TAI-SAW TECHNOLOGY CO., LTD.
No. 3, Industrial 2nd Rd., Ping-Chen Industrial District,
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Product Specifications Approval Sheet

Product Description: Crystal Unit SMD 1.2x1.0 32MHz

TST Part No.: TZ3525A

Customer Part No.:_____

Customer signature required

Company:_____

Division:_____

Approved by :_____

Date:_____

Checked by: Chivalry Lin

Approved by: Kelly Huang

Date: 02/11/2020

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 1.2x1.0 32MHz

MODEL NO.: TZ3525A REV. NO.: 1

Revise:

Rev.	Rev. Page	Rev. Account	Date	Ref. No.	Revised by
1	N/A	Initial release	02/11/20’	N/A	Chivalry Lin

TAI-SAW TECHNOLOGY CO., LTD.

Crystal Unit SMD 1.2x1.0 32MHz

MODEL NO.: TZ3525A REV. NO.: 1

Features:

RoHS Compliant
Lead-free soldering

- Surface Mount Hermetic Package
- Excellent Reliability Performance
- Good Frequency Perturbation and Stability over temperature
- Ultra Miniature Package
- Moisture Sensitivity Level (MSL) : Level-1

Description and Applications:

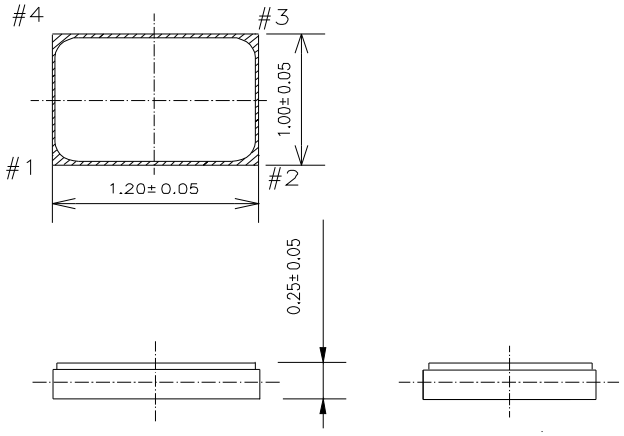
Surface mount 1.2mmx1.0mm crystal unit for use in wireless communications devices, especially for a need of ultra miniature package for mobility.

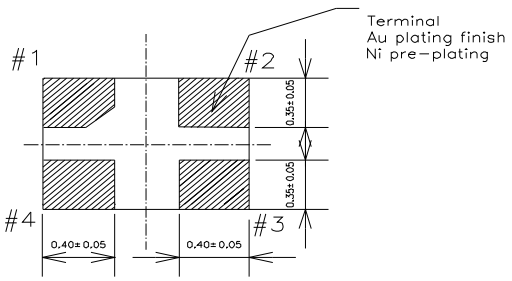
Electrical Specifications:

TZ3525A	**Specification**			
Characteristic	Min	Nom	Max	Unit
Nominal Frequency		32.000000		MHz
Mode of Oscillation		Fundamental		°C
Storage Temperature Range	-40		105	°C
Operating Temperature Range	-40		85	°C
Initial frequency tolerance(25°C ± 3°C)	-4		8	ppm
Frequency drift after reflow(After two reflows)	-1		1	ppm
Tolerance over temperature(-30°C to 85°C)	-12		10	ppm
Aging(Five years)	-2		0	ppm
Frequency perturbations	-1		1	ppm
Total Budget(ppm)	**-20**		**20**	**ppm**
Initial frequency tolerance(25°C ± 3°C)	-4		8	ppm
Frequency drift after reflow(After two reflows)	-1		1	ppm
Tolerance over temperature(-40°C to 85°C)	-17		15	ppm

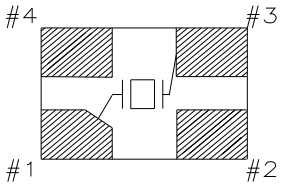
Aging(Five years)	-2		0	ppm
Frequency perturbations	-1		1	ppm
Total Budget(ppm)	**-25**		**25**	**ppm**
Equivalent Series Resistance (ESR)		44.40	80	Ω
Spurious mode series resistance	1100			Ω
Motional inductance		28.15		mH
Pullability/Sensitivity		11.06	20	ppm/pF
Motional capacitance		0.88		fF
Shunt capacitance		0.31	1.0	pF
Nominal Drive Level	0.01	10	200	uW
Load Capacitance (CL) (Measure by Saunders(S&A) Network Analyzer 250B)		6		pF
Insulation Resistance(DC 100V)	500			MR
Package size		1.2x1.0	1.3 x 1.1	mm^2
Package height			0.30	mm

Mechanical Dimensions (mm):



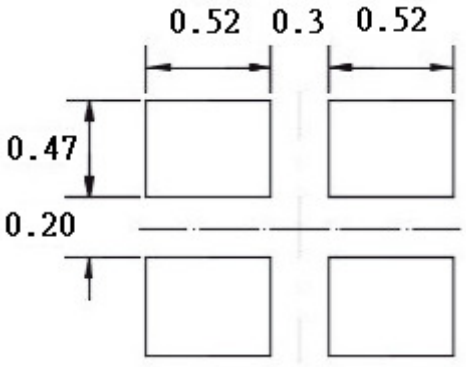


Terminal land connection (TOP VIEW)



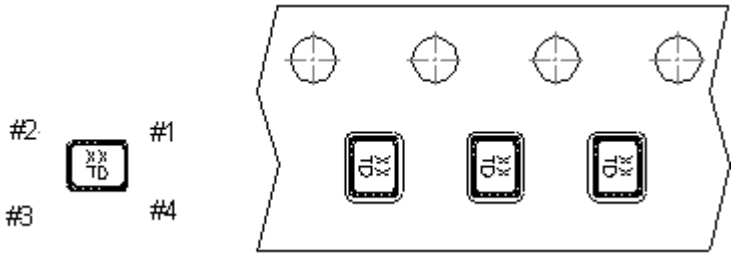
#1	XTAL IN
#2	GND(CONNECTION WITH COVER)
#3	XTAL OUT
#4	NC

Recommended Land Pattern: (unit: mm)



Marking:

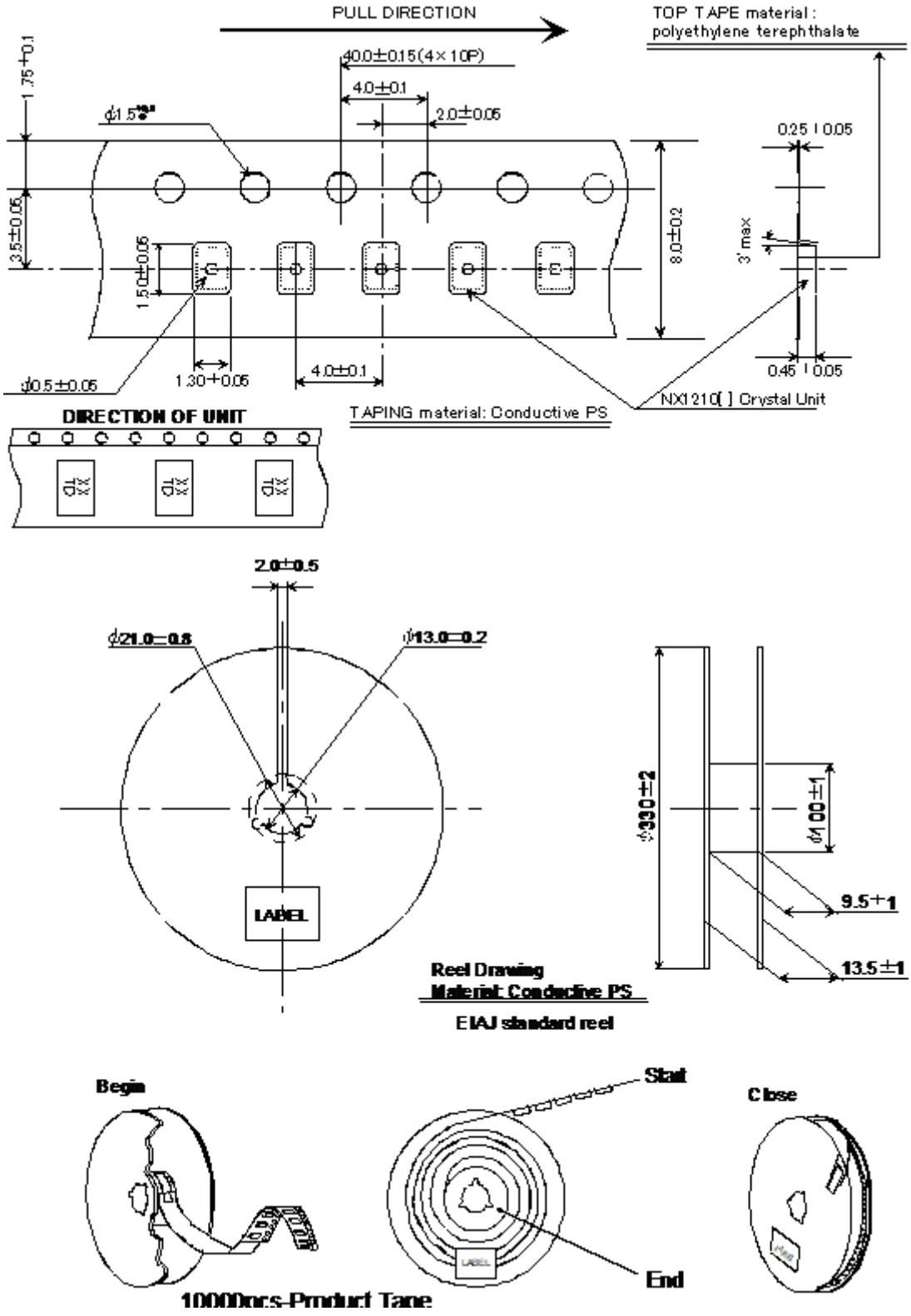
Line 1: XX; Frequency (32)
Line 2: T; Traceable Code + D; date Code of Year/Month



Date Code Table: Year/Month

Year/Month	1	2	3	4	5	6	7	8	9	10	11	12
2016	a	b	c	d	e	f	g	h	i	j	k	m
2017	n	p	q	r	s	t	u	v	w	x	y	z
2018	A	B	C	D	E	F	G	H	J	K	L	M
2019	N	P	Q	R	S	T	U	V	W	X	Y	Z
2020	a	b	c	d	e	f	g	h	i	j	k	m
2021	n	p	q	r	s	t	u	v	w	x	y	z
2022	A	B	C	D	E	F	G	H	J	K	L	M
2023	N	P	Q	R	S	T	U	V	W	X	Y	Z
2024	a	b	c	d	e	f	g	h	i	j	k	m
2025	n	p	q	r	s	t	u	v	w	x	y	z

Tape/Reel Dimensions (mm):

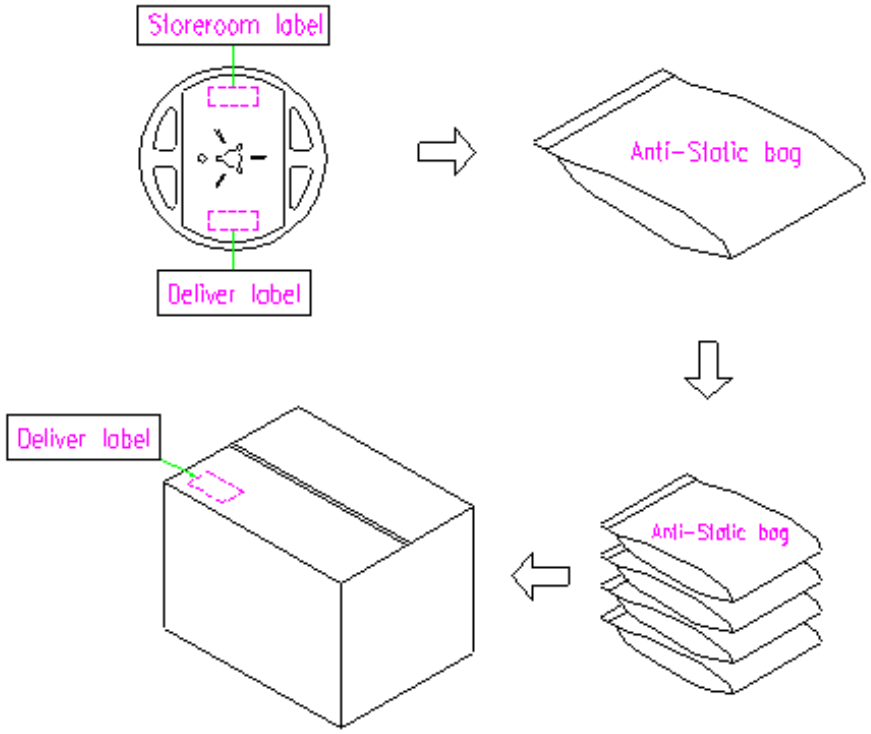


[NOTE]:

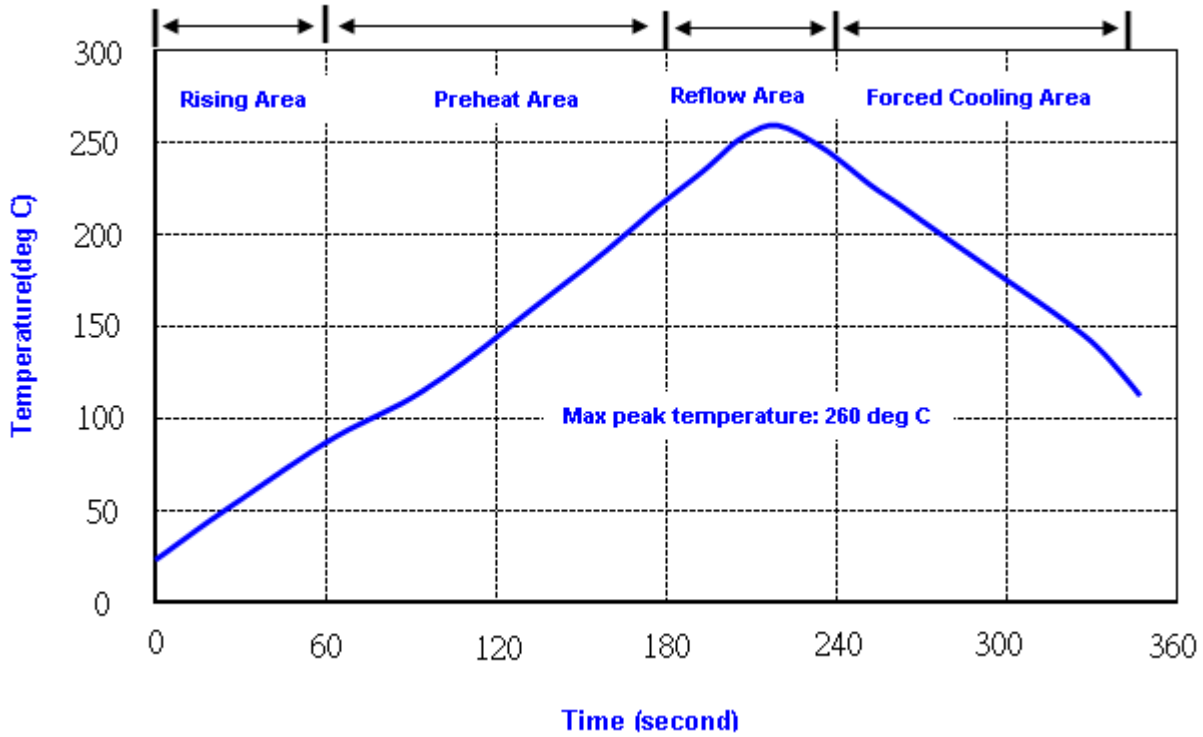
1. Unless otherwise specified tolerance on dimension +/-0.1 mm.
2. Material: conductive polystyrene with color black.
3. 10 pitch cumulative tolerance +/-0.2 mm.

Packing Quantity/Packing:

3K pcs maximum per reel



Reflow Profile:



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

2. Temperature: 217+/-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℃ Duration time: 5±0.5 seconds.	J-STD-002
Environmental characteristics		
Thermal Shock	Heat cycle conditions -40 ℃ (30min) ←→ 85 ℃ (30min) * cycle time : 10 times	MIL-STD 883G method 1010.8
Humidity test	Temperature : 85 ± 2 ℃ Relative humidity : 85% Duration : 96 hours	MIL-STD 202G method 103
Dry heat (Aging test)	Temperature : 125 ± 2 ℃ Duration : 168 hours	MIL-STD 202G method 108A
Cold resistance (Low Temp Storage)	Temperature : -40 ± 2 ℃ Duration : 96 hours	IEC 60068-2-1