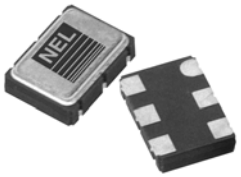
Rev. A



LVPECL UHF VCXO
SD-X36AXXX Series

Description

The **SD-X36AXXX Series** of voltage controlled crystal oscillators (VCXO) provides ultra high frequency with LVPECL complementary outputs. The outputs can be Tri-stated for test automation or combining multiple clocks. The device is based on advanced PLL multiplication for higher frequencies, and packaged in a miniature, low profile leadless ceramic SMD package with 6 gold plated pads.

Applications and Features

- Wide frequency range – 38.0MHz to 640.000MHz
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SOHO Routing
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low Phase Noise, Low Jitter
- High shock resistance, to 1000g
- Ultra High Frequency
- Absolute Pull Range (APR) to ±100 ppm
- Grounded lid and internal by-pass capacitor reduce EMI
- RoHS Compliant, Lead Free Construction

Creating a Part Number

SD - X 36A X X X - FREQ

Package Code
SD 6 pad 5x7mm SMD

Input Voltage
A 3.3V±5%
B 2.5V±5%

Enable Option
L Enable Low

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

SD-X36AXXX Series Continued
LVPECL UHF VCXO

Rev. A

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			38		640	MHz
Supply Voltage		Vcc	Code A Code B		3.135 2.375	3.3 2.5	3.465 2.625	V
Supply current		Icc				80	100	mA
Output Logic Type						LVPECL		
Load			Output to Vcc-2V, or Thevenin Equivalent			50		Ohm
Output Levels		Voh Vol	overall		Vcc-1.025		 Vcc-1.620	V
Duty Cycle (Symmetry)			At 50% of output voltage swing		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			0.4		ps
	Wavecrest characterized		Random period,	155 MHz 622 MHz		3.5 6		ps
			Accumul., pk-to-pk	155 MHz 622 MHz		20 40		ps
Phase Noise		£(Δf)	155 MHz	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @1MHz @>10M		-60 -90 -120 -130 -128 -144 -150		dBc/Hz
Frequency Stability		ΔF/F	Overall, including initial calibration, temperature, aging 10 years, shock and vibration @ Vc=Vcc/2			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		10			KOhm
Modulation Bandwidth			At Vc = Vcc/2, -3dB		10			KHz
Enable Low Option Pin 2 Disabled Pin 2 Enabled			 CMOS logic 1 or N/C CMOS logic 0		 0.7 Vcc 0		 Vcc 0.3 Vcc	V

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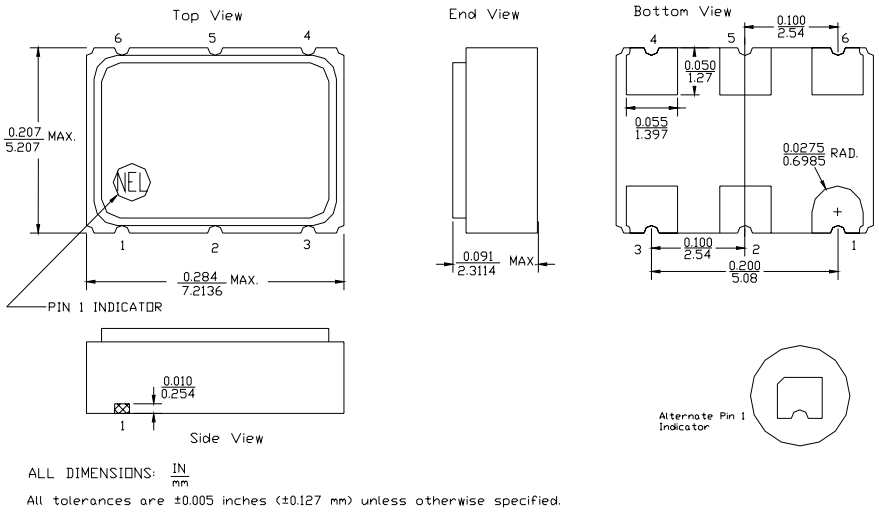
SD-X36AXXX Series Continued

LVPECL UHF VCXO

Electrical Connection

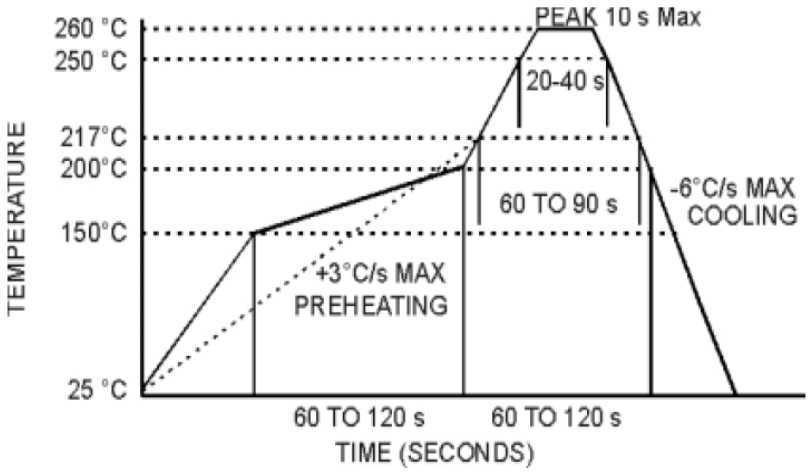
Pin	Connection
1	Vco
2	Enable
3	V_{EE}
4	Output
5	Output Complement
6	V_{CC}



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



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