

**LVPECL HF/UHF CLOCK (XO)  
AA-X29LXXX Series**

**Description**

The **AA-X29LXXX Series** of quartz crystal oscillators provides ultra high frequency with LVPECL complementary outputs. The outputs can be disabled for test automation or combining multiple clocks. The device is based on low noise analog harmonic multiplication, and packaged in a miniature, low profile leadless FR4 based package with gold plated pads, which enhances compatibility with PCB material.

**Applications and Features**

- Ultra High Frequency – 150.0MHz to 500.000MHz
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SOHO Routing
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Fast Rise and Fall times
- Tight frequency stability -  $\pm 20$  ppm overall available
- RoHS Compliant, Lead Free Construction
- Low cost

Creating a Part Number			
AA - X 29L X X X - FREQ			
<b>Package Code</b>	_____	<b>Overall Frequency Stability, ppm</b>	_____
AA	6 pad 7.5x 5.2mm SMD	E	$\pm 20$
		F	$\pm 25$
		G	$\pm 50$
		H	$\pm 100$
		9	Customer specific
<b>Input Voltage</b>	_____	<b>Temperature Range, °C</b>	_____
A	3.3V $\pm 5\%$	A	0 to 50
B	2.5V $\pm 5\%$	B	0 to 70
		C	-20 to 70
		D	-40 to 85
		9	Customer specific
<b>Enable Option</b>	_____		
L	Enable Low		
N	N/C		



### AA-X29LXXX Series Continued LVPECL HF/UHF CLOCK (XO)

#### 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
Enable/Disable Voltage	Ven/dis	0 to Vcc	V

#### Electrical Parameters

Parameter	Sym	Conditions, Note	MIN	TYP	MAX	Unit		
Nominal Frequency	Fo		150		500	MHz		
Supply Voltage	Vcc	Code A Code B	3.135 2.375	3.3 2.5	3.465 2.625	V		
Supply current	Icc			80	100	mA		
Output Logic Type				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 %		0.35	0.4	ns		
<b>Jitter</b>	Integrated	J	Integrated from Phase Noise, 12 KHz to 20 MHz , RMS			0.2	ps	
	Wavecrest characterized		Random period,		2.5 2.5		ps	
			Accumul., pk-to-pk			25		ps
			Deterministic			3	6	
Phase Noise	f(Δf)	212.5 MHz	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz		-65 -95 -125 -140 -145 -148		dBc/Hz	
Frequency Stability	ΔF/F	Overall, including initial calibration, temperature, aging 10 years, shock and vibration		See "Creating a Part Number" Not all combinations available, consult factory		ppm		
Enable Low Option Pin 2 Disabled Pin 2 Enabled		PECL logic "1" PECL logic "0"	Vcc-1 0		Vcc Vcc-1.6	V		

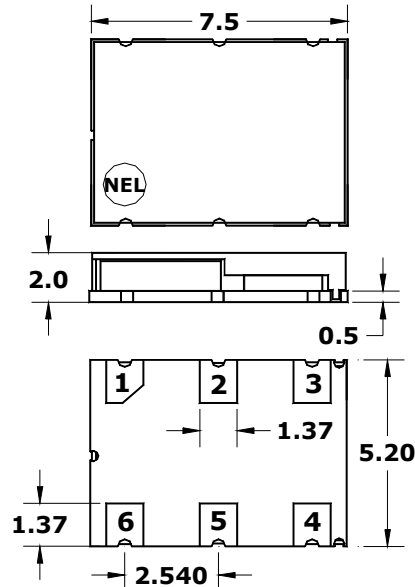


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**Electrical Connection**

Pin	Connection
1	Enable/Disable or No Connect
2	N.C.
3	Gnd
4	Output
5	/Output
6	V <sub>CC</sub>

Dimensions are typical in mm



**Environmental and Mechanical Characteristics**

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

Maximum Reflow Profile

