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

Package Code
AA 6 pad 7.5x 5.2mm SMD

Input Voltage
A 3.3V±5%
B 2.5V±5%

Overall Frequency Stability, ppm
E ±20
F ±25
G ±50
H ±100
9 Customer specific

Enable Option
L Enable Low
N N/C

Temperature Range, °C
A 0 to 50
B 0 to 70
C -20 to 70
D -40 to 85
9 Customer specific

NEL FREQUENCY CONTROLS, INC.
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AA-X29LXXX Series Continued
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Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Operating Temperature Range	To	-40 to +85	ºC
Storage Temperature Range	Tst	-50 to +90	ºC
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		£(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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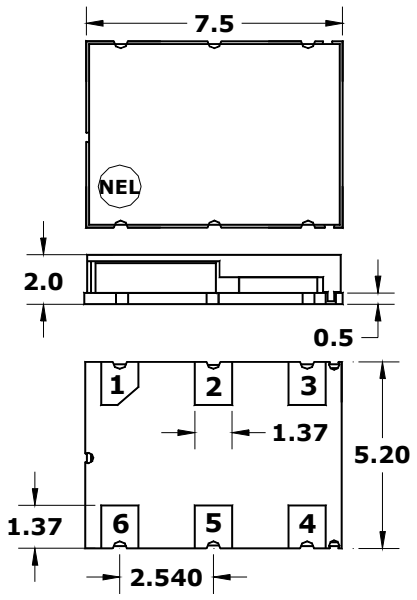
Electrical Connection

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

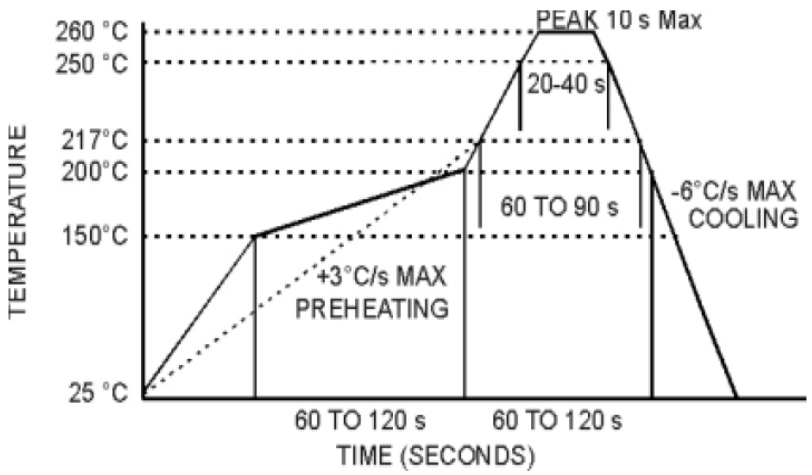
Dimensions are typical in mm



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 $1x10^{-8}$ atm.cc/s of helium
Soldering conditions	See MAX reflow profile below

Maximum Reflow Profile



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