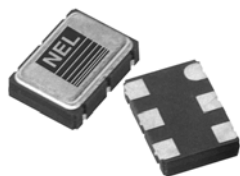


CRYSTAL CLOCK OSCILLATORS

Data Sheet 0629G

Rev. A



LVPECL UHF VCXO SD-X36BXXX Series

Description

The **SD-X36BXXX 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 low noise analog harmonic 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 800.000MHz
- 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 36B X X X - FREQ			
<u>Package Code</u>			<u>Absolute Pull Range, ppm</u>
SD 6 pad 5x7mm SMD			E ± 20
			F ± 32
			G ± 50
			H ± 100
			9 Customer specific
<u>Input Voltage</u>			
A 3.3V $\pm 5\%$			
B 2.5V $\pm 5\%$			
<u>Enable Option</u>		<u>Temperature Range, °C</u>	
H Enable High		A 0 to 50	
L Enable Low		B 0 to 70	
		C -20 to 70	
		D -40 to 85	
		9 Customer specific	



**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-X36BXXX Series Continued
LVPECL UHF VCXO

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Operating Temperature Range	To	-40 to +85	°C
Storage Temperature Range	Tst	-50 to +90	°C
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		800	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 Thevinin Equivalent		50		Ohm
Output Levels	Voh Vol	overall	Vcc- 1.025		Vcc- 1.620	V
Duty Cycle		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		0.3	ps
	Wavecrest characterized	Random period,	<320 M >320 M	2.5 2.5		ps
		Accumul., pk-to-pk	<320 M >320 M	30 43		ps
		Deterministic	<320 M >320 M	6 18		ps
Sub-Harmonics			<320 M >320 M	-50 -35		dBc
Phase Noise	£(Δf)	212.5 MHz	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz	-65 -95 -125 -140 -145 -148		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 High 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
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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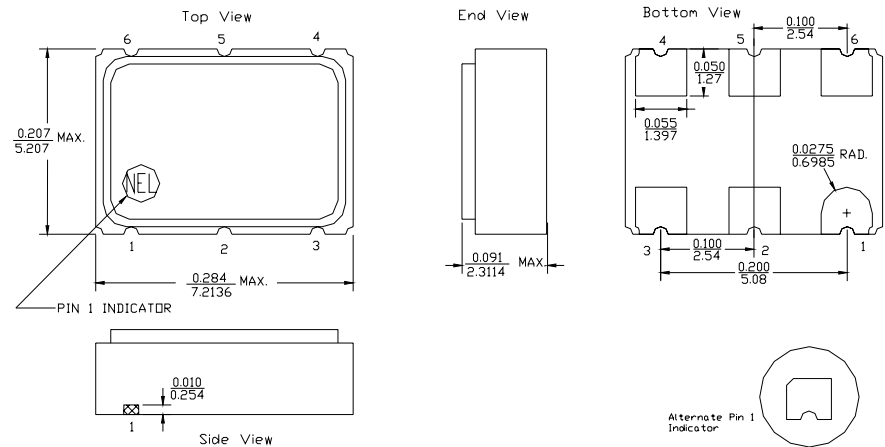
Rev. A

SD-A36BXXX Series Continued

LVPECL UHF VCXO

Electrical Connection

Pin	Connection
1	V _{CO}
2	Enable
3	V _{EE}
4	Output
5	Output Complement
6	V _{CC}

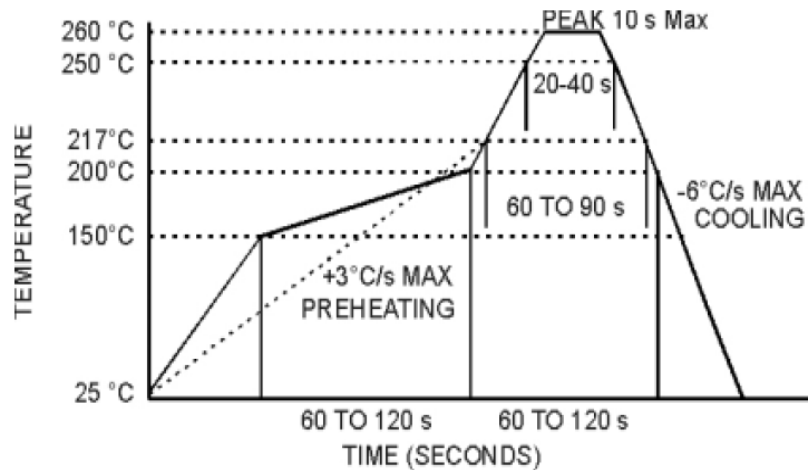
ALL DIMENSIONS: $\frac{\text{IN}}{\text{mm}}$ All tolerances are ± 0.005 inches (± 0.127 mm) unless otherwise specified.

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 1×10^{-8} atm.cc/s of helium
Soldering conditions	See MAX reflow profile below

Maximum Reflow Profile



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