LVPECL HF/UHF CLOCK (XO)
AA-X29LXXX-X 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 – 10.0MHz to 625.000MHz
- 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
- Low cost
- COTS/Dual use

Creating a Part Number

AA - X 29L X X X - X - FREQ

Package Code
AA 6 pad 7.5x 5.2mm SMD

Input Voltage
A 3.3V±5%
B 2.5V±5%

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

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

Environmental
L Contains level of lead that is in excess of RoHS directive and is not designed for reflow
R RoHS compliant

NEL FREQUENCY CONTROLS, INC.
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AA-X29LXXX-X 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 (1)

Parameter		Sym	Conditions, Note		MIN	TYP	MAX	Unit
Nominal Frequency		Fo			10		625	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 % 125 to 625MHz 10 to 125MHz			 0.35 0.5	 0.4 0.7	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 Disabled Enabled			 PECL logic "1" PECL logic "0" or floating		 Vcc-1 0		 Vcc Vcc-1.6	V

Note: 1 All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal Load.

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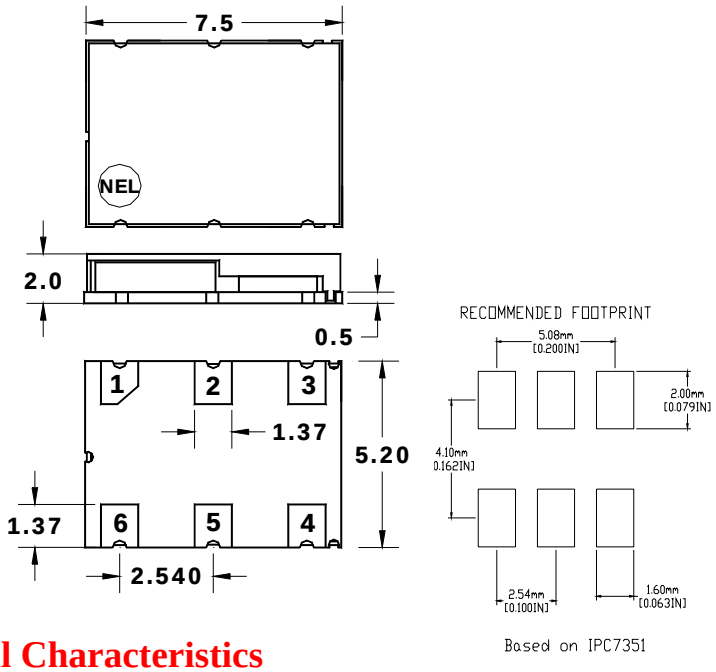
Electrical Connection

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

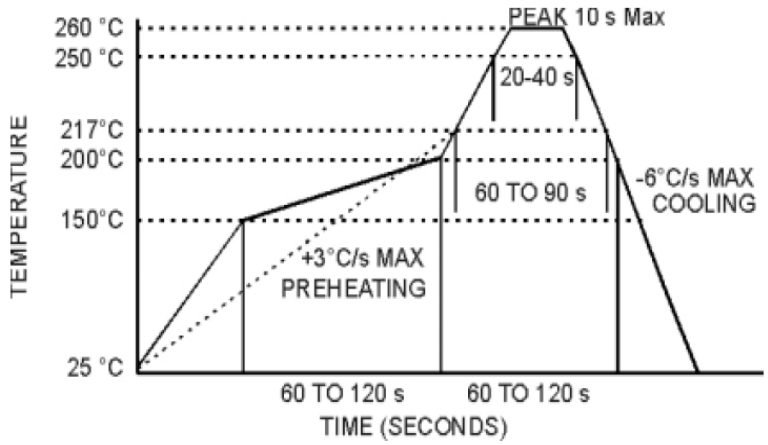
Dimensions are typical in mm



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; The device may be reflowed once. Reflowing upside down is not allowed. NO CLEAN assembly is recommended

Maximum Reflow Profile



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