

**TAI-SAW TECHNOLOGY CO., LTD.**

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Product Specifications Approval Sheet

Product Description: Crystal Unit SMD 2.0x1.6 50.000000MHz

TST Part No.: TZ3352F

Customer Part No.: B1484 : MX775BB-7.5-50.000000M

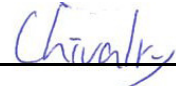
Customer signature required

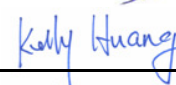
Company: _____

Division: _____

Approved by : _____

Date: _____

Checked by: _____ Chivalry Lin 

Approved by: _____ Kelly Huang 

Date: _____ 11/08/2018

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 50.000000MHz

MODEL NO.: TZ3352F

REV. NO.: 3

Revise:

Rev.	Rev. Page	Rev. Account	Date	Ref. No.	Revised by
1	N/A	Initial release	09/22/17'	N/A	Chivalry Lin
.2	3	Change Tolerance to 5+/-20 ppm	08/06/18'	ECN-201800344	Chivalry Lin
3	3	Change Tolerance to 7.5+/-12.5 ppm	11/08/18'	ECN-201800456	Chivalry Lin



TAI-SAW TECHNOLOGY CO., LTD.

Crystal Unit SMD 2.0x1.6 50.000000MHz

3/8

MODEL NO.: TZ3352F

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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

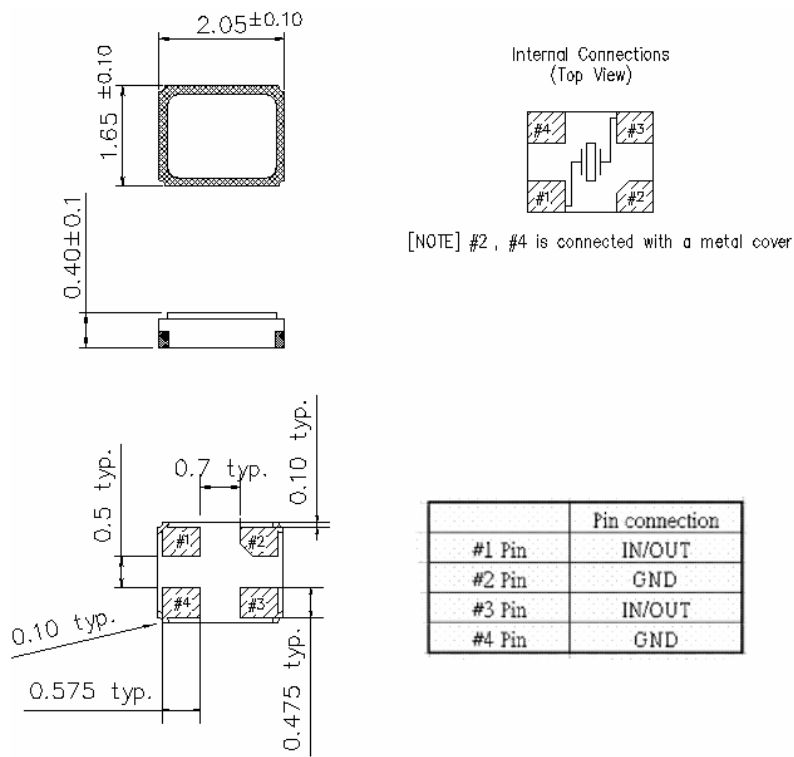
Description and Applications:

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

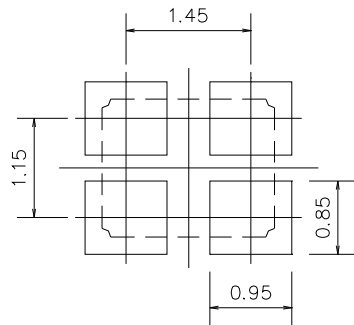
Electrical Specifications:

TZ3352F	Specification
Nominal Frequency	50.000000 MHz
Mode of Oscillation	Fundamental
Storage Temperature Range	-55°C to +125°C
Operating Temperature Range	-35°C to +85°C
Frequency Stability over Operating Temperature Range	+/-20 ppm (referred to the value at 25°C)
Frequency Make Tolerance (FL)	7.5+/-12.5ppm @ 25°C +/- 3°C
Equivalent Series Resistance (ESR)	65 Ω max
Nominal Drive Level	10uW typical and 100uW max
ESR Change due to Drive Level:	5 Ω Max, 1uW-100uW
Frequency Shift due to Drive Level:	5ppm Max, 1uW-100uW
Shunt Capacitance (Co)	1.6 pF max
Load Capacitance (CL)	7.5 pF
Aging	+/-3ppm/yr first year then <1ppm/yr
Insulation Resistance	500 M Ω min./DC 100V
Marking	Laser Marking
Unit Weight	5.7mg+/-0.5mg

Mechanical Dimensions (mm):
Base



Recommended Land Pattern: (unit: mm)

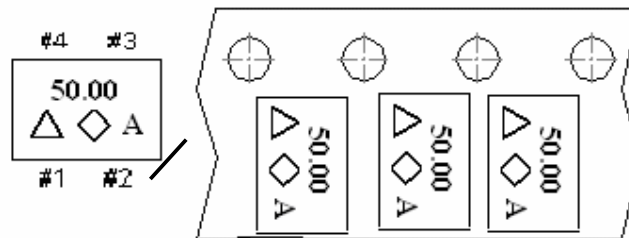


Recommended Land Pattern

Marking:

Line 1: Frequency (50.00)

Line 2: Date Code ($\triangle$) + Year Code($\diamond$)+ Product Code(A)



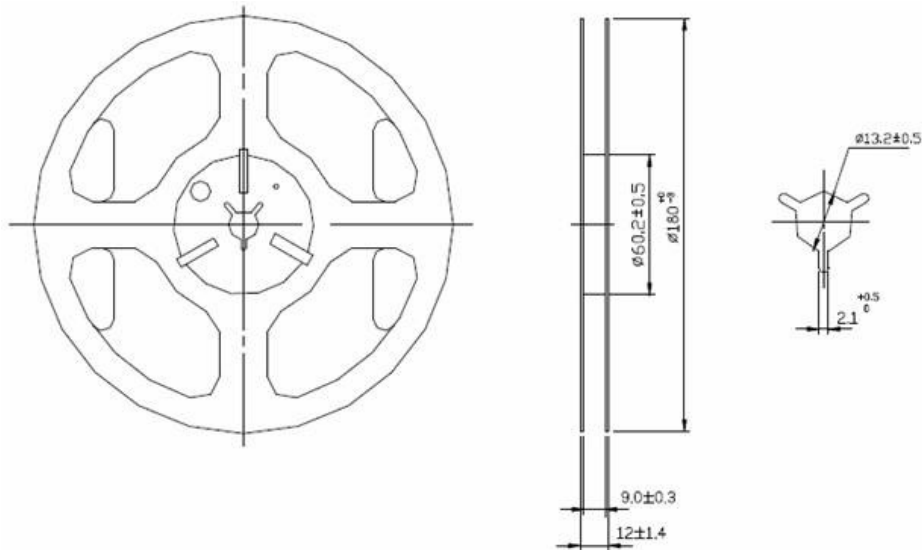
$\triangle$: Date Code Table:

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

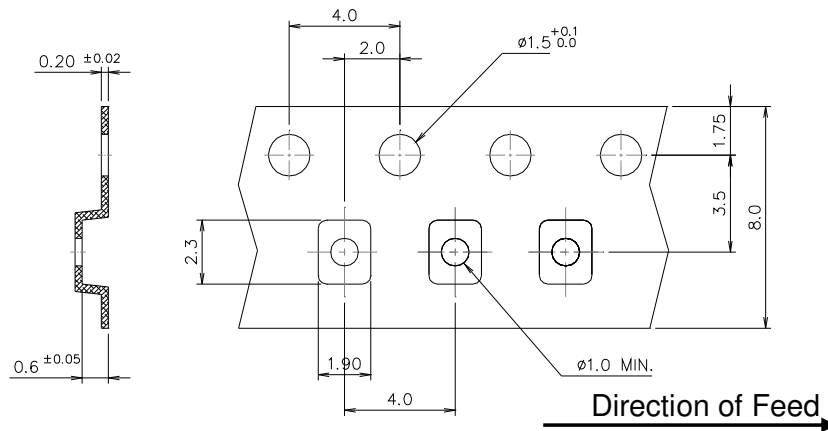
$\diamond$:Year Code Table :

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Code	A	B	C	D	E	F	G	H	I	J
Year	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Code	K	L	M	N	O	P	Q	R	S	T
Year	2037	2038	2039	2040	2041	2042				
Code	U	V	W	X	Y	Z				

Reel Dimensions (mm):



Tape Dimensions (mm):

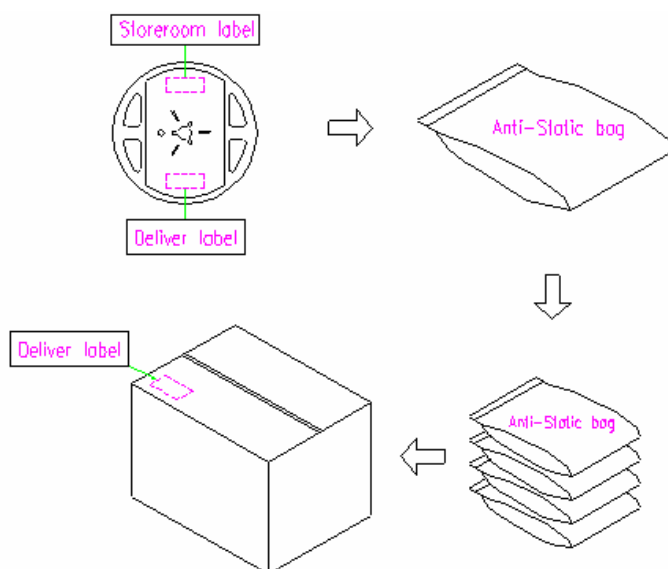


[NOTE]:

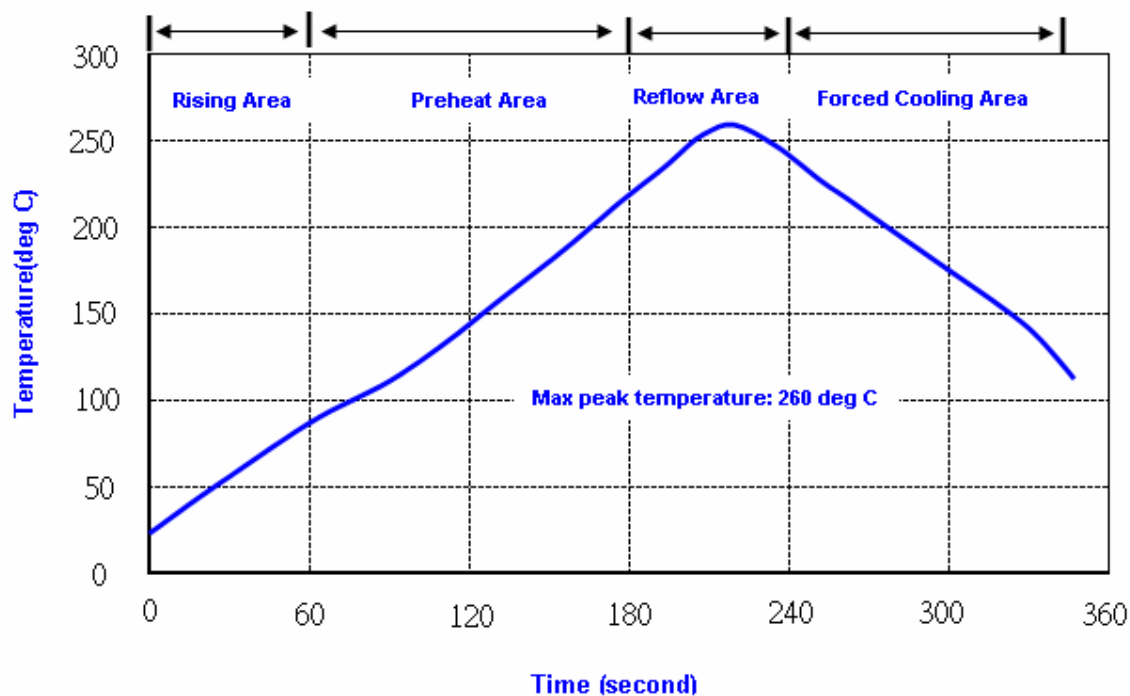
1. Unless otherwise specified tolerance on dimension ± 0.1 mm.
2. Material: conductive polystyrene with color black.
3. 10 pitch cumulative tolerance ± 0.2 mm.

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