

LVDS HF/UHF CLOCK (XO) AA-A2D6XXX Series

Description

The **AA-A2D6XXX 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 – 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
- Low Phase Noise, Low Jitter
- Ultra High Frequency
- Fast Rise and Fall times
- Tight frequency stability - ± 20 ppm overall available
- RoHS Compliant, Lead Free Construction
- Low cost

Creating a Part Number	
AA - A 2D6 X X X - FREQ	
Package Code	Overall Frequency Stability, ppm
AA 6 pad 7.5x 5.2mm SMD	E ± 20
	F ± 25
	G ± 50
	H ± 100
	9 Customer specific
Input Voltage	
A 3.3V $\pm 5\%$	
B 2.5V $\pm 5\%$	
Enable Option	Temperature Range, °C
H Enable High	A 0 to 50
N N/C	B 0 to 70
	C -20 to 70
	D -40 to 85
	9 Customer specific



**AA-A2D6XXX Series Continued
LVDS 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	Symb	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		
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				3 6	ps
Subharmonics			<400 M >400 M		-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 High Option Pin 2 Enabled Pin 2 Disabled		CMOS logic 1 or N/C CMOS logic 0	0.7 Vcc 0		Vcc 0.3 Vcc		V	

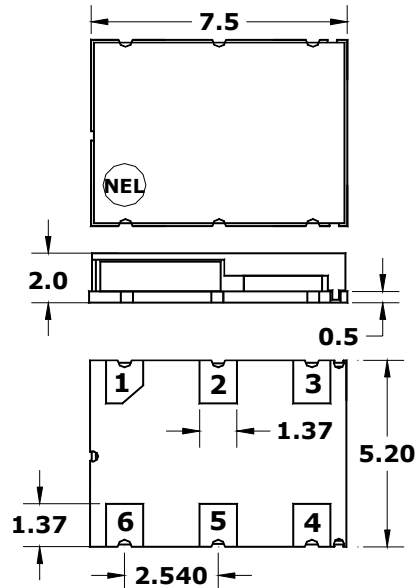


**AA-A2D6XXX Series Continued
LVDS UHF CLOCK (XO)**

Electrical Connection

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

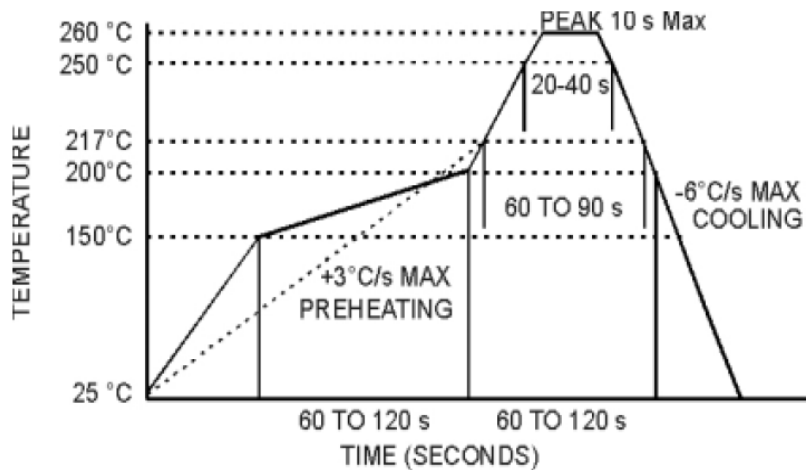
Dimensions are typical in mm



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

Maximum Reflow Profile



**FREQUENCY
CONTROLS, INC.**