

O-CS8-0XXXXXXXX-X

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

Rev. I

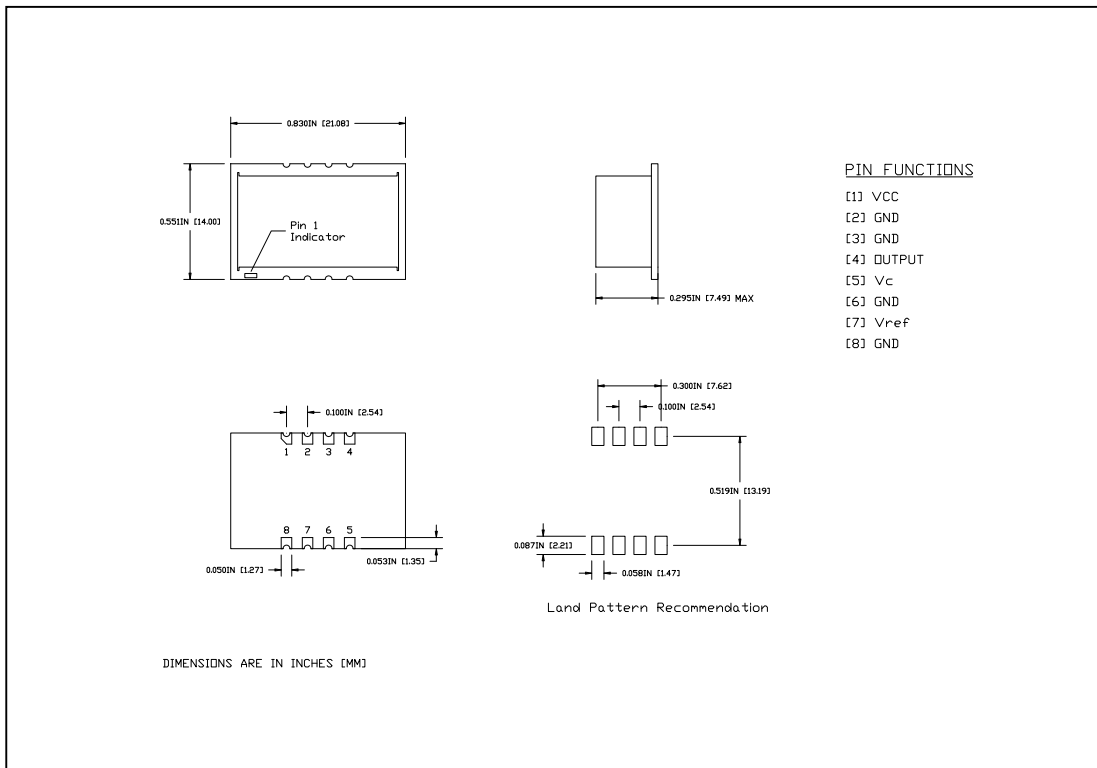
Product Data Sheet

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



O-CS8-0XXXXXXXX-X

Rev. I

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note		
Absolute Maximum Ratings									
Input Break Down Voltage	V _{cc}		-0.5		6.5	V	V _{cc} option 0		
Storage temper.	T _s		-55		85	°C			
Control Voltage	V _c		-1		10.5	V			
Electrical (1)									
Frequency	F		80		120	MHz			
Frequency stability	ΔF/F	vs. Temp.		±50		ppb	See table below Note 2		
		vs. Supply			2	ppb/5% change			
		Vs. load			2	ppb/5% change			
Aging		per day per first year 10 years		5E-9 5E-7		ppm	After 30 days of continuous operation		
Allan Deviation		.01s to 1s		5E-11					
SSB Phase Noise at 100.000 MHz	£(f)	10 Hz		-95			Grade öLö		
		100 Hz			-125				
		1 KHz			-158				
		10 KHz			-170				
		100 KHz			-178				
		10 Hz			-100			Grade öPö	
		100 Hz				-130			
		1 KHz				-160			
		10 KHz				-172			
		100 KHz				-178			
		10 Hz			-105				Grade öUö, Available with slope option öLö
		100 Hz				-135			
1 KHz				-162					
10 KHz				-175					
100 KHz				-180					
Retrace		After 30 minutes		±20		ppb			
G-sensitivity		worst direction			±0.5	ppb/G			
Supply Voltage		5V±5%	4.75	5.0	5.25	V	Option ööö		
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	Non-supply related		
		Subharmonics		none		dBc			
		Spurious			-80				
		Harmonics		-35	-30				
Load		50 Ohm (Internally AC-coupled)							
Warm-up time	τ	to 0.1ppm accuracy		3	5	minutes			
Output Waveform		Sine-wave							
Control voltage	V _c		0		10.0	V	Slope option öLö Slope option öPö		
			0		4.5				
Input Impedance	Z _{in}	At V _c Pin	10			K ohm			
Pull range		from nominal F		±3.0		ppm			
Absolute pull range	APR		±0.5			ppm			
Deviation slope		Monotonic, posit		0.7		ppm/V	Slope option öLö Slope option öPö		
				1.3					
Linearity			±10%						
Reference Voltage	V _{ref}			N/A			Slope option öLö Slope option öPö		
				4.5		V			
Setability	V _{c0}	@25°C, F _{nom} .	4.0	5.0	6.0	V	Slope option öLö, no bias Slope option öPö		
			1.75	2.25	2.75				
Modulation Bandwidth	F _m		DC		1	KHz			

All parameters for 100.000 MHz



O-CS8-0XXXXXXXX-X

Rev. I

Environmental and Mechanical

Operating temp. range	0 to 70°C Standard, Other options ó see Chart below
Mechanical Shock	Per MIL-STD-202, 30G, 11ms
Thermal Shock	Per MIL-STD-883, Method 1011, Condition A
Vibration	Per MIL-STD-202, 5G to 2000 Hz
Operational vibration	Phase noise under vibration to be verified by the customer
Seal	Only crystal resonator is hermetically sealed
Soldering Conditions	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

Pin Out	Pin #1-- Vcc; Pins ##2,3,6,8 ó GND; Pin #4 ó OUTPUT; Pin #5ó Vc; Pin #7 - Vref
----------------	--

Creating a Part Number

O - C S8 - 0 X X XX XX X - X - Frequency, MHz

OCXO

Conventional Power

Package Code
S8 14x21x7.5 mm SMD

Supply Voltage

Code	Specification
0	5.0V ±5%

Control Voltage

Code	Specification
L	0 to 10 V
P	0 to 4.5 V

Output

Code	Specification
S	Sinewave
T	CMOS/TTL

Temperature Stability

Code	Specification
17	1x10 ⁻⁷
58	5x10 ⁻⁸
YZ	Yx10 ^{-Z}

Environmental

Code	Specification
L	Contains a level of lead that is in excess of RoHS directive and is not designed for reflow
R	RoHS compliant

Phase Noise Grade (see table)

Code	Specification
L	Standard
P	Premium
U	Ultimate

Temperature Range

Code	In 5°C steps **
First letter	Lowest temperature from A = -40°C
Second letter	Highest temperature to Z = 85°C
Examples	
IS	0°C to 50°C
GU	-10°C to 60°C
EW	-20°C to 70°C

****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		



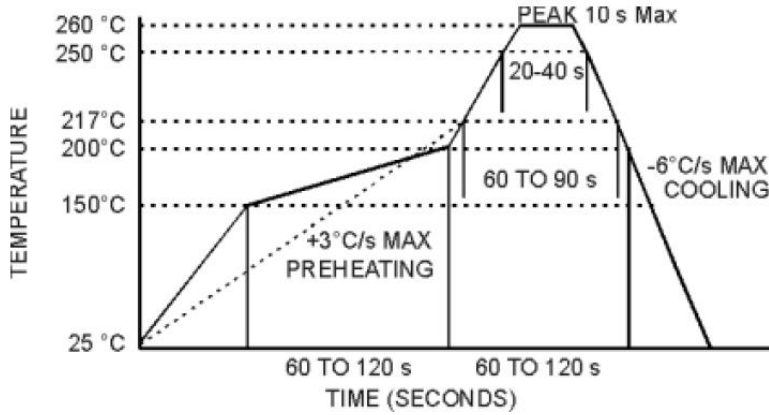
O-CS8-0XSXXXXX-X

Rev. I

Notes:

1. Not all combinations are available ó 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

