O-CE8C0-X-YY-X –XX.XXX MHz
Phase-Locked SC-cut Clean-up OCXO in Europack

Rev. G

Product Data Sheet

Features

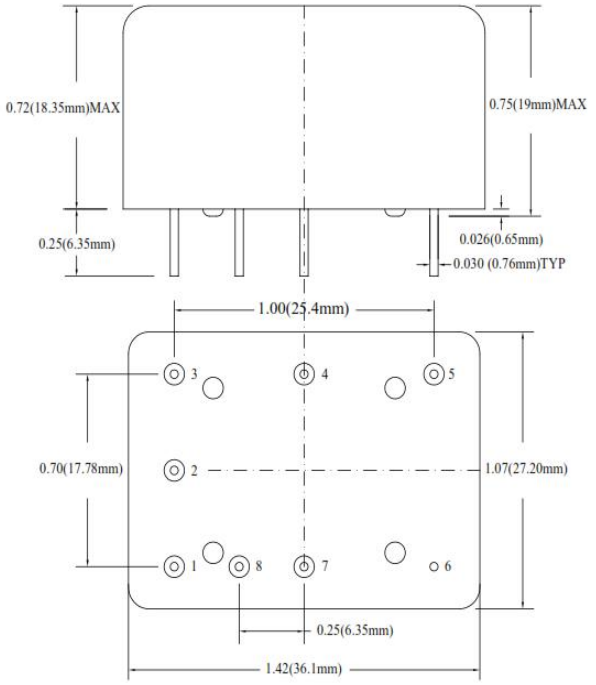
- SC-cut crystal
- Low Phase Noise
- Very Compact Package

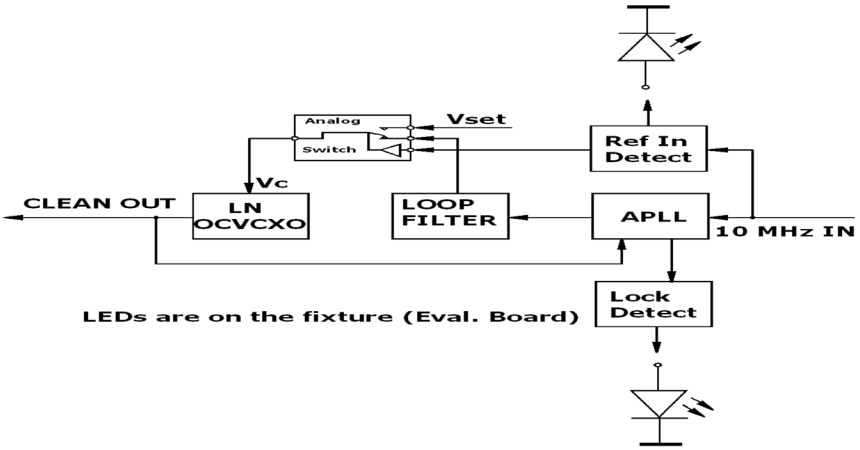
Applications

- Significantly improves Phase Noise of incoming signal with optional Higher Frequency Output
- COTS/Dual use

Pinout

Pin #1 - 10 MHz Input
Pin #2 – Vref
Pin #3 – Vcc
Pin #4 – Lock Detect
Pin #5 – RF OUT
Pin #6 – Case, GND
Pin #7 – Input Signal Detect
Pin #8 – Vset.





NEL FREQUENCY CONTROLS, INC.
357 Beloit Street, Burlington, WI 53105 U.S.A. Phone 262/763-3591 FAX 2626262/763-2881
Email: nelsales@nelfc.com www.nelfc.com

O-CE8C0-X-YY-X –XX.XXX MHz

Rev. G

Specifications:

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
Absolute Maximum Ratings							
Input Break Down Voltage	Vcc		-0.5		5.5	V	Vcc = 5 V
Operating Temp.	To		0		70	°C	
Operable Temp.	TO		-40		85	°C	
Storage temper.	Ts		-40		85	°C	
Electrical High Frequency							
Input Frequency	Fin			10.000		MHz	
Output Frequency	Fout		10	100.000	125.000	MHz	
Frequency Capture Range (APR)	ΔF/F	Over All	±600			ppb	When input signal disappears free run within 100 ppb as shipped, 1,500 ppb over 10 years
Allan Deviation		.01s to 0.1s		5E-11			
Frequency stability	ΔF/F	Locked	Equal to incoming signal				
Recommended MAX Input SSB Phase Noise	£(qpf)	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz			-80 -110 -130 -140 -140	dBc/Hz	
Input signal		CMOS	2			Vpk-pk	Code T
		Sine Wave	0		15	dBm	Code S
Output SSB Phase Noise Floor	£(qpf)	10Hz 100Hz 1KHz 10KHz 100KHz		-90 -125 -153 -170 -175		dBc/Hz	Grade ñCò
Output SSB Phase Noise Floor	£(qpf)	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		-100 -130 -158 -175 -180		dBc/Hz	Grade ñLò
Output SSB Phase Noise Improvement Compared to Input Phase Noise adjusted to 10 MHz		10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		20 50 50 50 50		dBc/Hz	Should add 20LogN, 20 dB for 100 MHz Cannot improve beyond listed above noise floor
G-sensitivity		worst direction			±1.0	ppb/G	
Input Voltage	Vcc	Code 0	4.75	5.0	5.25	V	
Power consumption	P	steady state, 25°C start-up @ -30°C		1.3 2.8	1.6 3.5	W	Standard Operating Temperature, for Op Temp. 85 °C add 20% Still air for all Lower P available, consult Factory
Spectral Purity		Subharmonics Spurious Harmonics		-70 -35	-50 -80 -30	dBc	10 MHz and multiples Output Code S

All parameters for output frequency 100 MHz

NEL FREQUENCY CONTROLS, INC.

357 Beloit Street, Burlington, WI 53105 U.S.A. Phone 262/763-3591 FAX 2626262/763-2881

Email: nelsales@nelfc.com www.nelfc.com

CRYSTAL OSCILLATORS

Data Sheet 1707A

Load	Internally AC coupled 50 Ohm (Sinewave) 10K Ohm//15pf (CMOS/TTL)							
Warm-up time	τ	to lock on 100 ppb input		3	5	minutes		
Lock Time after warm-up				1		minute		
Parameter	**Symb**	**Condition**	**Min**	**Typ**	**Max**	**Unit**	**Note**	
Output Power	Pout	Into 50 Ohm	15	17		dBm	Output Code S	
Logic 1 (CMOS)	Voh		0.7Vref			V	Output Code T	
Logic 0 (CMOS)	Vol				0.1Vref	V	Output Code T	
Duty Cycle			45/55		55/45	%	Output Code T	
Rise/Fall Time	Tr/Tf			2	3	ns	Output Code T	
Preset Voltage	Vset			2.25		V	Can be externally adjusted by LN Potentiometer 10 KOhm between Vref and GND	
Lock Detect			Logic ñ1ò				Can drive LED	
Input Detect			Logic ñ1ò				Can drive LED	
Electrical Low Frequency								
Output Frequency				10		MHz		
Recommended Input SSB Phase Noise	£(φf)	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz			-90 -110 -130 -140 -140	dBc/Hz		
Frequency Capture Range (APR)	ΔF/F	Over All	±100			ppb	When input signal disappears free run within 0.3ppb Max as shipped, 1,000 ppb over 10 years	
Allan Deviation		.01s to 0.1s		5E-12				
Output SSB Phase Noise Floor	£(φf)	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz			-125 -145 -162 -165 -169	dBc/Hz	Grade ñCò	
		10 Hz 100 Hz 1 KHz 10 KHz 100 KHz			-145 -157 -165 -168 -172	dBc/Hz	Grade ñUò	
Output SSB Phase Noise Improvement Compared to Input Phase Noise		10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		45 50 50 50 50		dBc/Hz	Cannot improve beyond the noise floor for each grade as listed above	

All Parameters for 10.000 MHz Output (*10MHz out is still Preliminary*)

Environmental and Mechanical

Operating temp. range	0°C to 70°C Standard, Other options ï see chart below
Mechanical Shock	Per MIL-STD-202, 30G, 11ms , survival
Vibration	Per MIL-STD-202, 5G to 2000 Hz, Survival

Electrical Connections

Notes:

* Close to the carrier noise floor is frequency dependent and will be lower at lower frequencies and higher at higher ones. Will be specified on PO.

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

NEL FREQUENCY CONTROLS, INC.

357 Beloit Street, Burlington, WI 53105 U.S.A. Phone 262/763-3591 FAX 2626262/763-2881

Email: nelsales@nelfc.com www.nelfc.com

O-CE8C0-X-YY-X –XX.XXX MHz

Rev. G

Creating a Part Number

O - C E8 C 0 X YY X X Frequency, MHz

O — OCXO

C — Conventional Power

E8 — Package Code Europack, 8pin

C — Phase Noise Grade

Code	Specification
C	Standard
U	Ultimate
L	Improved

0 — Supply Voltage

Code	Specification
0	5 V TYP

X — Output

Code	Specification
S	Sinewave
T	CMOS/TTL

YY — 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 — Input

Code	Specification
S	Sinewave
T	CMOS/TTL

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

Frequency, MHz

****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		

NEL FREQUENCY CONTROLS, INC.

357 Beloit Street, Burlington, WI 53105 U.S.A. Phone 262/763-3591 FAX 2626262/763-2881

Email: nelsales@nelfc.com www.nelfc.com