

**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
			R RoHS compliant
Input Voltage	_____		
A	3.3V \pm 5%		
B	2.5V \pm 5%		
Enable Option	_____		Overall Frequency Stability, ppm
N	N/C	Temperature Range, °C	E ± 20
L	Enable Low	A 0 to 50	F ± 25
		B 0 to 70	G ± 50
		C -20 to 70	H ± 100
		D -40 to 85	9 Customer specific
		9 Customer specific	



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
	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.



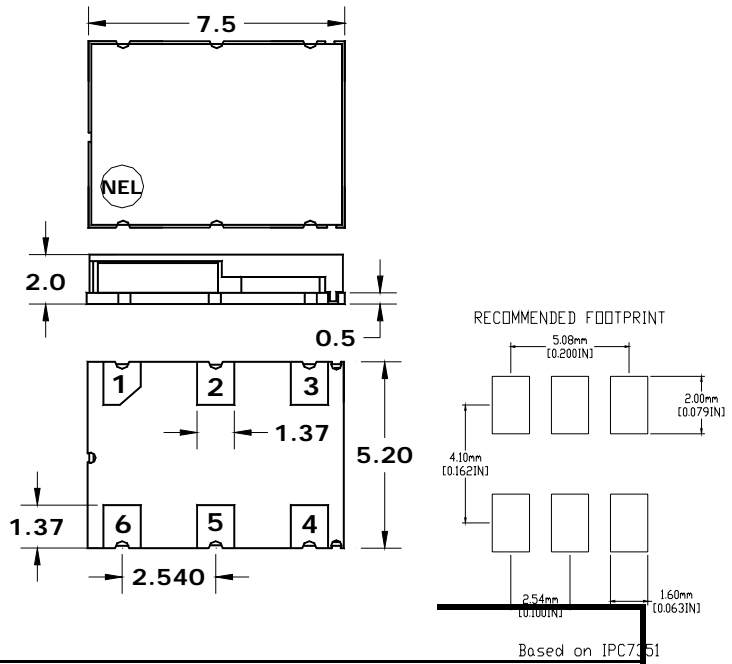
AA-X2D6XXX-X Series Continued
LVDS UHF CLOCK (XO)

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} |

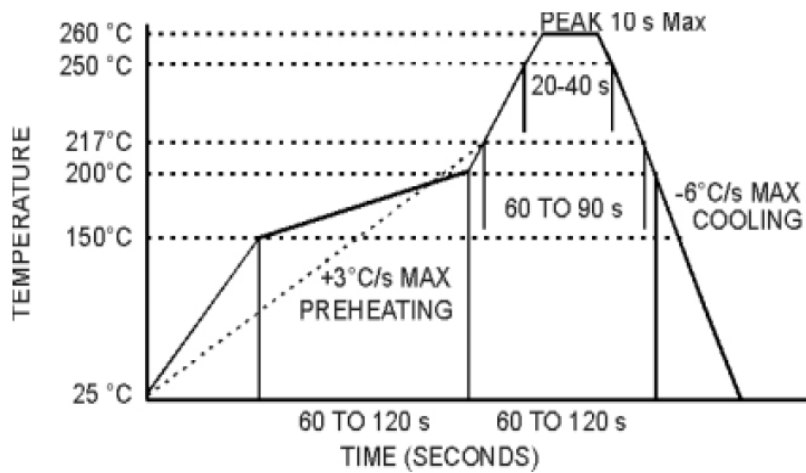
Dimensions are typical in mm



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