Rev.A

V-AN-XXYY-XX -100.000 MHz
Phase-Locked Clean-up ULPN VCXO with Low G-sensitivity

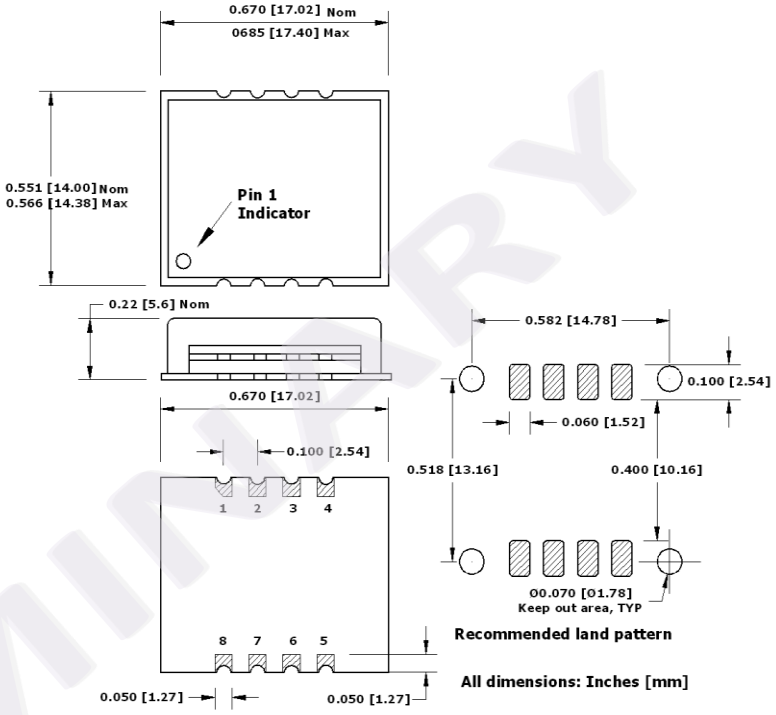
Product Data Sheet

Features

- Low G-sensitivity
- Low Phase Noise Similar to OCXO
- Compact SMD Package
- Low Power Consumption Independent on Ambient Temperature and no Warm-up
- Fast Ready

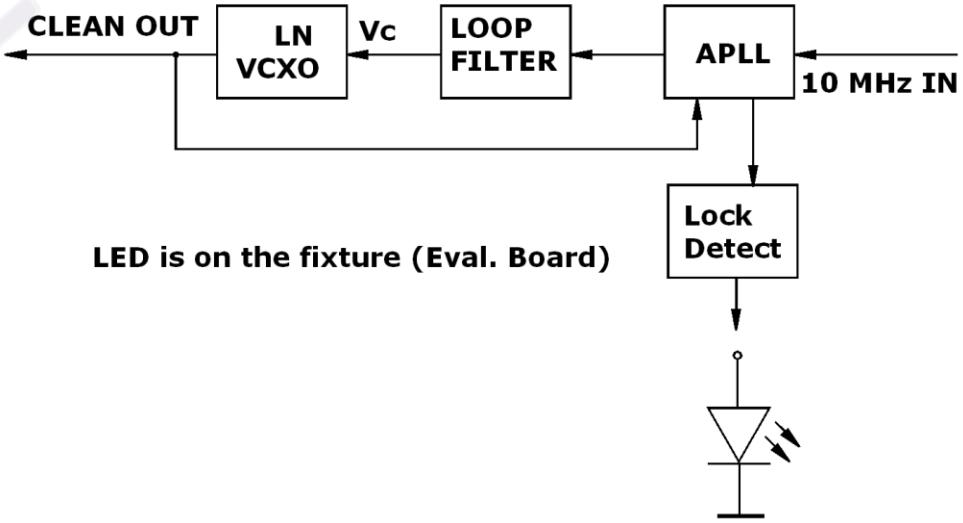
Applications

- Significantly improves Phase Noise of incoming signal
- Atomic Clocks, GNSS Based Clocks
- Test and Measurement
- COTS/Dual use



Pinout

Pad #1 - Vcc
Pad #2 – GND
Pad #3 – GND
Pad #4 – GND
Pad #5 – RF OUT
Pad #6 – Do Not Connect
Pad #7 – 10 MHz In
Pad #8 – Lock Detect



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

CRYSTAL OSCILLATORS

Data Sheet 2038B

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		-20		70	°C	
Operable Temp.	TO		-40		85	°C	
Storage temper.	Ts		-40		85	°C	
Electrical							
Input Frequency	Fin			10.000 100.000		MHz	Option A Option B
Output Frequency	Fout		80	100.000	125	MHz	
Frequency Capture Range (APR)	ΔF/F	Overall	±100			ppb	
Allan Deviation		.01s to 1.0s		8E-11			
Frequency stability	ΔF/F	Locked	Equal to incoming signal				
Recommended MAX Input SSB Phase Noise	£(Δf)	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz			-80 -110 -130 -140 -140	dBc/Hz	10 MHz, Option A
		10 Hz 100 Hz 1 KHz 10 KHz 100 KHz			-70 -100 -120 -140 -140		100 MHz, Option B
Input signal		CMOS	2			V	Swing
		Sine Wave	0		5	dBm	
Output SSB Phase Noise Improvement Compared to Input Phase Noise		1 Hz 10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		20 40 50 50 50 50		dBc/Hz	Cannot improve beyond listed above noise floor
Output SSB Phase Noise Floor	£(Δf)	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		-95 -125 -152 -170 -172		dBc/Hz	
G-sensitivity		worst direction			±0.2	ppb/G	
Input Voltage	Vcc	Code 0 Code A	4.75 3.2	5.0 3.3	5.25 3.45	V	By special request
Power consumption	P			100		mW	Driving 50 Ohm code S
Spectral Purity		Subharmonics Spurious Harmonics		-70 -35	-50 -80 -30	dBc	Output Code S
Load	Internally AC coupled 50 Ohm (Sinewave) 10K Ohm//15pf (CMOS/TTL)						
Lock Time				1		minute	
Output Power	Pout	Into 50 Ohm	9	11	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			4	5	ns	Output Code T
Lock Detect			Logic "1"				Can drive LED

All parameters for output frequency 100 MHz

Environmental and Mechanical

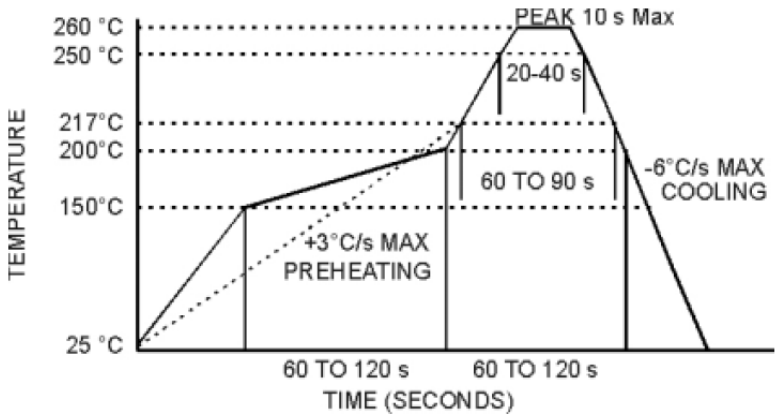
Operating temp. range	-20°C to 70°C Standard, Other options – see chart below

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

Mechanical Shock	Per MIL-STD-202, 30G, 11ms , survival
Vibration	Per MIL-STD-202, 5G to 2000 Hz, Survival
Soldering Conditions	See MAX reflow profile below; The device may be reflowed once. Reflowing upside down is not allowed. Hand soldering is highly encouraged. NO CLEAN assembly is recommended

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

MAX Reflow Profile



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

Creating a Part Number

V - **AN** - **X** **X** **YY** - **X** **X** - **Frequency, MHz**

V = **VCXO**

AN = **Package Code**
17x14 mm SMD

X = **Supply Voltage**

Code	Specification
0	5 V TYP
A	3.3 V (special request)

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
A	10 MHz
B	100 MHz

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

****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 262/763-2881
Email: nelsales@nelfc.com www.nelfc.com