

AB-X36CXXX-X Series PECL/LVPECL HF VCXO

Rev. N

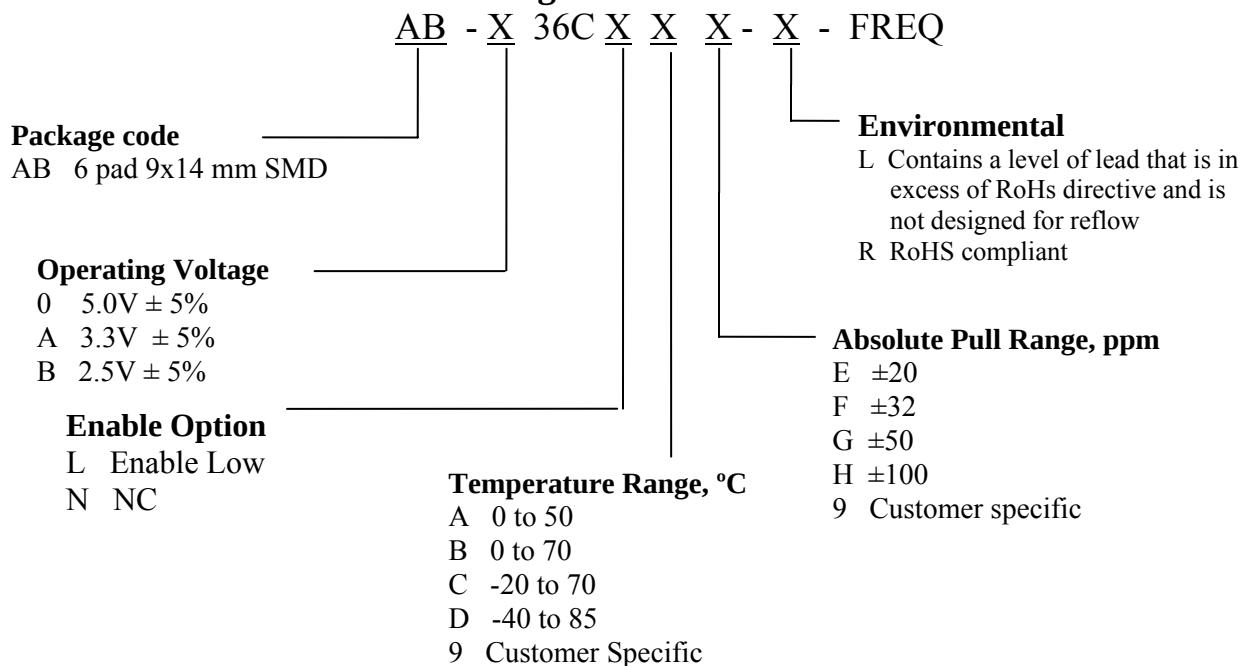
Description

The AB-X36CXXX Series of voltage controlled crystal oscillators (VCXO) provides high frequency with PECL/LVPECL 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 is 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 ± 1000 ppm
- SONET ± 20 ppm overall free-run stability available
- COTS/Dual use

Creating a Part Number



**FREQUENCY
CONTROLS, INC.**

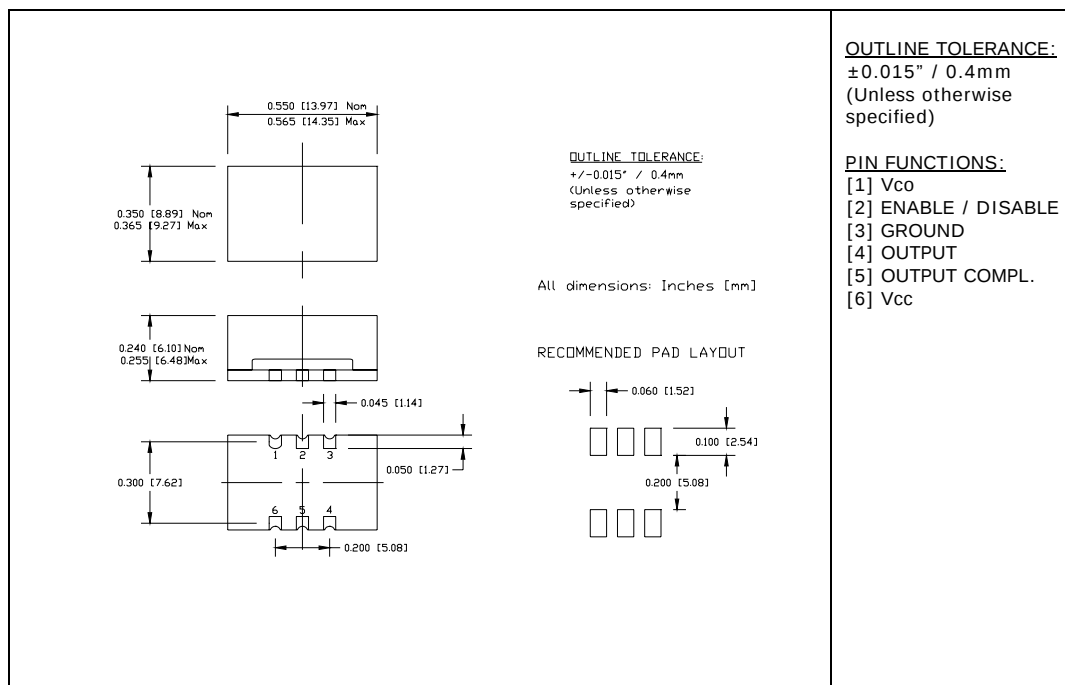
357 Beloit Street, P.O. Box 457, Burlington, WI 53105-0457 U.S.A. Phone 262/763-3591 FAX 262/763-2881

Email: nelsales@nelfc.com www.nelfc.com

AB-X36CXXX-X Series

Rev. N

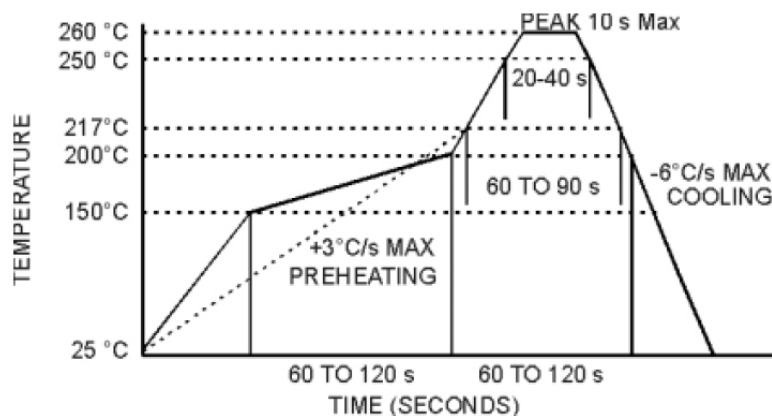
Drawing Specification



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; 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

AB-X36CXXX-X Series

Rev. N

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 0 Code A Code B	4.75 3.135 2.375	5.0 3.3 2.5	5.25 3.465 2.625	V
Supply current	Icc			60	80	mA
Output Logic Type				LVPECL		
Load		Output to Vcc-2V, or Thevenin Equivalent		50		Ohm
Output Levels	Voh Vol	Overall	Vcc-1.025		Vcc-1.620	V
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	0.1	0.2	ps
			10Hz to 80KHz,RMS		1.0	ps
			50 KHz to 80 MHz	0.3		ps
	Wavecrest characterized		Random period,	2.5		ps
			Accumul., pk- to-pk	17		ps
			Deterministic	0		ps
Phase Noise	£(Δf)	155.52MHz, @ 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 Usually not specified unless necessary. APR is specified to incorporate stability	ΔF/F	Overall, including 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	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		Pin 2 = Low, 0 to Vcc-1.62V or floating	Enabled			V
Disable		Pin 2 = High, Vcc-1.025V to Vcc	Disabled, Pin 4 = Logic "1", Pin 5 = Logic "0"			V

Note 1. All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & 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 www.nelfc.com