

# V-AN-XXYY-X –10.000 MHz Phase-Locked Clean-up ULPN VCXO with Low G-sensitivity

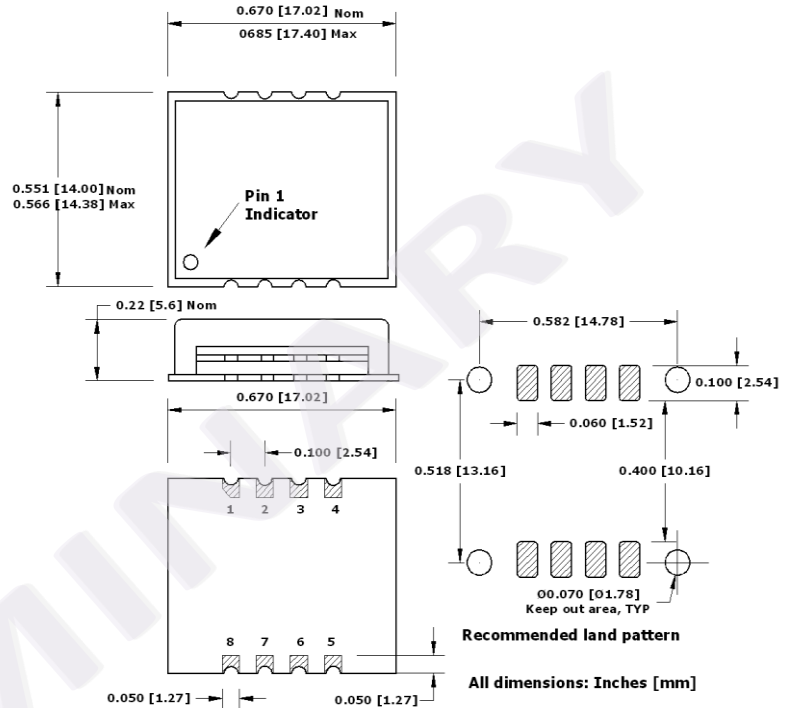
## Product Data Sheet

### Features

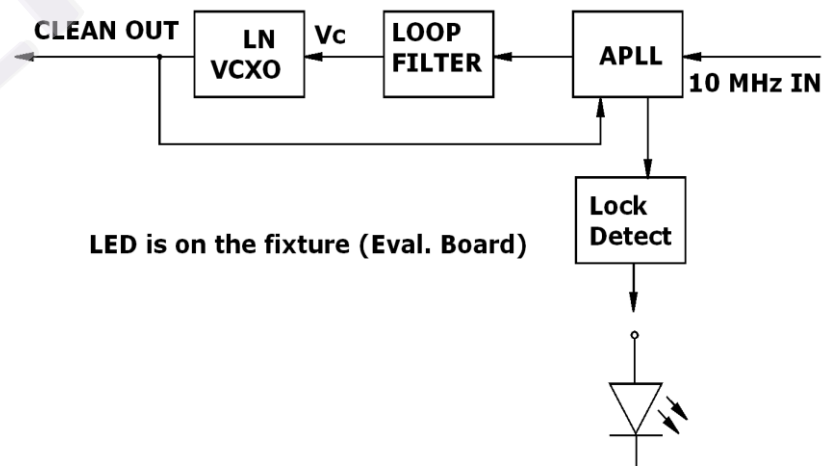
- Low G-sensitivity
- Low Phase Noise Similar to OCXO
- Compact SMD Package
- Low Power Consumption Independent on Ambient Temperature and no Warm-up
- Fast Ready

### Applications

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



- 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



Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
<b>Absolute Maximum Ratings</b>							
Input Break Down Voltage	V <sub>cc</sub>		-0.5		5.5	V	V <sub>cc</sub> = 5 V
Operating Temp.	T <sub>o</sub>		-20		70	°C	
Operable Temp.	T <sub>O</sub>		-40		85	°C	
Storage temper.	T <sub>s</sub>		-40		85	°C	

**Electrical**

Input Frequency	F <sub>in</sub>			10.000		MHz	
Output Frequency	F <sub>out</sub>			10.000		MHz	*2
Frequency Capture Range (APR)	ΔF/F	Overall	±100			ppb	
Allan Deviation		.01s to 1.0s		1E-11			
Frequency stability	ΔF/F	Locked	Equal to incoming signal				
Recommended MAX Input SSB Phase Noise	£(Δf)	10 Hz			-80	dBc/Hz	
		100 Hz			-110		
		1 KHz			-130		
		10 KHz			-140		
		100 KHz			-140		
Input signal		CMOS	2			V	Swing
		Sine Wave	0		5	dBm	
Output SSB Phase Noise Floor	£(Δf)	1 Hz		-85		dBc/Hz	
		10 Hz		-120			
		100 Hz		-143			
		1 KHz		-158			
		10 KHz		-160			
		100 KHz		-160			
Output SSB Phase Noise Improvement Compared to Input Phase Noise		1 Hz		5		dBc/Hz	Cannot improve beyond listed above noise floor
		10 Hz		40			
		100 Hz		50			
		1 KHz		50			
		10 KHz		50			
		100 KHz		50			
G-sensitivity		worst direction			±0.5	ppb/G	
Input Voltage	V <sub>cc</sub>	Code 0	4.75	5.0	5.25	V	By special request
		Code A	3.2	3.3	3.45		
Power consumption	P			50		mW	Driving 50 Ohm code S
Spectral Purity		Subharmonics		none		dBc	Output Code S
		Spurious			-80		
		Harmonics		-35	-30		
Load	Internally AC coupled 50 Ohm (Sinewave) 10K Ohm//15pf (CMOS/TTL)						
Lock Time				1		minute	
Output Power	P <sub>out</sub>	Into 50 Ohm	8	10		dBm	Output Code S
Logic 1 (CMOS)	V <sub>oh</sub>		0.7V <sub>ref</sub>			V	Output Code T
Logic 0 (CMOS)	V <sub>ol</sub>				0.1V <sub>ref</sub>	V	Output Code T
Duty Cycle			45/55		55/45	%	Output Code T
Rise/Fall Time	T <sub>r</sub> /T <sub>f</sub>			4	5	ns	Output Code T
Lock Detect			Logic "1"				Can drive LED

All parameters for output frequency 10 MHz



### Environmental and Mechanical

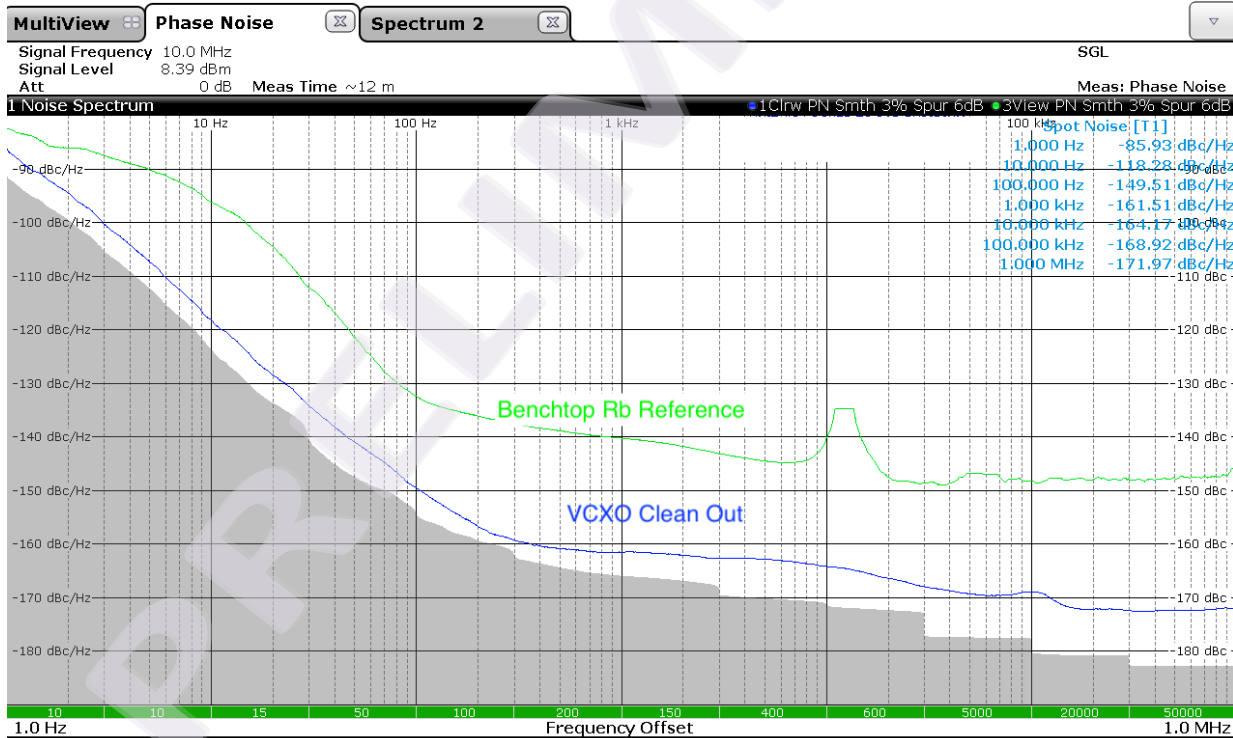
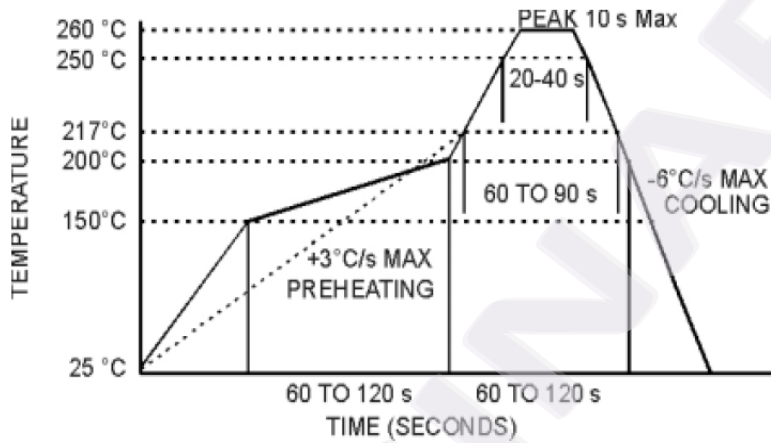
<b>Operating temp. range</b>	-20°C to 70°C Standard, Other options – see chart below
<b>Mechanical Shock</b>	Per MIL-STD-202, 30G, 11ms , survival
<b>Vibration</b>	Per MIL-STD-202, 5G to 2000 Hz, Survival
<b>Soldering Conditions</b>	See MAX reflow profile below; The device may be reflowed once. Reflowing upside down is not allowed. Hand soldering is highly encouraged. NO CLEAN assembly is recommended

### Electrical Connections

Notes:

- \* All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal
- \*2 Up to 20 MHz Output frequencies can be discussed with NEL. For HF range (80 to 125 MHz) please visit <https://nelfc.com/pdf/2023A.pdf>

## MAX Reflow Profile



## Creating a Part Number

**V** -  
VCXO

Package Code  
17x14 mm SMD

**AN** -

**X** **X**

**YY** -

**X** - 10.000 MHz

### 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

### Supply Voltage

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

### Output

Code	Specification
S	Sinewave
T	CMOS/TTL

### 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

### \*\*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		



**FREQUENCY  
CONTROLS, INC.**