

**LVPECL UHF VCXO
SD-X36BXXX-X Series**

Rev. J

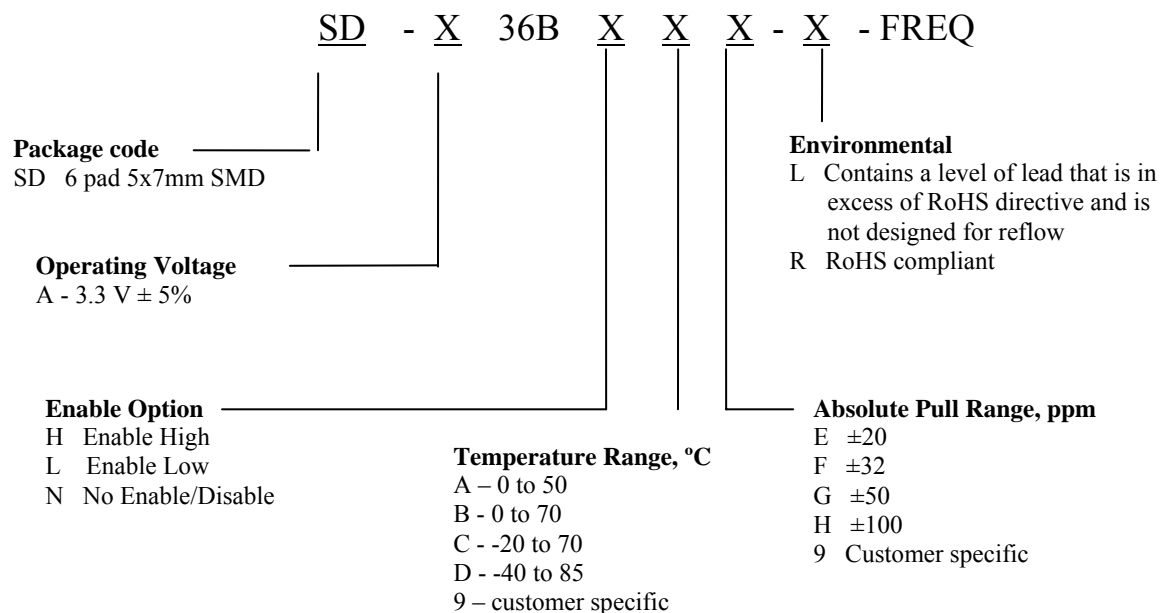
Description

The **SD-X36BXXX Series** of voltage controlled crystal oscillators (VCXO) provides ultra high frequency with LVPECL complementary output. 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 – 60.0MHz to 312.500MHz
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SOHO Routing
- High Reliability – NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low Phase Noise and 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
- COTS/Dual use

Creating a Part Number



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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 (2)

Parameter		Symb	Conditions, Note	MIN	TYP	MAX	Unit
Nominal Frequency		Fo		60		312.500	MHz
Supply Voltage		Vcc	Code A	3.135	3.3	3.465	V
Supply current		Icc			80	90	mA
Output Logic Type					LVPECL		
Load			Output to Vcc-2V, or Thevenin equivalent		50		Ohm
Output Levels		Voh	Overall	Vcc-1.025		Vcc-1.620	V
		Vol					
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		0.3		ps
	Wavecrest characterized		Random period		2.5		ps
			Accumul., nk-to-nk Deterministic		35		ps
Sub-Harmonics					-50		dBc
Phase Noise ⁽¹⁾		f(Δf)	212.5 MHz @ 10 Hz @ 100 Hz @ 1 KHz @ 10KHz @ 100KHz @ >1MHz		-65 -95 -122 -138 -142 -148		dBc/Hz
Frequency Stability		ΔF/F	Overall, including temperature, aging 10 years, shock and vibration @ Vc=Vcc/2; If -40 to 85°C is selected		30 50		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			CMOS logic 1 or N/C	0.7 Vcc		Vcc	V
Pin 2 Disabled			CMOS logic 0	0		0.3 Vcc	V
Enable Low Option							
Pin 2 Disabled			CMOS logic 1 or N/C	0.7 Vcc		Vcc	V
Pin 2 Enabled			CMOS logic 0	0		0.3 Vcc	V

Footnotes: 1) If phase noise data at a particular frequency is needed, contact factory.

2) All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal Load.



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Electrical Connection	
Pin	Connection
1	V _{CO}
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. A
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

MAX Reflow Profile

