



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 2.0x1.6 48MHz

TST Part No.: TZ2552A

Customer Part No.: _____

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

Checked by: _____ Chia Haur Rau *CH*

Approved by: _____ Kelly Huang *Kelly Huang*

Date: _____ 09/01/2016

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 2.0x1.6 48MHz

MODEL NO.: TZ2552A

REV. NO.: 4.0

Revise:

| Rev. | Rev. Page | Rev. Account | Date | Ref. No. | Revised by |
|------|-----------|------------------------|-----------|---------------|---------------|
| 1 | N/A | Initial release | 11/24/14' | N/A | Naco Kuo |
| 2 | 3 | DL change to 200uW max | 06/16/15' | ECN-201500119 | Derick Lin |
| 2 | 3 | CL change to 11.4pF | 06/16/15' | ECN-201500199 | Derick Lin |
| 2 | 7 | Revise RA table | 06/16/15' | WI-76Q01 | Derick Lin |
| 3 | P4 | Change Base drawing | 06/24/16' | ECN-201600209 | Chia Haur Rau |
| 4 | P4 | Change Base drawing | 09/01/16' | ECN-201600340 | Chia Haur Rau |



TAI-SAW TECHNOLOGY CO., LTD.

Crystal Unit SMD 2.0x1.6 48MHz

MODEL NO.: TZ2552A

REV. NO.: 4.0

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

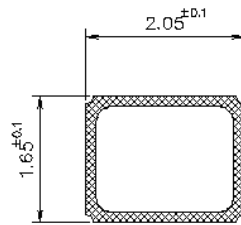
Description and Applications:

Surface mount 2.0mmx1.6mm crystal unit for use in wireless communications devices, especially for a need of ultra miniature package for mobility.

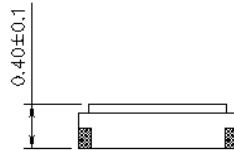
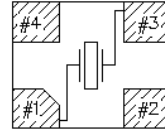
Electrical Specifications:

| TZ2552A | Specification |
|--|---|
| Nominal Frequency | 48.000000 MHz |
| Mode of Oscillation | Fundamental |
| Storage Temperature Range | -40°C to +105°C |
| Operating Temperature Range | -30°C to +85°C |
| Frequency Stability over Operating Temperature Range | +/-10 ppm (referred to the value at 25°C) |
| Frequency Make Tolerance (FL) | +/-8 ppm @ 25°C +/- 3°C |
| Equivalent Series Resistance (ESR) | 22 Ω max |
| Nominal Drive Level | 10uW typical and 200uW max |
| Shunt Capacitance (Co) | 5.0 pF max |
| Load Capacitance (CL) | 11.4 pF |
| Aging | +/-1ppm/year |
| Insulation Resistance | 500 MΩ min./DC 100V |
| Marking | Laser Marking |
| Unit Weight | 5.7mg+/-0.5mg |

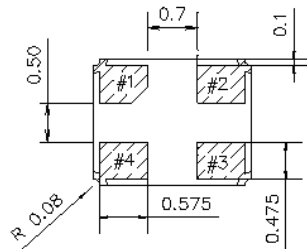
Mechanical Dimensions (mm): Base1



Internal Connections
(Top View)

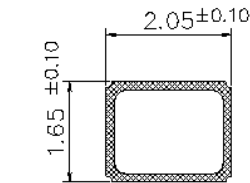


[NOTE] #2, #4 is connected with a metal cover

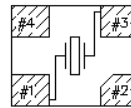


| | Pin Connection |
|--------|----------------|
| #1 pin | IN/OUT |
| #2 pin | GND |
| #3 pin | IN/OUT |
| #4 pin | GND |

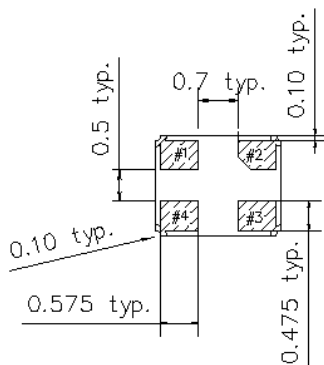
Base2



Internal Connections
(Top View)

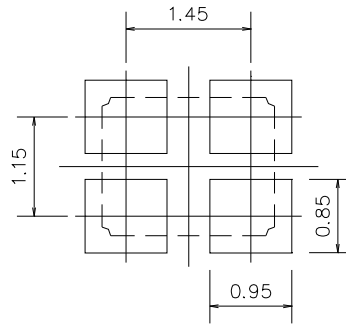


[NOTE] #2, #4 is connected with a metal cover



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

Recommended Land Pattern: (unit: mm)

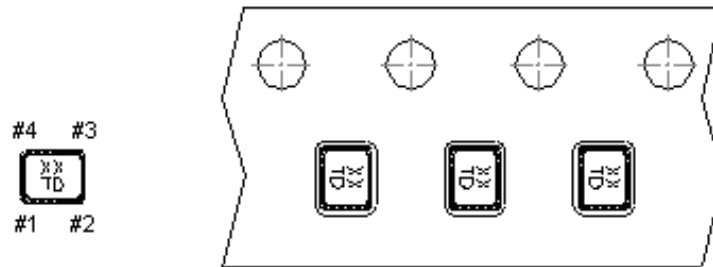


Recommended Land Pattern

Marking:

Line 1: XX; Frequency (48)

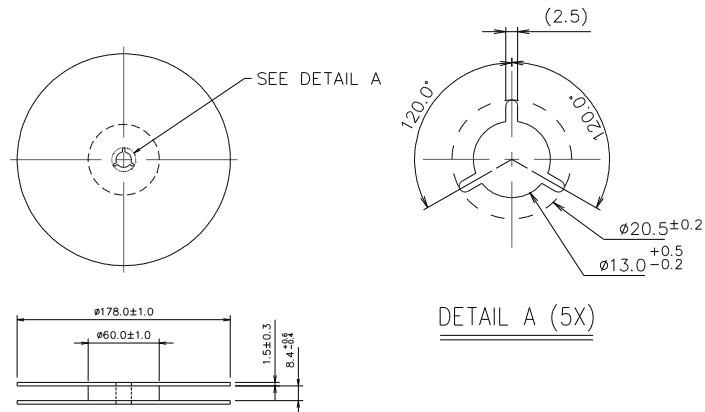
Line 2: T; Traceable Code + D; date Code of Year/Month



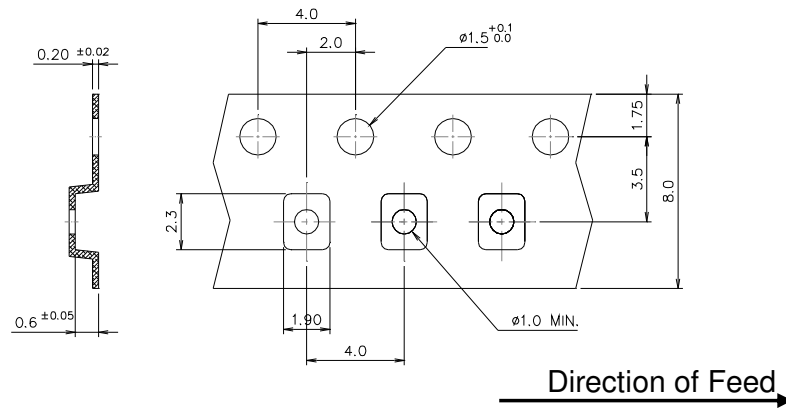
Date Code Table: Year/Month

| Year/Month | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|------------|---|---|---|---|---|---|---|---|---|----|----|----|
| 2012 | a | b | c | d | e | f | g | h | i | j | k | m |
| 2013 | n | p | q | r | s | t | u | v | w | x | y | z |
| 2014 | A | B | C | D | E | F | G | H | J | K | L | M |
| 2015 | N | P | Q | R | S | T | U | V | W | X | Y | Z |
| 2016 | a | b | c | d | e | f | g | h | i | j | k | m |
| 2017 | n | p | q | r | s | t | u | v | w | x | y | z |
| 2018 | A | B | C | D | E | F | G | H | J | K | L | M |
| 2019 | N | P | Q | R | S | T | U | V | W | X | Y | Z |
| 2020 | a | b | c | d | e | f | g | h | i | j | k | m |
| 2021 | n | p | q | r | s | t | u | v | w | x | y | z |
| 2022 | A | B | C | D | E | F | G | H | J | K | L | M |
| 2023 | N | P | Q | R | S | T | U | V | W | X | Y | Z |
| 2024 | a | b | c | d | e | f | g | h | i | j | k | m |
| 2025 | n | p | q | r | s | t | u | v | w | x | y | z |

Reel Dimensions (mm):



Tape Dimensions (mm):

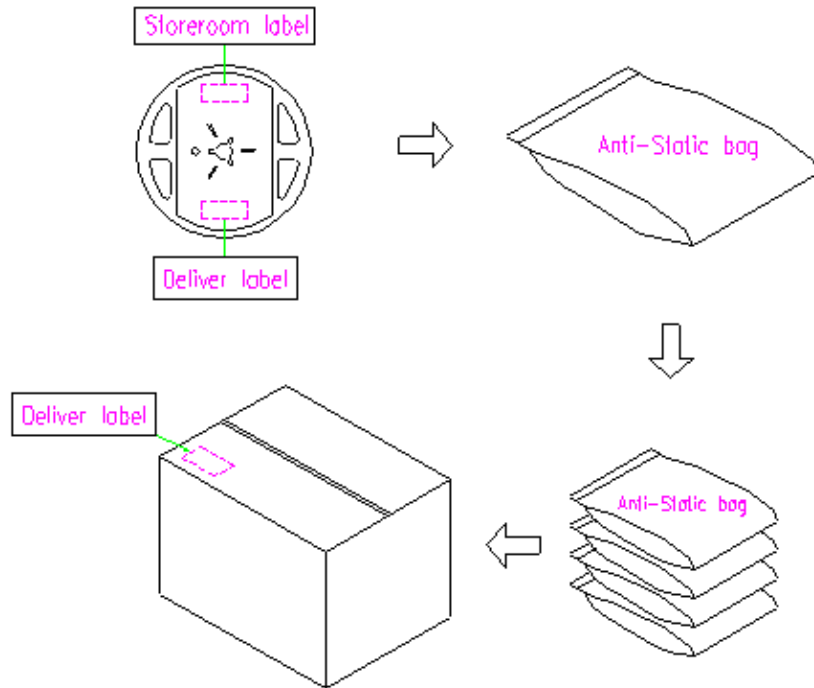


[NOTE]:

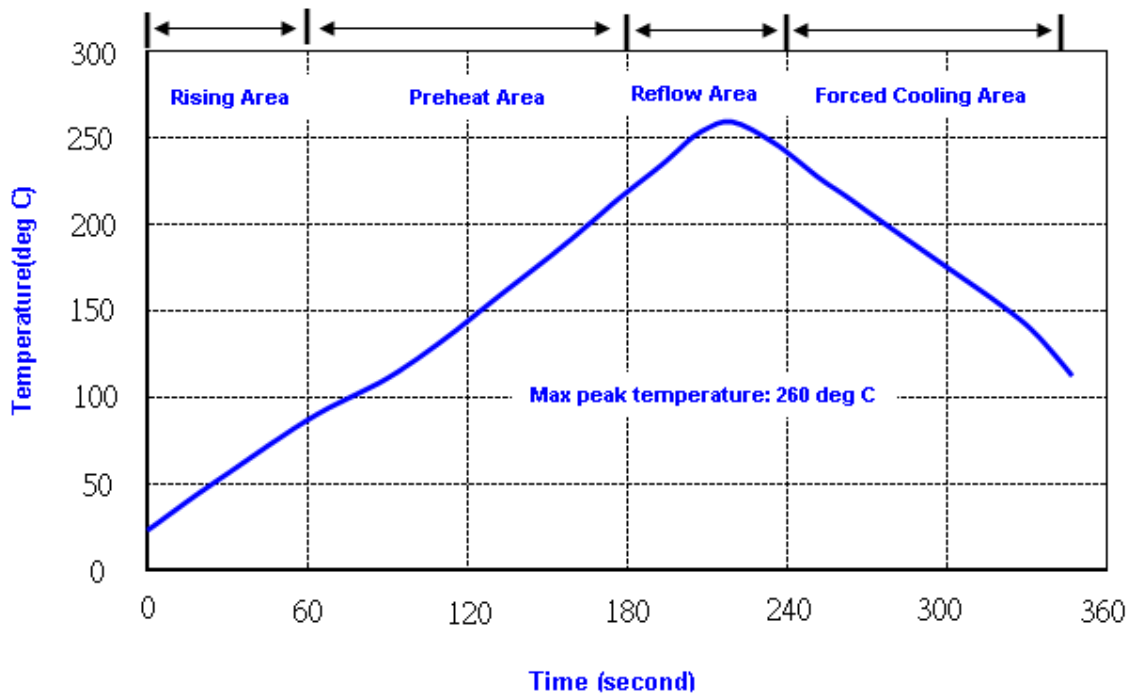
1. Unless otherwise specified tolerance on dimension ± 0.1 mm.
2. Material: conductive polystyrene with color black.
3. 10 pitch cumulative tolerance ± 0.2 mm.

Packing Quantity/Packing:

3K pcs maximum per reel



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 |
|--|--|-----------------------------------|
| Mechanical characteristics | | |
| resistance to Soldering heat (IR reflow) | Temp/ Duration : 265°C / 10sec × 2 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 |