

# AB-X32AXXX-X Series CMOS/LVCMOS HF VCXO

Rev. S

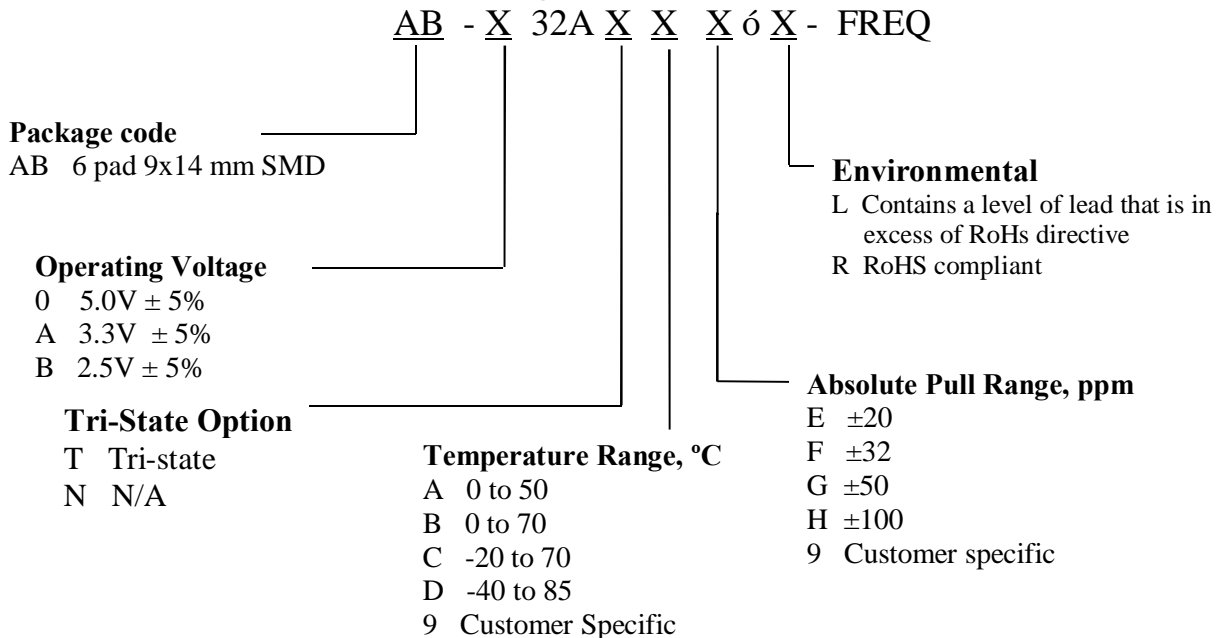
## Description

The **AB-X32AXXX Series** of voltage controlled crystal oscillators (VCXO) provides high frequency with CMOS/LVCMOS outputs. The outputs can be Tri-stated 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 ó 12.0MHz to 250.000MHz
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SONET/SDH
- High Reliability ó 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

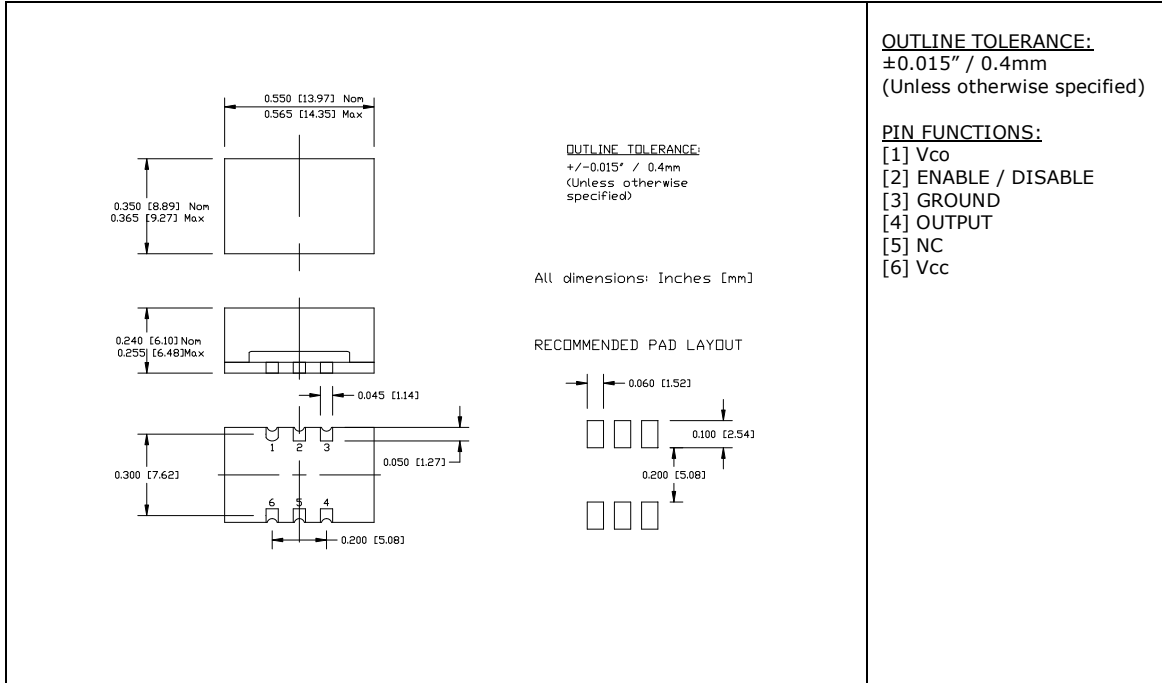
### Creating a Part Number



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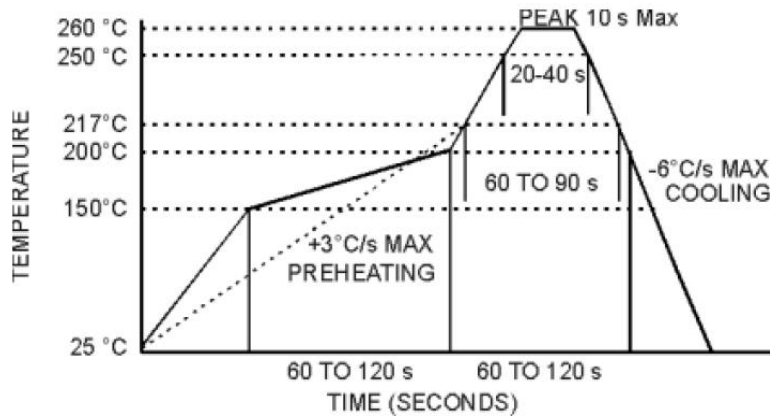
**Drawing Specification**



**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



**FREQUENCY  
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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		250	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	No Load, Vcc=3.3V 40MHz			80	mA
Output Logic Type					CMOS		
Load					15pf/10 KOhm		Ohm
Output Levels		Voh Vol	Overall	0.9Vcc		0.1Vcc	V
Duty Cycle(Symmetry)			At 50% Vcc	45/55	50/50	55/45	%
Rise/Fall Time		Tr/Tf	0.2Vcc to 0.8Vcc F<70MHz 70MHz<F<125MHz 125MHz<F<250MHz		3 2 1.5	5 3 2.5	ns
<b>Jitter</b>	Integrated	J	Integrated from Phase Noise, 12 KHz to 20 MHz , RMS		0.1	0.15	ps
			10Hz 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	
Deterministic				0		ps	
Phase Noise		£( f)	155.52MHz, APR 50 ppm or less	@ 10 Hz @ 100 Hz @ 1 KHz @ 10KHz @ 100KHz @ >1MHz	-75 -105 -135 -160 -165 -165	-70 -100 -130 -155 -160 -160	dBc/Hz
Sub-harmonics					None		dBc
Frequency Stability usually not specified unless necessary. APR is specified to incorporate stability		F/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 ó 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 = High, or floating	Enabled			V
Disable			Pin 2 = Low	Tri-stted, output ó High Z			V

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

