

**O-CIH-XXXXXXXX-X Very Low Phase Noise  
Precision SC-cut HF OCXO in 1"x1" Through Hole Package**

Rev. P

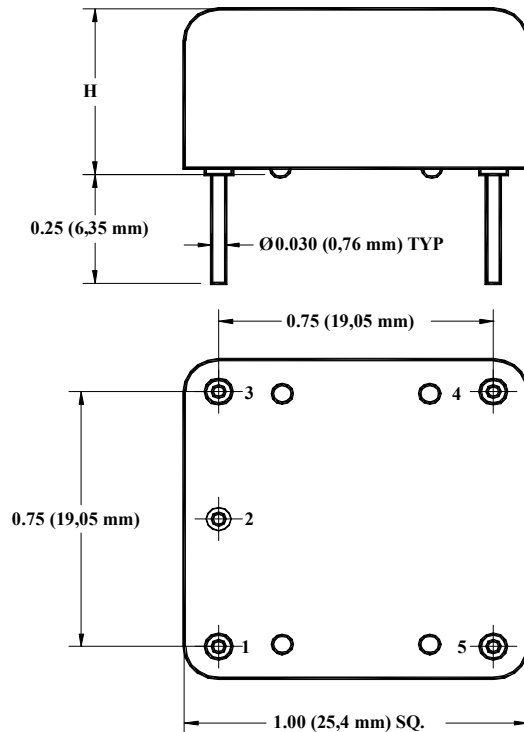
**Product Data Sheet**

**Features**

- SC-cut crystal
- Ultra Low Phase Noise
- Sine Wave +17 dBm output
- Compact package

**Applications**

- Radar
- Instrumentation and Test Equipment
- Synthesizers
- References



Stand-off positions may vary.

H Code	Height, inches, Typ
4	0.4 (10.2 mm)
5	0.5 (12.7 mm)

Code 5 is standard unless code 4 is requested.

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
<b>Absolute Maximum Ratings</b>							
<b>Input Break Down Voltage</b>	V <sub>cc</sub>		-0.5		13.0	V	V <sub>cc</sub> option F
			-0.5		6.5		V <sub>cc</sub> option 0
<b>Storage temper.</b>	T <sub>s</sub>		-55		85	°C	
<b>Control Voltage</b>	V <sub>c</sub>		-1		10	V	
<b>Electrical (I)</b>							
<b>Frequency</b>	F		80		128	MHz	
<b>Frequency stability</b>	ΔF/F	vs. Temp.		±50		ppb	See table below
		vs. Supply			2	ppb/5% change	
		Vs. load			2	ppb/5% change	
<b>Aging</b>		per day per first year 10 years		5E-9 5E-7		ppm	After 30 days of continuous operation
<b>Allan Deviation</b>		.01s to 1s		5E-11			
<b>SSB Phase Noise</b>	£( f)	10 Hz			-95	dBc/Hz	Grade ðLö
		100 Hz			-125		
		1 KHz			-158		
		10 KHz			-170		
		×100 KHz			-178		
		10 Hz			-100		Grade ðPö
		100 Hz			-130		
		1 KHz			-160		
		10 KHz			-172		
		×100 KHz			-178		
		10 Hz		-105	-135		Grade ðUö, Available with slope option ðLö
		100 Hz		-162	-175		
		1 KHz		-175	-178		
		10 KHz		-178	-178		
		×100 KHz		-178	-178		
		10 Hz		-135	-105		Grade ðEö Available with slope option ðLö, V <sub>cc</sub> option ðÖö (5V) only
100 Hz		-166	-164				
1 KHz		-182	-180				
10 KHz		-187	-185				
×100 KHz		-187	-185				
<b>Retrace</b>		After 30 minutes		±20		ppb	
<b>G-sensitivity</b>		worst direction			±0.5	ppb/G	
<b>Input Voltage</b>	V <sub>cc</sub>	12V±5%	11.4	12.0	12.6	V	Option ðFö
		5V±5%	4.75	5.0	5.25	V	Option ðÖö
<b>Power consumption</b>	P	steady state, 25°C		1.2	1.5	W	Still air
		steady state, -40°C		2.5			
		start-up		3.0	3.5		
<b>Spectral Purity</b>		Output power	13	17		dBm dBc	Non-supply related
		Subharmonics		none			
		Spurious			-80		
		Harmonics		-35	-30		
<b>Load</b>	50 Ohm (Internally AC-coupled)						
<b>Warm-up time</b>	τ	to 0.1ppm accuracy		3	5	minutes	
<b>Output Waveform</b>	Sine-wave						
<b>Control voltage</b>	V <sub>c</sub>		0		10.0	V	Slope option ðLö Slope option ðPö
			0		4.5		
<b>Pull range</b>		from nominal F		±3.0		ppm	
<b>Modulation Bandwidth</b>	MBW	V <sub>c</sub> port input LPF 3dB cut-off freq.	DC		1	KHz	Note 3
<b>Absolute pull range</b>	APR	Over all conditions	±0.5			ppm	

All parameters for 100,000 MHz

<b>Deviation slope</b>		Monotonic, posit		0.7 1.3		ppm/V	Slope option $\delta L\delta$ Slope option $\delta P\delta$
<b>Linearity</b>			$\pm 10\%$				
<b>Reference Voltage</b>	Vref			N/A 4.5		V	Slope option $\delta L\delta$ Slope option $\delta P\delta$
<b>Setability</b>	Vc0	@25°C, Fnom.	4.0 1.75	5.0 2.25	6.0 2.75	V	Slope option $\delta L\delta$ , no bias Slope option $\delta P\delta$

Note: 1. All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal Load.  
3. Older and stock units may have MBW of 150 Hz Max.

**Environmental and Mechanical**

<b>Operating temp. range</b>	0 to 70°C Standard, Other options $\delta$ 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>	Per MIL-STD_883, Method 1014, Cond A and Cond C
<b>Soldering Conditions</b>	260°C for 10s Max leads only

**Electrical Connections**

<b>Pin Out</b>	Pin #1- Output ; Pin #2 $\delta$ GND; Pin #3 $\delta$ Voltage Control; Pin#4 $\delta$ Vref or NC; Pin#5 - Vcc
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**Creating a Part Number**

**Q - C I H - X X X XX XX X - X - Freq**  
O C X O  
 Conventional Power

**Package Code** I 5 pin 1 $\delta$ x1 $\delta$   
**Height Code per Dwg**

**Supply Voltage**

Code	Specification
F	12V $\pm 5\%$
0	5.0V $\pm 5\%$

**Control Voltage**

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

**Output**

Code	Specification
S	Sinewave

**Temperature Stability**

Code	Specification
17	1x10 <sup>-7</sup>
58	5x10 <sup>-8</sup>
28	2x10 <sup>-8</sup>
YZ	Yx10 <sup>-Z</sup>

**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

**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, not designed for reflow

**Phase Noise Grade (see table)**

Code	Specification
L	Standard
P	Premium
U	Ultimate
E	Extraordinary

**\*\*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		

Note 2 \*\*: The units will be functional down to -55°C with expected deterioration of frequency Stability by up to 2ppm.

**Phase Noise Plot:**

**100 MHz Output Frequency**

