

## AB-X29NXXX Series PECL/LVPECL UHF XO

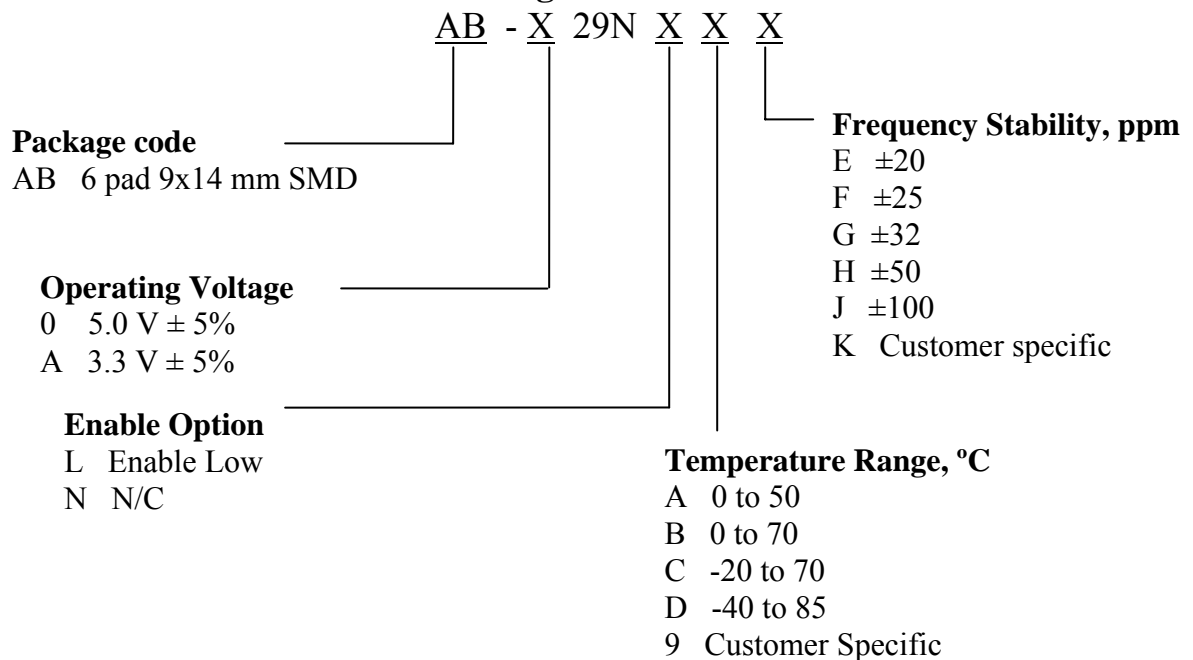
### Description

The **AB-X29NXXX Series** of crystal oscillators (XO) provides ultra high frequency with PECL/LVPECL complementary outputs. The outputs can be disabled for test automation or combining multiple clocks. 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

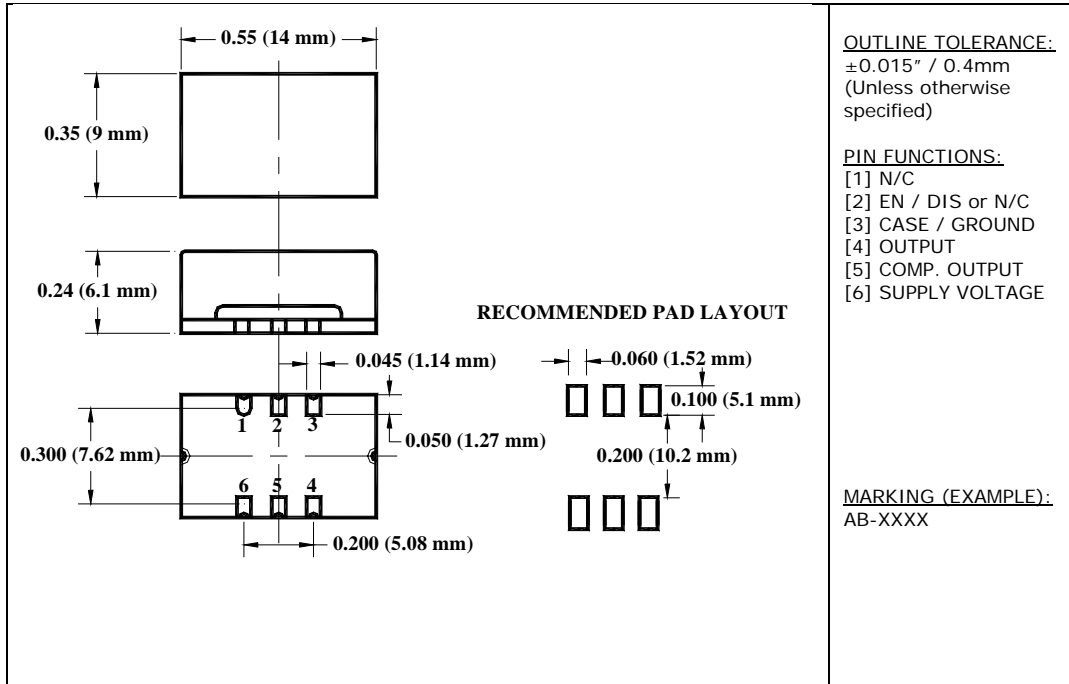
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SONET/SDH
- High Reliability – NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Extremely Low Phase Noise and Jitter
- Frequency Range to 1,000 MHz
- RoHS compliant, Lead Free Construction
- SONET  $\pm 20$  ppm overall stability available
- High Shock Resistance, to 1.000 G

### Creating a Part Number



**AB-X29NXXX Series**

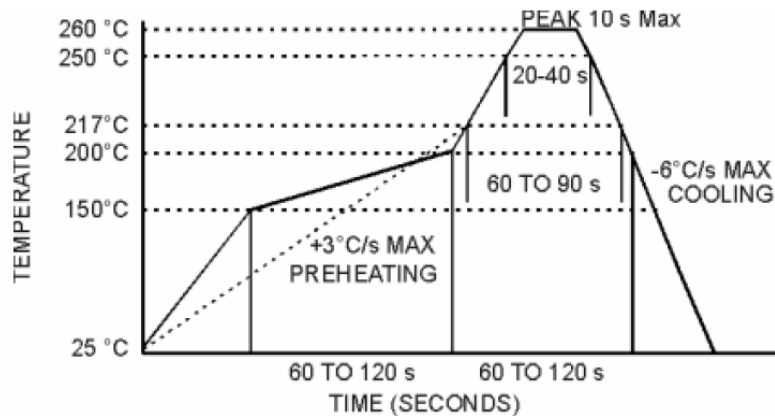
**Drawing Specification**



**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

**MAX Reflow Profile**



AB-X29NXXX Series

**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
Enable/Disable Voltage	Ven/dis	0 to Vcc	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			60	80	mA
Output Logic Type				PECL/ LVPECL		
Load		Output to Vcc-2V, or Thevenin Equivalent		50		Ohm
Output Levels	Voh Vol	overall	Vcc-1.025 Vcc-1.620			V
Duty Cycle (Symmetry)		At 50% of output voltage swing	45/55	50/50	55/45	%
Rise/Fall Time	Tr/Tf	20 to 80, 80 to 20 %		0.5	0.7	ns
<b>Jitter</b>	Integrated	J Integrated from Phase Noise, 12 KHz to 20 MHz , RMS 100Hz to 80KHz,RMS 50 KHz to 80 MHz		0.1	0.2	ps
					1.0	ps
				0.3		ps
	Wavecrest characterized	Random period, Accumul., pk-to-pk Determin.		2.5		ps
				25		ps
			1		ps	
Phase Noise	f(Δf)	622.080MHz APR 50 ppm or less	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz	-60 -90 -118 -135 -140 -145	-55 -85 -113 -130 -135 -140	dBc/Hz
Sub-harmonics		At 622.08 MHz		-50	-46	dBc
Frequency Stability	ΔF/F	Overall, including initial calibration, temperature, aging 10 years, shock and vibration			From ±20, see table for part number	ppm
Enable		Pin 2 = Low, 0 to Vcc- 1.62 V	Enabled			V
Disable		Pin 2 = High, Vcc-1.025 V to Vcc	Disabled, Pin4 = Logic "1", Pin5 = Logic "0"			V