

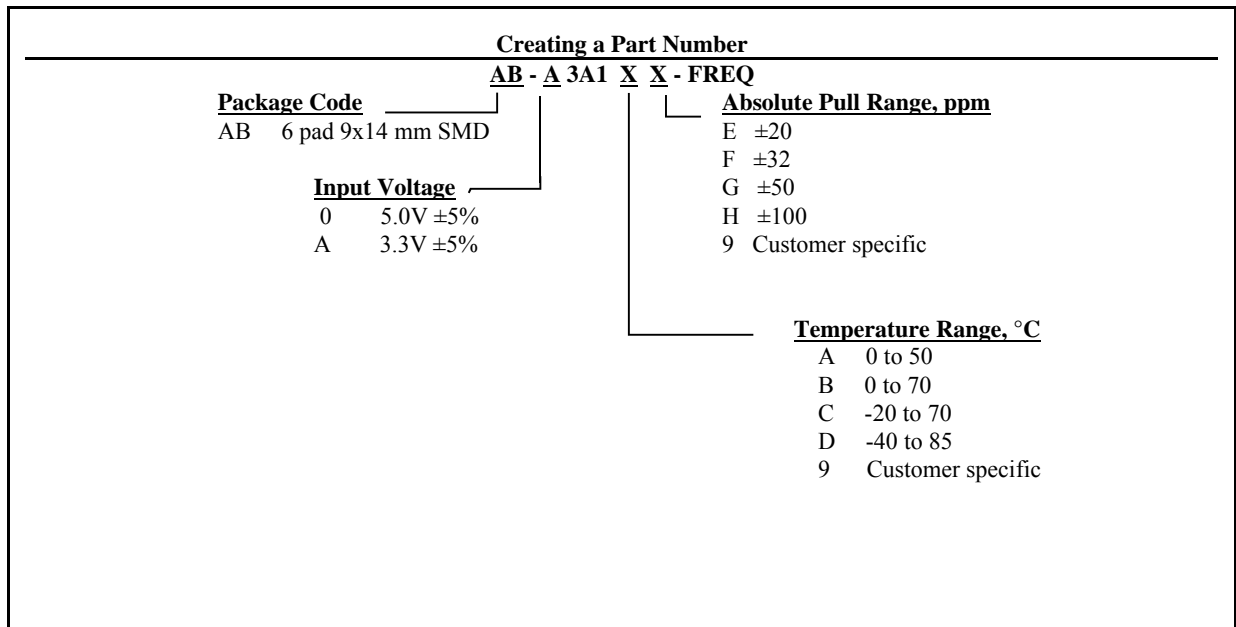
**SINE-WAVE UHF VCXO
AB-A3A1XX Series**

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



AB-A3A1XX Series Continued
SINE-WAVE UHF VCXO

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	f(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	



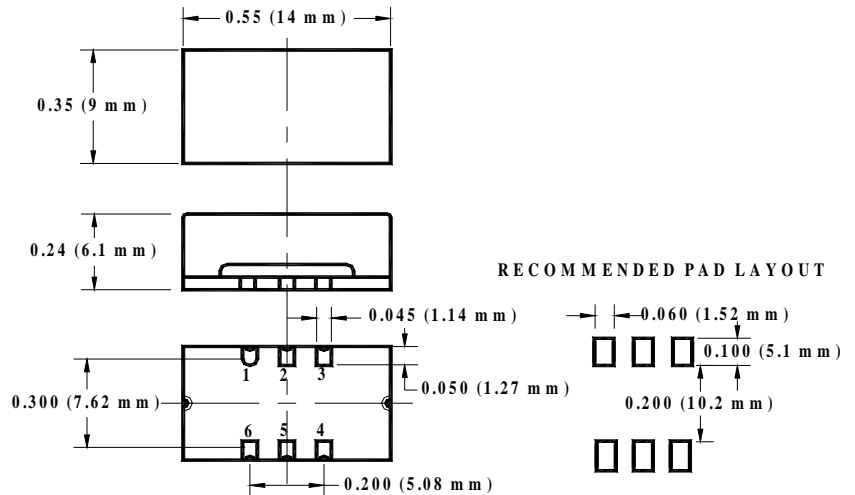
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Continued

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

