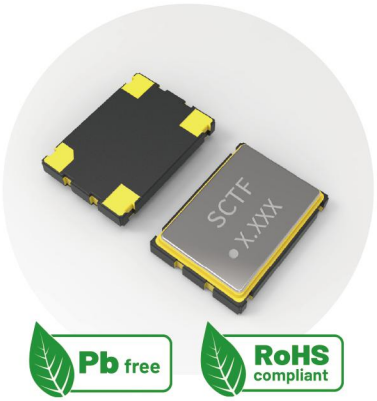
7C Series 7.0 x 5.0 mm SMD Crystal Oscillator

7 : 7.0×5.0×1.3 mm | SMD7050-4P C : SPXO Crystal Oscillator

Feature

- Cost-effective design
- CMOS compatible logic levels
- Tri-state function available
- Supply voltage range : 1.62V ~ 5.5V(Compatible with 1.8V, 2.5V, 3.3V , 5.0V)
- 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		160.000	MHz	
Operating Temperature	T_use	-20		70	°C	
		-40		85	°C	
StorageTemperature Range	T_stg	-55		125	°C	
Supply Voltage	Vdd	1.62	1.8/2.5/3.3/5.0	5.5	V	
Output Load	L_CMOS		15		pF	
Current Consumption	Icc			10	mA	1MHz ⩽ Freq. ＜ 40MHz
				20		40MHz ⩽ Freq. ＜ 80MHz
				40		80MHz ⩽ Freq. ＜ 160MHz
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

FT / Temp.	±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.

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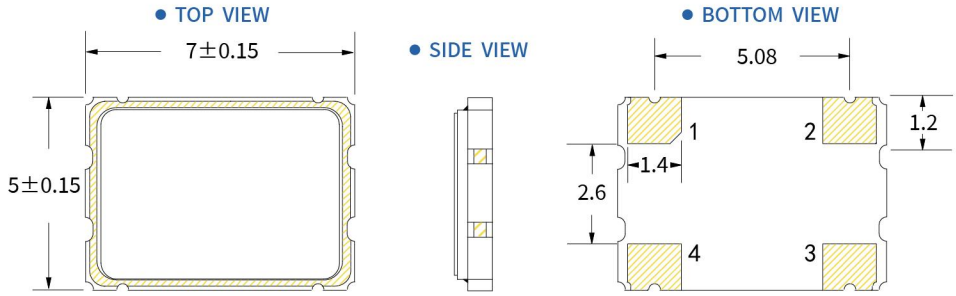
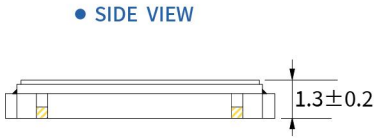
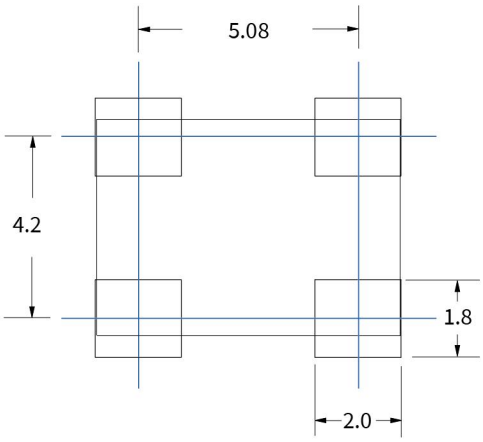
Dimensions (UNIT:mm)





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

Solder pad layout (UNIT:mm)



Options and Part Identification : Example SX7M1.000B20F30TNN

Company	Ceramic Package	Frequency Code [MHz]	Supply Voltage	Frequency Tolerance	Operating Temperature	Frequency Drift	Output	Current Consumption	Phase Noise
SX	7M	X.XXX	B	20	F	30	T	N	N

Code	Company
SX	SCTF

Frequency
1.000
13.560
19.200
37.125

Code	Frequency Tolerance
10	±10ppm
20	±20ppm

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

Code	Current
N	Standard

Code	Phase Noise
N	Standard

Code	Ceramic Package
1M	2.0×1.6×0.75mm
2M	2.5×2.0×0.81mm
3M	3.2×2.5×0.95mm
5M	5.0×3.2×1.2mm
7M	7.0×5.0×1.3mm
OA	12.7×12.7×5.4 mm[PXO-8]
OB	20.4×12.8×4.9 mm [PXO-14]

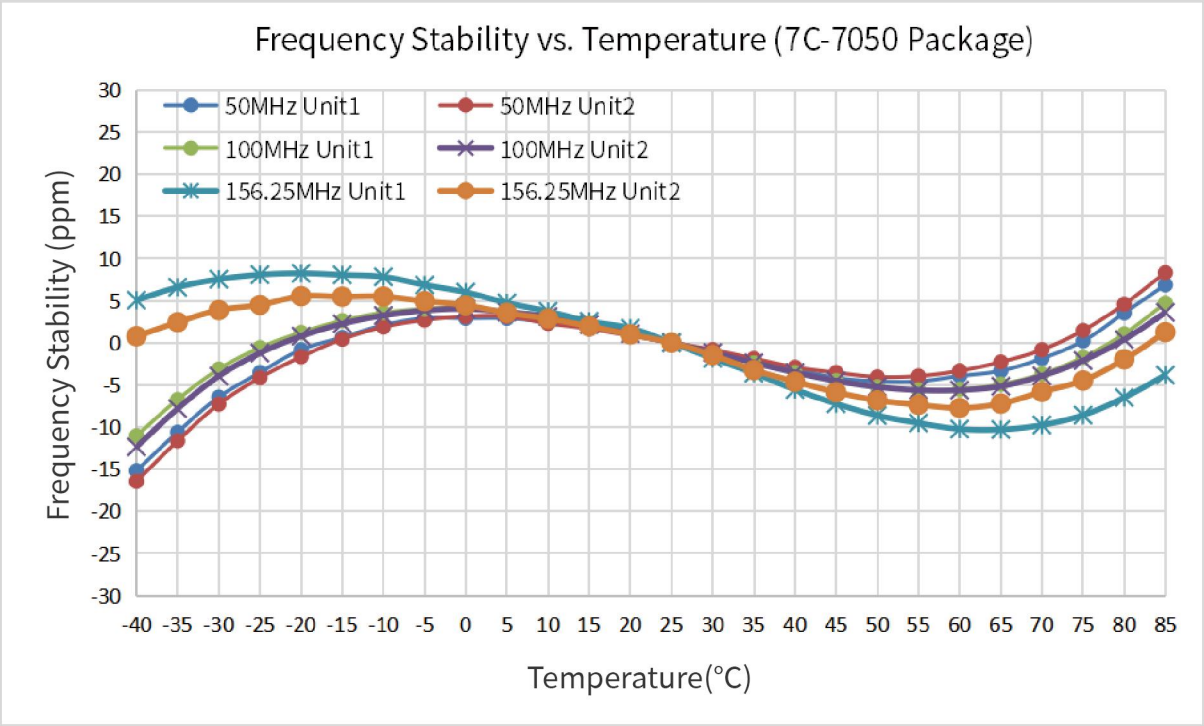
Code	Voltage
D	1.8V
H	2.5V
B	3.3V
A	5.0V

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

Code	Output
T	CMOS 15pF
H	CMOS 30pF
G	CMOS 50pF

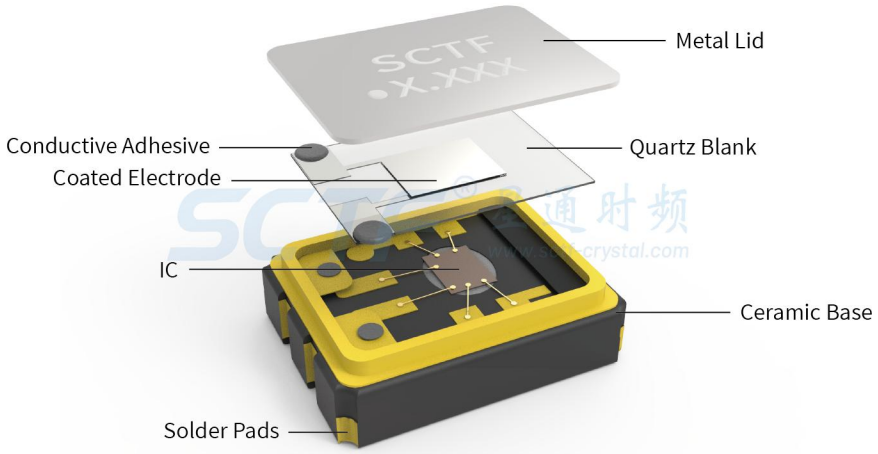
If you have other parameter requirements, you can contact **SCTF** at any time.

Frequency Temperature Characteristics

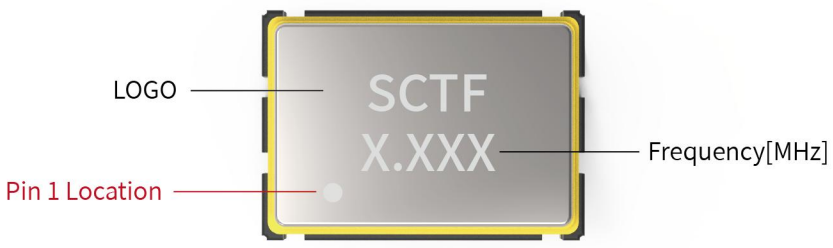


Product Structure&Marking Information

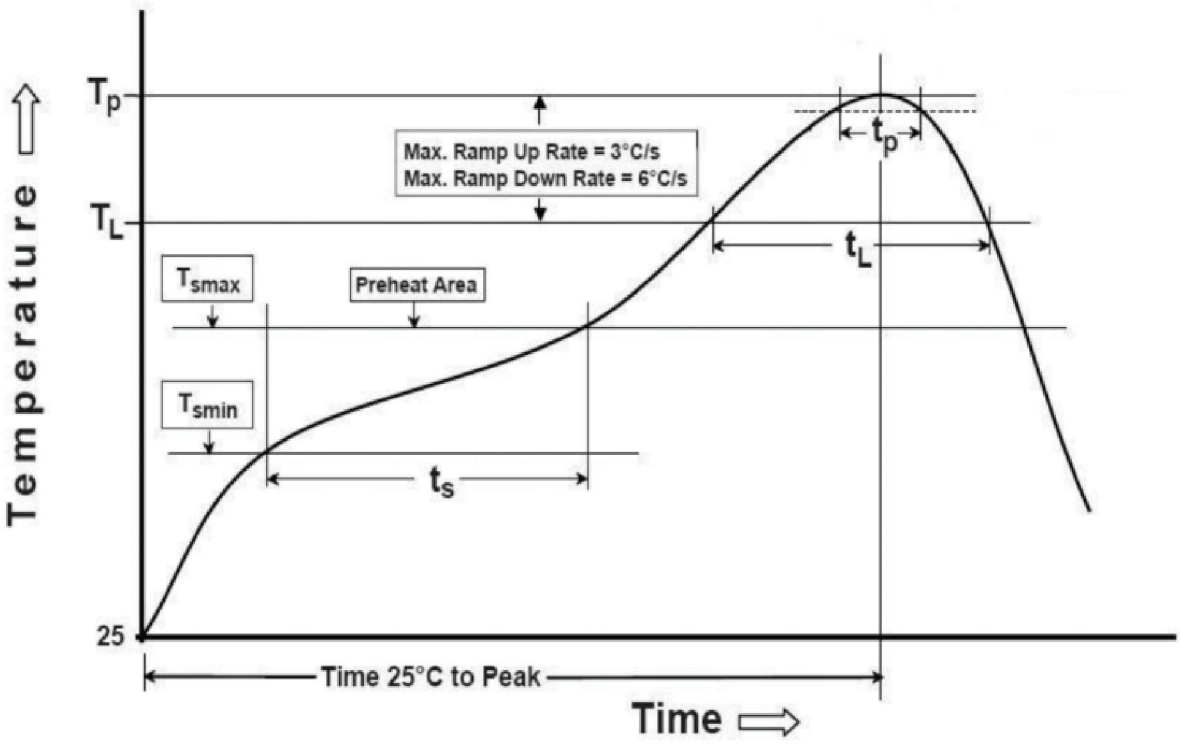
- Product Structure



- Marking Information

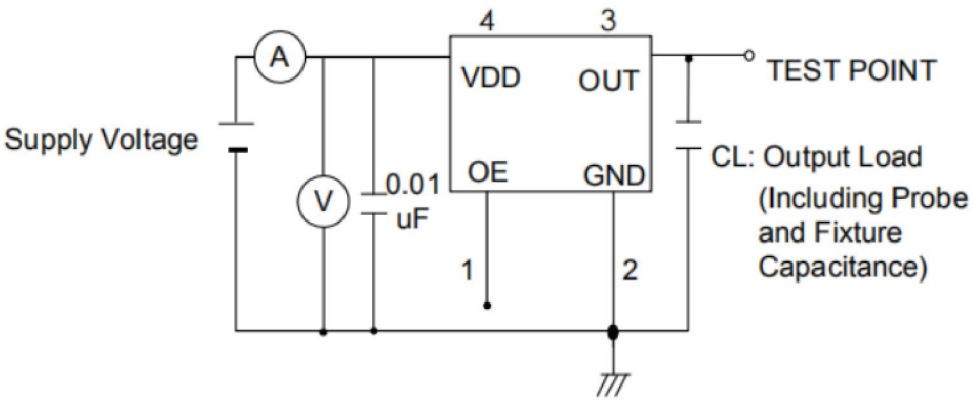


Suggested Reflow Profile



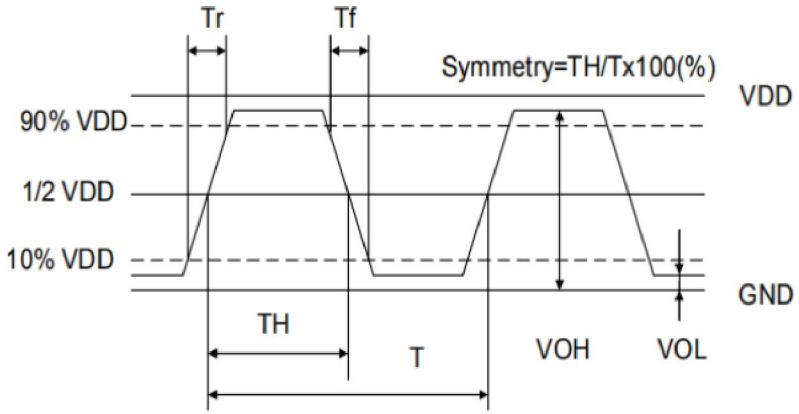
Profile Feature	Sn - Pb Eutectic Assembly	Preheat / Soak
Preheat / Soak ● Temperature Min (Ts min) ● Temperature Max (Ts max) ● Time (Ts min to Ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-120 seconds
Ramp - up rate (TL to Tp)	3°C/ second max.	3°C/ second max.
Time maintained above ● Liquidous temperature (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.

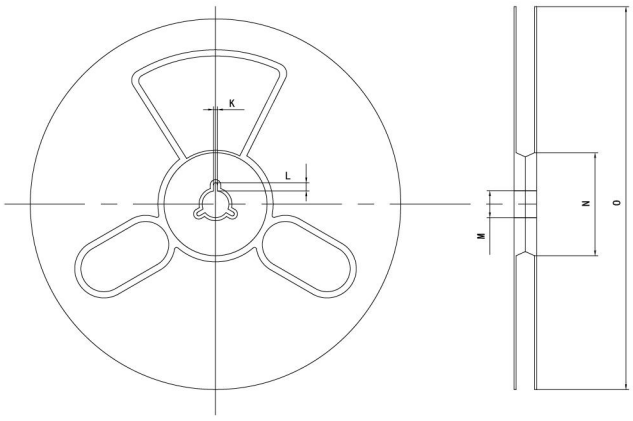
Waveform Conditions

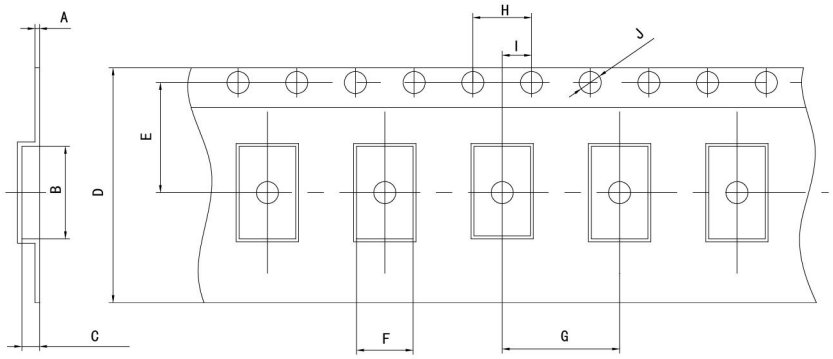


Waveform measurement system should have a min. bandwidth of 5 times the frequency being tested.

Packaging Information

T=Tape and reel (1,000pcs/reel)





Pocket Tape Dimensions(mm)

Series	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
7C	0.3±0.05	7.6±0.1	2.0±0.1	16±0.3	7.5±0.1	5.4±0.1	8.0±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

7C Series				
1.000	1.008	1.024	1.544	1.8432
2.000	2.048	2.176	2.4576	2.500
3.2768	3.579545	3.6864	4.000	4.096
4.9152	5.000	6.000	6.144	6.780
7.200	7.3728	7.500	7.680	8.000
8.192	9.216	9.8304	10.000	11.0592
11.2896	12.000	12.288	12.800	13.000
13.560	14.2848	14.31818	14.7456	15.000
15.360	16.000	16.128	16.384	18.432
19.200	19.6608	20.000	20.480	22.1184
22.5792	24.000	24.576	25.000	25.000625
25.175	26.000	27.000	27.120	28.224
28.63636	29.4912	30.000	30.720	32.000
32.768	33.000	33.330	33.333	33.3333
33.333333	36.000	38.400	40.000	40.960
45.000	45.1584	48.000	49.152	50.000
52.000	54.000	60.000	64.000	65.536
66.000	66.666	66.6666	72.000	74.250
75.000	80.000	96.000	98.304	100.000
106.250	125.000	133.000	148.500	156.250

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