



# TAI-SAW TECHNOLOGY CO., LTD.

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

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## Approval Sheet For Product Specification

Issued Date: 5/22/2003 (REV. NO: 1)

Product Name: SMD 5.0x3.2 36.0MHz Crystal Unit

TST Parts No.: TZ0209A

Customer Parts No. : \_\_\_\_\_

Company: \_\_\_\_\_

Division: \_\_\_\_\_

Approved by: \_\_\_\_\_

Date: \_\_\_\_\_

Checked by: \_\_\_\_\_ CC Hsu

Approval by: \_\_\_\_\_ TF Yang

Date: \_\_\_\_\_ 5/22/2003



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## SMD 5.0x3.2 36.0MHz Crystal Unit

MODEL NO.: TZ0209A

REV. NO.: 1

### Features:

- Surface Mount Seam Weld Package
- Excellent Aging
- Good Frequency Perturbation and Stability over temperature
- Ultra Miniature Package

RoHS Compliant  
Lead free  
Lead-free soldering

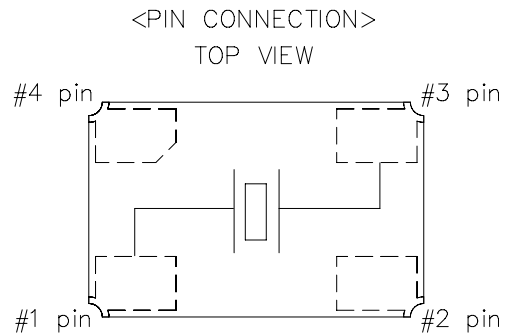
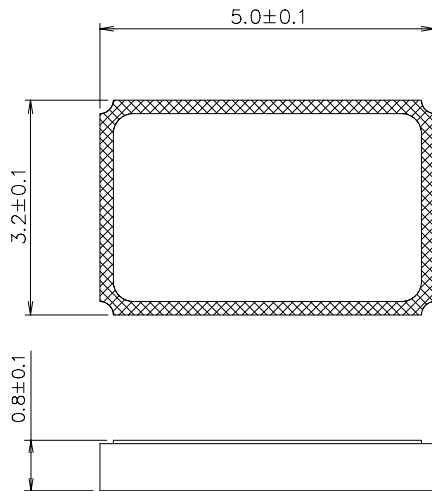
### Description and Applications:

Surface mount 5.0mmx3.2mm crystal unit for use in wireless telecommunications devices, especially for a need of ultra miniature package for mobility.

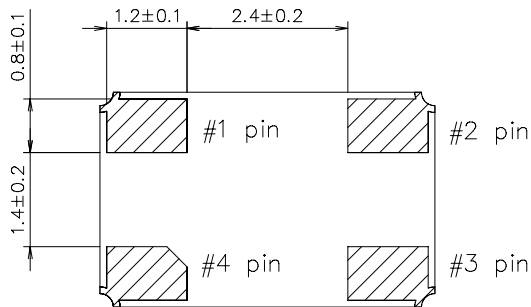
### Electrical Specifications:

| TZ0209A                                        | Specification                              |
|------------------------------------------------|--------------------------------------------|
| Nominal Frequency                              | 36.000000 MHz                              |
| Mode of Oscillation                            | Fundamental                                |
| Storage Temperature Range                      | -40°C to +85°C                             |
| Operating Temperature Range                    | -10°C to +60°C                             |
| Frequency Stability over Operating Temperature | +/- 30 ppm (referred to the value at 25°C) |
| Frequency Make Tolerance                       | +/- 30 ppm @ 25°C +/- 3°C                  |
| Equivalent Series Resistance (ESR)             | 50 $\Omega$ max.                           |
| Drive Level                                    | 20+/-2 uW                                  |
| Shunt Capacitance (Co)                         | 3.0 pF max                                 |
| Load Capacitance (CL)                          | 18 pF                                      |
| Motional Capacitance (C1)                      | 7.0 fF min                                 |
| Insulation Resistance                          | 500 M $\Omega$ min./DC 100V                |
| Aging                                          | +/-1.0 ppm/year @25°C                      |
| Marking                                        | Laser marking                              |

## Mechanical Dimensions (mm):



Marking #2, #4 is connected with metal cap of top.

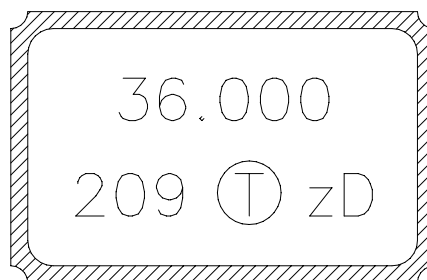


|        | Pin Connection |
|--------|----------------|
| #1 pin | IN/OUT         |
| #2 pin | GND            |
| #3 pin | IN/OUT         |
| #4 pin | GND            |

## Marking:

Line 1: Customer Frequency (36.000)

Line 2: TST P/N (209) + TST Logo + Crystal Product Code + Date Code

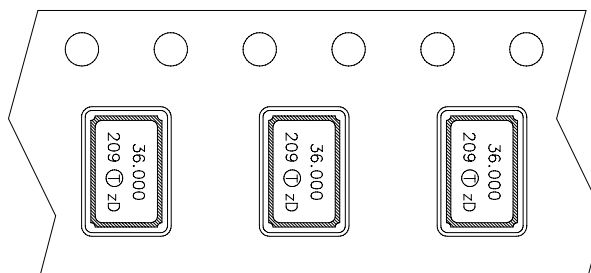


## Product Code Table

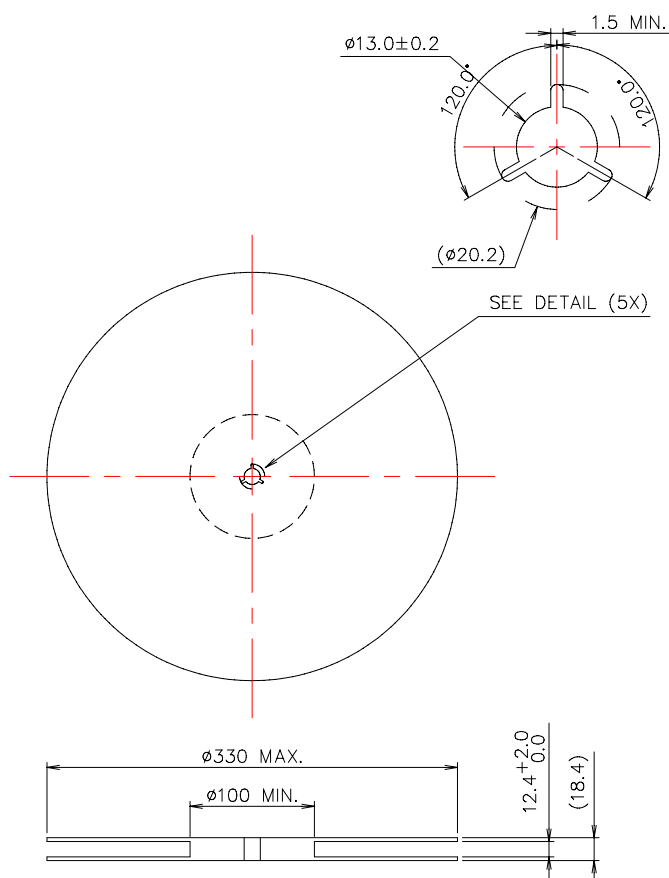
| Year         | 2001<br>2005 | 2002<br>2006 | 2003<br>2007 | 2004<br>2008 |
|--------------|--------------|--------------|--------------|--------------|
| Product Code | Z            | z            | <u>Z</u>     | <u>z</u>     |

## Date Code Table

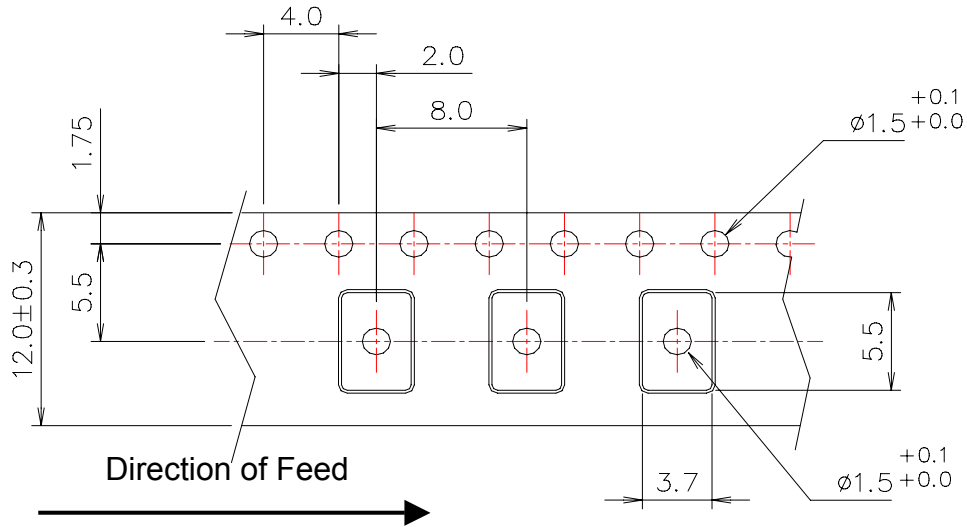
|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| WK01 | WK02 | WK03 | WK04 | WK05 | WK06 | WK07 | WK08 | WK09 | WK10 | WK11 | WK12 | WK13 |
| A    | B    | C    | 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. Unless otherwise specified tolerance on dimension +/-0.1 mm.
2. Material: conductive polystyrene with color black
3. 10 pitch cumulative tolerance +/-0.2 mm.

## Reflow Profile:

1. Preheating shall be fixed at 140 ~ 160 °C for 60 ~ 90 seconds.
2. Ascending time to preheating temperature 150 °C shall be 30 seconds min.
3. Heating shall be fixed at 200 °C for 50 ~ 60 seconds and at 230±10 °C peak.

