

# O-CS8-0XSXXXXX-X

## Ultra Low Phase Noise, Precision SC-cut HF OCXO in Tiny 14x21x7.5 mm SMD Package

Rev. H

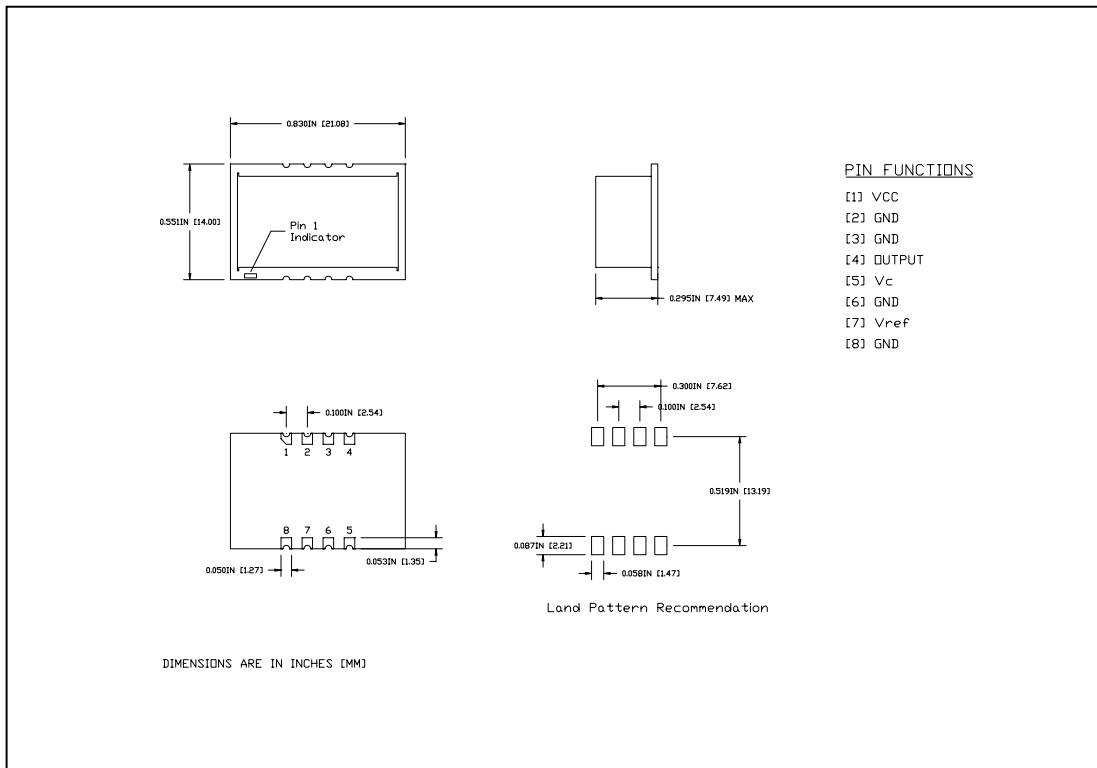
### Product Data Sheet

#### Features

- SC-cut crystal
- Ultra Low Phase Noise
- Sine Wave +15 dBm output
- Extremely Small, Slim Package

#### Applications

- Instrumentation
- Radar
- High End Synthesizers
- Telecommunication Systems
- Data Communications



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Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
<b>Absolute Maximum Ratings</b>							
Input Break Down Voltage	Vcc		-0.5		6.5	V	Vcc option 0
Storage temper.	Ts		-55		85	°C	
Control Voltage	Vc		-1		10.5	V	
<b>Electrical (1)</b>							
Frequency	F		80		120	MHz	
Frequency stability	$\Delta F/F$	vs. Temp.		$\pm 50$		ppb	See table below Note 2
		vs. Supply			2	ppb/5% change	
		Vs. load			2	ppb/5% change	
Aging		per day		5E-9		ppm	After 30 days of continuous operation
		per first year		5E-7			
		10 years			2.0		
Allan Deviation		.01s to 1s		5E-11			
SSB Phase Noise at 100.000 MHz	$\mathcal{L}(\Delta f)$	10 Hz		-95		dBc/Hz	Grade "L"
		100 Hz			-125		
		1 KHz			-158		
		10 KHz			-170		
		100 KHz			-178		
		10 Hz		-100			Grade "P"
		100 Hz			-130		
		1 KHz			-160		
		10 KHz			-172		
		100 KHz			-178		
		10 Hz		-105			Grade "U", Available with slope option "L"
		100 Hz			-135		
1 KHz			-162				
10 KHz			-175				
100 KHz			-180				
Retrace		After 30 minutes		$\pm 20$		ppb	
G-sensitivity		worst direction			$\pm 0.5$	ppb/G	
Supply Voltage		5V $\pm$ 5%	4.75	5.0	5.25	V	Option "0"
Power consumption	P	steady state, 25°C		1.0	1.2	W	Still air
		steady state, -40°C		2.5			
		start-up		3.0	3.5		
Spectral Purity		Output power	12	15		dBm dBc	Non-supply related
		Subharmonics		none			
		Spurious Harmonics		-35	-80 -30		
Load		50 Ohm (Internally AC-coupled)					
Warm-up time	$\tau$	to 0.1ppm accuracy		3	5	minutes	
Output Waveform		Sine-wave					
Control voltage	Vc		0		10.0	V	Slope option "L" Slope option "P"
			0		4.5		
Input Impedance	Zin	At Vc Pin	10			K ohm	
Pull range		from nominal F		$\pm 3.0$		ppm	
Absolute pull range	APR		$\pm 0.5$			ppm	
Deviation slope		Monotonic, posit		0.7		ppm/V	Slope option "L" Slope option "P"
				1.3			
Linearity			$\pm 10\%$				
Reference Voltage	Vref			N/A		V	Slope option "L" Slope option "P"
				4.5			
Setability	Vc0	@25°C, Fnom.	4.0	5.0	6.0	V	Slope option "L", no bias Slope option "P"
			1.75	2.25	2.75		
Modulation Bandwidth	Fm		DC		1	KHz	

All parameters for 100.000 MHz

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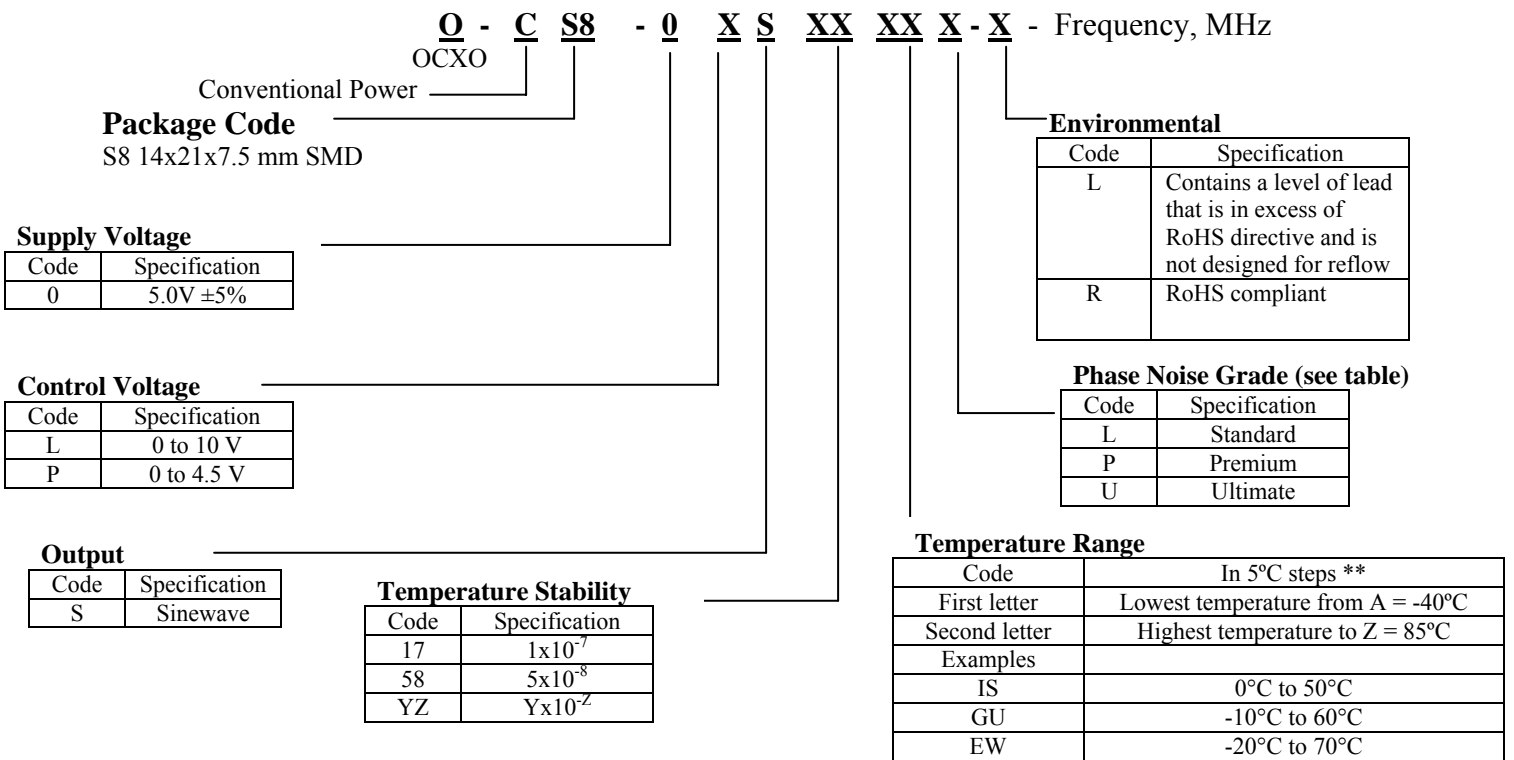
**Environmental and Mechanical**

<b>Operating temp. range</b>	0 to 70°C Standard, Other options – see Chart below
<b>Mechanical Shock</b>	Per MIL-STD-202, 30G, 11ms
<b>Thermal Shock</b>	Per MIL-STD-883, Method 1011, Condition A
<b>Vibration</b>	Per MIL-STD-202, 5G to 2000 Hz
<b>Operational vibration</b>	Phase noise under vibration to be verified by the customer
<b>Seal</b>	Only crystal resonator is hermetically sealed
<b>Soldering Conditions</b>	See MAX reflow profile below; The device may be reflowed once. Reflowing upside down is not allowed. Hand soldering is highly encouraged. NO CLEAN assembly is recommended

**Electrical Connections**

<b>Pin Out</b>	Pin #1-- Vcc; Pins ##2,3,6,8 – GND; Pin #4 – OUTPUT; Pin #5– Vc; Pin #7 - Vref
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**Creating a Part Number**



**\*\*Temperature Code Table**

Letter	Temp °C	Letter	Temp °C	Letter	Temp °C	Letter	Temp °C	Letter	Temp °C	Letter	Temp °C
A	-40	F	-15	K	10	P	35	U	60	Z	85
B	-35	G	-10	L	15	Q	40	V	65		
C	-30	H	-5	M	20	R	45	W	70		
D	-25	I	0	N	25	S	50	X	75		
E	-20	J	5	O	30	T	55	Y	80		



**FREQUENCY CONTROLS, INC.**

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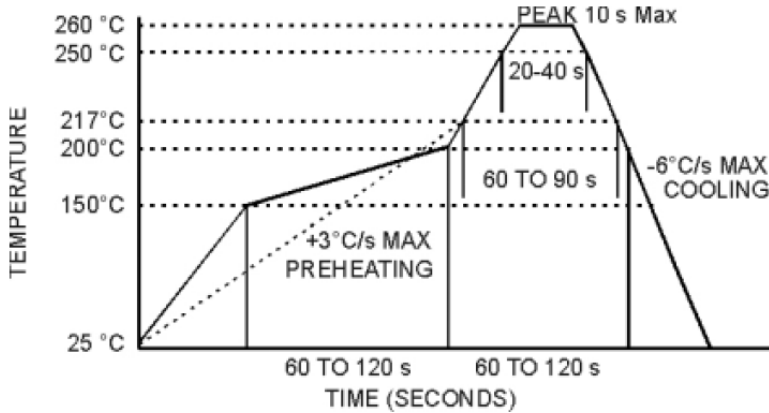
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Notes:

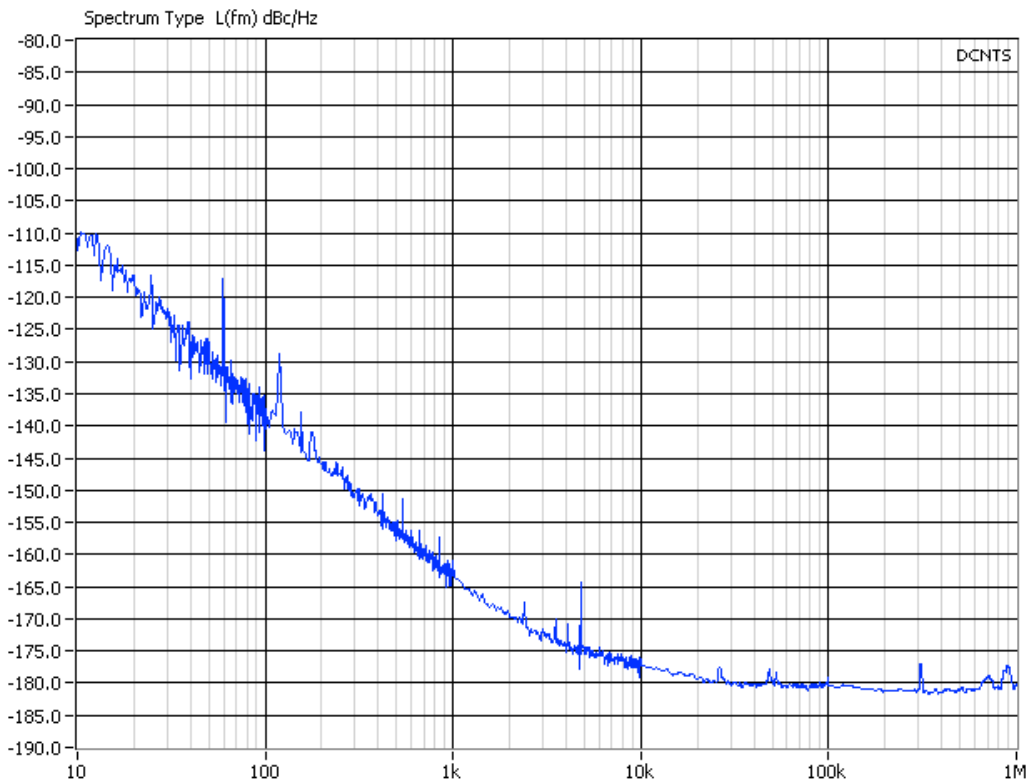
1. Not all combinations are available – consult factory
2. It's not recommended to over-specify stability over temperature performance: it significantly affects the cost.
3. Unless absolutely necessary do not specify highest operating temperature above 70°C
4. All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal Load.

## MAX Reflow Profile



## NOISE XT

Phase Noise Plot



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