

**LVDS UHF VCXO
SD-X3DBXXX-X Series**

Rev. G

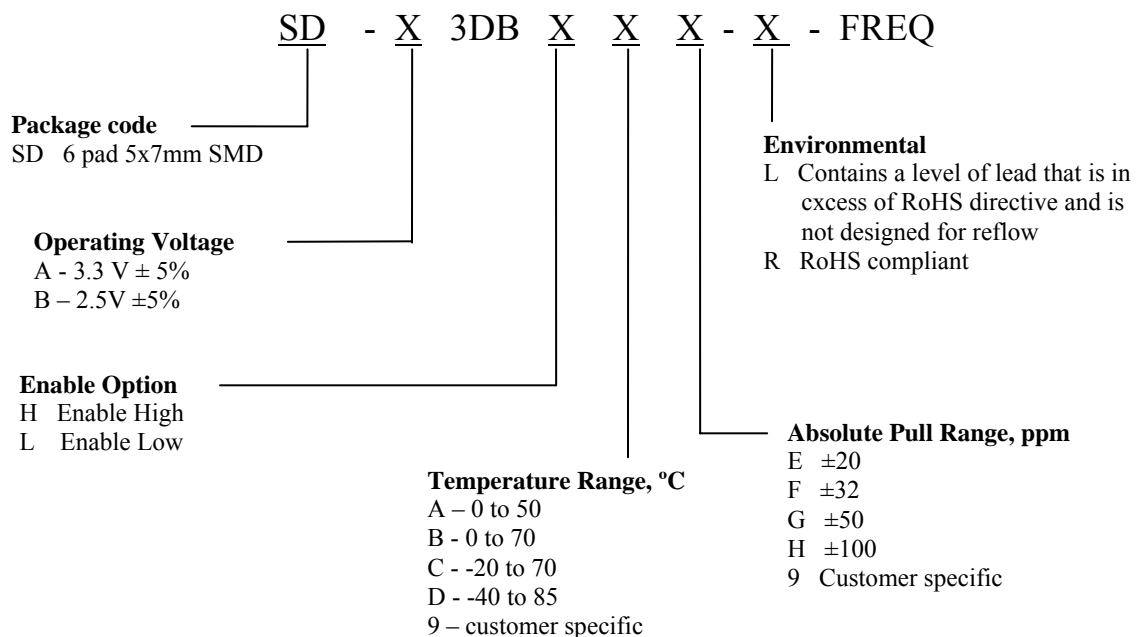
Description

The **SD-X3DBXXX Series** of voltage controlled crystal oscillators (VCXO) provides ultra high frequency with LVDS 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 – 38.0MHz to 350.000MHz
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SOHO Routing
- High Reliability – NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low Phase Noise 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

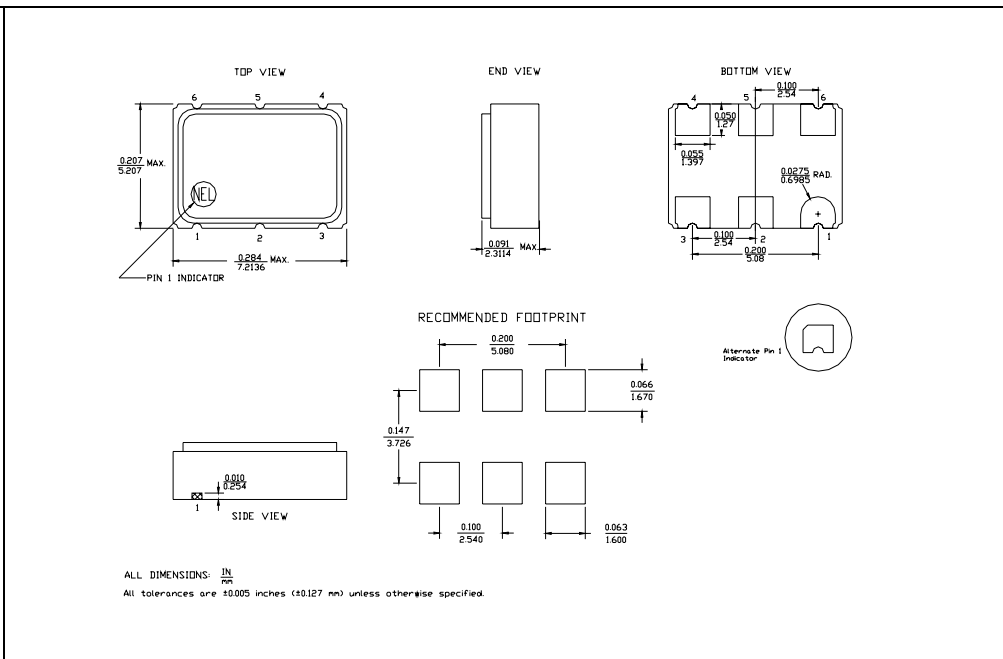
Parameter	Symb	Conditions, Note	MIN	TYP	MAX	Unit	
Nominal Frequency	Fo		38		350	MHz	
Supply Voltage	Vcc	Code A Code B	3.135 2.375	3.3 2.5	3.465 2.625	V	
Supply current	Icc			80	100	mA	
Output Logic Type				LVDS			
Load		At receiving end between the outputs	90	100	110	Ohm	
Output Levels	Vod	Differential 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			0.3	ps
			Wavecrest characterized	Random period,	<320 M >320 M		2.5 2.5
		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 temperature, aging 10 years, shock and vibration @ Vc=Vcc/2		30		ppm	
Control Voltage Range	Vc		0V		Vcc	V	
Setability	Ves	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	



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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

