



TAI-SAW TECHNOLOGY CO., LTD.
Crystal Unit SMD 3.2x2.5 16.0MHz

2/8

MODEL NO.: TZ0384C

REV. NO.: 4

Revise:

Rev.	Rev. Page	Rev. Account	Date	Ref. No.	Revised by
1	N/A	Initial release	11/26/10'	N/A	Ann Liu
2	3	Drive level 100uW max	06/24/13'	ECN-201300215	Yifan Chen
3	3-7	Update Drive level, Add MSL level, Aging, Marking rule, Base and T/R drawing, Reliability	02/22/21'	ECN-202200059	Yifan Chen
4	4	Add Base2 drawing	03/16/26'	ECN-	Chia Haur Rau



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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

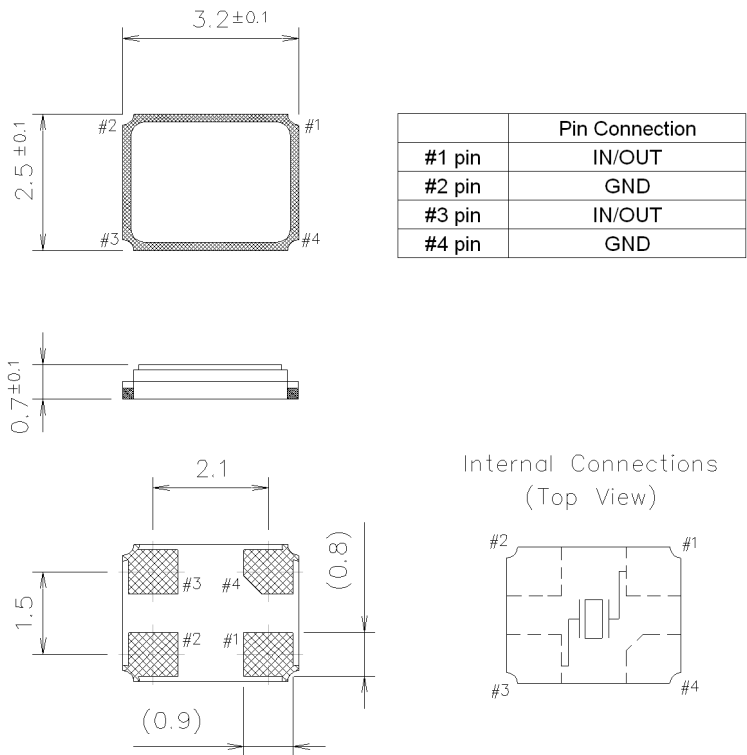
Description and Applications:

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

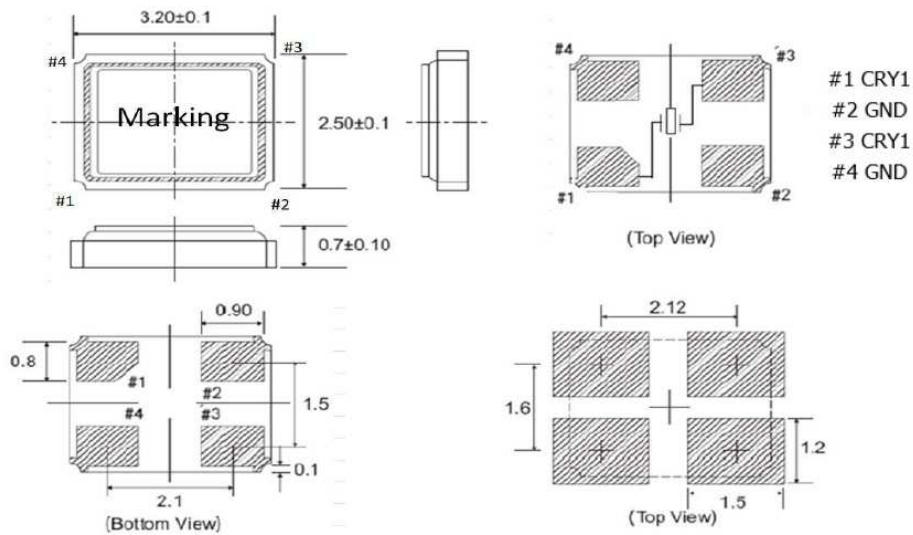
Electrical Specifications:

TZ0384C	Specification
Nominal Frequency	16.000000 MHz
Mode of Oscillation	Fundamental
Storage Temperature Range	-40°C to +85°C
Operating Temperature Range	-40°C to +85°C
Frequency Stability over Operating Temperature	+/- 20 ppm (referred to the value at 25°C)
Frequency Make Tolerance (FL)	+/- 20 ppm @ 25°C +/- 3°C
Equivalent Series Resistance (ESR)	40 Ω max.
Nominal Drive Level	100uW typical and 200uW max
Shunt Capacitance (Co)	2.0 pF max
Load Capacitance (CL)	18 pF
Insulation Resistance	500 M Ω min./DC 100V
Marking	Laser Marking
Unit Weight	0.017+/-0.005 g

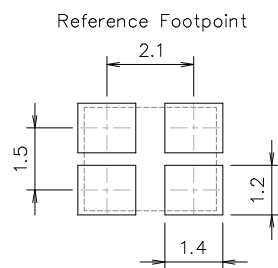
Mechanical Dimensions (mm):
Base 1



Base 2



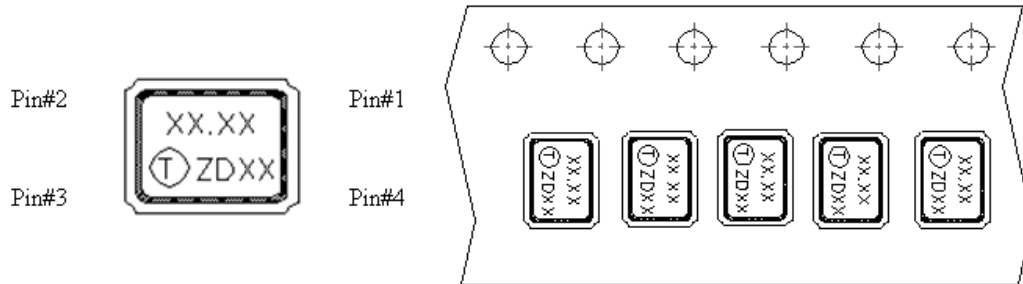
Recommended Land Pattern: (unit: mm)



Marking:

Line 1: Frequency (16.00)

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.

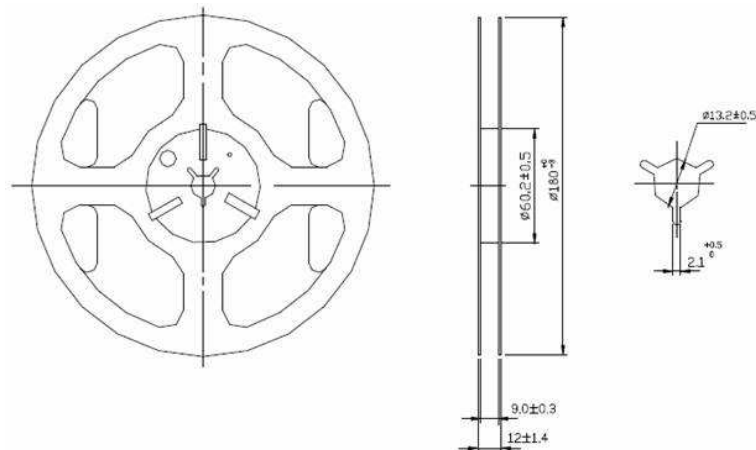
Product Code Table

Year	2025	2026	2027	2028
	2029	2030	2031	2032
	2033	2034	2035	2036
	2037	2038	2039	2040
Product Code	Z	z	<u>Z</u>	<u>z</u>

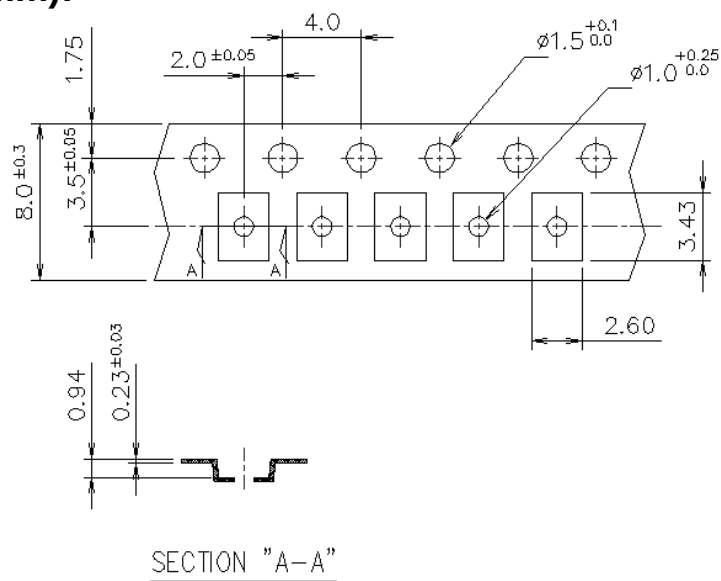
Date Code Table

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):

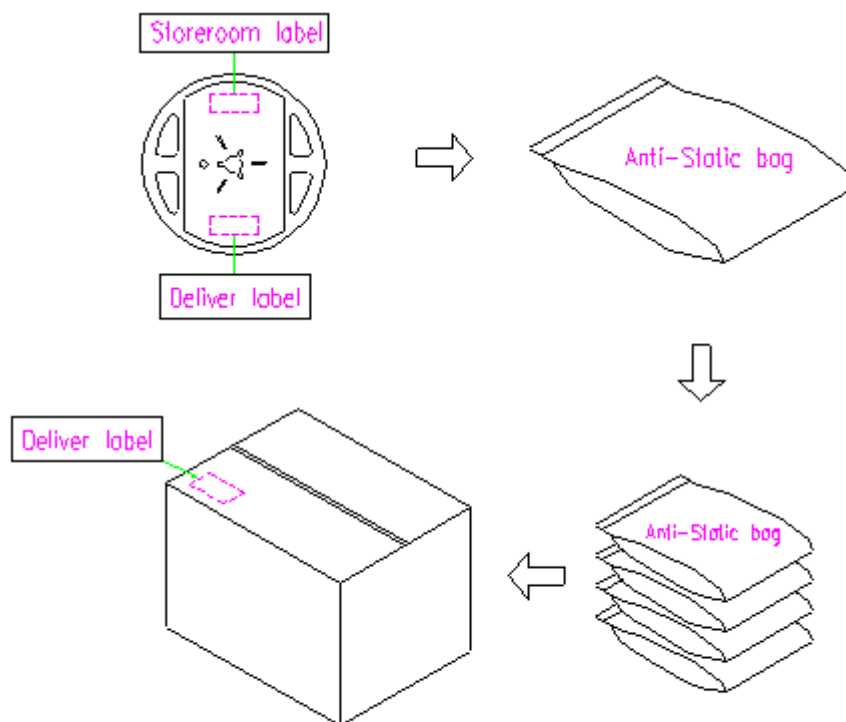


[NOTE]

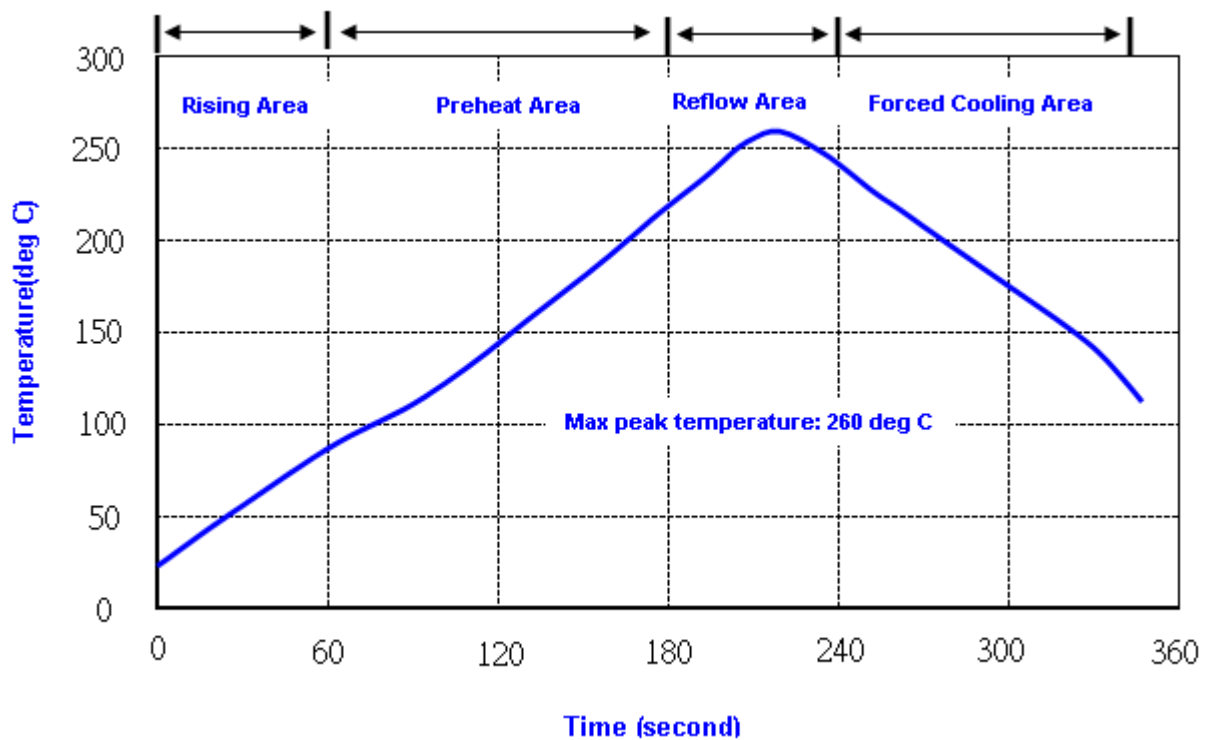
- 1 UNIT : mm.
- 2 UNLESS OTHERWISE SPECIFIED TOLERANCE ON DIM. +/-0.1mm.
- 3 MATERIAL : CONDUCTIVE POLYSTYRENE.
- 4 COLOR : BLACK.
- 5 10 PITCHES CUMULATIVE TOLERANCE +/-0.2mm.

Packing Quantity/Packing:

3K pcs maximum per reel



Reflow Profile:



Note: 1. Max peak temperature: 260 $\pm$ 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