

LVDS HF/UHF CLOCK (XO)

AA-X2D6XXX-X Series

Description

The **AA-X2D6XXX Series** of quartz crystal oscillators provide ultra high frequency with LVDS 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

- Wide frequency range – 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
- Low Phase Noise, Low Jitter
- Ultra High Frequency
- Fast Rise and Fall times
- Tight frequency stability - ± 20 ppm overall available
- Low cost
- COTS/Dual use

Creating a Part Number				
AA - X 2D6 X X X - X -FREQ				
Package Code				Environmental
AA 6 pad 7.5x 5.2mm SMD				L Contains level of lead that is in excess of RoHS directive and is not designed for reflow
Input Voltage				R RoHS compliant
A 3.3V $\pm 5\%$				
B 2.5V $\pm 5\%$				
Enable Option				Overall Frequency Stability, ppm
N N/C				E ± 20
L Enable Low				F ± 25
		Temperature Range, °C		G ± 50
		A 0 to 50		H ± 100
		B 0 to 70		9 Customer specific
		C -20 to 70		
		D -40 to 85		
		9 Customer specific		



FREQUENCY

CRYSTAL CLOCK OSCILLATORS

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

Data Sheet 0631E

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit	Rev. J
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 (1)

Parameter	Symb	Conditions, Note	MIN	TYP	MAX	Unit
Nominal Frequency	Fo	for Fo>500MHz consult factory	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
Load		At receiving end between the outputs	90	100	110	Ohm
Output Levels	Vod	Differential amplitude	247	330	454	mV
		Amplitude error			50	mV
	Vof	Offset Voltage	1.125	1.25	1.375	V
		Offset Voltage error			50	mV
Duty Cycle (Symmetry)		At outputs crossing, room temperature	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	Fo<125MHz Fo>125MHz	3 5	6 10	ps
Subharmonics			<125MHz <400 M >400 M	None -50 -45		dBc
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 voltage*	V _{IL}		0		0.8	V
Disable voltage	V _{IH}		2		Vcc	V

* Enable Logic Low or Open

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



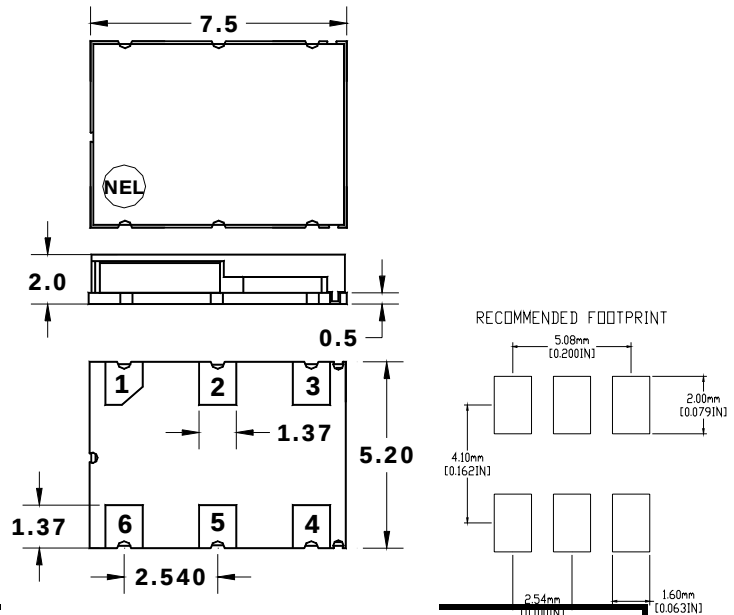
AA-X2D6XXX-X Series Continued
LVDS UHF CLOCK (XO)

Rev. J

Electrical Connection

Pin	Connection
1	No Connect or En/Dis
2	N.C.
3	V _{EE} /Ground
4	Output
5	/Output
6	V _{CC}

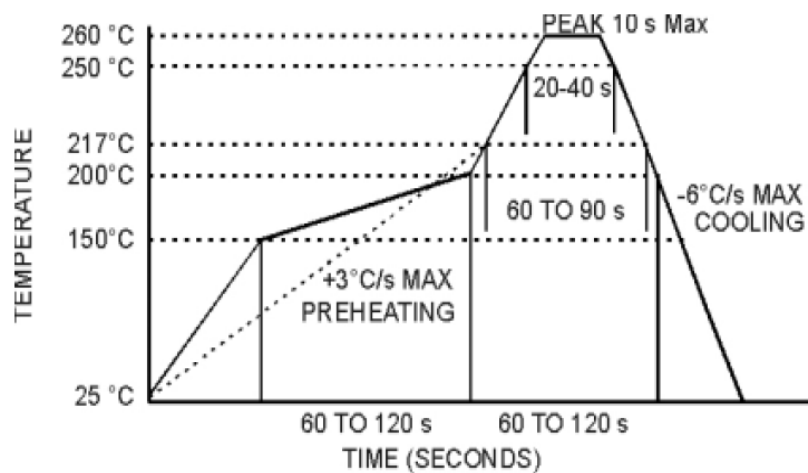
Dimensions are typical in mm



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

Maximum Reflow Profile



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