1CV Series 2.0 x 1.6 mm SMD Crystal Oscillator

1：2.0×1.6×0.75 mm | SMD2016-4P　　CV：Low Voltage Crystal Oscillator

Feature

- Ceramic surface mount with Metal Lid
- CMOS compatible logic levels
- Tri-state function available
- Supply voltage range : 0.8V ~ 2.0V(1.2V typ.)
- RoHS Compliant / Pb Free

Applications

- Wireless Devices
- Internet of Things (IoT) devices
- Fibre Channel
- Ethernet/Gigabit Ethernet
- Portable Electronics

Electrical Specifications

Item	Symb.	Min.	Typ.	Max.	Unit	Notes
Frequency Range	Freq.	0.75		50.000	MHz	
Operating Temperature	T_use	-20		+70	°C	
		-40		+85	°C	
StorageTemperature Range	T_stg	-55		+125	°C	
Supply Voltage	Vdd	0.8	1.2	2.0	V	
Output Load	L_CMOS		15		pF	
Current Consumption	Icc			1.5	mA	No load condition,Vdd=1.2V 0.75MHz ⩽ Freq. ＜ 12MHz
				1.7		No load condition,Vdd=1.2V 12MHz ⩽ Freq. ＜ 24MHz
				2.0		No load condition,Vdd=1.2V 24MHz ⩽ Freq. ＜ 50MHz
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		△	★	★

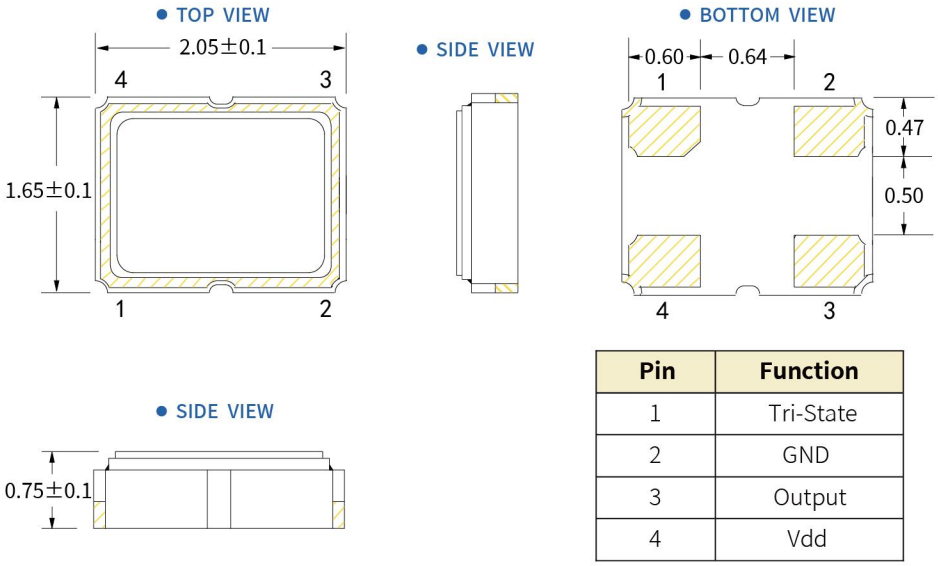
★：Available　　△：Conditional

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

1CV Series 2.0 x 1.6 mm SMD Crystal Oscillator

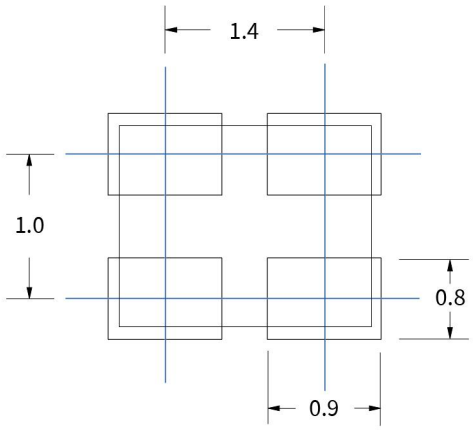
1 : 2.0×1.6×0.75 mm | SMD2016-4P CV : Low Voltage Crystal Oscillator

Dimensions (UNIT:mm)



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

Solder pad layout (UNIT:mm)



Options and Part Identification : Example SX1M25.000E20F30THN

Company	Ceramic Package	Frequency Code [MHz]	Supply Voltage	Frequency Tolerance	Operating Temperature	Frequency Drift	Output	Current Consumption	Phase Noise
SX	1M	X.XXX	E	20	F	30	T	H	N

Code	Company
SX	SCTF

Frequency
25.000
50.000

Code	Frequency Tolerance
10	±10ppm
20	±20ppm

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

Code	Current
H	3mA
J	2mA
K	1mA

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

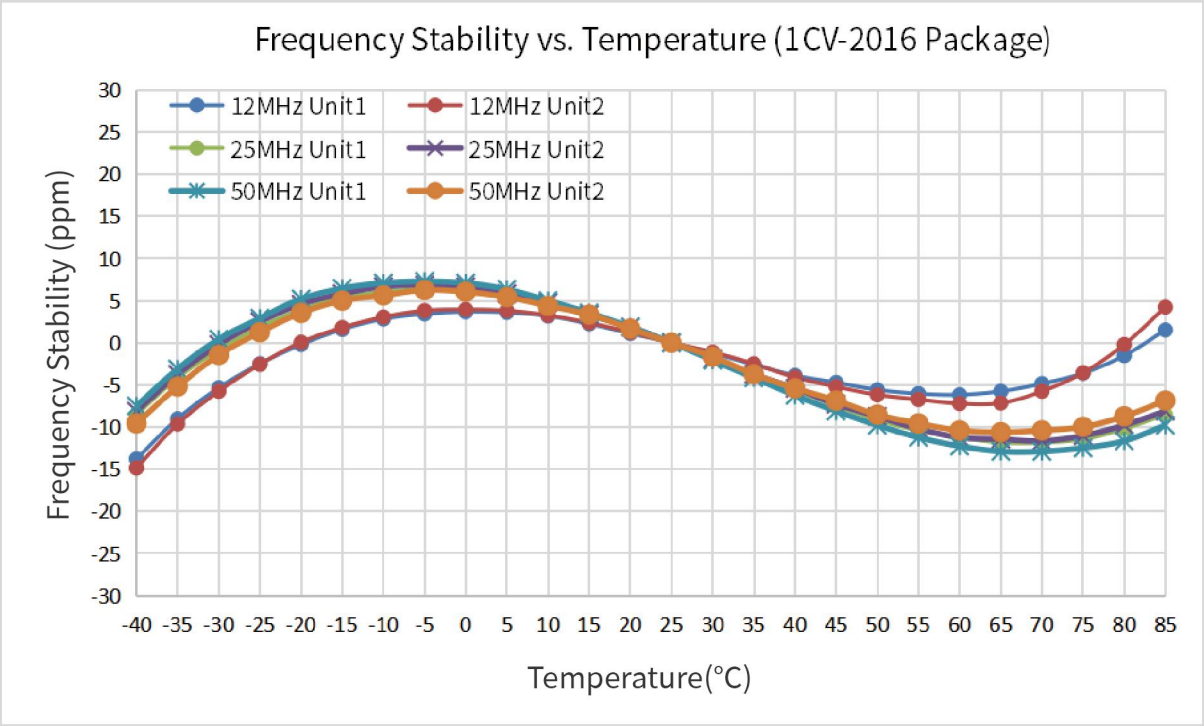
Code	Voltage
G	0.8V
F	1.0V
E	1.2V

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

Code	Output
T	CMOS

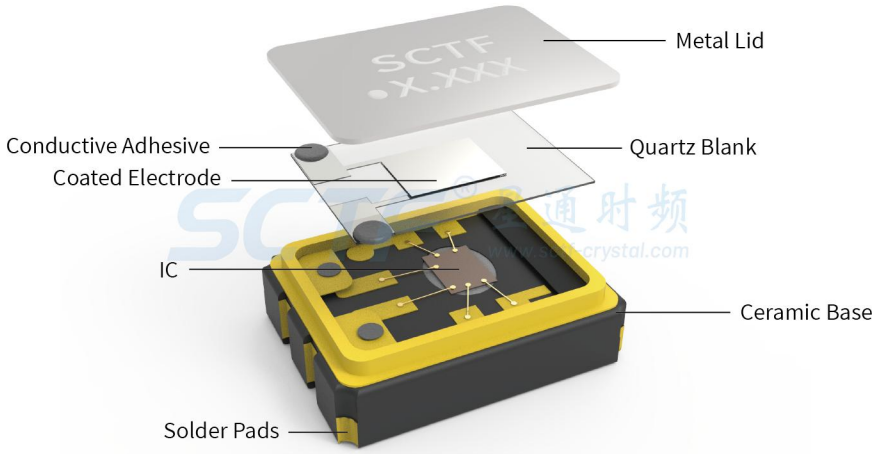
If you have other parameter requirements, you can contact **SCTF** at any time.

Frequency Temperature Characteristics

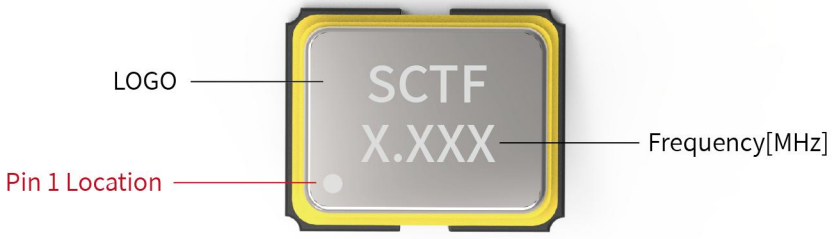


Product Structure&Marking Information

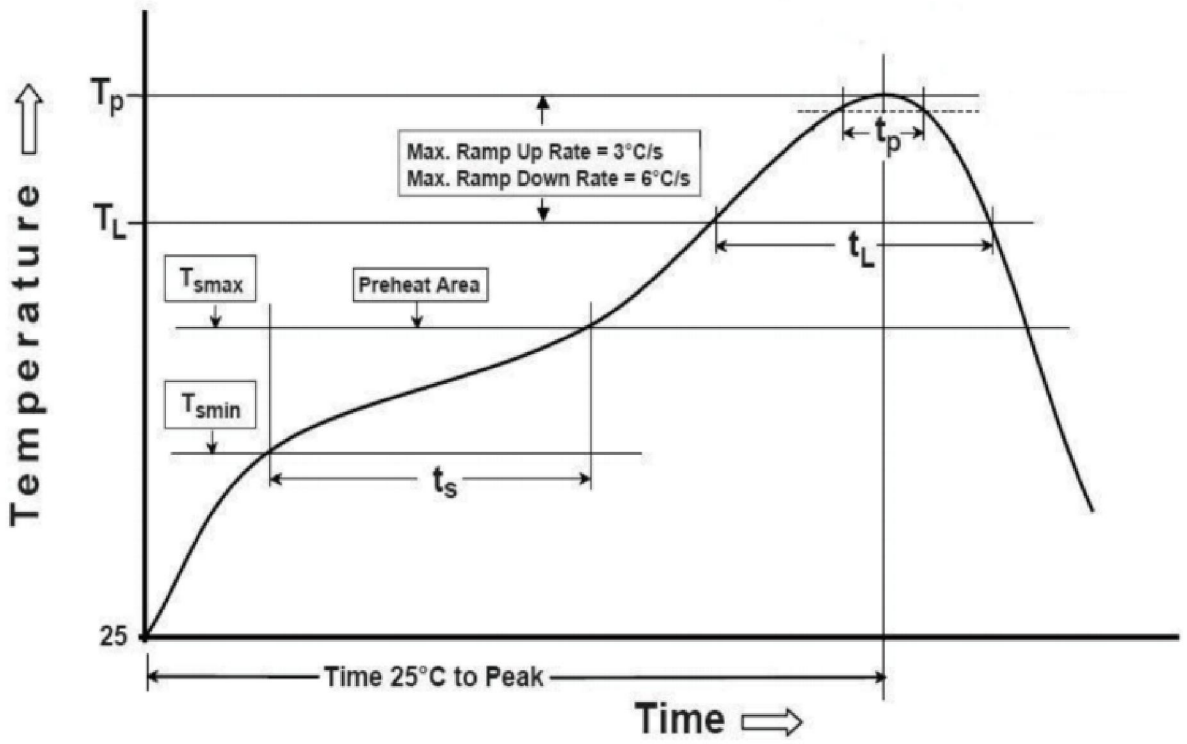
- Product Structure



- Marking Information

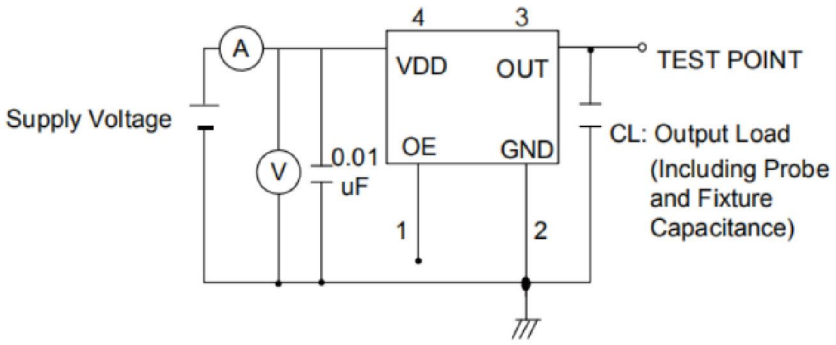


Suggested Reflow Profile



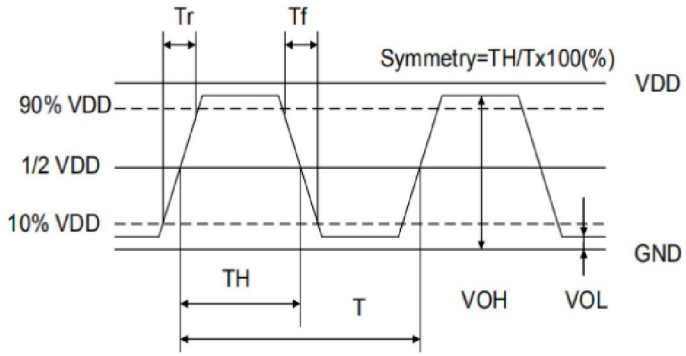
Profile Feature	Sn - Pb Eutectic Assembly	Preheat / Soak
Preheat / Soak ● Temperature Min (Ts min) ● Temperature Max (Ts max) ● Time (Ts min to Ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-120 seconds
Ramp - up rate (TL to Tp)	3°C/ second max.	3°C/ second max.
Time maintained above ● Liquidous temperature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

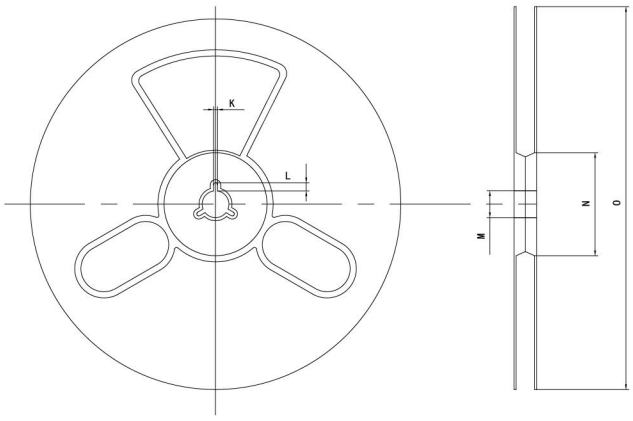
Waveform Conditions

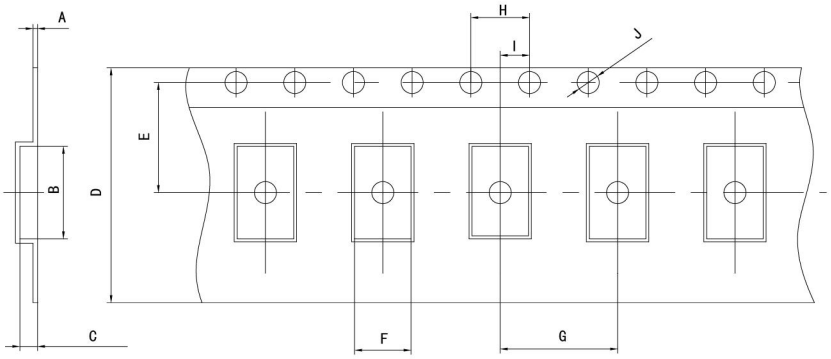


Waveform measurement system should have a min. bandwidth of 5 times the frequency being tested.

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
1CV	0.25±0.05	2.3±0.1	1.0±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	ϕ60±1	ϕ180±1

Common Frequencies – MHz

1CV Series				
1.000	1.024	2.000	2.048	3.579545
3.6864	4.000	4.096	4.9152	6.000
6.144	7.3728	8.000	8.192	10.000
11.0592	11.2896	12.000	12.288	14.7456
16.000	16.384	18.432	20.000	22.1184
22.5792	24.000	24.576	25.000	26.000
27.000	30.000	32.000	32.768	33.000
33.3333	36.000	40.000	45.000	45.1584
49.152	50.000			