

TCXO Crystal Oscillator



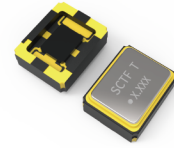
1TH / 2TH / 3TA

Feature

- Ceramic Surface Mount Package
- Output Type: Clipped Shine Wave
- Fundamental Crystal Design
- RoHS Compliant / Pb Free

Applications

- GPS
- Wireless Communications
- Test Equipment
- Networking systems
- Industrial control & automation



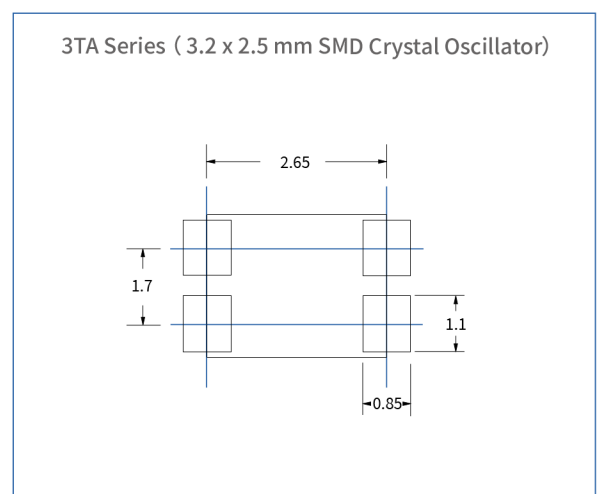
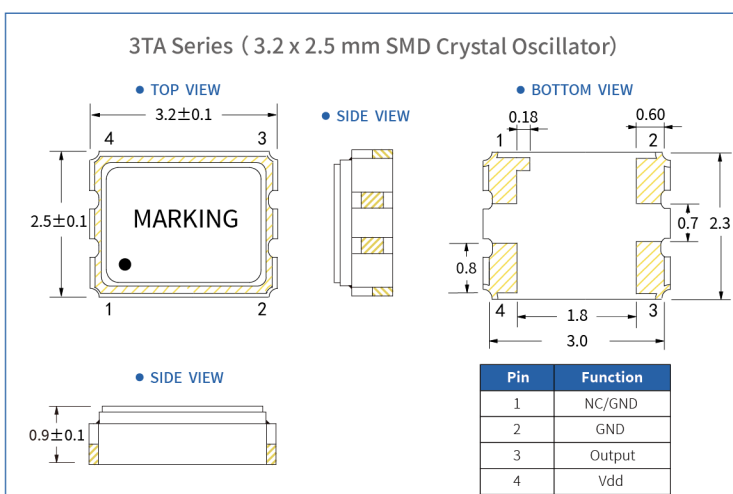
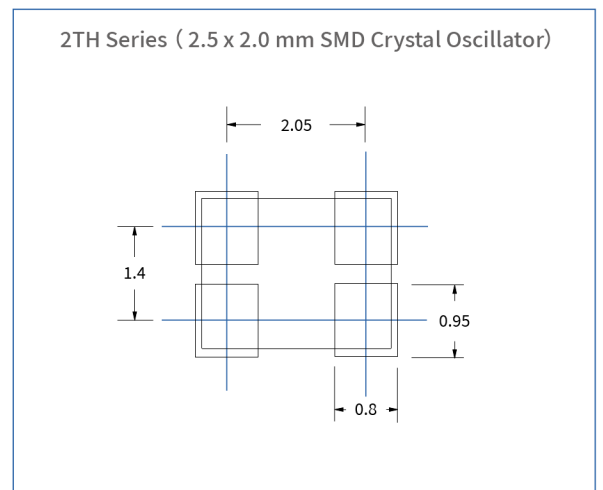
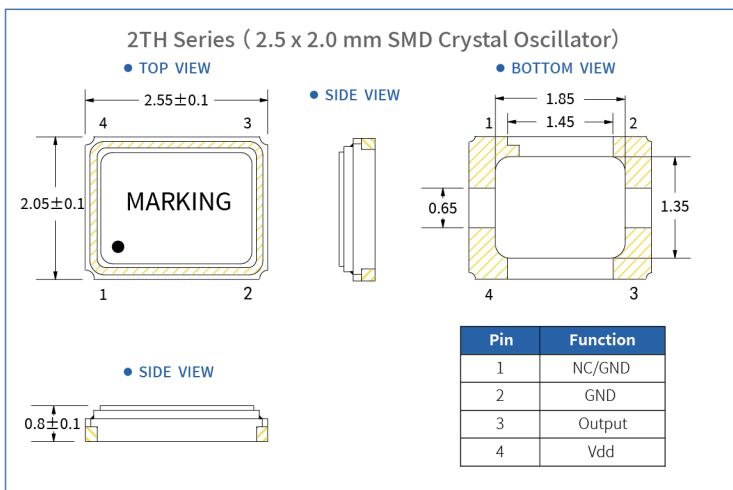
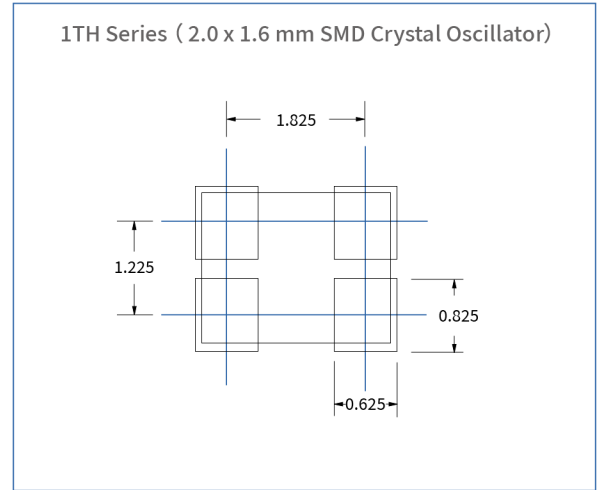
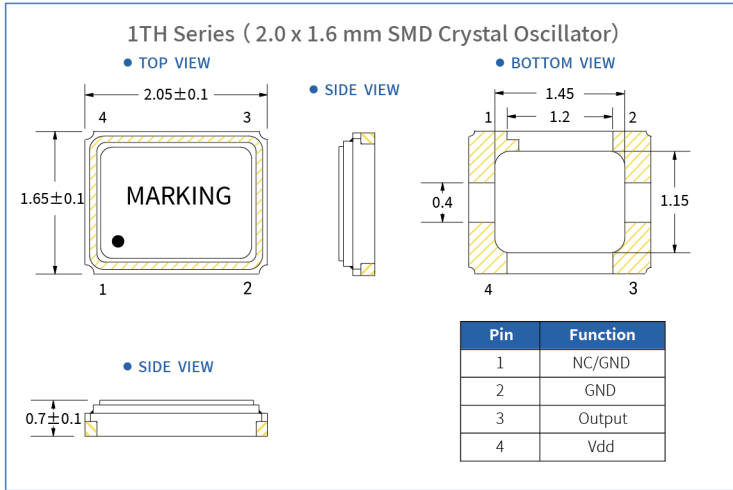
Electrical Specifications

Item	Symb.	Min.	Typ.	Max.	Unit	Notes
Frequency Range	Freq.	10	—	52	MHz	
Operating Temperature	T _{use}	-30	—	+85	°C	
		-40	—	+85	°C	
Storage Temperature Range	T _{stg}	-55	—	+125	°C	
Supply Voltage	V _{dd}	3.135	3.3	3.465	V	
		2.375	2.5	2.625	V	
		1.710	1.8	1.890	V	
Output Waveform		Clipped Sine Wave				
Frequency Tolerance	Fo _{tol}	—	—	±2	ppm	T _{use} =25±2 °C, After 2times Reflow
Frequency vs Temperature Change	Fo _{Tc}	±0.5	—	±2.5	ppm	T _{use} = -40°C~+85 °C Based on frequency at +25°C
Frequency vs Load Change	Fo _{Load}	—	—	±0.2	ppm	±10% load change
Frequency vs Voltage Change	Fo _{Vdd}	—	—	±0.2	ppm	Voltage varied ±5% at 25°C
Current Consumption	I _{cc}	—	—	2	mA	
Duty Cycle	SYM	40	—	60	%	Ground level
Output Level	V _{p-p}	0.8	—	—	V	
Harmonics		—	—	-5.0	dBc	
Output load	Load	10KΩ//10pF				
Start-up time	T _{str}	—	—	2	mS	
Phase Noise@26MHz	T _{PN}	-130			dBc/Hz	Offset:1kHz
		-152			dBc/Hz	Offset:100kHz
Aging	f _{age}	—	—	±1	ppm	1st. Year at 25°C

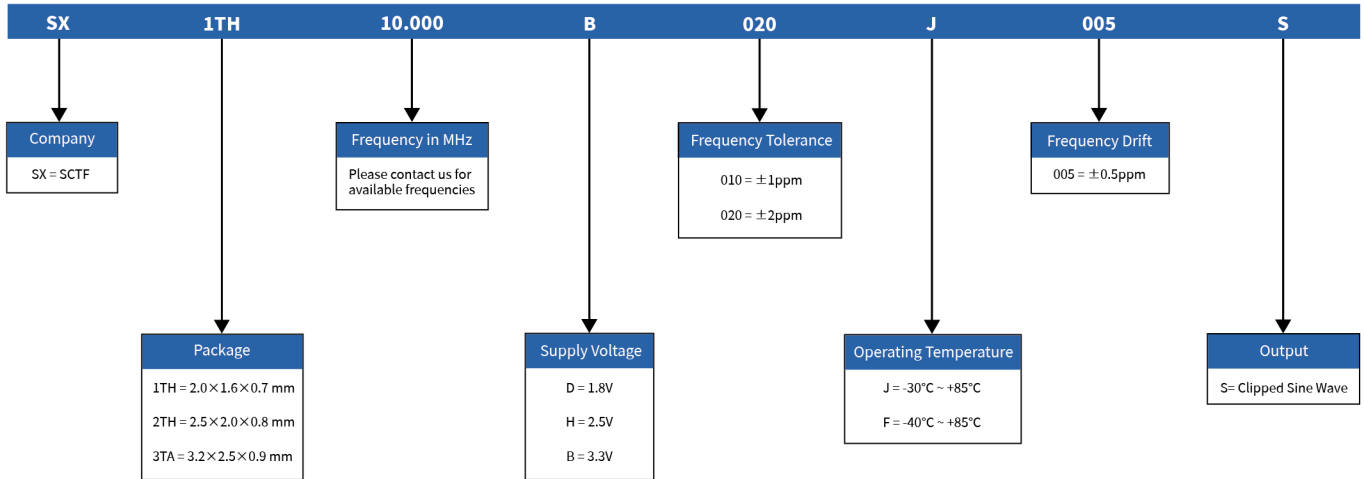
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Dimensions (UNIT:mm)

Solder pad layout (UNIT:mm)



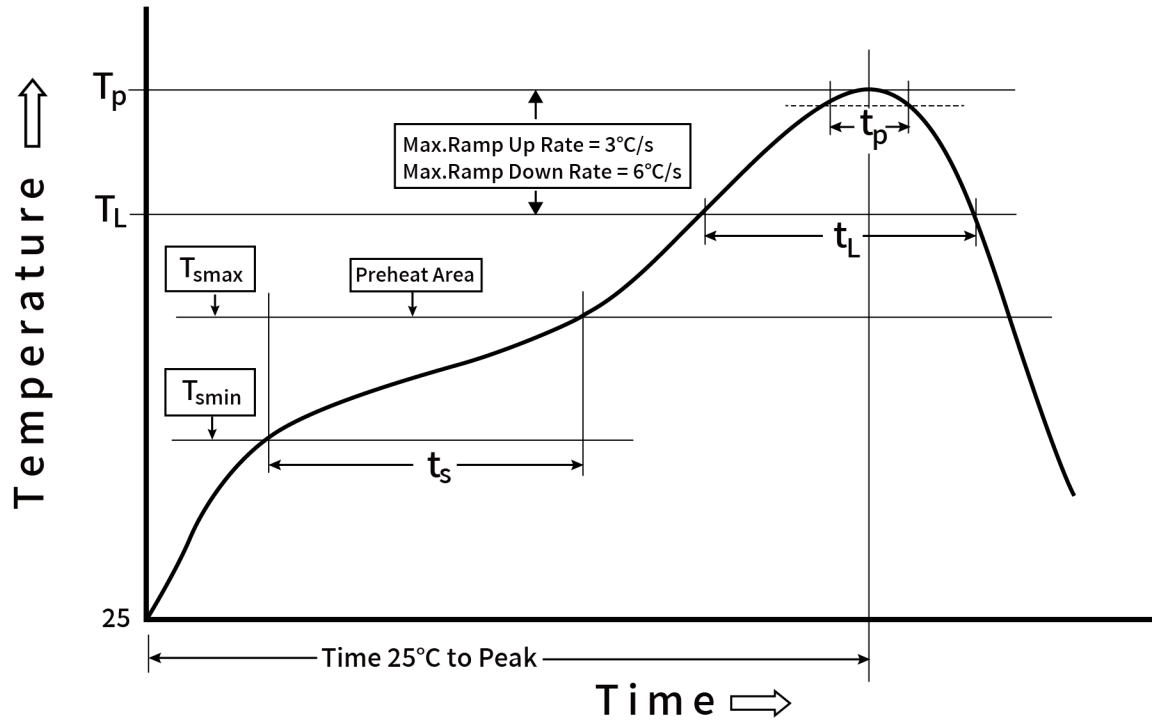
Options and Part Identification



List of available part numbers

Part NO#			
SX1TH10.000B020J005S	SX1TH12.000B020J005S	SX1TH16.000B020J005S	SX1TH19.200B020J005S
SX1TH20.000B020J005S	SX1TH24.000B020J005S	SX1TH25.000B020J005S	SX1TH26.000B020J005S
SX1TH30.000B020J005S	SX1TH32.000B020J005S	SX1TH38.400B020J005S	SX1TH40.000B020J005S
SX1TH48.000B020J005S	SX1TH52.000B020J005S		
SX2TH10.000B020J005S	SX2TH12.000B020J005S	SX2TH16.000B020J005S	SX2TH19.200B020J005S
SX2TH20.000B020J005S	SX2TH24.000B020J005S	SX2TH25.000B020J005S	SX2TH26.000B020J005S
SX2TH30.000B020J005S	SX2TH32.000B020J005S	SX2TH38.400B020J005S	SX2TH40.000B020J005S
SX2TH48.000B020J005S	SX2TH52.000B020J005S		
SX3TA10.000B020J005S	SX3TA12.000B020J005S	SX3TA16.000B020J005S	SX3TA19.200B020J005S
SX3TA20.000B020J005S	SX3TA24.000B020J005S	SX3TA25.000B020J005S	SX3TA26.000B020J005S
SX3TA30.000B020J005S	SX3TA32.000B020J005S	SX3TA38.400B020J005S	SX3TA40.000B020J005S
SX3TA48.000B020J005S	SX3TA52.000B020J005S		

Reflow Profile



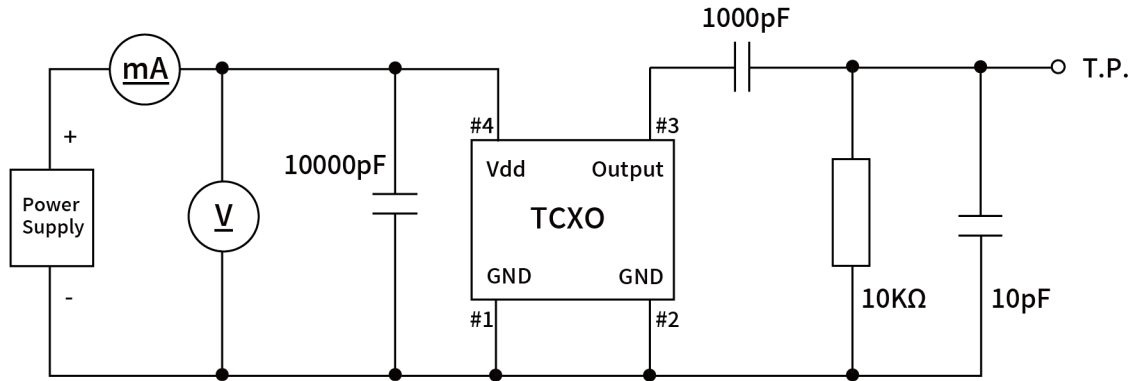
Profile Feature	Sn - Pb Eutectic Assembly	Preheat / Soak
Preheat / Soak <ul style="list-style-type: none"> ● Temperature Min (T_s min) ● Temperature Max (T_s max) ● Time (T_s min to T_s max) 	100°C 150°C 60-120 seconds	150°C 200°C 60-120 seconds
Ramp - up rate (T _L to T _p)	3°C/ second max.	3°C/ second max.
Time maintained above <ul style="list-style-type: none"> ● Liquidous temperature (T_L) ● Time (t_L) maintained above T_L 	183°C 60-150 seconds	217°C 60-150 seconds
Peak package body temperature (T _p)	235°C	260°C
Time within 5° C of the specified classification temperature (T _p)	20 seconds	30 seconds
Ramp - down rate (T _p to T _L)	6°C/ second max.	6°C/ second max.
Time 25° C to peak temperature	6 minutes max.	8 minutes max.
Suggest reflow times	2 Times max.	

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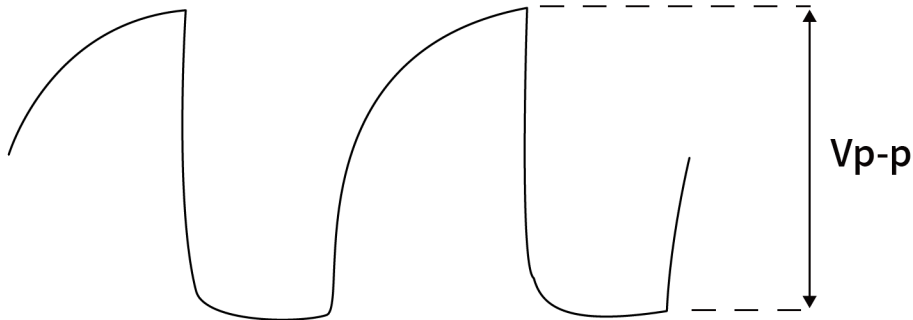


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Testing Circuit



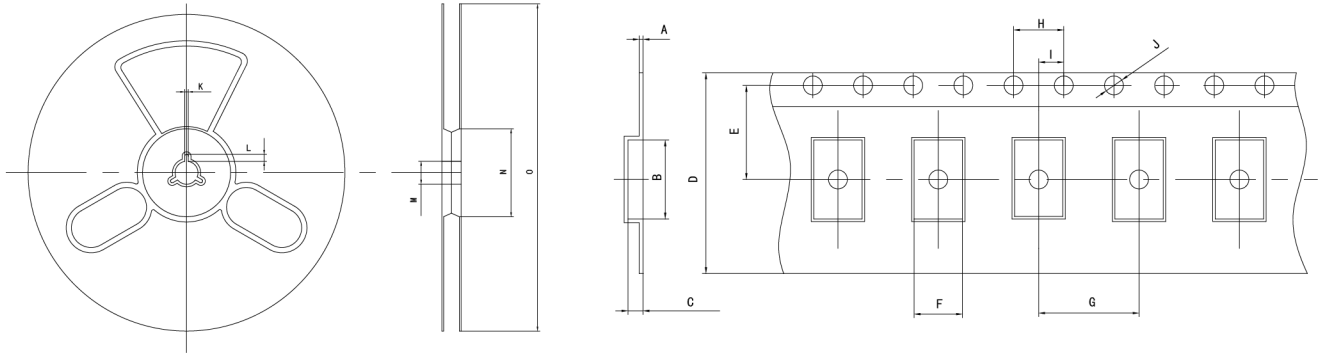
Waveform Conditions



Reliability Specification

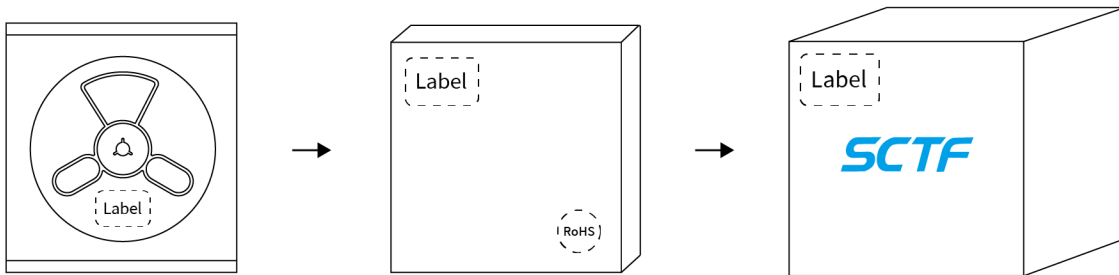
NO.	Item	Conditions	Basis of Verdict
1	Drop	High:100cm;Thickness:3cm;3 times.	$\Delta FL \leq \pm 1 \text{ppm}$
2	Vibration	Frequency:10~500HZ speed:11min/cycle Amplitude:1.5mm(10~55Hz) acceleration rate:200m/s ² (55~500Hz) Direction:X,Y,Z	$\Delta FL \leq \pm 1 \text{ppm}$
3	Low Temperature Storage	Temp:-40°C±2°C;Times:96h	$\Delta FL \leq \pm 1 \text{ppm}$
4	High Temperature Storage	Temp:125°C±2°C;Times:96h	$\Delta FL \leq \pm 1 \text{ppm}$
5	High Temp.&Humidity	Temp:80°C±2°C; Humidity:85%±5%;Times:1000h	$\Delta FL \leq \pm 1 \text{ppm}$
6	Thermal Shock	-40°C±2°C (30min) ↔ 85°C±2°C (30min) ; For 100 cycles	$\Delta FL \leq \pm 1 \text{ppm}$
7	Resistance to Soldering Heat	Keep 150 °C ± 5 °C 120s and then rose to 265 °C ± 5 °C for 10s,warming and holding time is less than the 200s, placed at room temperature 1 ~ 2h after test	$\Delta FL \leq \pm 1 \text{ppm}$
8	Aging	Temp:85°C;Times:30days	$\Delta FL \leq \pm 1 \text{ppm}$
9	Soldering Test	Dipping in solder bath at 245deg.C ± 5deg.C for 3±0.5 sec.	Soldering tin rate greater than 95%

Taping Specifications



Series	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1TH	0.25±0.05	2.3±0.1	0.7±0.1	8.0±0.1	3.5±0.1	1.9±0.1	4.0±0.1	4.0±0.1	2.0±0.1	φ1.5±0.1	2.0±0.2	4.0±1.0	φ13±0.5	φ50±1	φ180±1
2TH	0.25±0.05	2.8±0.1	1.15±0.1	8.0±0.1	3.5±0.1	2.3±0.1	4.0±0.1	4.0±0.1	2.0±0.1	φ1.5±0.1	2.0±0.2	4.0±1.0	φ13±0.5	φ60±1	φ180±1
3TA	0.25±0.05	3.6±0.1	1.3±0.1	8.0±0.1	3.5±0.1	2.9±0.1	4.0±0.1	4.0±0.1	2.0±0.1	φ1.5±0.1	2.0±0.2	4.0±1.0	φ13±0.5	φ50±1	φ180±1

Packaging specifications



■ 1 reel/box

■ 10 box/carton

Series	Packaging
1TH	3,000 pcs/reel
2TH	3,000 pcs/reel
3TA	3,000 pcs/reel