

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

Rev. K

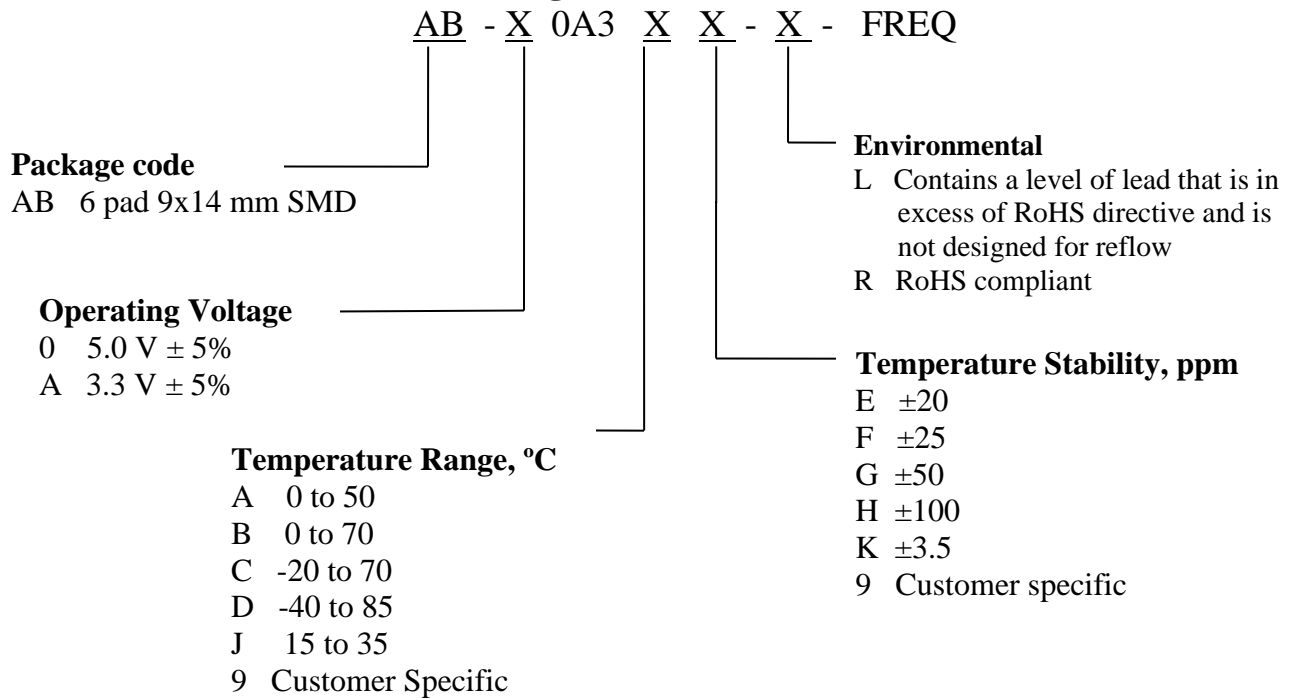
**Description**

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 1.005 GHz
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SONET/SDH
- High Reliability – NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Ultra Low Phase Noise and Jitter
- High Shock Resistance, to 1000g
- COTS/Dual use

**Creating a Part Number**



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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)

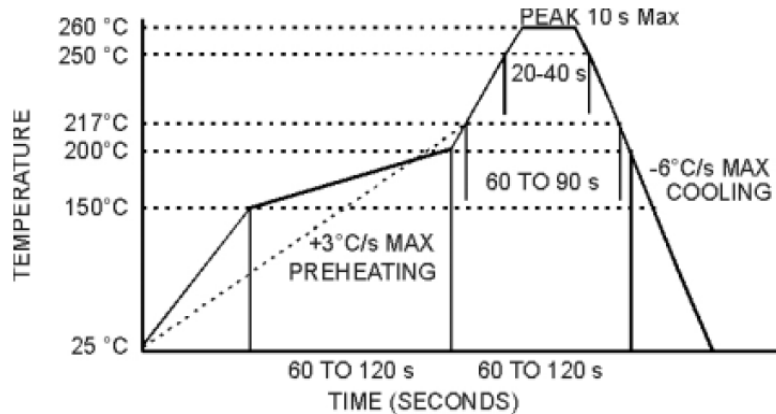
All dimensions: Inches [mm]

**RECOMMENDED PAD LAYOUT**

**Environmental and Mechanical Characteristics**

<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, 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

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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 (1)

Parameter	Symb	Conditions, Note	MIN	TYP	MAX	Unit	
Nominal Frequency	Fo		200		1.005	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	
<b>Jitter</b>	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	£(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.