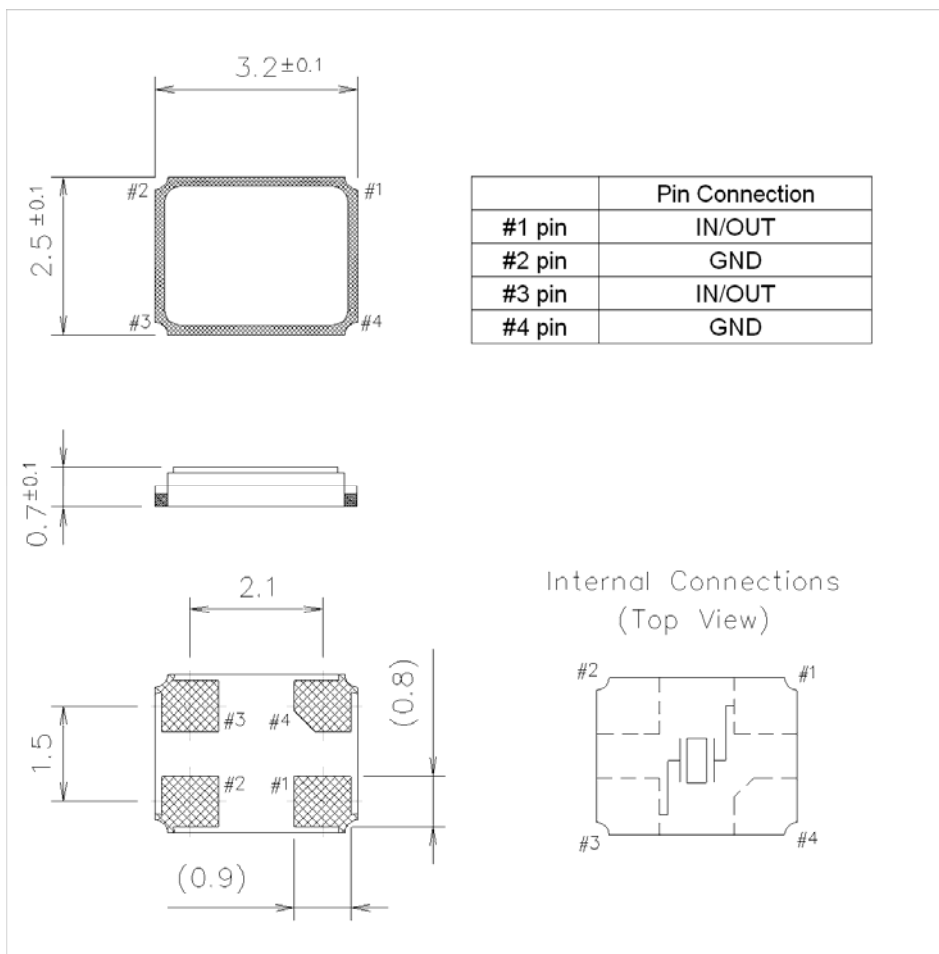
Surface mount 3.2mmx2.5mm crystal unit for customer for use in wireless communications devices, especially for a need of ultra miniature package for mobility.

Electrical Specifications:

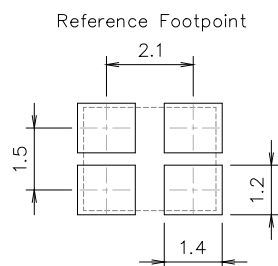
| TZ3807AA4414 | Specification |
|--|---|
| Nominal Frequency | 20.000000 MHz |
| Mode of Oscillation | Fundamental |
| Storage Temperature Range | -40C to +125C |
| Operating Temperature Range | -40C to +125C |
| Frequency Stability over Operating Temperature | +/- 30 ppm (referred to the value at 25C) |
| Frequency Make Tolerance (FL) | +/- 10 ppm @ 25C +/- 3C |
| Equivalent Series Resistance (ESR) | 80 max. |
| Nominal Drive Level | 10uW typical and 200uW max |
| Shunt Capacitance (Co) | 3.0 pF max |
| Load Capacitance (CL) | 8 pF |
| Aging | +/-2ppm/year |
| Insulation Resistance | 500 M min./DC 100V |
| Marking | Laser Marking |
| Unit Weight | 0.017+/-0.005 g |

Mechanical Dimensions (mm):

Base



Recommended Land Pattern: (unit: mm)

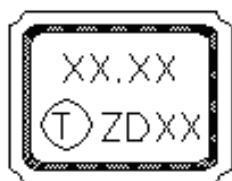


Marking:

Line 1: Frequency (20.00)

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

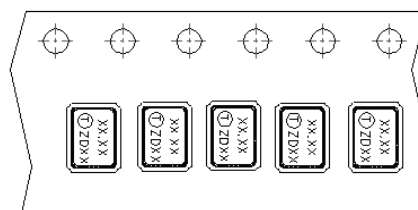
Pin#2



Pin#1

Pin#3

Pin#4



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

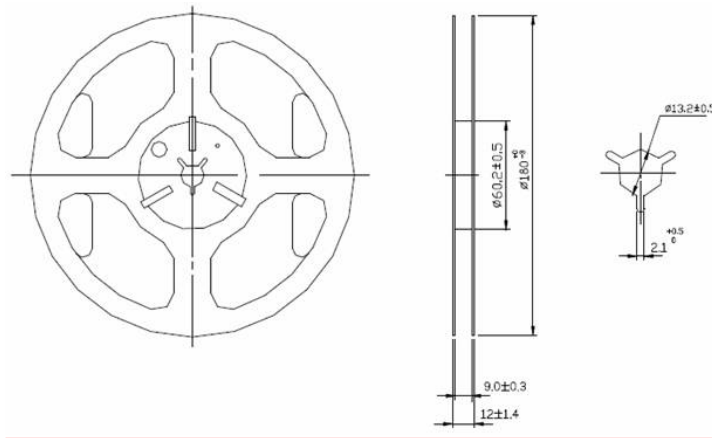
Product Code Table

| | | | | |
|--------------|------|------|----------|----------|
| Year | 2017 | 2018 | 2019 | 2020 |
| | 2021 | 2022 | 2023 | 2024 |
| | 2025 | 2026 | 2027 | 2028 |
| Product Code | Z | z | <u>Z</u> | <u>z</u> |

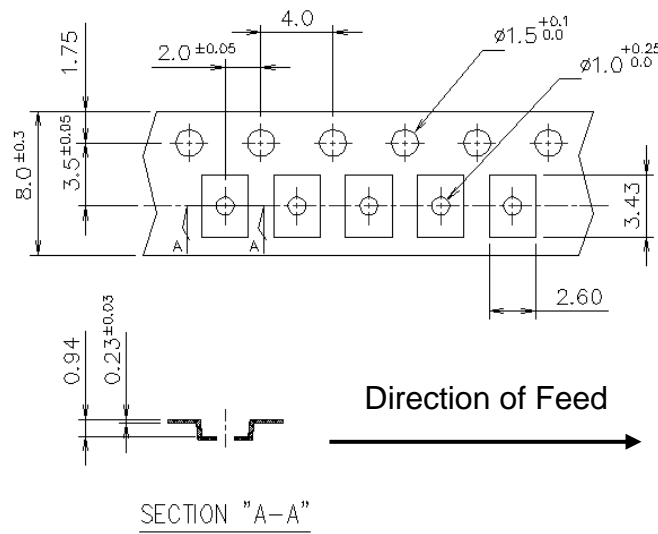
Date Code Table

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



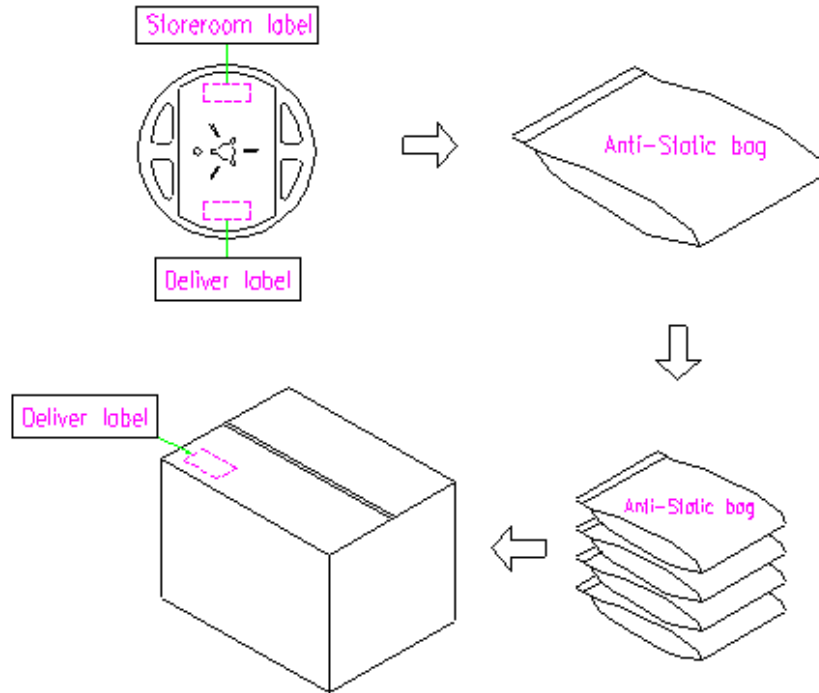
[NOTE]

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

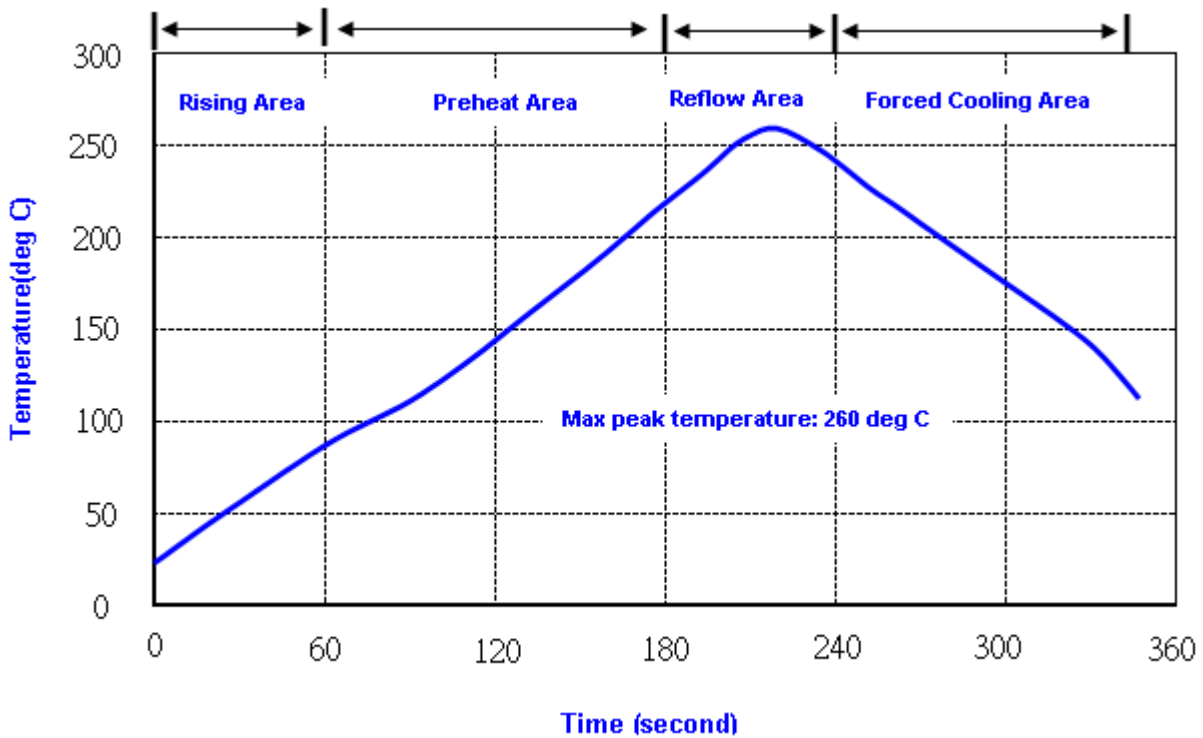
5 10 PITCHES CUMULATIVE TOLERANCE +/-0.2mm.

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 (AEC-Q200)

| 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 | 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°C Duration time: 5±0.5 seconds. | J-STD-002 |
| Environmental characteristics | | |
| Thermal Shock | Heat cycle conditions -55 °C (30min) ↔ 125 °C (30min) * cycle time : 1000 times | MIL-STD 883G method 1010.8 |
| Humidity test | Temperature : 85 ± 2 °C Relative humidity: 85% Duration : 1000 hours | MIL-STD 202G method 103 |
| Dry heat (Aging test) | Temperature : 125 ± 2 °C Duration : 1000 hours | MIL-STD 202G method 108A |
| Cold resistance (Low Temp Storage) | Temperature : -40 ± 3 °C Duration : 1000 hours | IEC 60068-2-1 |