

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

Rev. C

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
- RoHS compliant, Lead Free Construction

Creating a Part Number

AB - X 0A3 X X

Package code

AB 6 pad 9x14 mm SMD

Operating Voltage

0 5.0 V ± 5%

A 3.3 V ± 5%

Temperature Stability, ppm

E ±20

F ±25

G ±50

H ±100

K ±3.5

9 Customer specific

Temperature Range, °C

A 0 to 50

B 0 to 70

C -20 to 70

D -40 to 85

J 15 to 35

9 Customer Specific

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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

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

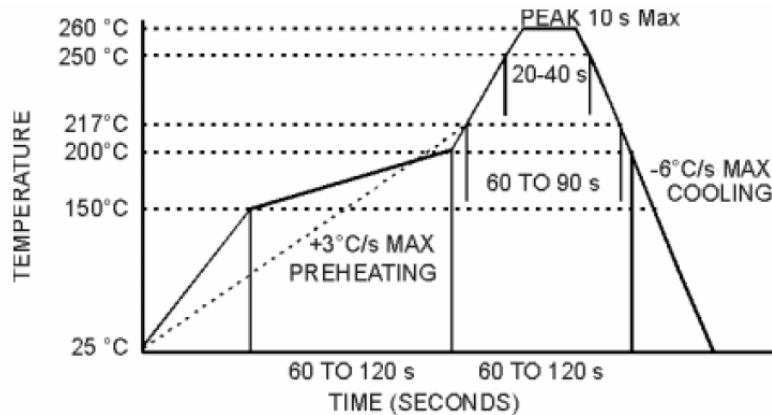
All dimensions: Inches [mm]

RECOMMENDED PAD LAYOUT

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, crystal only.
Soldering conditions	See MAX reflow profile below

MAX Reflow Profile



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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

Electrical Parameters

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	
Supply current	Icc	Vcc=3.3V, 50 Ohm Load $\leq 400\text{MHz}$ Vcc=5.0V, 50 Ohm Load $\leq 400\text{MHz}$ Vcc=3.3V, 50 ohm Load >400MHz Vcc=5.0V, 50 ohm Olad >400MHz	0 4 -5 0	3 7 0 5	5	mA	
Output Power	Pout	Vcc=3.3V, 50 Ohm Load Vcc=5.0V, 50 Ohm Load	0 +4	3 7		dBm	
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	J	Random period,			2.5	ps
			Accumul., pk-to- pk			25	ps
			Deterministic			1	ps
Sub-Harmonics		@ 500.0MHz		-50	-46	dBc	
Phase Noise	$\epsilon(\Delta f)$	@ 500.0MHz	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz	-70 -103 -128 -145 -150 -155		dBc/Hz	
Frequency Stability	$\Delta F/F$	See table for creating a part number				ppm	