

**CMOS/LVCMOS HF VCTCXO  
AB-XC3XXX-X Series**

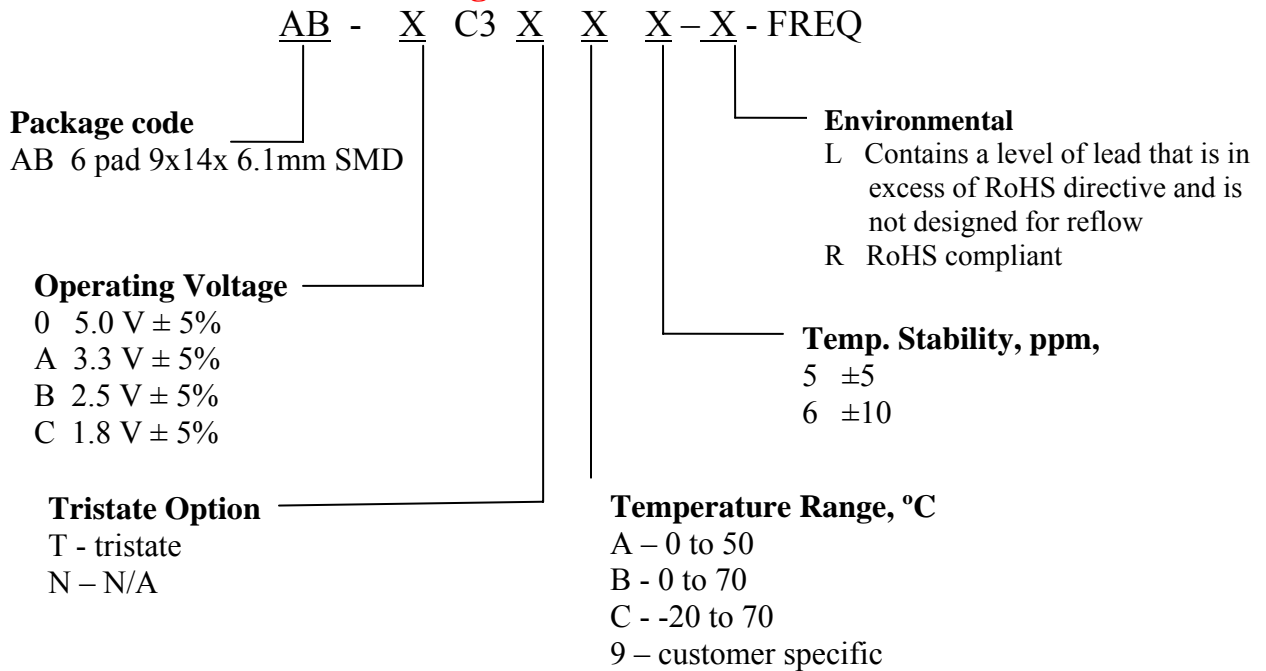
**Description**

The **AB-XC3XXX Series** of voltage controlled, temperature compensated crystal oscillators (VCTCXO) provides high frequency with CMOS/LVCMOS output. The outputs can be tristated for test automation or combining multiple clocks. The device does not use any frequency multiplication, providing exceptionally low Phase Noise and Jitter. It's packaged in a miniature, FR-4 based 9x14 mm SMD package

**Applications and Features**

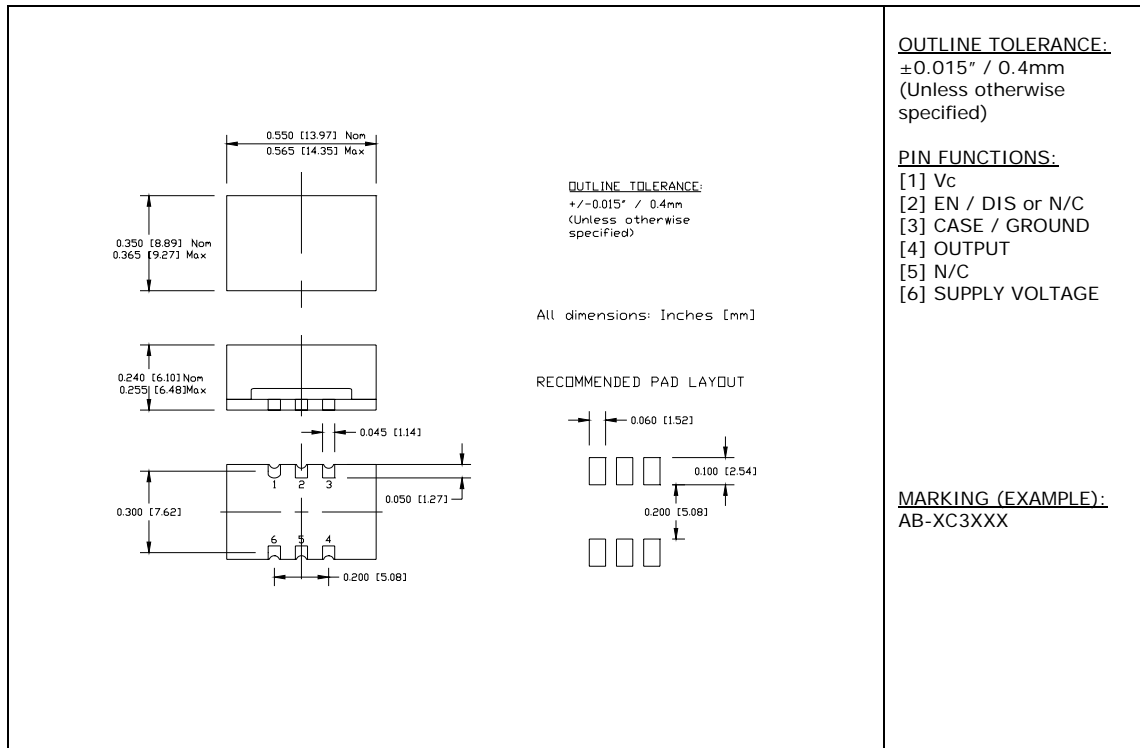
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SONET/SDH
- High Reliability – NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Extremely Low Phase Noise and Jitter
- No Multiplication
- Frequency Stability from ± 5 ppm
- High Shock Resistance, to 1000g
- COTS/Dual use

**Creating a Part Number**



CMOS/LVCMOS HF VCTCXO  
AB-XC3XXX-X Series

Drawing Specification



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
Control Voltage	Vc	-0.5 to 5.5	V
Enable/Disable Voltage	Ven/dis	0 to Vcc	V



CMOS/LVCMOS HF VCTCXO  
AB-XC3XXX-X Series

**Electrical Parameters (1)**

Parameter	Symb	Conditions, Note	MIN	TYP	MAX	Unit	
Nominal Frequency	Fo		12		125	MHz	
Supply Voltage	Vcc	Code 0 Code A Code B Code C	4.75 3.135 2.375 1.71	5.0 3.3 2.5 1.8	5.25 3.465 2.625 1.89	V	
Supply current	Icc	No load, Vcc = 3.3 V 40 MHz			40	mA	
Output Logic Type				CMOS			
Load				15 pF/10 KOhm		Ohm	
Output Levels	Voh Vol	overall	0.9Vcc		0.1 Vcc	V	
Duty Cycle (Symmetry)		At 50% Vcc	45/55	50/50	55/45	%	
Rise/Fall Time	Tr/Tf	0.2Vcc to 0.8 Vcc; F < 70 MHz 70 MHz < F < 125 MHz		3 2	5 3	ns	
<b>Jitter @ 50 MHz</b>	Integrated, RMS	J	Integrated from Phase Noise, 12 KHz to 20 MHz, RMS	0.1	0.15	ps	
			100Hz to 80KHz,RMS		0.8	ps	
			50 KHz to 80 MHz	0.2		ps	
	Wavecrest characterized		Random period,		2.5		ps
			Accumul. , pk-to-pk		17		ps
		Determin.		0		ps	
Sub-harmonics				None		dBc	
Phase Noise	£(Δf)	50 MHz, @ 10 Hz @ 100 Hz @ 1 KHz @ 10KHz @ 100KHz @ > 1MHz		-85 -115 -145 -160 -165 -165	-80 -110 -140 -155 -160 -160	dBc/Hz	
Frequency Stability	ΔF/F	Over Temperature, Calibration @Vcc/2, Aging 10 years Shock and vibration Reflow		±1 ±3 ±2 ±2	From ±5	ppm	
Control Voltage Range	Vc		0V		Vcc	V	
Setability	Vcs	Vc to set the 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	±10			ppm	
Input impedance	Zin	@ Fmod < 10 KHz	50			KOhm	
Modulation Bandwidth		At Vc = Vcc/2, -3dB	20			KHz	
Enable		Pin 2 = High, or floating	Enabled				
Disable		Pin 2 = Low	Tri-stated, output – high Z				

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

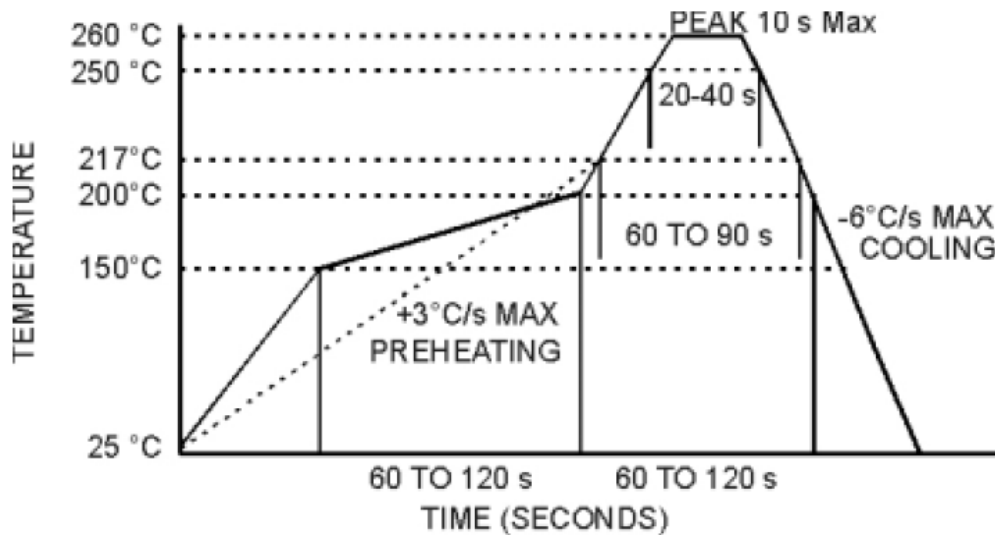


**CMOS/LVCMOS HF VCTCXO  
AB-XC3XXX-X Series**

**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 $5 \times 10^{-8}$ atm.cc/s of helium , crystal only.
<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

