



# TAI-SAW TECHNOLOGY CO., LTD.

No. 3, Industrial 2nd Rd., Ping-Chen Industrial District,  
Taoyuan, 324, Taiwan, R.O.C.

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## Product Specifications Approval Sheet

Product Description: Crystal Oscillator SMD 3.2x2.5 3.5795MHz

TST Part No.: TW0419A

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

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

Checked by: \_\_\_\_\_ JieAn Huang *JieAn*

Approved by: \_\_\_\_\_ Kelly Huang *Kelly Huang*

Date: \_\_\_\_\_ 05/11/2012

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.



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## SMD 3.2x2.5 3.5795MHz Crystal Oscillator

MODEL NO.: TW0419A

REV. NO.: 2.0

### Revise:

| Rev. | Rev. Page | Rev. Account    | Date      | Ref. No. | Reviser     |
|------|-----------|-----------------|-----------|----------|-------------|
| 1    | N/A       | Initial release | 04/10/12' | N/A      | JieAn Huang |
| 2    | 5         | 修正產品墨印說明        | 05/11/12' | N/A      | JieAn Huang |



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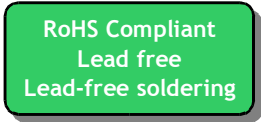
## SMD 3.2x2.5 3.5795MHz Crystal Oscillator

MODEL NO.: TW0419A

REV. NO: 2.0

### Features:

- Surface Mount Seam Weld Package
- Excellent Reliability Performance
- Good Frequency Perturbation and Stability over temperature



### Application:

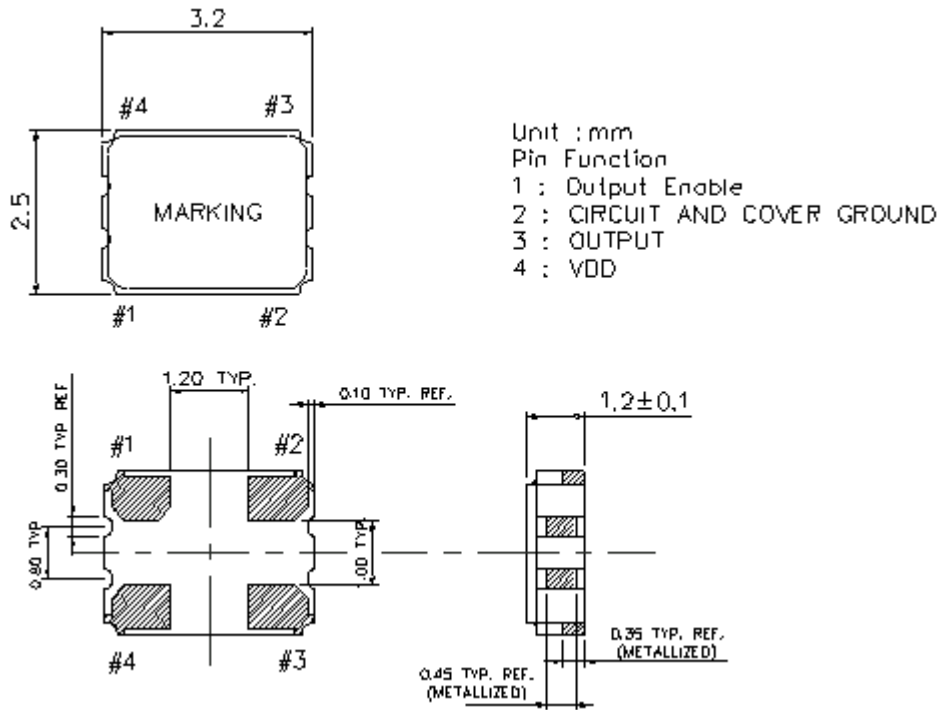
- 3.3Supply Voltage CMOS Output
- Option-able stand-by function for output .

### Electrical Characteristics:

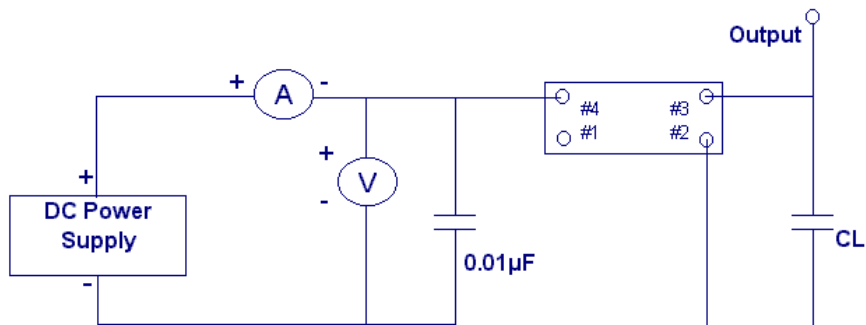
| TW0419A  | Specifications   |
|--|--|
| Nominal Frequency, Fo  | 3.57950000 MHz   |
| Storage Temperature Range  | -50°C to +125°C  |
| Operating Temperature Range  | -10°C to +70°C   |
| Power Supply Voltage, Vcc  | 3.3V +/- 5%  |
| Load   | 15pF   |
| “0” Level<br>“1” Level   | 0.33 V max<br>2.97 V min                                       |
| Power Supply Current, Icc  | 10 mA max  |
| Frequency Accuracy <sup>1</sup>  | +/-30ppm max   |
| Duty Cycle   | 40% ~ 60%  |
| Rise Time ( 10% -> 90% of final RF level in Vp-p )<br>Fall Time ( 90% -> 10% of final RF level in Vp-p ) | 20 nsec max.<br>20 nsec max                                    |
| Enable/Disable Function  | PIN 1: High or Open, PIN 3:Enable<br>PIN 1: Low, PIN 3:Disable |

#Note 1: Frequency accuracy includes 25°C tolerance, operating temperature range -10 to 70°C, aging and voltage or load change

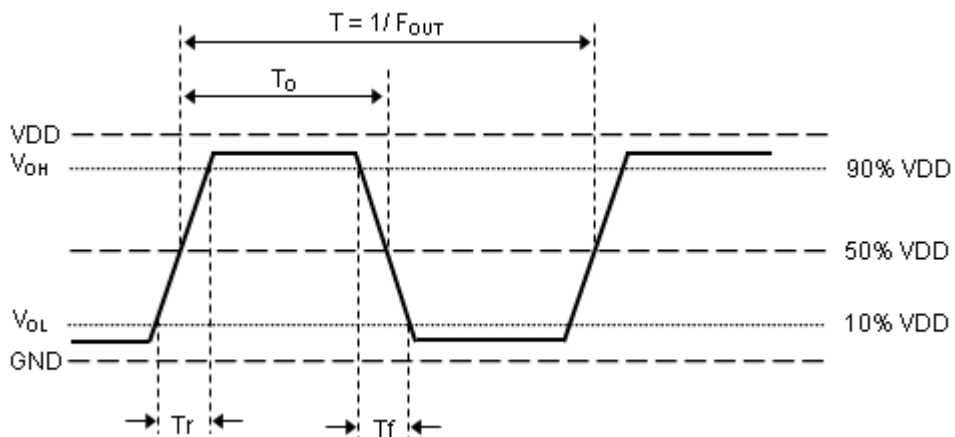
# Mechanical Dimensions: (Unit: mm)



## Test Circuit:



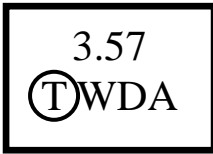
## Output Waveform :



# Marking:

Line 1: 3.5795(Frequency)

Line 2:  $\text{\textcircled{T}}$ WDA (TST logo + Product Code + Data Code + TST Internal Code)



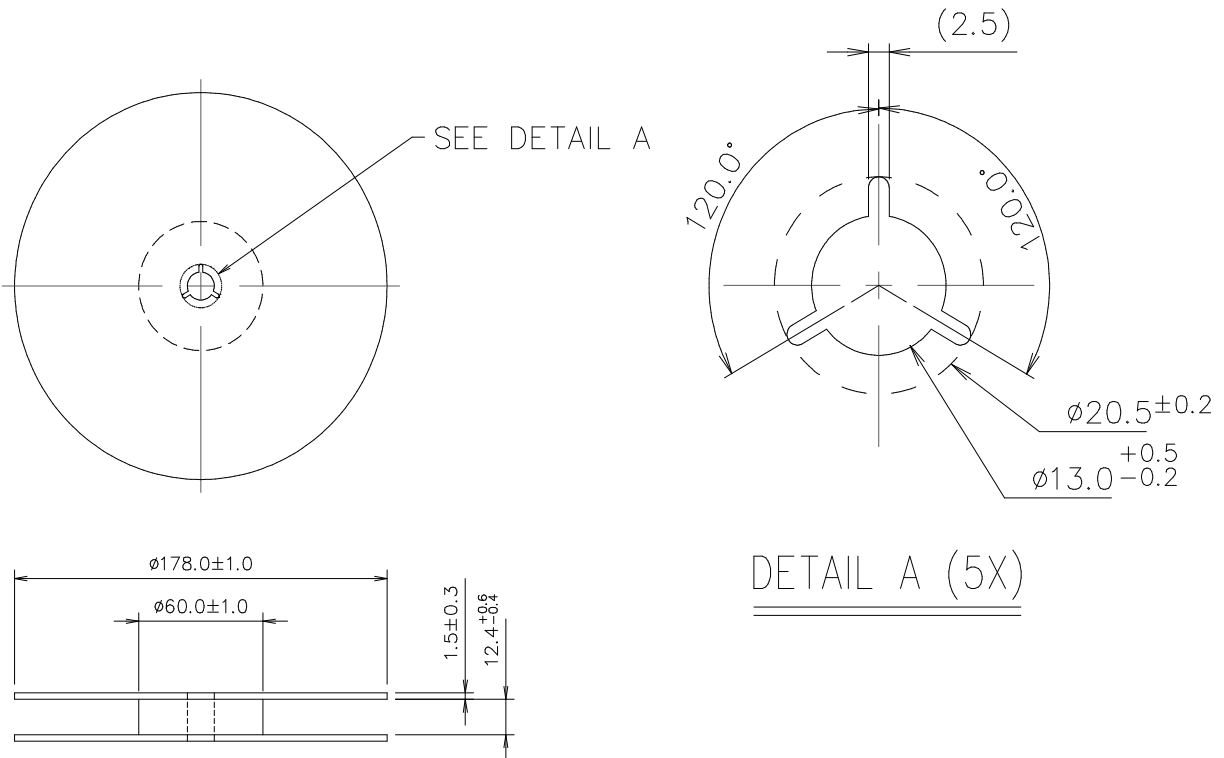
## Product Code Table

|              |      |      |          |          |
|--------------|------|------|----------|----------|
| Year         | 2009 | 2010 | 2011     | 2012     |
|              | 2013 | 2014 | 2015     | 2016     |
|              | 2017 | 2018 | 2019     | 2020     |
| Product Code | W    | w    | <u>W</u> | <u>w</u> |

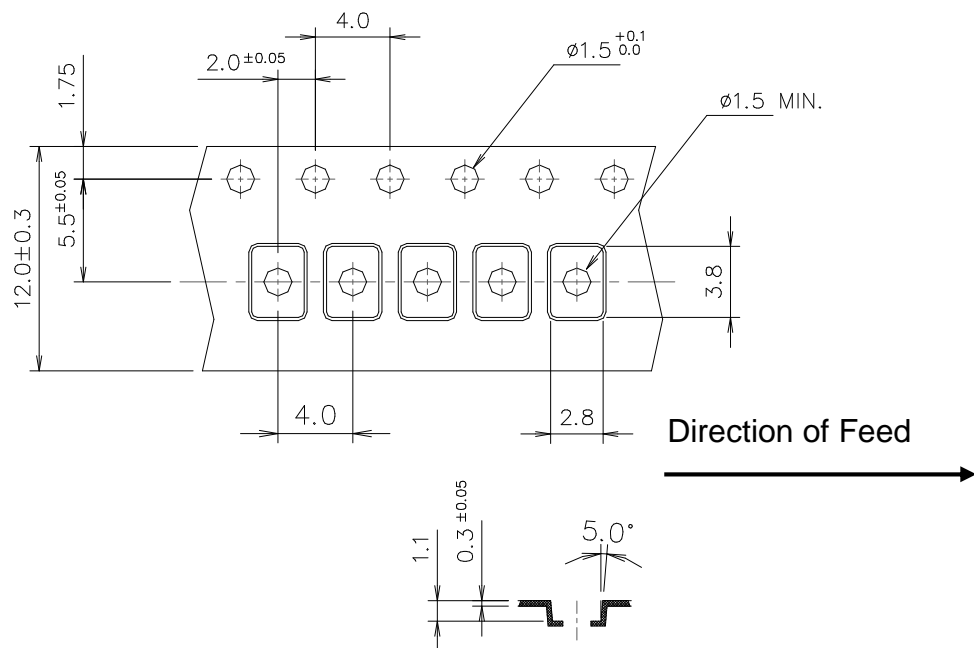
## Date Code Table

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

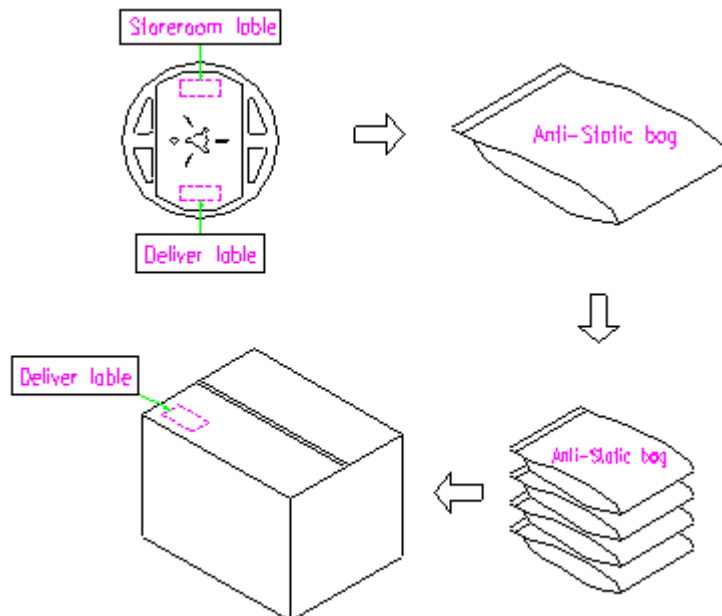


### [NOTE]:

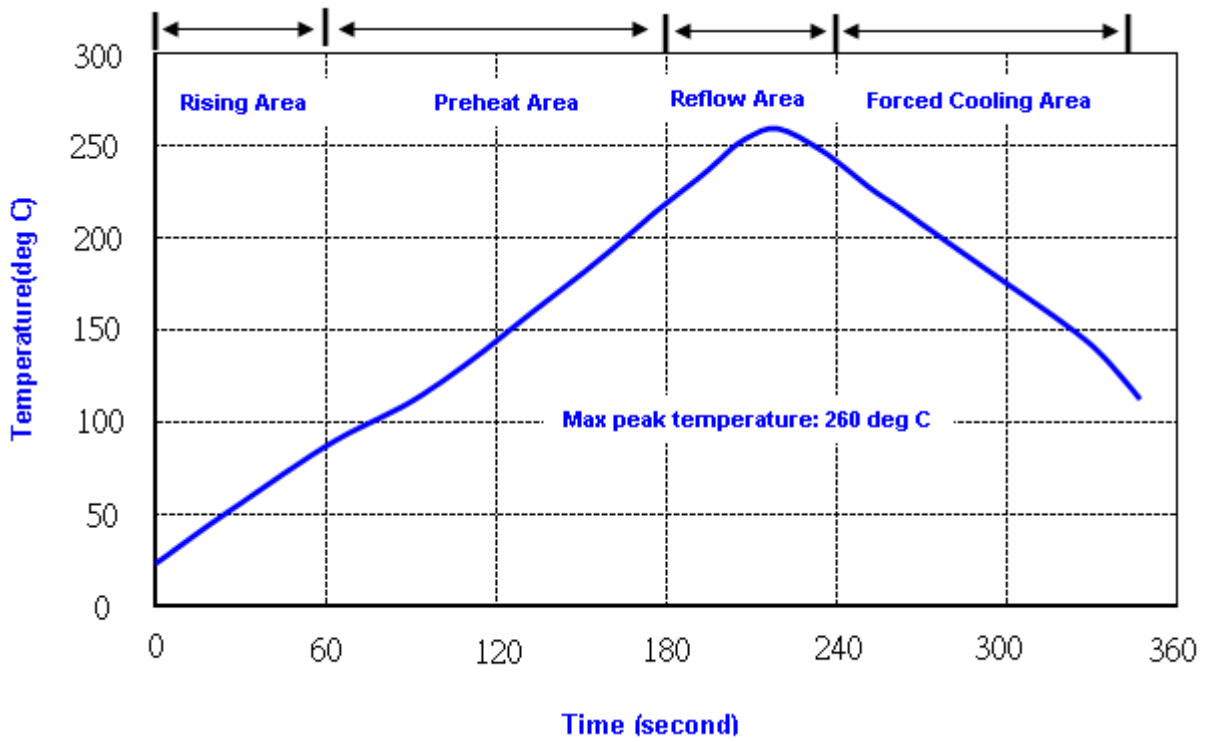
1. Unless otherwise specified tolerance on dimension  $\pm 0.1$  mm.
2. Material: conductive polystyrene with color black.
3. 10 pitch cumulative tolerance  $\pm 0.2$  mm.

## 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 x2 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 ( 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                      |