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

Rev. P

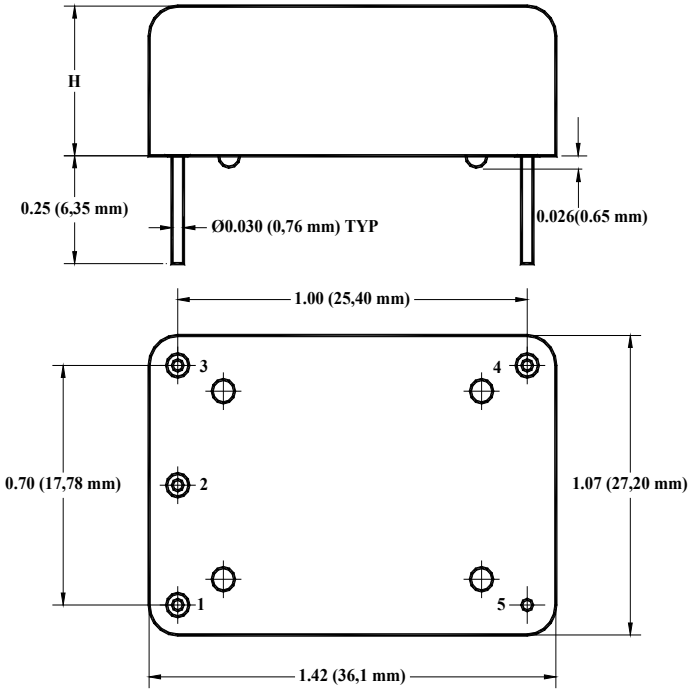
Product Data Sheet

Features

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

Applications

- Radar
- Instrumentation and Test Equipment
- 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.

NEL FREQUENCY CONTROLS, INC.

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OVEN CONTROLLED CRYSTAL OSCILLATORS

Data Sheet 1029C

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
Absolute Maximum Ratings							
Input Break Down Voltage	Vcc		-0.5 -0.5		13.0 6.5	V	Vcc option F Vcc option 0
Storage temper.	Ts		-55		85	°C	
Control Voltage	Vc		-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	£(Δf)	10 Hz 100 Hz 1 KHz 10 KHz ≥100 KHz			-95 -125 -158 -170 -178	dBc/Hz	Grade "L"
		10 Hz 100 Hz 1 KHz 10 KHz ≥100 KHz			-100 -130 -160 -172 -178		Grade "P"
		10 Hz 100 Hz 1 KHz 10 KHz ≥100 KHz		-105	 -135 -162 -175 -178		Grade "U", Available with slope option "L"
		10 Hz 100 Hz 1 KHz 10 KHz ≥100 KHz		 -135 -166 -182 -187	-105 -164 -180 -185		Grade "E" Available with slope option "L", Vcc option "0" (5V) only
Retrace		After 30 minutes		±20		ppb	
G-sensitivity		worst direction			±0.5	ppb/G	
							All parameters for 100.000 MHz
Input Voltage	Vcc	12V±5%	11.4	12.0	12.6	V	Option "F"
		5V±5%	4.75	5.0	5.25	V	Option "0"
Power consumption	P	steady state, 25°C steady state, -40°C start-up		1.2 2.5 3.0	1.5 3.5	W	Still air
Spectral Purity		Output power Subharmonics Spurious Harmonics	13	17 none -35	 -80 -30	dBm dBc	Non-supply related
Load	50 Ohm (Internally AC-coupled)						
Warm-up time	τ	to 0.1ppm accuracy		3	5	minutes	
Output Waveform		Sine-wave					
Control voltage	Vc		0 0		10.0 4.5	V	Slope option "L" Slope option "P"
Pull range		from nominal F		±3.0		ppm	
Modulation Bandwidth	MBW	Vc port input LPF 3dB cut-off freq.	DC		1	KHz	Note 3
Absolute pull range	APR	Over all conditions	±0.5			ppm	

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

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 – 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 – Vref or N/C ; Pin #3 – Vcc; Pin#4 – Output; Pin#5 - GND

Creating a Part Number

O - C E X - X X X XX XX X - X - Freq

O OCXO

C Conventional Power

E **Package Code**
E 5 pin 36x27mm

X **Height Code per dwg.**

X **Supply Voltage**

Code	Specification
F	12V ±5%
0	5.0V ±5%

X **Control Voltage**

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

X **Output**

Code	Specification
S	Sinewave

XX **Temperature Stability**

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

XX **Temperature Range**

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

X **Phase Noise Grade (see table)**

Code	Specification
L	Standard
P	Premium
U	Ultimate
E	Extraordinary

X **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

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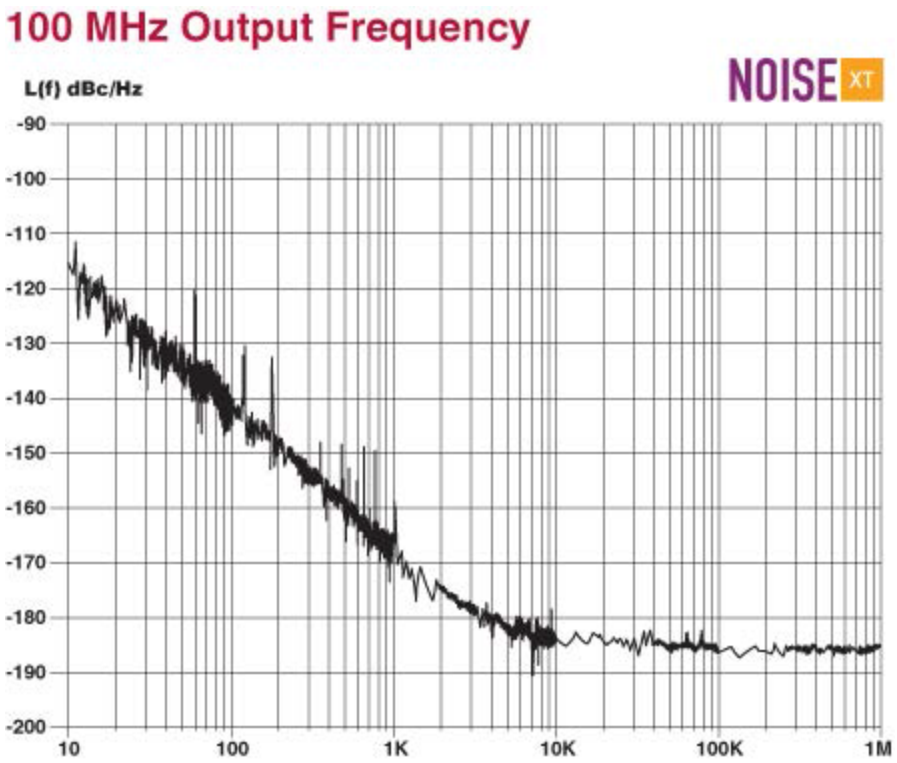
**Temperature Code Table

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:



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