

O-CEX-XXXXXXXX-X Very Low Phase Noise Precision SC-cut HF OCXO in 36x27mm “Europack”

Rev. M

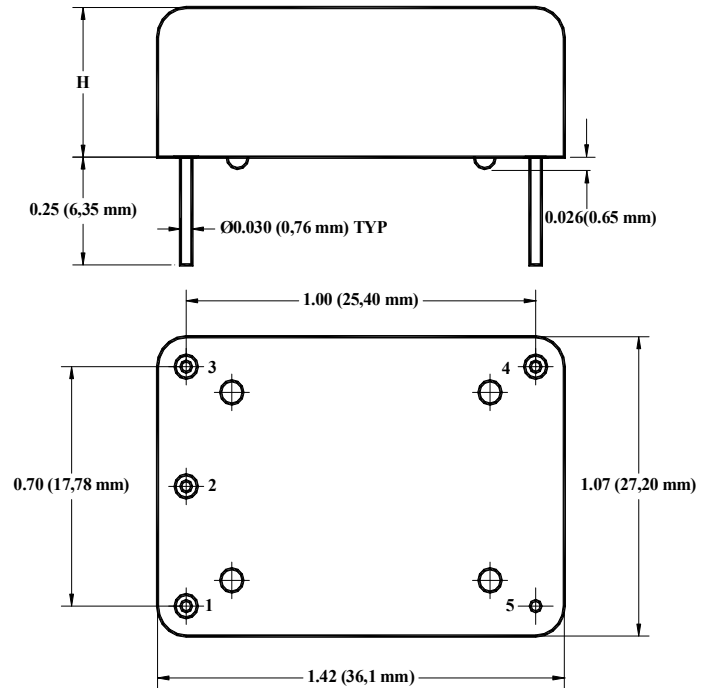
Product Data Sheet

Features

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

Applications

- Radar
- Instrumentation and Test Equipment
- Synthesizer
- References



H code	Height, inches, TYP
5	0.5 (12.7 mm)
6	0.63 (16 mm)
7	0.75 (19 mm)

Code 6 is standard unless code 5 is requested. Code 7 is for special requirements.

*Stand-off positions may vary.

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
Absolute Maximum Ratings							
Input Break Down Voltage	V _{cc}		-0.5		13.0	V	V _{cc} option F
			-0.5		6.5		V _{cc} option 0
Storage temper.	T _s		-55		85	°C	
Control Voltage	V _c		-1		10	V	
Electrical (1)							
Frequency	F		80		128	MHz	
Frequency stability	ΔF/F	vs. Temp.		±50		ppb	See table below
		vs. Supply			2	ppb/5% change	
		Vs. load			2	ppb/5% change	
Aging		per day per first year 10 years		5E-9 5E-7	2.0	ppm	After 30 days of continuous operation
Allan Deviation		.01s to 1s		5E-11			
SSB Phase Noise	£(f)	10 Hz			-95	dBc/Hz	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	-135		Grade öUö, Available with slope option öLö
		100 Hz			-162		
		1 KHz			-175		
		10 KHz			-178		
		×100 KHz			-185		
Retrace		After 30 minutes		±20		ppb	
G-sensitivity		worst direction			±0.5	ppb/G	
Input Voltage	V _{cc}	12V±5%	11.4	12.0	12.6	V	Option öFö
		5V±5%	4.75	5.0	5.25	V	Option ööö
Power consumption	P	steady state, 25°C		1.2	1.5	W	Still air
		steady state, -40°C start-up		2.5 3.0			
Spectral Purity		Output power	13	17		dBm dBc	Non-supply related
		Subharmonics		none			
		Spurious Harmonics			-80 -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		
Pull range		from nominal F		±3.0		ppm	
Modulation Bandwidth	MBW	V _c port input LPF 3dB cut-off freq.	DC		1	KHz	Note 3
Absolute pull range	APR	Over all conditions	±0.5			ppm	

All parameters for 100,000 MHz

Deviation slope		Monotonic, posit		0.7 1.3		ppm/V	Slope option $\delta L\delta$ Slope option $\delta P\delta$
Linearity			$\pm 10\%$				
Reference Voltage	Vref			N/A 4.5		V	Slope option $\delta L\delta$ Slope option $\delta P\delta$
Setability	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 max have MBW of 150 Hz Max.

Environmental and Mechanical

Operating temp. range	0 to 70°C Standard, Other options δ 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	Per MIL-STD_883, Method 1014, Cond A and Cond C
Soldering Conditions	260°C for 10s Max leads only

Electrical Connections

Pin Out	Pin #1- Voltage Control ; Pin #2 δ Vref or N/C ; Pin #3 δ Vcc; Pin#4 δ Output; Pin#5 - GND
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Creating a Part Number

Q - C E X - X X X XX XX X - X - Freq

OCXO

Conventional Power

Package Code
E 5 pin 36x27mm
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	1×10^{-7}
58	5×10^{-8}
YZ	$Y \times 10^{-Z}$

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

