www.DataSheet4U.com

LVDS HF VCXO
SU-A3DCXXX Series

Description

The **SU-A3DCXXX Series** of voltage controlled crystal oscillators (VCXO) provides high frequency with LVDS complementary outputs. The outputs can be disabled for test automation or combining multiple clocks. The device does not use any frequency multiplication, providing exceptionally low Phase Noise and Jitter. It is packaged in a miniature, FR-4 based 9x14mm SMD package.

Applications and Features

- Wide frequency range – 12.0MHz to 280.000MHz
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SONET/SDH
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Extremely Low Phase Noise and Jitter
- High shock resistance, to 1000g
- No Multiplication
- Absolute Pull Range (APR) to ±100 ppm
- SONET ±20 ppm overall free-run stability available
- RoHS Compliant, Lead Free Construction

Creating a Part Number

SU - A 3DC X X X - FREQ

Package Code
SU 6 pad 9x14 mm SMD

Input Voltage
A 3.3V±5%

Enable Option
H Positive CMOS level
N N/A

Absolute Pull Range, ppm
E ±20
F ±32
G ±50
H ±100
9 Customer specific

Temperature Range, °C
A 0 to 50
B 0 to 70
C -20 to 70
D -40 to 85
9 Customer specific

NEL FREQUENCY CONTROLS, INC.

357 Beloit Street, P.O. Box 457, Burlington, WI 53105-0457 U.S.A. Phone 262/763-3591 FAX 262/763-2881
Email: nelsales@nelfc.com www.nelfc.com

SU-A3DCXXX Series Continued
LVDS HF VCXO

Rev. B

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Operating Temperature Range	To	-40 to +85	ºC
Storage Temperature Range	Tst	-50 to +90	ºC
Supply Voltage	Vcc	-0.5 to 4.5	V
Enable/Disable Voltage	Ven/dis	0 to Vcc	V

Electrical Parameters

Parameter		Symb	Conditions, Note		MIN	TYP	MAX	Unit
Nominal Frequency		Fo			12		280	MHz
Supply Voltage		Vcc	Code A		3.135	3.3	3.465	V
Supply current		Icc				80	100	mA
Output Logic Type						LVDS		
Load			At receiving end between the outputs		90	100	110	Ohm
Output Levels		Vod	Differential amplitude		247	330	454	mV
			Amplitude error				50	mV
		Vof	Offset Voltage		1.125	1.25	1.375	V
			Offset Voltage error				50	mV
Duty Cycle (Symmetry)			At outputs crossing, room temperature		45/55	50/50	55/45	%
Rise/Fall Time		Tr/Tf	20 to 80, 80 to 20 %			0.5	0.7	ns
Jitter	Integrated	J	Integrated from Phase Noise, 12 KHz to 20 MHz , RMS			0.1	0.2	ps
			100 Hz to 80 KHz, RMS				1.0	ps
			50 Khz to 80 Mhz			0.3		ps
	Wavecrest characterized		Random period,			2.5		ps
			Accumul., pk-to-pk			17		ps
			Deterministic			0		ps
Sub-Harmonics						None		dBc
Phase Noise		£(Δf)	155.52 MHz, APR 50ppm or less	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz		-75 -105 -128 -142 -147 -147	-70 -100 -125 -140 -145 -145	dBc/Hz
Frequency Stability		ΔF/F	Overall, including initial calibration, temperature, aging 10 years, shock and vibration @ Vc=Vcc/2; APR 50ppm, or less		±20	±30		ppm
Control Voltage Range		Vc			0V		Vcc	V
Setability		Vcs	Vc to set F at Fo; T, Vcc, load - nominal, as shipped		0.4 Vcc	0.5 Vcc	0.6 Vcc	V
Absolute Pull Range		APR	Over all conditions, see part # creation		20,32, 50,100			ppm
Input Impedance		Zin	@ Fmod < 100 Khz		50			KOhm
Modulation Bandwidth			At Vc = Vcc/2, -3dB		20			KHz
Enable/Disable Option Pin 2 Enabled Pin 2 Disabled			 CMOS logic 1 or N/C CMOS logic 0		 0.7 Vcc 0		 Vcc 0.3 Vcc	V

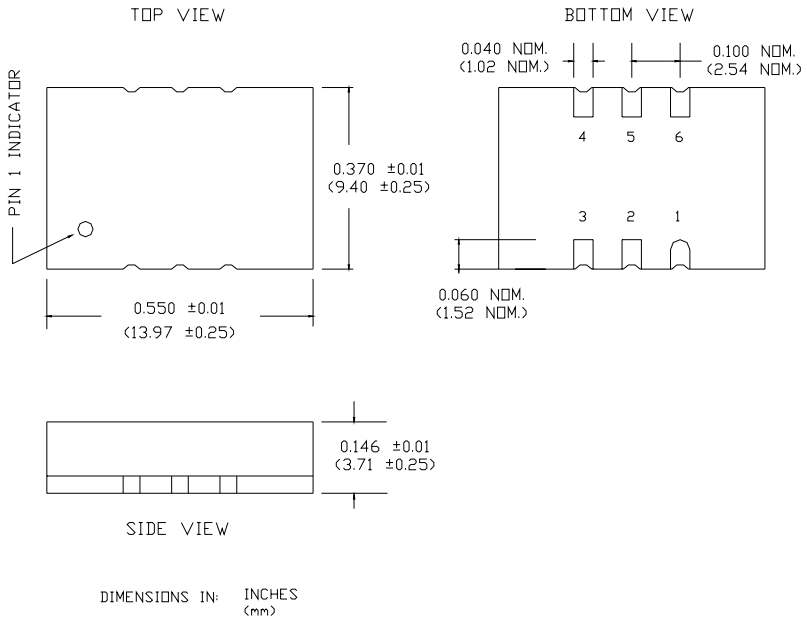
NEL FREQUENCY CONTROLS, INC.
357 Beloit Street, P.O. Box 457, Burlington, WI 53105-0457 U.S.A. Phone 262/763-3591 FAX 262/763-2881
Email: nelsales@nelfc.com www.nelfc.com

SU-A3DCXXX Series Continued

LVDS HF VCXO

Electrical Connection

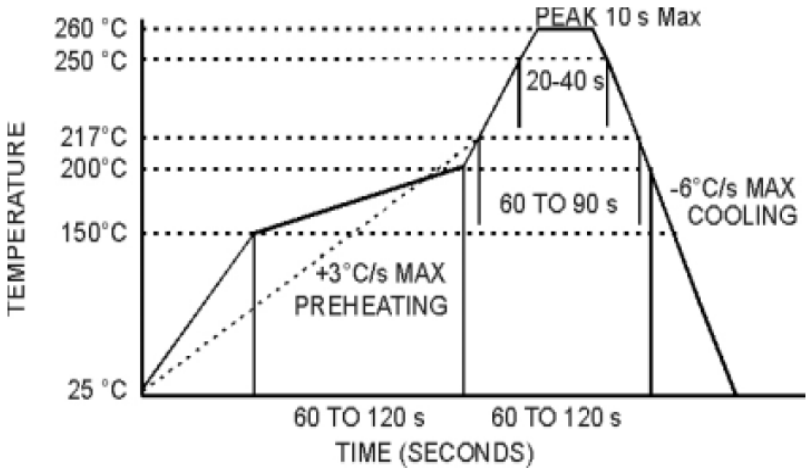
Pin	Connection
1	Vco
2	Enable/Disable
3	Gnd
4	Output
5	Output Complement
6	V_{CC}



Environmental and Mechanical Characteristics

Operating temp. range	see part # table
Mechanical Shock	Per MIL-STD-202, Method 213, Cond. E
Thermal Shock	Per MIL-STD-883, Method 1011, Cond. A
Vibration	Per MIL-STD-883, Method 2007, Cond. A
Hermetic Seal	Leak rate less than $1x10^{-8}$ atm.cc/s of helium
Soldering conditions	See MAX reflow profile below

Maximum Reflow Profile



NEL FREQUENCY CONTROLS, INC.
357 Beloit Street, P.O. Box 457, Burlington, WI 53105-0457 U.S.A. Phone 262/763-3591 FAX 262/763-2881
Email: nelsales@nelfc.com www.nelfc.com