AB-X3A2XX-X Series
SINEWAVE VCXO

Rev. A

Description

The AB-X3A2XX Series of voltage controlled crystal oscillators (VCXO) provides high frequency with Sinewave outputs. 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 250.000MHz
- 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

AB - X 3A2 X X – X - FREQ

Package code
AB 6 pad 9x14 mm SMD

Operating Voltage
0 5.0V ± 5%
A 3.3V ± 5%
B 2.5V ± 5%

Temperature Range, ºC
A 0 to 50
B 0 to 70
C -20 to 70
D -40 to 85
9 Customer Specific

Absolute Pull Range, ppm
E ±20
F ±32
G ±50
H ±100
9 Customer specific

Environmental
L Contains a level of lead that is in excess of RoHs directive and is not designed for reflow
R RoHS compliant

NEL 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

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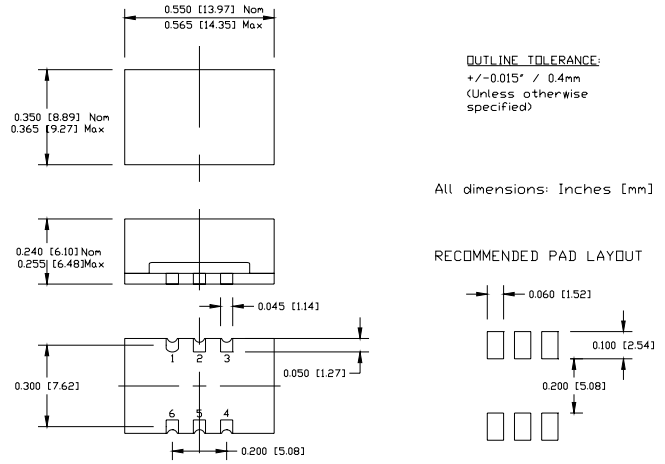
Drawing Specification



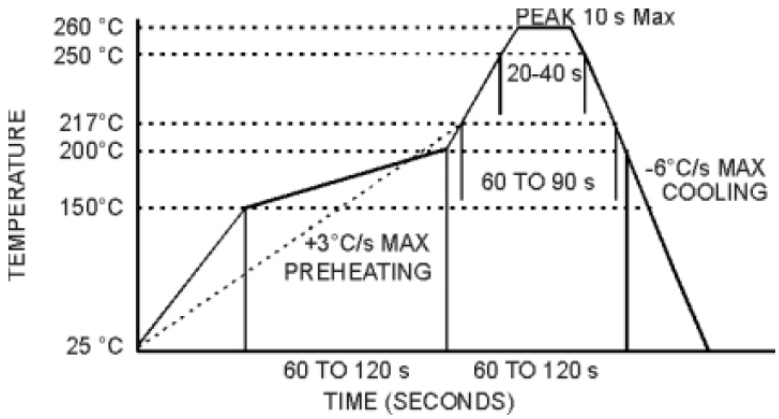
OUTLINE TOLERANCE:
±0.015" / 0.4mm
(Unless otherwise specified)

PIN FUNCTIONS:
[1] Vco
[2] N/C
[3] GROUND
[4] OUTPUT
[5] NC
[6] Vcc

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 $1x10^{-8}$ 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



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Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Operating Temperature Range	To	-40 to +85	ºC
Storage Temperature Range	Tst	-50 to +90	ºC
Supply Voltage	Vcc	-0.5 to 5.5 for Vcc = 5 V -0.5 to 3.6 For Vcc 3.3 or 2.5 V	V
Control Voltage	Vc	-0.5 to Vcc + 0.5	V

Electrical Parameters

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	Loaded Vcc=3.3V 100MHz				40	mA
Output Type					Sinewave		
Load		Internally AC coupled			50		Ohm
Output Power		Into 50 Ohm, Vcc = 3.3 V		7	10		dBm
Phase Noise	£(Δf)	100.0MHz, APR 32 ppm or less	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz		-85 -115 -145 -160 -165 -165	-80 -110 -140 -155 -160 -160	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

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