

LVDS UHF CLOCK (XO) SD-A2D4XXX Series

Description

The **SD-A2D4XXX Series** of quartz crystal oscillators provides ultra high frequency with LVDS complementary outputs. The outputs can be Tri-stated for test automation or combining multiple clocks. The device is based on advanced PLL multiplication for higher frequencies, and packaged in a miniature, low profile leadless ceramic SMD package with 6 gold plated pads.

Applications and Features

- Wide frequency range – 38.0MHz to 640.000MHz
- 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
- High shock resistance, to 1000g
- Ultra High Frequency
- Tight frequency stability - ± 20 ppm overall available
- Grounded lid and internal by-pass capacitor reduce EMI
- RoHS Compliant, Lead Free Construction

Creating a Part Number	
SD - A 2D4 X X X - FREQ	
Package Code	Overall Frequency Stability, ppm
SD 6 pad 5x7mm SMD	E ± 20
	F ± 25
	G ± 50
	H ± 100
	9 Customer specific
Input Voltage	
A 3.3V $\pm 5\%$	
Enable Option	Temperature Range, °C
H Enable High	A 0 to 50
L Enable Low	B 0 to 70
	C -20 to 70
	D -40 to 85
	9 Customer specific



SD-A2D4XXX Series Continued LVDS 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		38		640	MHz	
Supply Voltage	Vcc	Code A	3.135	3.3	3.465	V	
Supply current	Icc			80	100	mA	
Output Logic Type				LVDS			
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 %		0.5	0.7	ns	
Jitter	Integrated	J	Integrated from Phase Noise, 12 KHz to 20 MHz, RMS			0.4	ps
	Wavecrest characterized		Random period,	155 MHz		3.5	ps
			Accumul., pk-to-pk,	622 MHz		6	ps
Phase Noise	£(Δf)	155 MHz	@ 10 Hz			-60	dBc/Hz
			@ 100 Hz			-90	
			@ 1 KHz			-120	
			@ 10KHz			-130	
			@ 100KHz			-128	
			@ 1MHz			-144	
@ >10M			-150				
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	
Enable Low Option Pin 2 Disabled Pin 2 Enabled		CMOS logic 1 or N/C CMOS logic 0	0.7 Vcc 0		Vcc 0.3 Vcc	V	

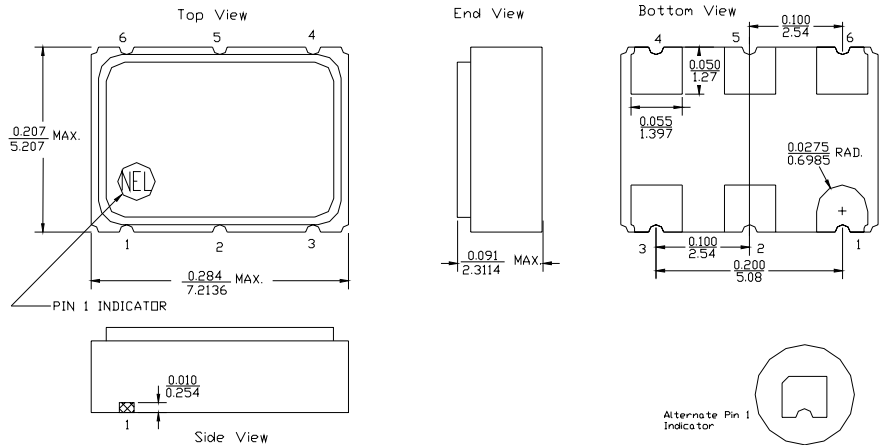


Rev. -

SD-A2D4XXX Series Continued

LVDS UHF CLOCK (XO) Electrical Connection

Pin	Connection
1	Enable/Disable
2	N.C.
3	V _{EE} /Ground
4	Output
5	/Output
6	V _{CC}

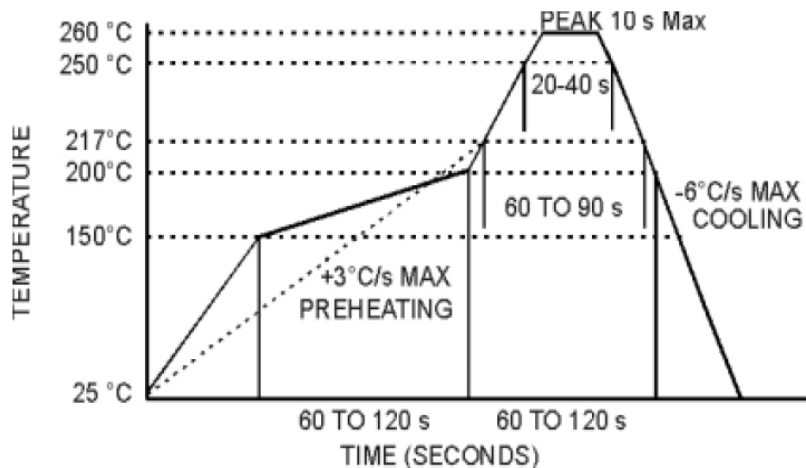


ALL DIMENSIONS: $\frac{IN}{mm}$
All tolerances are ± 0.005 inches (± 0.127 mm) unless otherwise specified.

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
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