Rev. A

T-S42-XXYY-X –10.000 MHz
Phase-Locked Clean-up ULPN TCXO with Low G-sensitivity

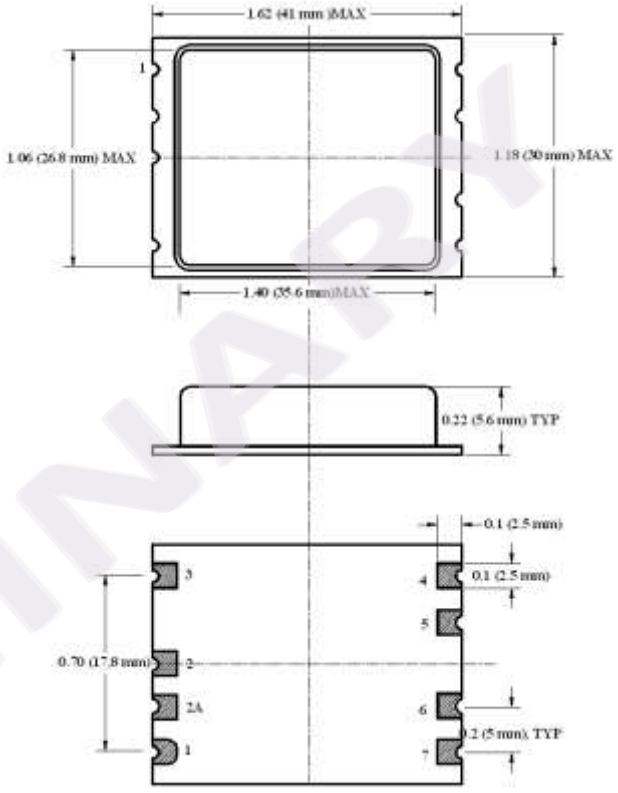
Product Data Sheet

Features

- Low G-sensitivity (0.5 ppb/G)
- Low Phase Noise Similar to OCXO
- Compact SMD Package
- In Absence of REF IN Frequency Returns to Preset Value
- Low Power Consumption Independent on Ambient Temperature and no Warm-up
- Fast Ready

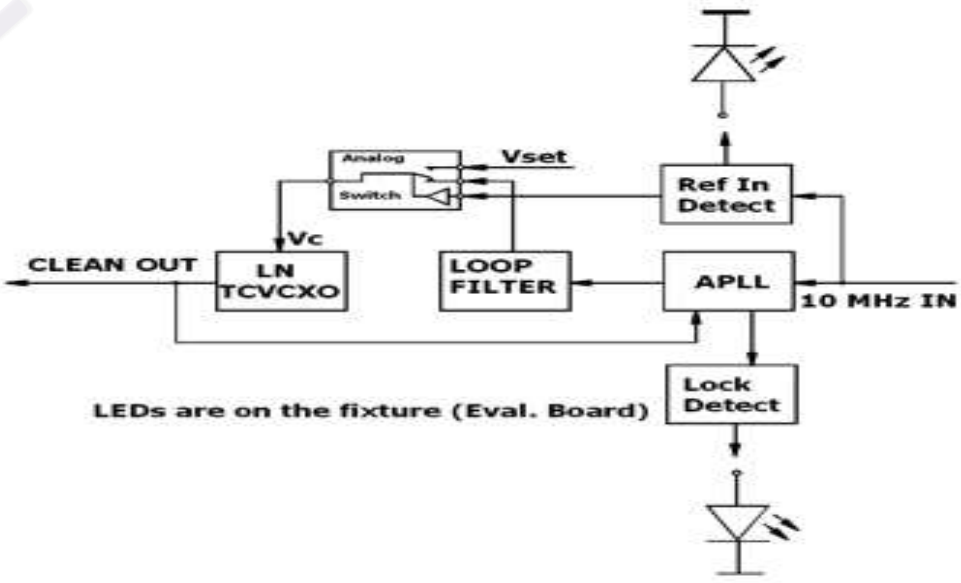
Applications

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



Pinout

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



NEL FREQUENCY CONTROLS, INC.
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Email: nelsales@nelfc.com www.nelfc.com

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		MHz	
Output Frequency	Fout			10.000		MHz	*2
Frequency Capture Range (APR)	ΔF/F	Over All	±100			ppb	When input signal disappears free run within 100 ppb as shipped, 1,500 ppb over 10 years
Allan Deviation		.01s to 1.0s		1E-11			
Frequency stability	ΔF/F	Locked	Equal to incoming signal				
		Free Run (Holdover)			±0.28 ±5	ppm ppb/day	Over temperature Aging
Recommended MAX Input SSB Phase Noise	£(Δf)	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz			-80 -110 -130 -140 -140	dBc/Hz	
Input signal		CMOS	2			V	Swing
		Sine Wave	0		15	dBm	
Output SSB Phase Noise Floor	£(Δf)	1 Hz 10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		-90 -120 -143 -158 -160 -160		dBc/Hz	
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
G-sensitivity		worst direction			±0.5	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			50		mW	Driving 50 Ohm code S
Spectral Purity		Subharmonics Spurious Harmonics		none -35	 -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			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

All parameters for output frequency 10 MHz

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Preset Voltage	Vset			1.65		V	Can be externally adjusted by LN metal Potentiometer 10 KOhm between Vref and GND
Lock Detect				Logic "1"			Can drive LED
Input Detect				Logic "1"			Can drive LED

Environmental and Mechanical

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

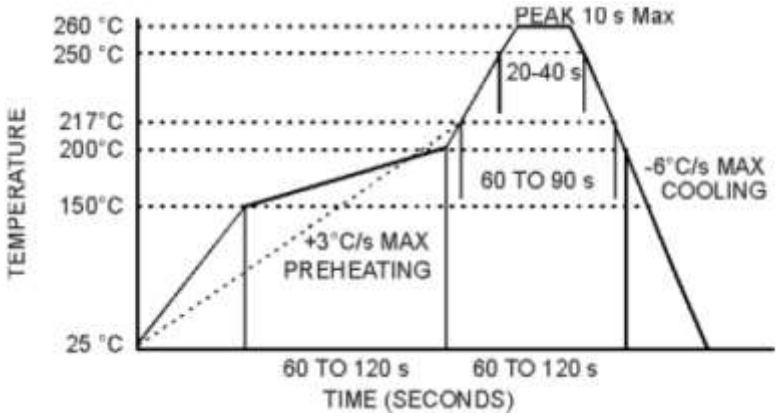
Electrical Connections

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



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Creating a Part Number

T - S42 - X X YY - X - 10.000 MHz

T = TCXO

Package Code
SMD 41x30x5.6, 8 pads

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 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

****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		

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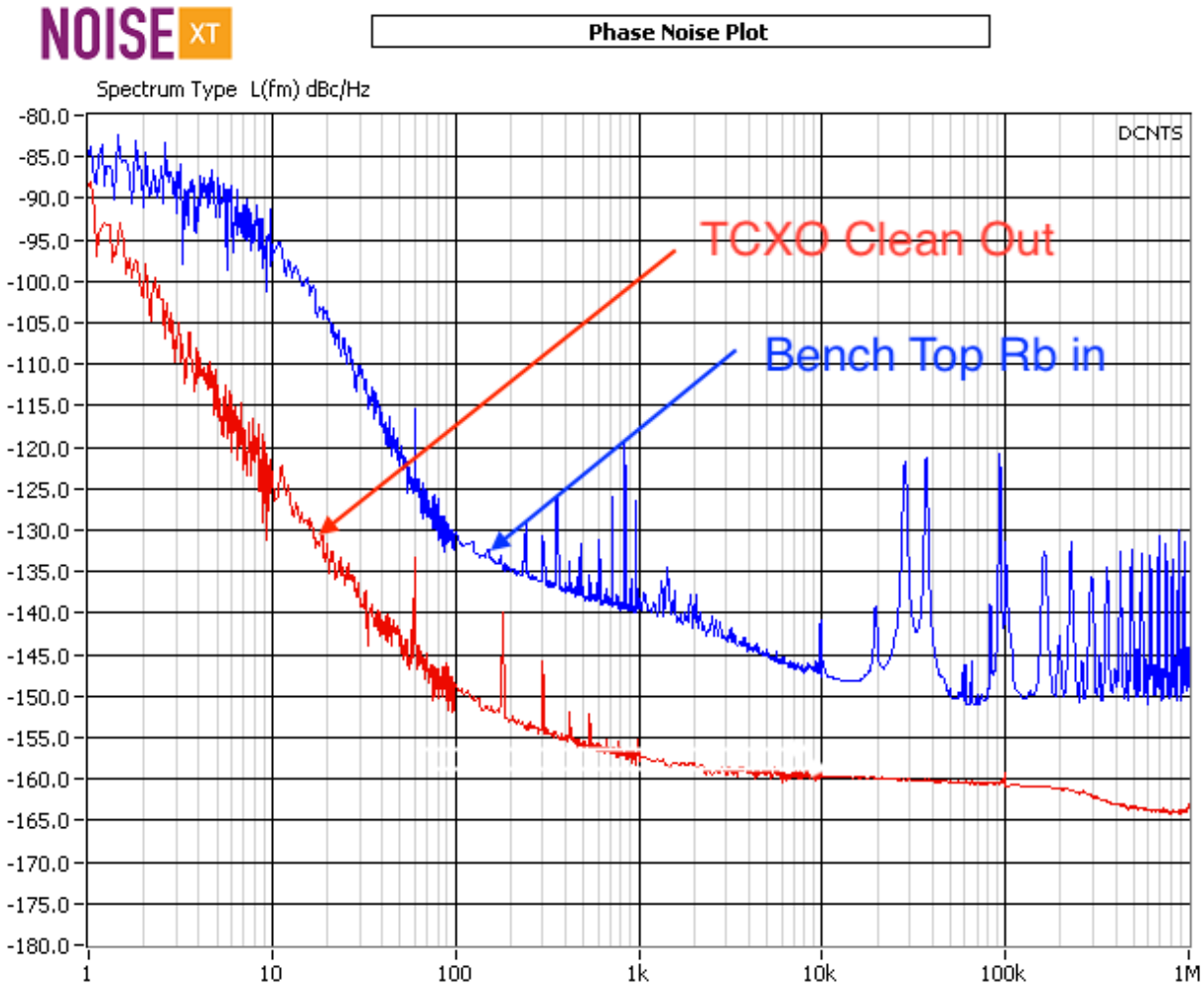

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