

SINE-WAVE UHF VCXO

AB-A3A1XX Series

Description

The **AB-A3A1XX Series** of voltage controlled crystal oscillators (VCXO) provides ultra high frequency with a single-ended sine-wave output. The device is based on low noise analog harmonic frequency multiplication, providing exceptionally low Phase Noise and Jitter. It is packaged in a miniature, FR-4 based 9x14mm SMD package.

Applications and Features

- Wide frequency range – 200.0MHz to 1.000GHz
- 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
- Absolute Pull Range (APR) to ± 1000 ppm
- SONET ± 20 ppm overall free-run stability available
- RoHS Compliant, Lead Free Construction

Creating a Part Number		
AB - A 3A1 X X - FREQ		
<u>Package Code</u>	<u>Input Voltage</u>	<u>Absolute Pull Range, ppm</u>
AB 6 pad 9x14 mm SMD	0 5.0V $\pm 5\%$	E ± 20
	A 3.3V $\pm 5\%$	F ± 32
		G ± 50
		H ± 100
		9 Customer specific
		<u>Temperature Range, °C</u>
		A 0 to 50
		B 0 to 70
		C -20 to 70
		D -40 to 85
		9 Customer specific



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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 4.5	V

Electrical Parameters

Parameter		Symb	Conditions, Note		MIN	TYP	MAX	Unit
Nominal Frequency		Fo			200		1000	MHz
Supply Voltage		Vcc	Code Code A		4.75 3.135	5.0 3.3	5.25 3.465	V
Supply current		Icc	Vcc=3.3V, 50 Ohm load Vcc=5.0V, 50 ohms load			60 80	75 90	mA
Output Power		Pout	Vcc=3.3V, 50 Ohm load Vcc=5.0V, 50 ohms load		0 +4	10	16	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
			100 Hz to 80 KHz, 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			@ 622.08MHz			-50	-46	dBc
Phase Noise		£(Δf)	622.08 MHz, APR 50ppm or less	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz		-65 -90 -118 -145 -150 -155	-60 -85 -113 -140 -145 -150	dBc/Hz
Frequency Stability		ΔF/F	Overall, including initial calibration, 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	Over all conditions, see part # creation		20,32, 50,100			ppm
Input Impedance		Zin	@ Fmod < 100 KHz		50			KOhm
Modulation Bandwidth			At Vc = Vcc/2, -3dB		20			KHz

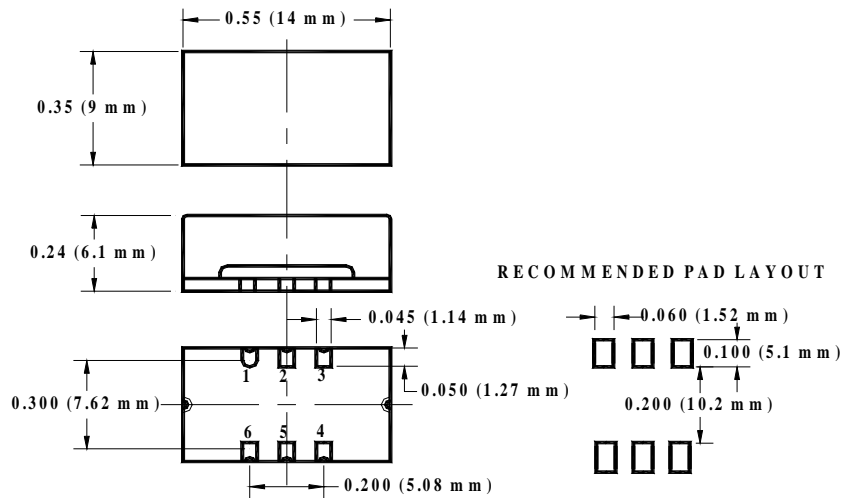


Rev. E

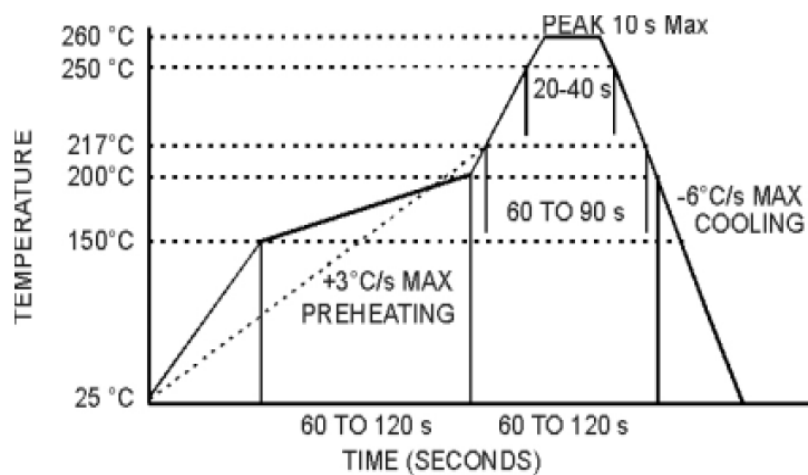
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Electrical Connection

Pad	Connection
1	V _{co}
2	N/C
3	Gnd
4	Output
5	N/C
6	V _{cc}

**Environmental and Mechanical Characteristics**

Operating temp. range	see part # table
Mechanical Shock	Per MIL-STD-202, Method 213, Cond. E
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
Soldering conditions	See MAX reflow profile below

Maximum Reflow Profile

FREQUENCY
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