



TAI-SAW TECHNOLOGY CO., LTD.

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Approval Sheet For Product Specification

Issued Date: 4/24/2008 (REV. NO: 2.0)

Product Name: SMD 6.0x3.5 13.56MHz Crystal Unit

TST Parts No.: TZ0178A

Customer Parts No. : _____

Company: _____

Division: _____

Approved by: _____

Date: _____

Checked by: _____ Quinton Lo

Approval by: _____ Robert Chang

Date: _____ 4/24/2008



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SMD 3.5x6 13.56MHz Crystal Unit

MODEL NO.: TZ0178A

REV. NO.: 1

Features:

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

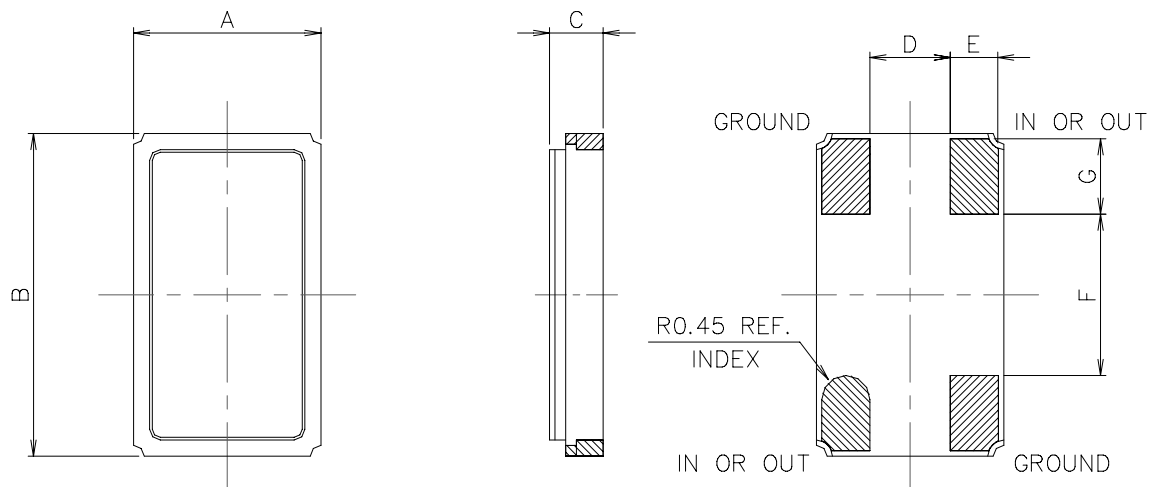
Description and Applications:

Surface mount 3.5mmx6.0mm crystal unit for use in wireless telecommunications devices, especially for a need of ultra miniature package for mobility.

Electrical Specifications:

TZ0178A	Specification
Nominal Frequency	13.56 MHz
Mode of Oscillation	Fundamental
Operating Temperature Range	-40°C to +125°C
Frequency Stability over Operating Temperature	+/-50 ppm (referred to the value at 25°C)
Frequency Make Tolerance	+/-10 ppm @ 25°C +/- 3°C
Equivalent Series Resistance (Rs)	40 Ω max.
Drive Level	50+/-10 uW
Shunt Capacitance (Co)	2.0 pF max
Load Capacitance (CL)	20 pF
Motional Capacitance (C1)	6.7 fF +/-20%
Pulling Sensitivity	7 ppm/pF +/-20% (@20 pF Load)
Aging	$\pm$ 1.0 ppm/year @25°C
Marking	Laser marking

Mechanical Dimensions (mm):

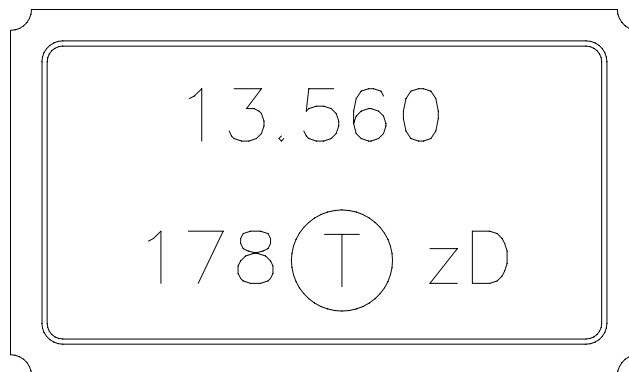


UNIT \ ITEM	A	B	C	D	E	F	G
MM	3.5 ±0.13	6.0 ±0.13	1.0 ±0.16	1.5 ±0.13	0.9 REF.	3.0 ±0.13	1.4 REF.

Marking:

First line: Frequency (13.560)

Second line: model number (178) +TST Logo+Crystal Family+Date code

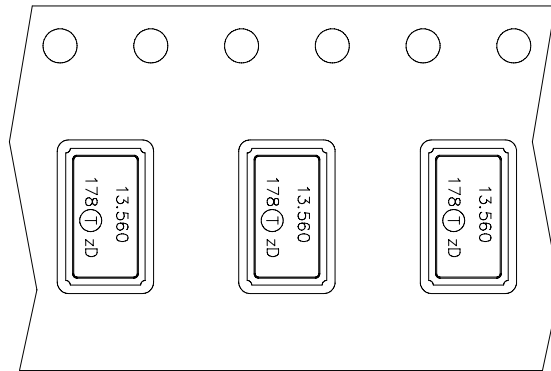


Product Code Table

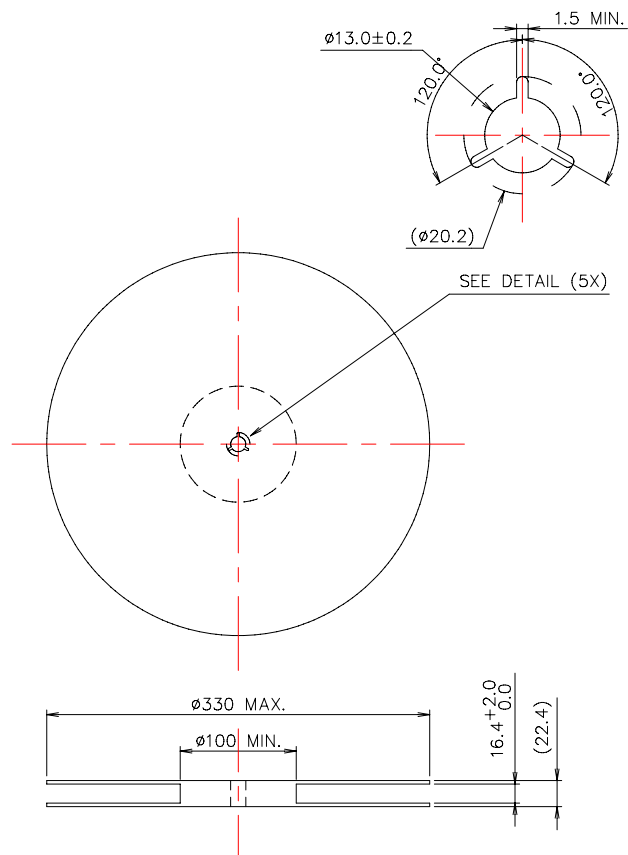
Year	2001 2005	2002 2006	2003 2007	2004 2008
Product Code	Z	z	<u>Z</u>	<u>z</u>

Date Code Table

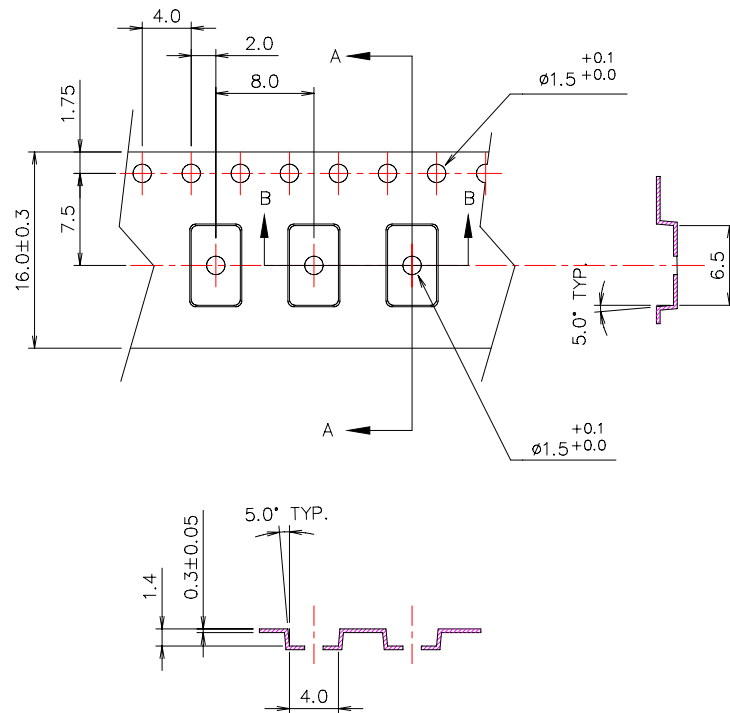
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A	B	C	D	E	F	G	H	I	J	K	L	M
WK14	WK15	WK16	WK17	WK18	WK19	WK20	WK21	WK22	WK23	WK24	WK25	WK26
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
WK27	WK28	WK29	WK30	WK31	WK32	WK33	WK34	WK35	WK36	WK37	WK38	WK39
a	b	c	d	e	f	g	h	i	j	k	l	m
WK40	WK41	WK42	WK43	WK44	WK45	WK46	WK47	WK48	WK49	WK50	WK51	WK52
n	o	p	q	r	s	t	u	v	w	x	y	z



Reel Dimensions (mm):



Tape Dimensions (mm):



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.

