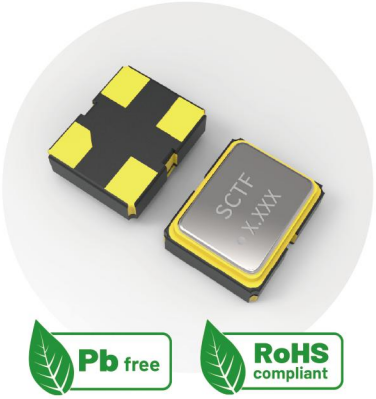
2C Series 2.5 x 2.0 mm SMD Crystal Oscillator

2 : 2.5×2.0×0.81 mm | SMD2520-4P C : SPXO Crystal Oscillator

Feature

- Ultra Miniature Ceramic surface mount with Metal Lid
- CMOS compatible logic levels
- Tri-state function available
- Supply voltage range : 1.62V ~ 3.63V(Compatible with 1.8V, 2.5V, 3.3V)
- RoHS Compliant / Pb Free



Applications

- Wireless Devices
- Internet of Things (IoT) devices
- Ethernet/Gigabit Ethernet
- Audio, Video, Gaming products
- Micro base station

Electrical Specifications

Item	Symb.	Min.	Typ.	Max.	Unit	Notes
Frequency Range	Freq.	1.000		54.000	MHz	
Operating Temperature	T_use	-20		70	°C	
		-40		85	°C	
StorageTemperature Range	T_stg	-55		125	°C	
Supply Voltage	Vdd	1.62	1.8/2.5/3.3	3.63	V	
Output Load	L_CMOS		15		pF	
Current Consumption	Icc			10	mA	1MHz ⩽ Freq. ＜ 40MHz
				20		40MHz ⩽ Freq. ⩽ 54MHz
Duty Cycle	SYM	45		55	%	50 % Vdd level, L_CMOS ⩽ 15 pF
Rise / Fall Time	T_R / T_F			5	nS	10% Vdd to 90% Level
Start-up Time	T_str			5	mS	To 90% of Final Amplitude
High output voltage	V_{OH}	0.9Vdd			V	
Low output voltage	V_{OL}			0.1Vdd	V	
Enable Voltage High (Logic 1)	V_{IH}	0.7Vdd			V	Output will be disable if OE is Logic 0 Output will be enable if OE is Logic 1 or open
Enable Voltage Low (Logic 0)	V_{IL}			0.3Vdd	V	
Aging	f_age			3	ppm	1st. Year at 25°C

Frequency Stability & Operating Temperature Range

Temp. \ FT	±20ppm	±25ppm	±30ppm	±50ppm
-20°C to +70°C	△	★	★	★
-40°C to +85°C		△	★	★

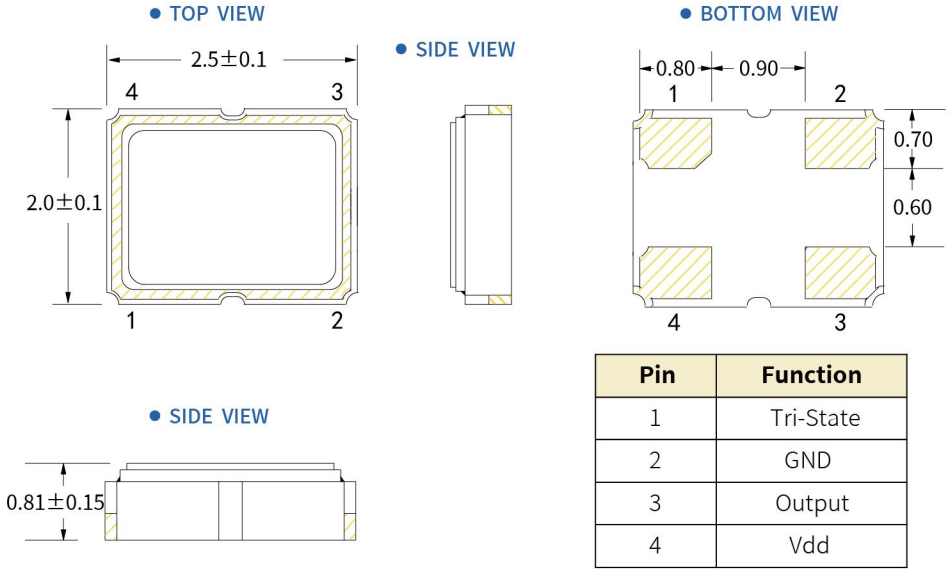
★: Available △: Conditional

All condition: Include 25°C tolerance, operating temperature range , input voltage change, aging, load change.

2C Series 2.5 x 2.0 mm SMD Crystal Oscillator

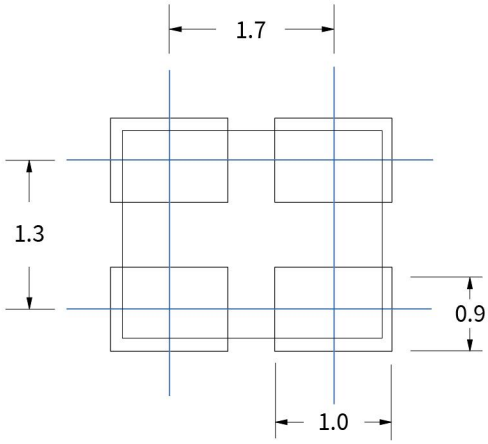
2 : 2.5×2.0×0.81 mm | SMD2520-4P C : SPXO Crystal Oscillator

Dimensions (UNIT:mm)



Pin	Function
1	Tri-State
2	GND
3	Output
4	Vdd

Solder pad layout (UNIT:mm)



Options and Part Identification : Example SX2M1.000B10F20TNN

Company	Ceramic Package	Frequency Code [MHZ]	Supply Voltage	Frequency Tolerance	Operating Temperature	Frequency Drift	Output	Current Consumption	Phase Noise
SX	2M	X.XXX	B	10	F	20	T	N	N

Code	Company
SX	SCTF

Frequency
1.000
13.560
19.200
37.125

Code	Frequency Tolerance
10	±10ppm
20	±20ppm

Code	Operating Temperature
E	-20°C ~ +70°C
F	-40°C ~ +85°C

Code	Frequency Drift
15	±15ppm
20	±20ppm
30	±30ppm

Code	Output
T	Squarewave

Code	Current
N	Standard

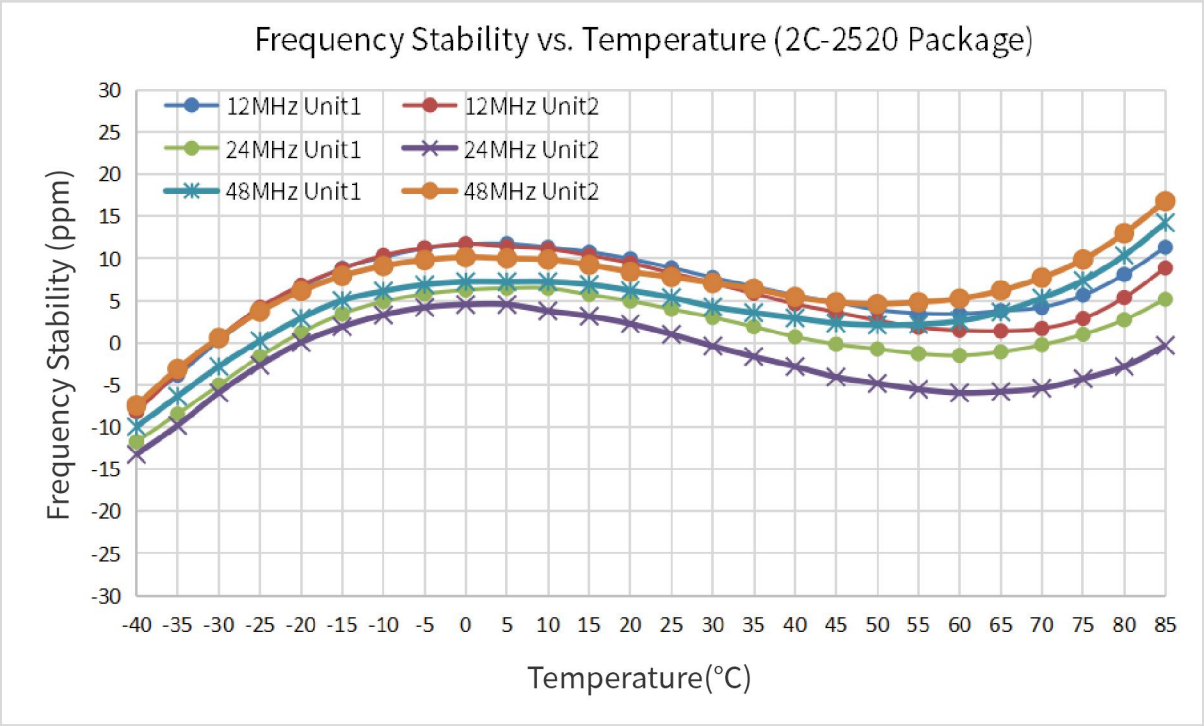
Code	Phase Noise
N	Standard

Code	Ceramic Package
7M	7.0×5.0×1.3mm
5M	5.0×3.2×1.2mm
3M	3.2×2.5×0.95mm
2M	2.5×2.0×0.81mm
1M	2.0×1.6×0.75mm

Code	Voltage
D	1.8V
H	2.5V
B	3.3V

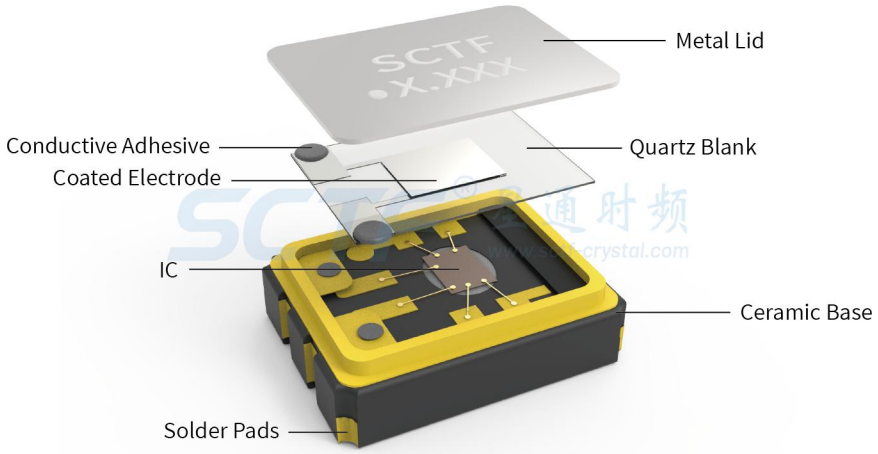
If you have other parameter requirements, you can contact **SCTF** at any time.

Frequency Temperature Characteristics

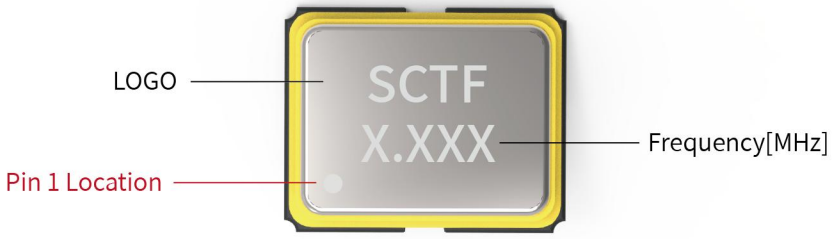


Product Structure&Marking Information

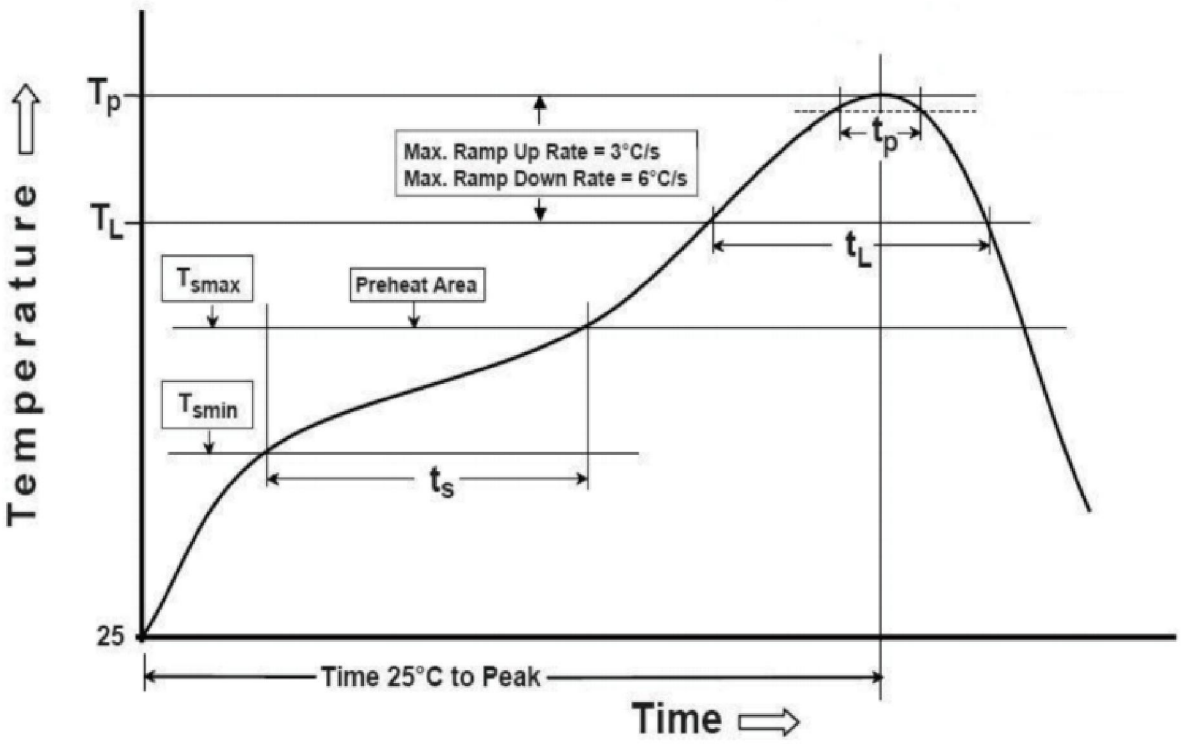
- Product Structure



- Marking Information

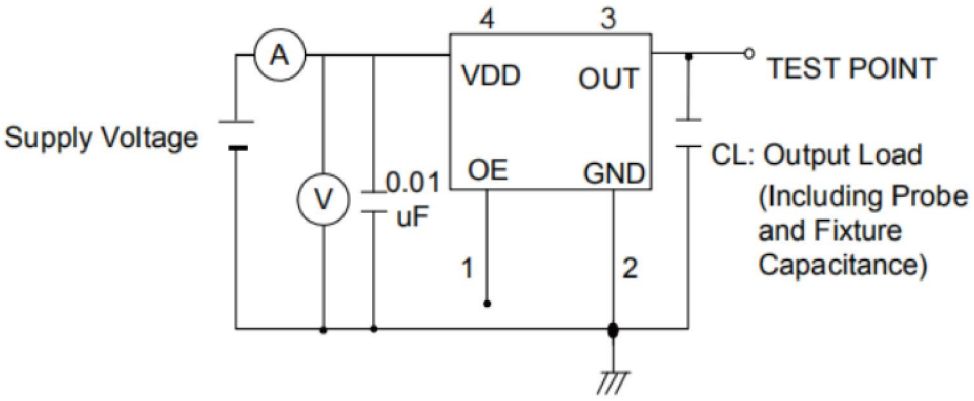


Suggested Reflow Profile



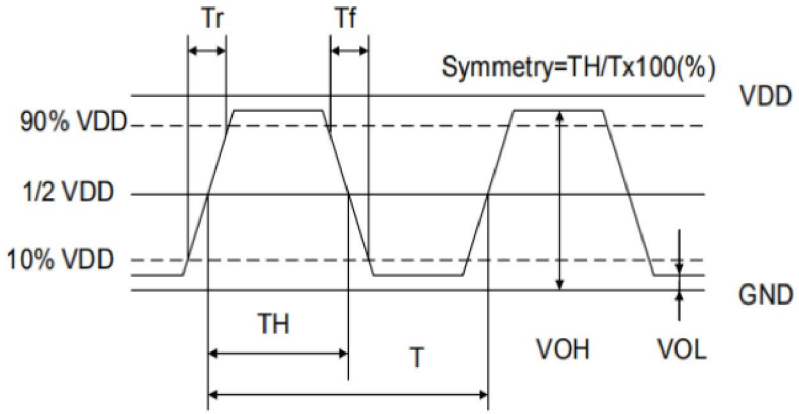
Profile Feature	Sn - Pb Eutectic Assembly	Preheat / Soak
Preheat / Soak ● Temperature Min (Ts min) ● Temperature Max (Ts max) ● Time (Ts min to Ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-120 seconds
Ramp - up rate (TL to Tp)	3°C/ second max.	3°C/ second max.
Time maintained above ● Liquidous temperature (TL) ● Time (tL) maintained above TL	183°C 60-150 seconds	217°C 60-150 seconds
Peak package body temperature (Tp)	235°C	260°C
Time within 5° C of the specified classification temperature (Tp)	20 seconds	30 seconds
Ramp - down rate (Tp to TL)	6°C/ second max.	6°C/ second max.
Time 25° C to peak temperature	6 minutes max.	8 minutes max.
Suggust reflow times	**2 Times max.**	

Testing Circuit



※ Notes: PIN 1 connected to Vdd or floating, the product is working properly;connected to GND,stops working.

Waveform Conditions

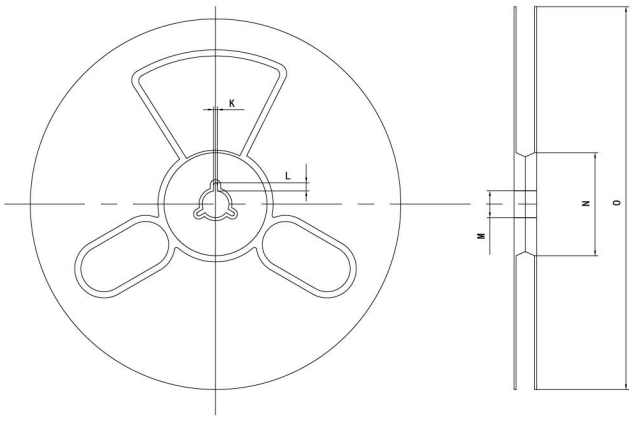


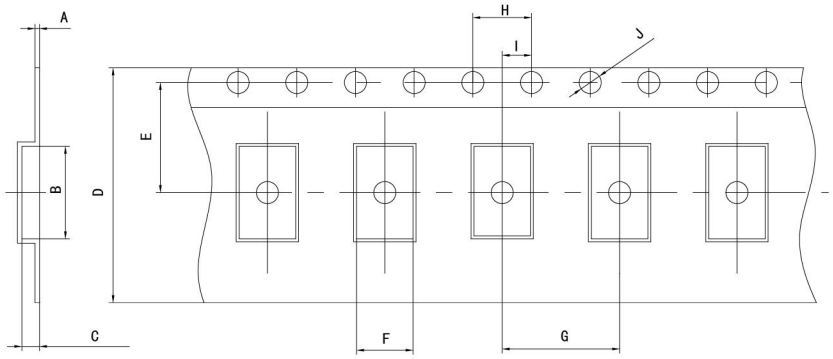
Waveform measurement system should have a min. bandwidth of 5 times the frequency being tested.

Packaging Information

T=Tape and reel (3,000pcs/reel)







Pocket Tape Dimensions(mm)

Series	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
2C	0.25±0.05	3.5±0.1	1.4±0.1	8.0±0.1	3.5±0.1	2.70±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

Common Frequencies – MHz

2C Series				
1.000	1.8432	2.000	2.048	3.579545
3.6864	4.000	4.096	4.9152	6.000
6.144	6.780	7.3728	8.000	8.192
10.000	11.0592	11.2896	12.000	12.288
13.000	13.560	14.31818	14.7456	16.000
16.384	18.432	19.200	20.000	22.1184
22.5792	24.000	24.576	25.000	26.000
27.000	28.63636	29.4912	30.000	32.000
32.768	33.000	33.330	33.333	33.3333
37.125	38.400	40.000	45.1584	48.000
49.152	50.000	54.000		