

# AB-A3DCXXX-X Series LVDS HF VCXO

Rev. K

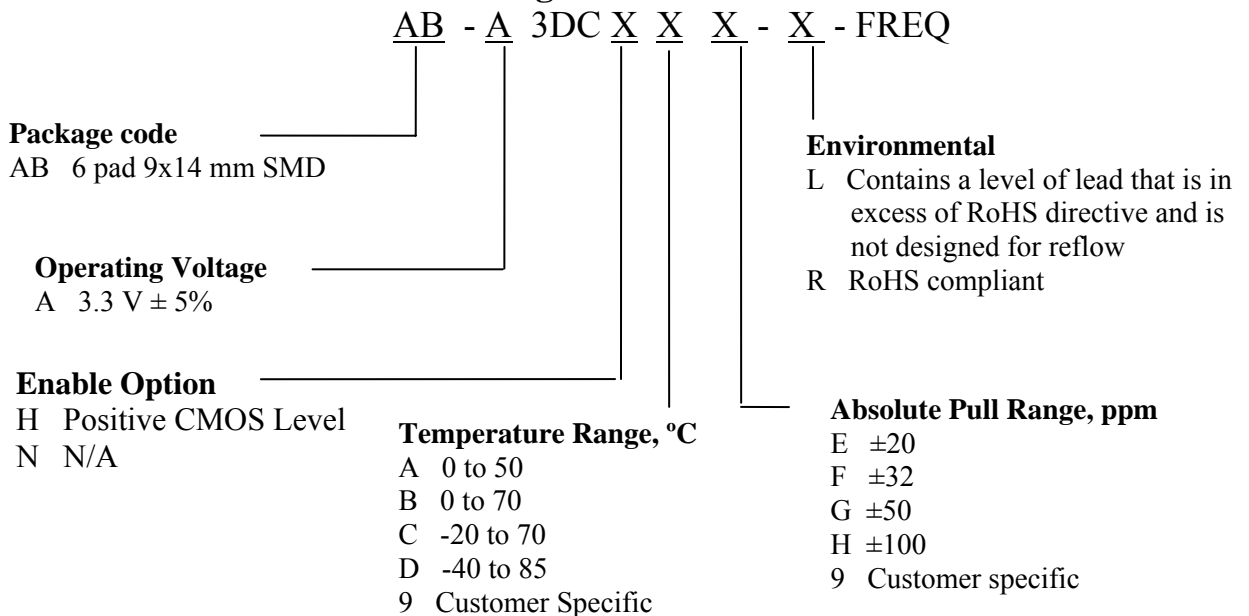
## Description

The **AB-A3DCXXX Series** of voltage controlled crystal oscillators (VCXO) provides high frequency with LVDS complementary outputs. The outputs can be disabled for test automation or combining multiple clocks. The device does not use any frequency multiplication, providing exceptionally low Phase Noise and Jitter and wide pull. It's packaged in a miniature, FR-4 based 9x14 mm SMD package

## Applications and Features

- Wide frequency range – 12.0MHz to 280.000MHz
- 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
- No Multiplication
- Absolute Pull Range (APR) to  $\pm 1000$  ppm
- SONET  $\pm 20$  ppm overall free-run stability available
- COTS/Dual use

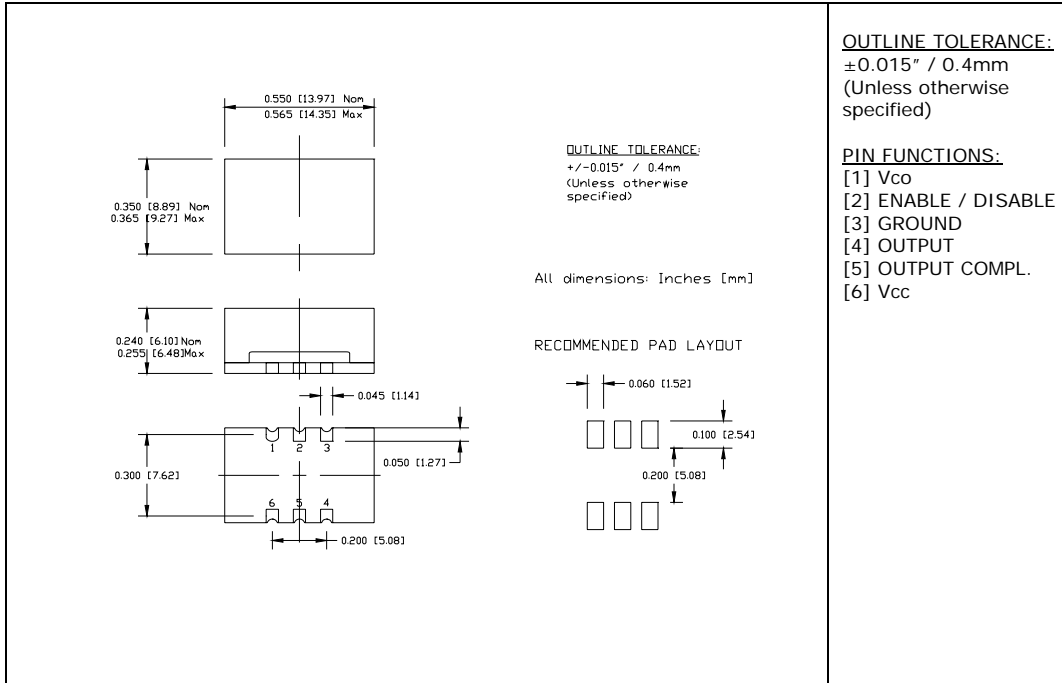
### Creating a Part Number



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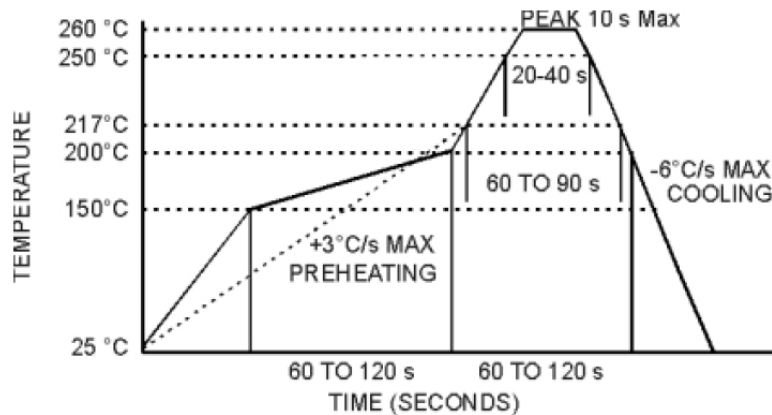
Drawing Specification



Environmental and Mechanical Characteristics

<b>Operating temp. range</b>	see part # table
<b>Mechanical Shock</b>	Per MIL-STD-202, Method 213, Cond. A
<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; The device may be reflowed once. Reflowing upside down is not allowed. NO CLEAN assembly is recommended

MAX Reflow Profile



The device may be reflowed once. Reflowing upside down is not allowed. NO CLEAN assembly is recommended

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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 5.5	V
Enable/Disable Voltage	Ven/dis	0 to Vcc	V

## Electrical Parameters (1)

Parameter	Symb	Conditions, Note	MIN	TYP	MAX	Unit	
Nominal Frequency	Fo		12		280	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	
Jitter	Integrated	J	Integrated from Phase Noise, 12 KHz to 20 MHz, RMS		0.1	0.2	ps
						1.0	ps
					0.3		ps
	Wavecrest characterized		Random period,		2.5		ps
			Accumul., pk-to-pk		17		ps
			Deterministic		0		ps
Phase Noise	£(Δf)	155.52MHz, APR 50 ppm or less	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz	-75 -105 -128 -142 -147 -147	-70 -100 -125 -140 -145 -145	dBc/Hz	
Sub-harmonics			None			dBc	
Frequency Stability	ΔF/F	Overall, including temperature, aging 10 years, shock and vibration @ Vc=Vcc/2; APR 50ppm, or less	±20	±30	0	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	Overall conditions, see part # creation	20,32, 50,100			ppm	
Input Impedance	Zin	@ Fmod < 100kHz	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		

Note 1. All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc &amp; Nominal Load.


**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](mailto:nelsales@nelfc.com) www.nelfc.com