



TAI-SAW TECHNOLOGY CO., LTD.

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Product Specifications Approval Sheet

Product Description: Crystal Unit SMD 1.0x0.8 32MHz

TST Part No.: TZ4098AAAR93

Customer Part No.: _____

Customer signature required

Company: _____

Division: _____

Approved by : _____

Date: _____

Checked by: _____ Chia Haur Rau *CH*

Approved by: _____ Kelly Huang *Kelly Huang*

Date: _____ 05/09/2023

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.



Revise:

Rev.	Rev. Page	Rev. Account	Date	Ref. No.	Revised by
1	N/A	Initial release	05/09/23'	N/A	Chia Haur Rau



TAI-SAW TECHNOLOGY CO., LTD.

Crystal Unit SMD 1.0x0.8 32MHz

3/8

MODEL NO.: TZ4098AAAR93

REV. NO.: 1

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:

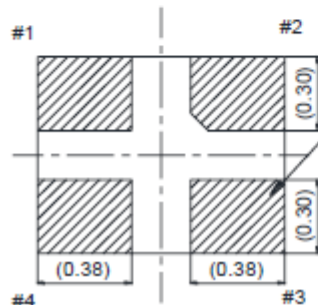
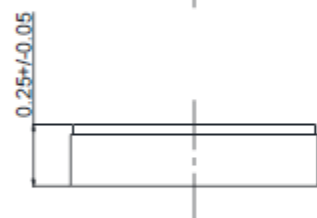
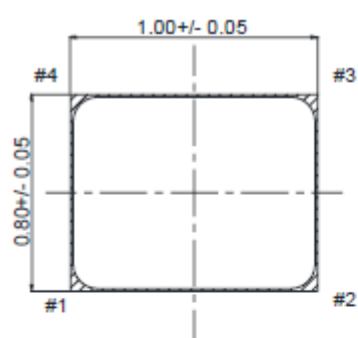
Surface mount 1.0mmx0.8mm crystal unit for use in wireless communications devices, especially for a need of ultra miniature package for mobility.

Electrical Specifications:

TZ4098AAAR93	Specification			
	Min	Nom	Max	Unit
Characteristic				
Nominal Frequency		32.000000		MHz
Mode of Oscillation		Fundamental		°C
Storage Temperature Range	-40		85	°C
Operating Temperature Range	-40		85	°C
Initial frequency tolerance(25°C ± 3°C)	-8		7	ppm
Frequency drift after reflow(After two reflows)	-1		1	ppm
Tolerance over temperature(-20°C to 85°C)	-10		9	ppm
Aging(Five years)	0		2	ppm
Frequency perturbations	-1		1	ppm
Total Budget(ppm)	-20		20	ppm
Equivalent Series Resistance (ESR)			100	Ω
Shunt capacitance			1.0	pF
Nominal Drive Level		10	100	uW
Load Capacitance (CL) (Measure by Saunders(S&A) Network Analyzer 250B)		6		pF

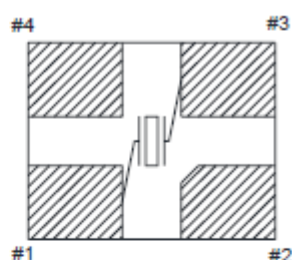
Insulation Resistance(DC 100V)	500			MR
Package size		1.0x0.8	1.05 x 0.85	mm ²
Package height			0.30	mm

Mechanical Dimensions (mm):



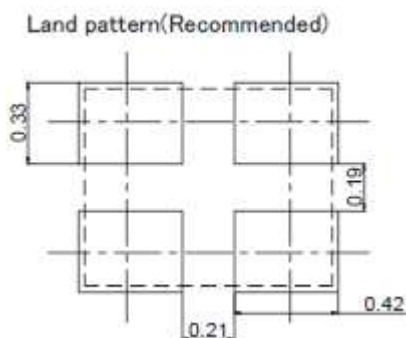
Terminal
Au plating finish
Ni pre-plating

Terminal land connection(TOP VIEW)

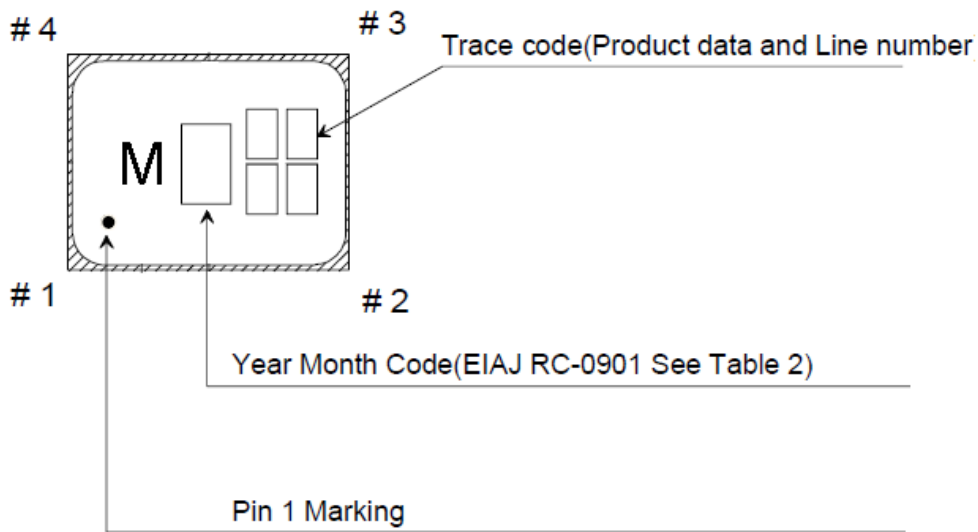


#1	XTAL
#2	GND(Connection with cover)
#3	XTAL
#4	GND(Connection with cover)

Recommended Land Pattern: (unit: mm)



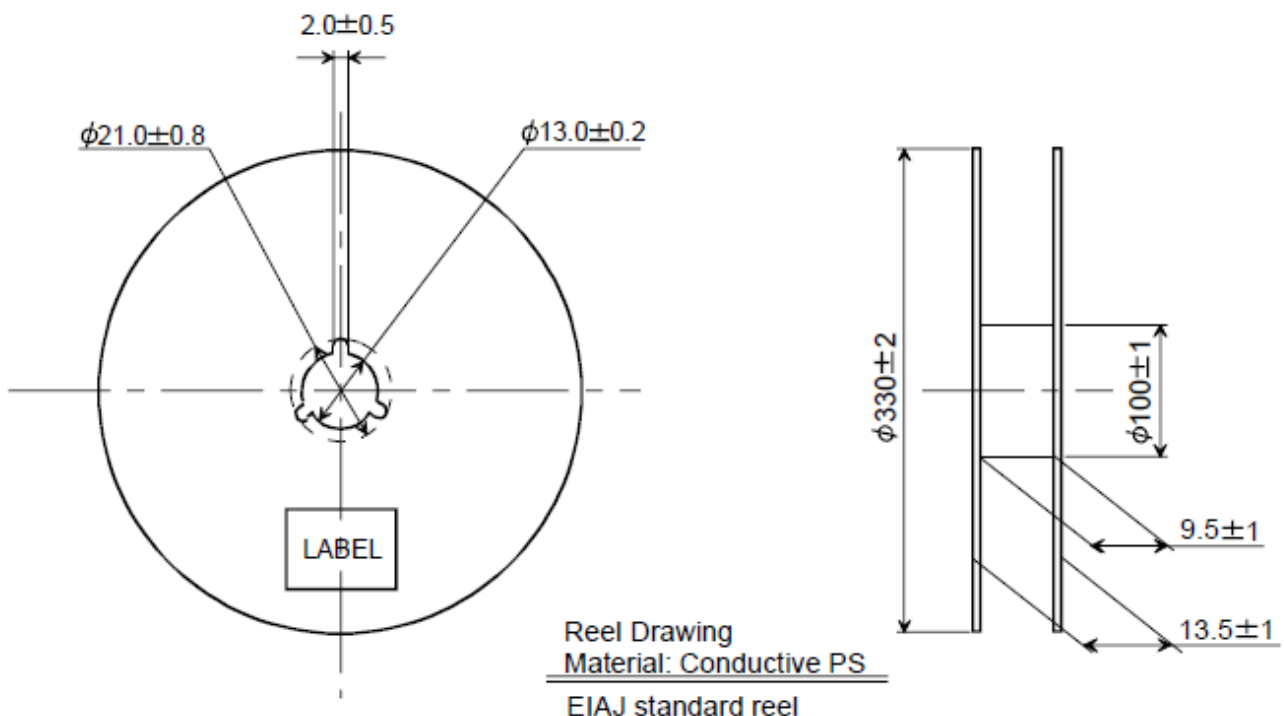
Marking:



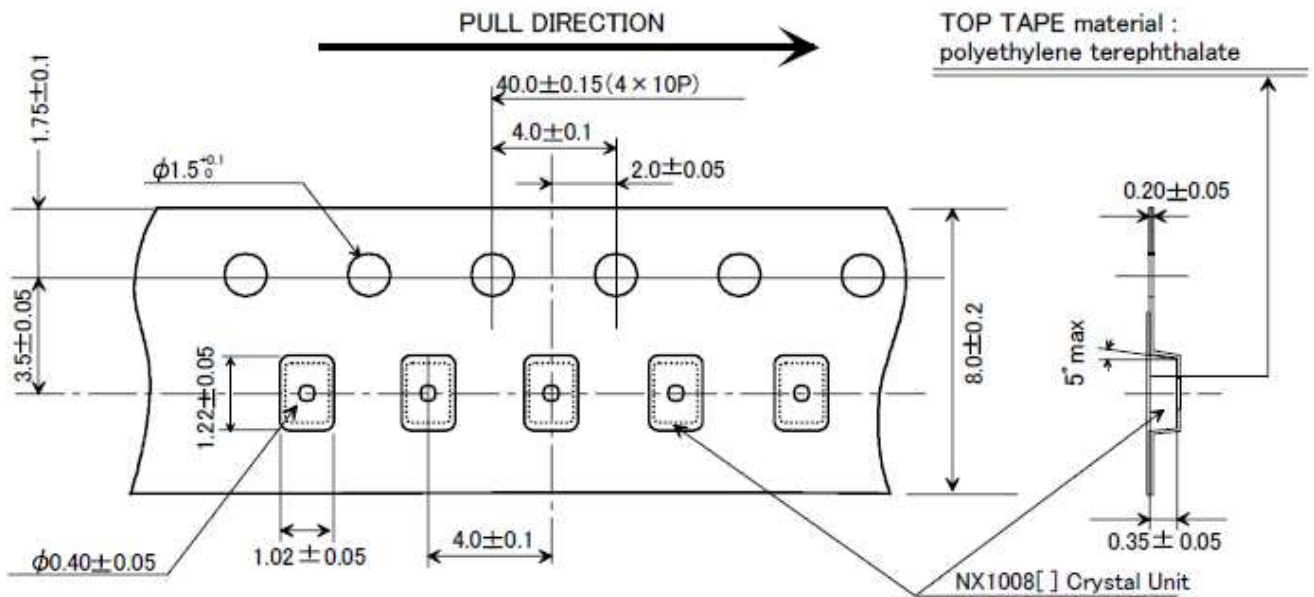
Year Month Code Table:

Year	Month	Code	Year	Month	Code	Year	Month	Code	Year	Month	Code
2013 2017 2021 2025	1	A	2014 2018 2022 2026	1	N	2015 2019 2023 2027	1	a	2016 2020 2024 2028	1	n
	2	B		2	P		2	b		2	p
	3	C		3	Q		3	c		3	q
	4	D		4	R		4	d		4	r
	5	E		5	S		5	e		5	s
	6	F		6	T		6	f		6	t
	7	G		7	U		7	g		7	u
	8	H		8	V		8	h		8	v
	9	J		9	W		9	j		9	w
	10	K		10	X		10	k		10	x
	11	L		11	Y		11	l		11	y
	12	M		12	Z		12	m		12	z

Reel Dimensions (mm):

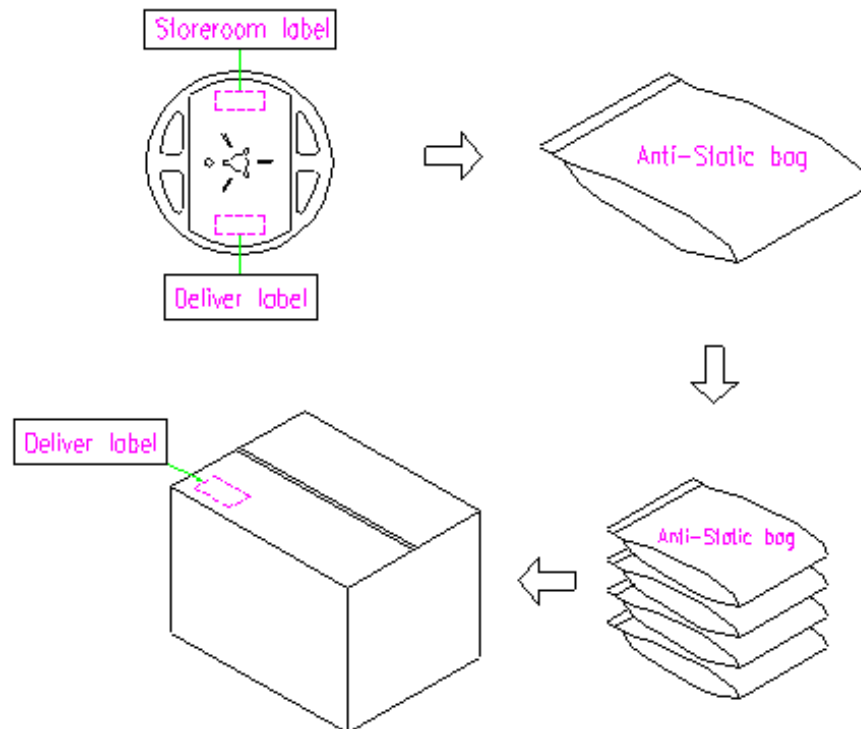


Tape Dimensions (mm):

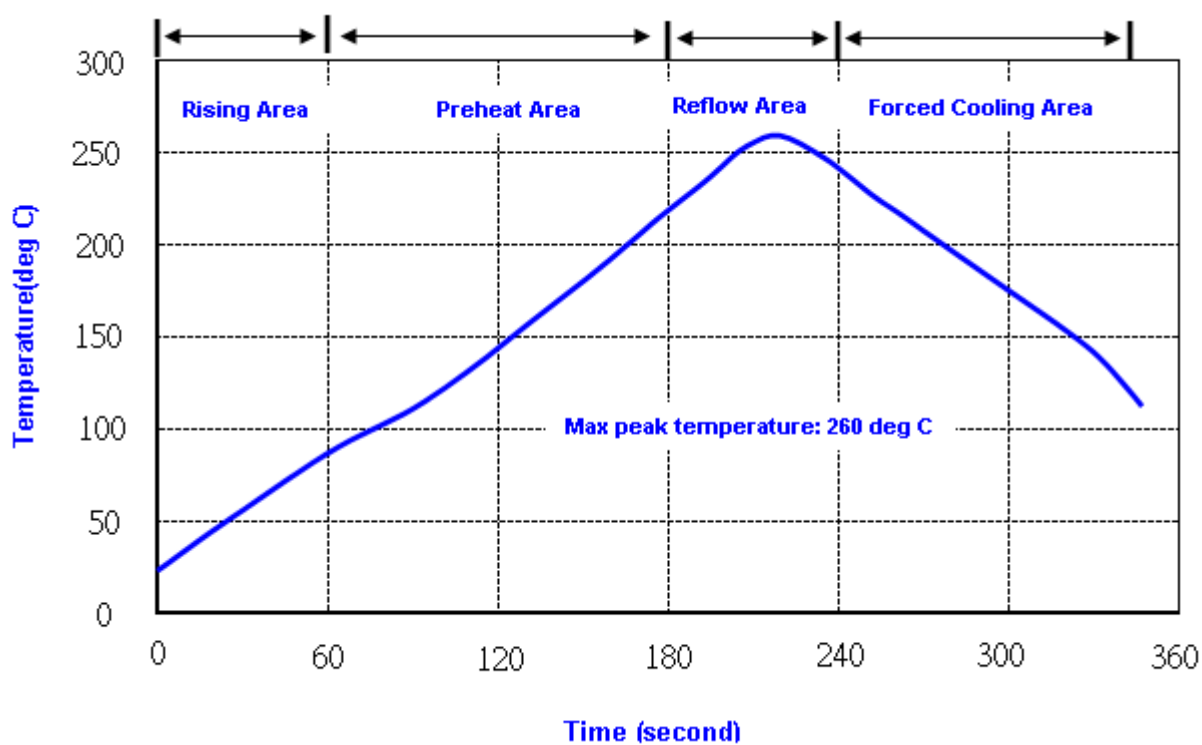


Packing Quantity/Packing:

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 x2 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