Rev. J

AB-X0A3XX-X Series
SINE-WAVE UHF, Low Phase Noise XO

Description

The AB-X0A3XX crystal oscillators (XO) provides ultra high frequency with a single-ended sinewave output. The device is based on low noise analog harmonic 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

- Wide frequency range – 200.0MHz to 1.000 GHz
- 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
- COTS/Dual use

Creating a Part Number

AB - X 0A3 X X - X - FREQ

Package code
AB 6 pad 9x14 mm SMD

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

Temperature Range, ºC
A 0 to 50
B 0 to 70
C -20 to 70
D -40 to 85
J 15 to 35
9 Customer Specific

Temperature Stability, ppm
E ±20
F ±25
G ±50
H ±100
K ±3.5
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
Email: nelsales@nelfc.com www.nelfc.com

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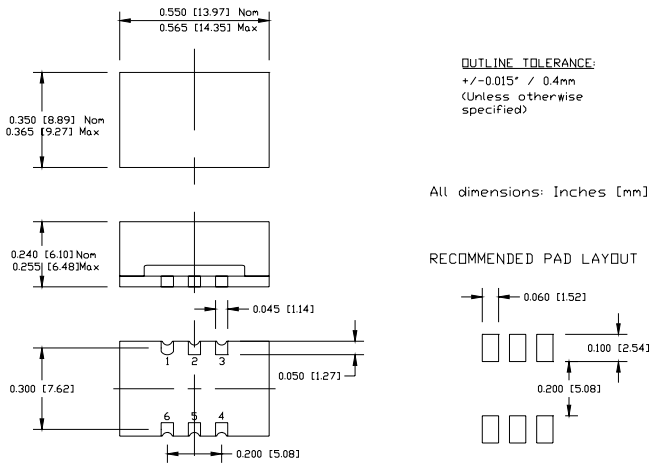
Drawing Specification



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

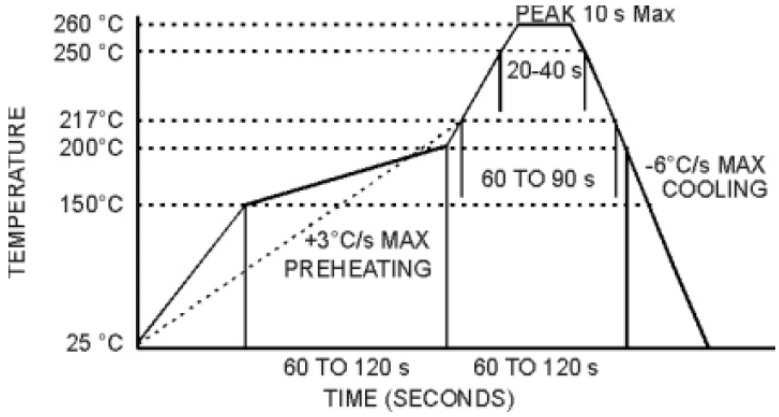
PIN FUNCTIONS:
[1] N/C
[2] N/C
[3] GROUND
[4] OUTPUT
[5] N/C
[6] Vcc

MARKING (EXAMPLE):
AB-XXXX

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 , crystal only.
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	V

Electrical Parameters (1)

Parameter		Symb	Conditions, Note		MIN	TYP	MAX	Unit
Nominal Frequency		Fo			200		1,000	MHz
Supply Voltage		Vcc	Code 0 Code A		4.75 3.135	5.0 3.3	5.25 3.465	V
Output Power		Pout	Vcc=3.3V, 50 Ohm Load </=400MHz Vcc=5.0V, 50 Ohm Load <=400MHz Vcc=3.3V, 50 ohm Load >400MHz Vcc=5.0V, 50 ohm Olad >400MHz		0 4 -5 0	3 7 0 5	5	dBm
Supply current		Icc	Vcc=3.3V, 50 Ohm Load Vcc=5.0V, 50 Ohm Load			100 120	110 130	mA
Load			Internally AC coupled		45	50	55	Ohm
Output Impedance						50		Ohm
Return Loss						10		dB
Jitter	Integrated	J	Integrated from Phase Noise, 12 KHz to 20 MHz , RMS			0.1	0.2	ps
			100Hz 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			25		ps
			Deterministic			1		ps
Sub-Harmonics			@ 500.0MHz			-50	-46	dBc
Phase Noise		£(Δf)	@ 500.0MHz	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz		-70 -103 -128 -145 -150 -155		dBc/Hz
Frequency Stability		ΔF/F	See table for creating a part number					ppm

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

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