Rev F

O-CE8-XXYZXX-X-V-XX-X
Precision Very Low Phase Noise OCXO in 36x27 mm "Europack" with OSC Disable and Oven Alarm features for Instrumentation

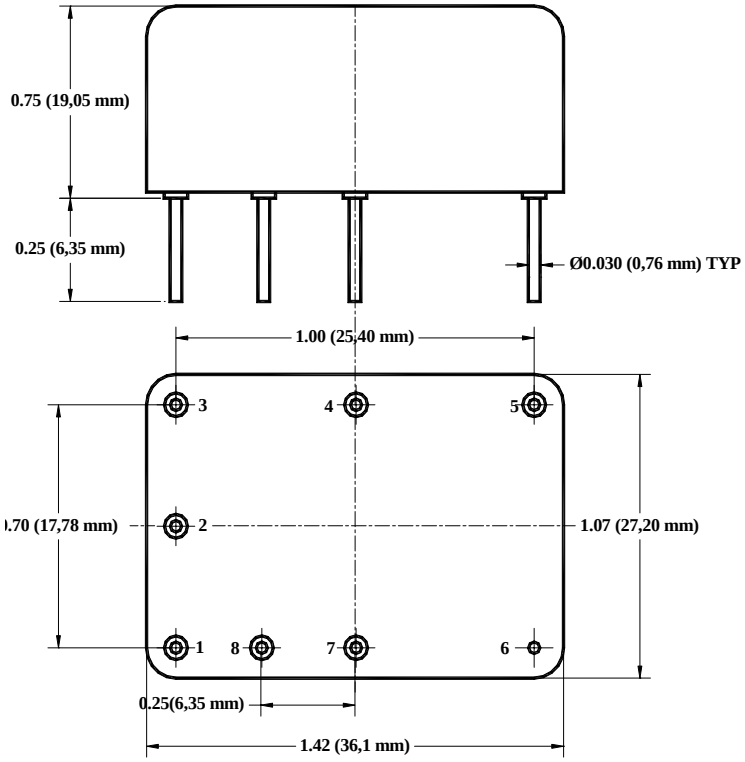
Product Data Sheet

Features

- SC-cut crystal
- High Stability
- Low Aging
- Very Low Phase Noise:
  -135 dBc/Hz at 10Hz offset
  -170 dBc/Hz on the noise floor

Applications

- Instrumentation
- Telecommunication Systems
- Data Communications
- GPS
- COTS/Dual use



NEL FREQUENCY CONTROLS, INC.

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Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
Absolute Maximum Ratings							
Input Break Down Voltage	Vcc	12 V supply 5 V supply	-0.5 -0.5		13.0 5.5	V	
Storage temper.	Ts		-40		85	°C	
Control Voltage	Vc		-1 -5		5.5 5	V	Slope option "P" Slope option "N"
Electrical (4)							
Frequency	F		8	10.000	13	MHz	
Frequency stability	ΔF/F	vs. Temp.		±10		ppb	See chart below
		vs. Supply		0.2	0.3	ppb/10%Vcc	
Aging		per day per year, first year second year 10 years 15 years		5E-10 1E-7 3E-8 2.5E-7 2.7E-7			after 30 days 5E-8 available
Allan Deviation		.1s to 10s		1E-12			
SSB Phase Noise (achieved after 10 minutes warm-up)		1Hz 10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		-105 -135 -155 -162 -168 -170	-102 -133 -154 -161 -167 -169	dBc/Hz	
Retrace		After 30 minutes			±10	ppb	24 Hours off 3*
G-sensitivity		worst direction			±1.0	ppb/G	
Input Voltage	Vcc		4.75 11.4	5.0 12.0	5.25 12.6	V	See chart below to specify
Power consumption	P	steady state, 25°C steady state, -30°C start-up @ -30°C		0.8 1.5 2.5	1.0 3.2	W	Still air
Spectral Purity		Spurious Harmonics		 -35	-80 -30	dBc	Non-harmonic
Load	Internally AC-coupled 50 Ohm						
Warm-up time	τ	to 0.1ppm accuracy to 10ppb accuracy		3	5 10	minutes	Off time <24 hrs Aging rate was reached
Output Waveform		HCMOS/TTL compatible or Sinewave					
Output Power			+8	+10		dBm	Output Code S
Logic 1 (CMOS)	Voh		0.7 Vref			V	Output Code T
Logic 0 (CMOS)	Vol				0.1 Vref	V	Output Code T
Control voltage	Vc		0 -4.5		Vref 4.5	V	Slope option "P" Slope option "N"
Reference Voltage	Vref	Vcc = 12V Vcc = 5V		5 or 4.5 4.5		V	
Output Impedance		At Vref pin		100		Ohm	
Modulation Bandwidth	Fm		DC		1	KHz	Note 5
Pull range		from nominal F	±0.4 ±0.5	±0.6 ±0.7		ppm	Slope option "P" Slope option "N"
Deviation slope		Monotonic, positive Monotonic, negative		1.2/Vref -0.15		ppm/V	Slope option "P" Slope option "N"
Setability	Vc0	@25°C, Fnom.	Vref/2 ± 0.5 0 ± 0.5			V	Slope option "P" 3* Slope option "N"
Oven Ready		V pin #7	3.3		 0.5	V	Ready Not Ready

All parameters for 10 MHz

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Output Enable		CMOS Logic "1" (4.5V>V>2.5) or floating Logic "0" (V<0.5V)	Enabled Disabled	V	 Pout< -30 dBm

Notes:

1*. For operating temperatures higher than 70ºC the power consumption will be higher (about 20% for 85ºC). Values listed are for test in still air environment, the values will go up while testing in the temperature chamber.

2* For recommended phase noise test, contact factory. It's assumed that phase noise test is performed under static conditions (no vibration), in still air, and care is taken for minimizing EMI.

3*. Longer storage time, especially at low temperatures, may affect both retrace and setability parameters. It may require few days on power for re-stabilization.

4. All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal Load.

5. Older and stock units may have MBW of 150 Hz Max.

Environmental and Mechanical

Operating temp. range	-30°C to 70°C Standard, Other options – see chart below
Mechanical Shock	Per MIL-STD-202, 30G, 11ms
Vibration	Per MIL-STD-202, 5G to 2000 Hz
Soldering Conditions	260°C for 10s Max leads only

Electrical Connections

Pin Out	Pin #1-Vc ; Pin#2, Pin #8 – For internal use – do not connect; Pin #3 – Vcc; Pin #4 – Output Enable; Pin #5 – RF Output; Pin #6 – GND; Pin #7 – Oven Ready indicator

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OVEN-CONTROLLED CRYSTAL OSCILLATORS

Data Sheet 0921A

Creating a Part Number

O - C E8 X X YZ XX - X - V - XX - X FREQ

OCXO

Conventional Power

Package Code

Europack 36x27mm, 8 pin

Supply Voltage

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

Output

Code	Specification
T	CMOS/TTL
S	Sinewave

Temperature Stability

Code	Specification
17	$1x10^{-7}$
58	$5x10^{-8}$
28	$2x10^{-8}$
18	$1x10^{-8}$
59	$5x10^{-9}$
YZ	$Yx10^{-Z}$

Temperature Range

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

Deviation slope

Code	Specification
P	Positive
N	Negative

Phase Noise Code

Code	Specification
V	Standard

Aging

Insert Value per day times 1E-10	
Examples	
05	5E-10 = 0.5 ppb/day
10	1E-9 = 1 ppb/day

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

****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		

Not all combinations are available. Consult Factory.

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