



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: ttsales@mail.taisaw.com Web: www.taisaw.com

Approval Sheet For Product Specification

Issued Date: 6/10/2008 (REV. NO: 3)

Product Name: SMD 2.0x1.6 38.4MHz Crystal Unit

TST Parts No.: TZ1188A

Customer Parts No. : _____

Company: _____

Division: _____

Approved by: _____

Date: _____

Checked by: _____ Kelly Huang

Approval by: _____ Robert Chang

Date: _____ 6/10/2008



TAI-SAW TECHNOLOGY CO., LTD.
SMD 2.0x1.6 38.4MHz Crystal Unit

2/7

MODEL NO.: TZ1188A

REV. NO.: 3

Revise:

Rev.	Rev. Page	Rev. Account	Date	Ref. No.	Reviser
3	3	Changed CL to 8.3pF	6/10/08'	ECN-2008211	Kelly Huang



MODEL NO.: TZ1188A

REV. NO.: 3

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

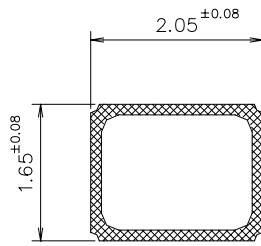
Description and Applications:

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

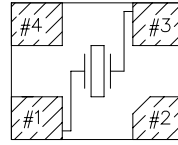
Electrical Specifications:

TZ1188A	Specification
Nominal Frequency	38.400000 MHz
Mode of Oscillation	Fundamental
Storage Temperature Range	-40°C to +85°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)	+/-10 ppm @ 25°C +/- 3°C
Equivalent Series Resistance (ESR)	50 Ω max
Nominal Drive Level	10 uW , 100uW max.
Shunt Capacitance (Co)	7.0 pF max
Load Capacitance (CL)	8.3 pF
Insulation Resistance	500 M Ω min./DC 100V
Aging	+/-1ppm/year
Marking	Laser Marking
Unit Weight	5.7mg+/-0.5mg

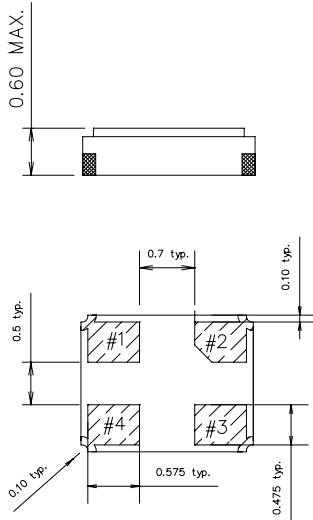
Mechanical Dimensions (mm):



Internal Connections
(Top View)

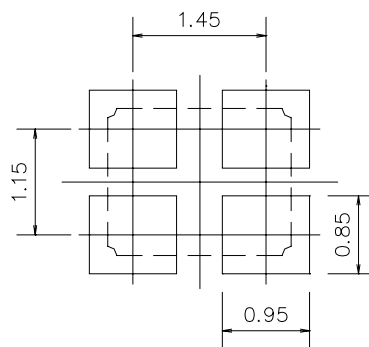


[NOTE] #2=NC, #4 is connected with a metal cover



	Pin connection
#1 Pin	IN/OUT
#2 Pin	NC
#3 Pin	IN/OUT
#4 Pin	GND

Recommended Land Pattern: (unit: mm)

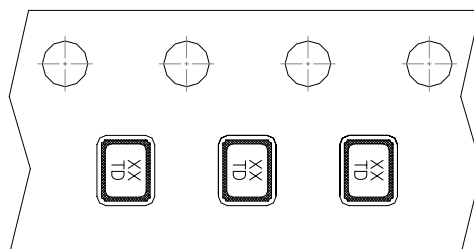


Recommended Land Pattern

Marking:

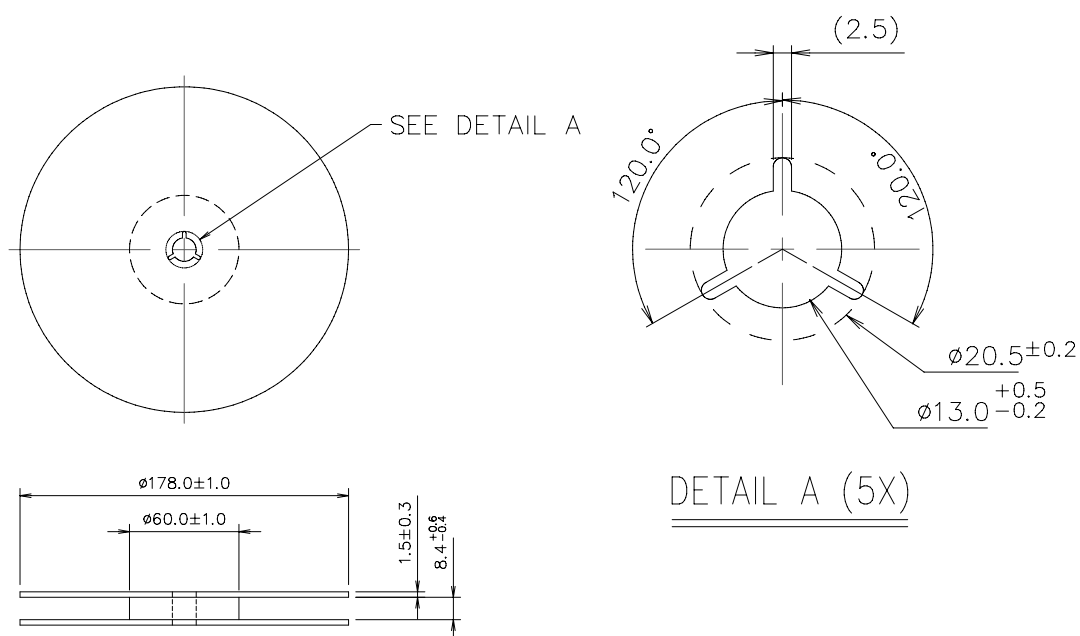
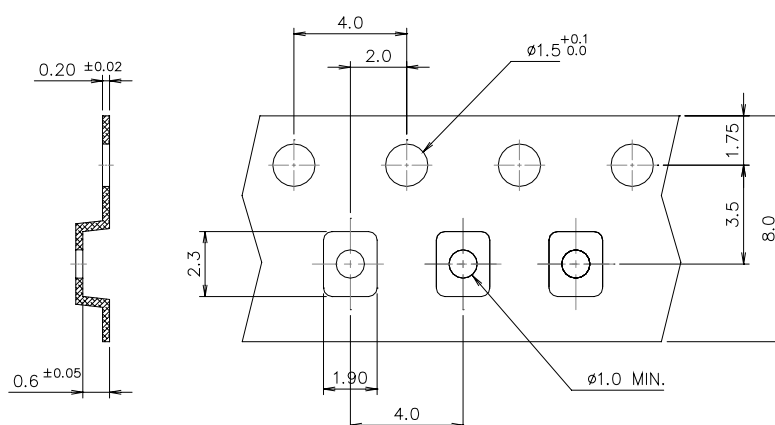
Line 1: XX; Frequency (38)

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
2008	a	b	c	d	e	f	g	h	i	j	k	m
2009	n	p	q	r	s	t	u	v	w	x	y	z
2010	A	B	C	D	E	F	G	H	J	K	L	M
2011	N	P	Q	R	S	T	U	V	W	X	Y	Z
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

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



Deliver package carton
 1. L36xW35xH21cm-10 reel max.
 2. L38xW36xH32cm-15 reel max.

Reflow Profile:



Note: 1. Max peak temperature: 260+/-5 deg C; Time: 10+/-2 sec

2. Temperature: 217+/-5 deg C; Time: 90~100 sec

TAI-SAW TECHNOLOGY CO., LTD.

TST DCC
Release document

Reliability Specifications

Test name	Test process / method	Reference standard
Mechanical characteristics		
resistance to Soldering heat (IR reflow)	Temp./ Duration : 260°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 55 Hz Sweep period : 1.0 minute Vibration directions : 3 mutually perpendicular Duration : 2 hr / direc.	MIL-STD 202F method 201A
Mechanical Shock	directions : 3 impacts per axis Acceleration : 3000g's, +20/-0 % Duration : 0.3 ms (total 18 shocks) Waveform : Half-sine	MIL-STD 202F method 213C
Solderability	Solder Temperature:265±5°C Duration time: 5±0.5 seconds.	MIL-STD 883G method 2003
Environmental characteristics		
Thermal Shock	Heat cycle conditions -55 °C (30min) ↔ 125 °C (30min) * cycle time : 10 times	MIL-STD 883G method 1010.7
Humidity test	Temperature : 70 ± 2 °C Relative humidity : 90~95% Duration : 96 hours	MIL-STD 202F method 103B
Dry heat (Aging test)	Temperature : 125 ± 2 °C Duration : 168 hours	MIL-STD 883G method 1008.2 condition C
PCT test	Pressure: 2.06kg/cm ² (2.03*10 ⁵ pa) Temperature : 121 ± 2 °C Relative humidity : 100% Duration : 24 hours	EIAJED-4701-3 B-123A