

LVDS HF VCXO SU-A3DCXXX Series

Description

The **SU-A3DCXXX Series** of voltage controlled crystal oscillators (VCXO) provides high frequency with LVDS complementary outputs. The outputs can be disabled for test automation or combining multiple clocks. The device does not use any frequency multiplication, providing exceptionally low Phase Noise and Jitter. It is packaged in a miniature, FR-4 based 9x14mm SMD package.

Applications and Features

- Wide frequency range – 12.0MHz to 280.000MHz
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SONET/SDH
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Extremely Low Phase Noise and Jitter
- High shock resistance, to 1000g
- No Multiplication
- Absolute Pull Range (APR) to ± 100 ppm
- SONET ± 20 ppm overall free-run stability available
- RoHS Compliant, Lead Free Construction

Creating a Part Number			
SU - A 3DC X X X - FREQ			
<u>Package Code</u>		<u>Absolute Pull Range, ppm</u>	
SU 6 pad 9x14 mm SMD		E ± 20	
		F ± 32	
		G ± 50	
		H ± 100	
		9 Customer specific	
<u>Input Voltage</u>			
A 3.3V $\pm 5\%$			
<u>Enable Option</u>		<u>Temperature Range, °C</u>	
H Positive CMOS level		A 0 to 50	
N N/A		B 0 to 70	
		C -20 to 70	
		D -40 to 85	
		9 Customer specific	



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LVDS HF VCXO

Rev. B

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		12		280	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	0.1	0.2	ps
			100 Hz to 80 KHz, RMS		1.0	ps
			50 KHz to 80 Mhz	0.3		ps
	Wavecrest characterized	Random period,		2.5		ps
		Accumul., pk-to-pk		17		ps
		Deterministic		0		ps
Sub-Harmonics				None		dBc
Phase Noise	£(Δf)	155.52 MHz, APR 50ppm or less	@ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz	-75 -105 -128 -142 -147 -147	-70 -100 -125 -140 -145 -145	dBc/Hz
Frequency Stability	ΔF/F	Overall, including initial calibration, temperature, aging 10 years, shock and vibration @ Vc=Vcc/2; APR 50ppm, or less	±20	±30		ppm
Control Voltage Range	Vc		0V		Vcc	V
Setability	Vcs	Vc to set F at Fo; T, Vcc, load - nominal, as shipped	0.4 Vcc	0.5 Vcc	0.6 Vcc	V
Absolute Pull Range	APR	Over all conditions, see part # creation	20,32, 50,100			ppm
Input Impedance	Zin	@ Fmod < 100 KHz	50			KOhm
Modulation Bandwidth		At Vc = Vcc/2, -3dB	20			KHz
Enable/Disable 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

FREQUENCY
CONTROLS, INC.

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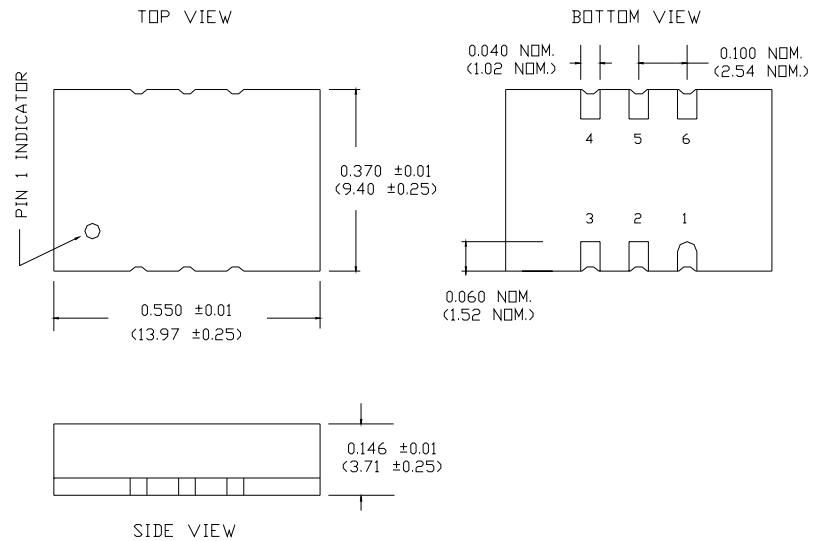
Rev. B

SU-A3DCXXX Series Continued

LVDS HF VCXO

Electrical Connection

Pin	Connection
1	V _{co}
2	Enable/Disable
3	Gnd
4	Output
5	Output Complement
6	V _{cc}

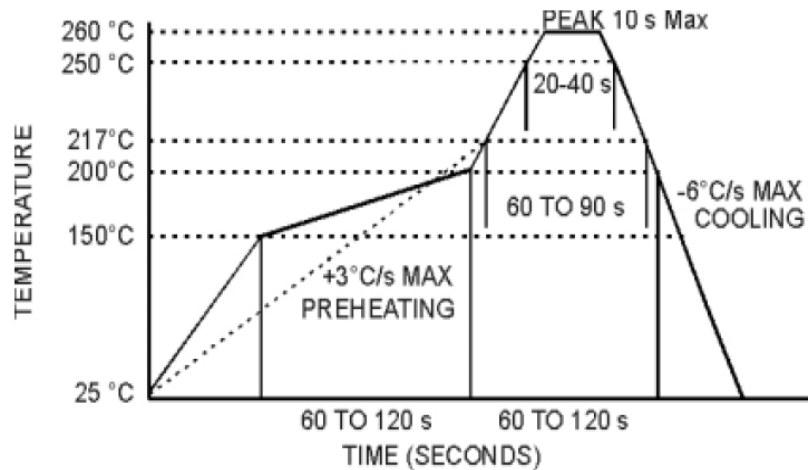


DIMENSIONS IN: INCHES
(mm)

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



NEL

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