

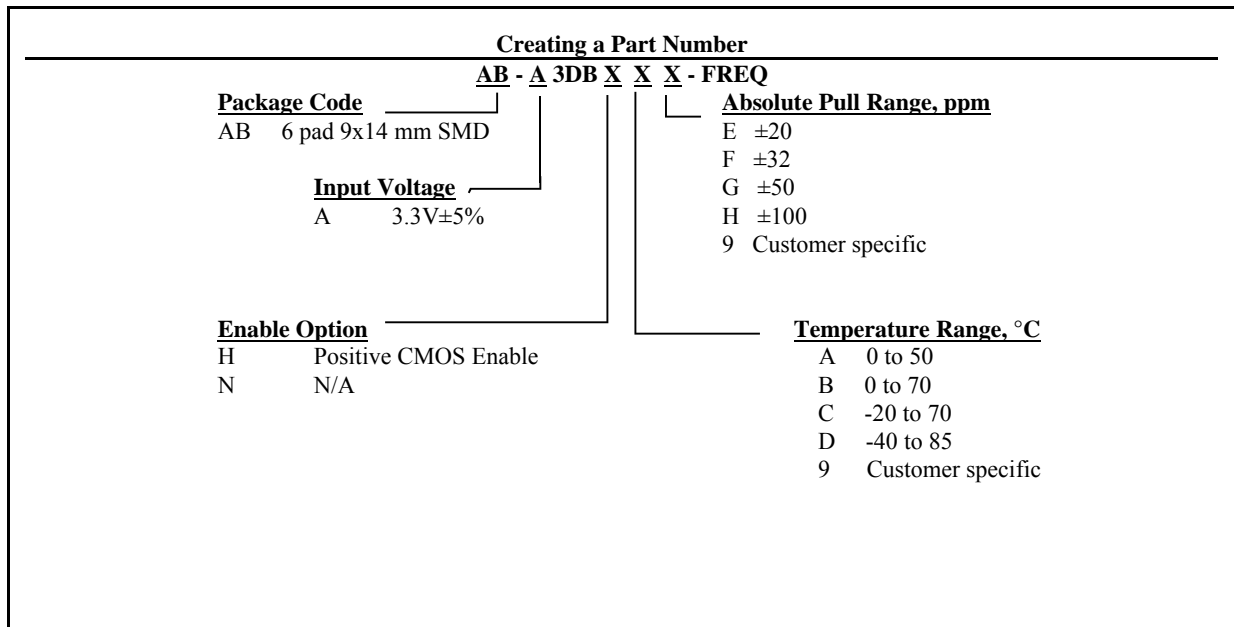
## LVDS UHF VCXO AB-A3DBXXX Series

### Description

The **AB-A3DBXXX Series** of voltage controlled crystal oscillators (VCXO) provides ultra high frequency with LVDS complementary outputs. The outputs can be disabled for test automation or combining multiple clocks. The device is based on low noise analog harmonic frequency multiplication, providing exceptionally low Phase Noise and Jitter. It is packaged in a miniature, FR-4 based 9x14mm SMD package.

### Applications and Features

- Wide frequency range – 200.0MHz to 1.000GHz
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SONET/SDH
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Extremely Low Phase Noise and Jitter
- High shock resistance, to 1000g
- Absolute Pull Range (APR) to  $\pm 1000$  ppm
- SONET  $\pm 20$  ppm overall free-run stability available
- RoHS Compliant, Lead Free Construction



**AB-A3DBXXX Series    Continued**  
**LVDS 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

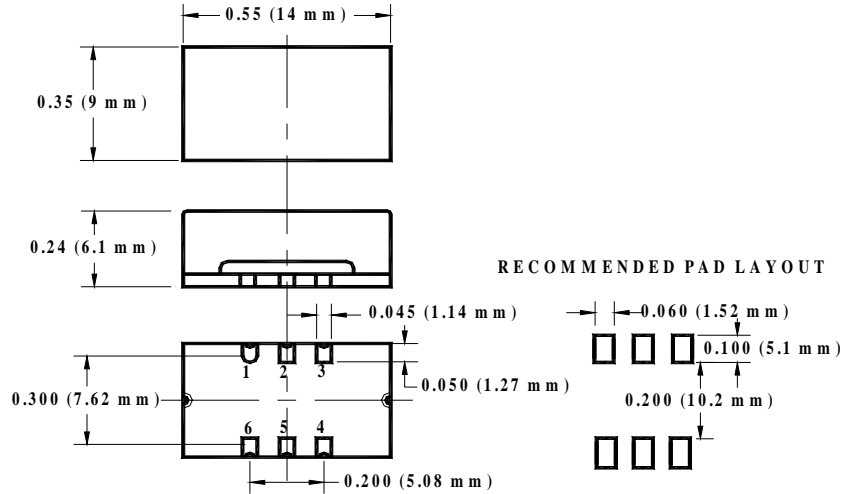
Parameter	Symb	Conditions, Note	MIN	TYP	MAX	Unit		
Nominal Frequency	Fo		200		1000	MHz		
Supply Voltage	Vcc	Code A	3.135	3.3	3.465	V		
Supply current	Icc			50	60	mA		
Output Logic Type				LVDS				
Load		At receiving end between the outputs	90	100	110	Ohm		
Output Levels	Vod	Differential amplitude	247	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			0.1	0.2	ps
			100 Hz to 80 KHz, RMS				1.0	ps
			50 KHz to 80 Mhz			0.3		ps
	Wavecrest characterized		Random period,		2.5		ps	
			Accumul., pk-to-pk		25		ps	
			Deterministic		1		ps	
Sub-Harmonics		@ 622.08MHz		-50	-46	dBc		
Phase Noise	ƒ(Δf)	622.08 MHz, APR 50ppm or less	@ 10 Hz	-60	-55	dBc/Hz		
			@100 Hz	-90	-85			
			@1 KHz	-118	-113			
			@10KHz	-135	-130			
			@100KHz	-135	-130			
@>1MHz	-140	-135						
Frequency Stability	ΔF/F	Overall, including initial calibration, temperature, aging 10 years, shock and vibration @ Vc=Vcc/2; APR 50ppm, or less	±20	±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	50			KOhm		
Modulation Bandwidth		At Vc = Vcc/2, -3dB	20			KHz		
Enable/Disable 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		



**AB-A3DBXXX Series  
LVDS HF VCXO  
Continued**

**Electrical Connection**

Pin	Connection
1	V <sub>co</sub>
2	Enable/Disable
3	Gnd
4	Output
5	Output Complement
6	V <sub>CC</sub>



**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

