

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 - ± 20 ppm overall available
- RoHS Compliant, Lead Free Construction
- Low cost

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



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
Jitter	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	$\mathcal{E}(\Delta f)$	212.5 MHz	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz	-65 -95 -125 -140 -145 -148		dBc/Hz
Frequency Stability	$\Delta F/F$	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



Rev. -

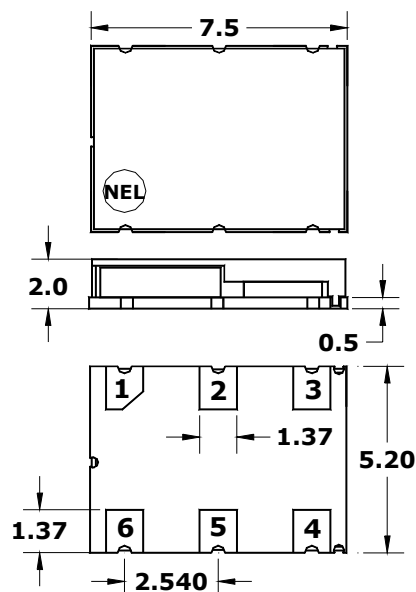
AA-X29LXXX Series Continued

LVPECL HF/UHF CLOCK (XO)

Electrical Connection

Pin	Connection
1	Enable/Disable or No Connect
2	N.C.
3	Gnd
4	Output
5	/Output
6	V _{CC}

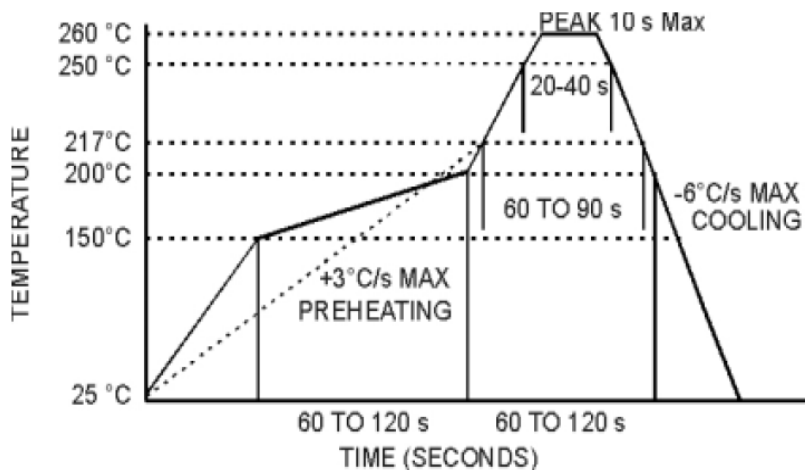
Dimensions are typical in mm



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
CONTROLS, INC.**

357 Beloit Street, P.O. Box 457, Burlington, WI 53105-0457 U.S.A. Phone 262/763-3591 FAX 262/763-2881
Email: nelsales@nelfc.com www.nelfc.com