

**LVDS UHF VCXO  
SD-A3DBXXX Series**

**Description**

The **SD-A3DBXXX Series** of voltage controlled crystal oscillators (VCXO) provides ultra high frequency with LVDS 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 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  $\pm 100$  ppm
- Grounded lid and internal by-pass capacitor reduce EMI
- RoHS Compliant, Lead Free Construction

Creating a Part Number			
<b>SD - A 3DB X X X - FREQ</b>			
<b>Package Code</b>			<b>Absolute Pull Range, ppm</b>
SD	6 pad 5x7mm SMD		E $\pm 20$
			F $\pm 32$
			G $\pm 50$
			H $\pm 100$
			9 Customer specific
<b>Input Voltage</b>			
A	3.3V $\pm 5\%$		
<b>Enable Option</b>			<b>Temperature Range, °C</b>
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



**SD-A3DBXXX Series    Continued**  
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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		640	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
<b>Jitter</b>	Integrated	J	Integrated from Phase Noise, 12 KHz to 20 MHz , RMS		0.3	ps
			Wavecrest characterized	Random period, <320 M	2.5	ps
	Accumul., >320 M	30		ps		
	Deterministic	<320 M	6	ps		
>320 M		18				
Sub-Harmonics		<320 M	-50			dBc
		>320 M	-35			
Phase Noise	£(Δf)	212.5 MHz	@ 10 Hz	-65		dBc/Hz
			@100 Hz	-95		
			@1 KHz	-125		
			@10KHz	-140		
			@100KHz	-145		
			@>1MHz	-148		
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		CMOS logic 1 or N/C	0.7 Vcc		Vcc	V
Pin 2 Enabled		CMOS logic 0	0		0.3 Vcc	V
Enable Low Option		CMOS logic 1 or N/C	0.7 Vcc		Vcc	V
Pin 2 Disabled		CMOS logic 0	0		0.3 Vcc	V
Pin 2 Enabled						

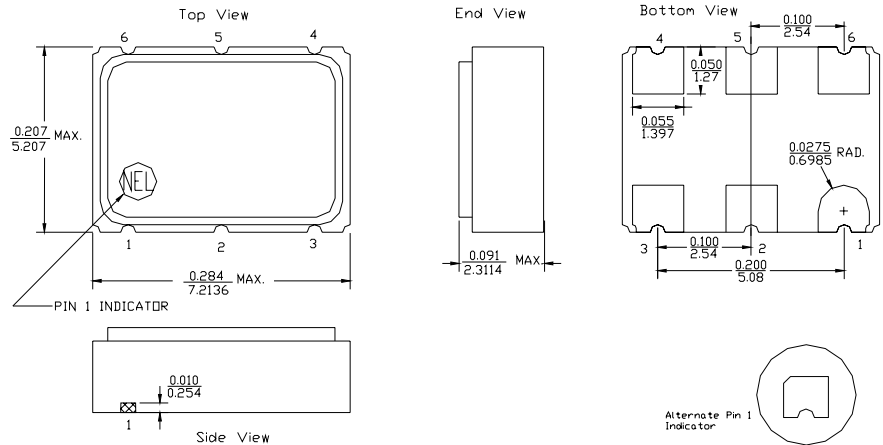


### SD-A3DBXXX Series Continued

### LVDS UHF VCXO

### Electrical Connection

Pin	Connection
1	V <sub>CO</sub>
2	Enable
3	V <sub>EE</sub>
4	Output
5	Output Complement
6	V <sub>CC</sub>



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

## Environmental and Mechanical Characteristics

<b>Operating temp. range</b>	see part # table
<b>Mechanical Shock</b>	Per MIL-STD-202, Method 213, Cond. E
<b>Thermal Shock</b>	Per MIL-STD-883, Method 1011, Cond. A
<b>Vibration</b>	Per MIL-STD-883, Method 2007, Cond. A
<b>Hermetic Seal</b>	Leak rate less than $1 \times 10^{-8}$ atm.cc/s of helium
<b>Soldering conditions</b>	See MAX reflow profile below

Maximum Reflow Profile

