VCXO Series (PECL)
SU-A369X Series

PATENT PENDING

Description

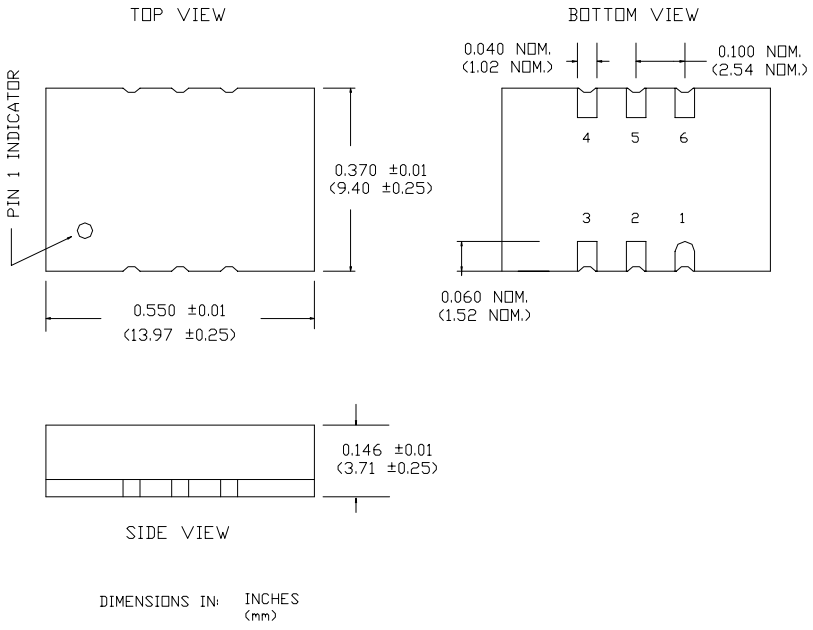
The **SU-A369X Series** of voltage controlled quartz crystal oscillators provide frequency control by applying a voltage to Pin 1. This unit supplies DPECL compatible outputs which are enabled when Pin 2 is set to a logic low or left open.

Features

- Frequency range–300.0MHz to 1.500GHz
- Wide Absolute Pull Range
- Will withstand SMD reflow temperatures of 183°C for 4 minutes maximum
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 1000g
- 3.3 volt operation
- Low Jitter - Wavecrest jitter characterization available
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- High Q Crystal actively tuned oscillator circuit
- Power supply decoupling internal
- No internal PLL avoids cascading PLL problems
- High frequencies due to proprietary design
- Gold plated pads

Electrical Connection

Pad	Connection
1	V_{CO}
2	Enable
3	V_{EE}
4	Output
5	Output Complement
6	V_{CC}



NEL FREQUENCY CONTROLS, INC.
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

SU-A369X Series Continued
VCXO (PECL)

Rev. F

Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	300.0MHz	-----	1.500GHz
Duty Cycle	-----	@ V_O /2	45/55%	-----	55/45%
Logic 0	V_{OL}	-----	Vcc-1.810Vdc	-----	Vcc-1.620Vdc
Logic 1	V_{OH}	-----	Vcc-1.200Vdc	-----	Vcc-0.880Vdc
Rise & Fall Time	tr,tf	20-80%V_O	-----	-----	600 ps
Jitter, RMS(1)	-----	-----	-----	3 psec	-----
Absolute Pull Range(3)	APR	V_{CO}=0.3 to 3.0V	-----	±100ppm	-----
Vco input impedance	-----	50na dc current max	100K ohm	-----	-----
Vco linearity	-----	V_{CO}=0.3 to 3.0V	-----	-----	10%
Transfer Function (2)	-----	V_{CO}=0.3 to 3.0V	-----	Positive	-----
Modulation Bandwidth	MBW	@ -3dB, 0<V_{CO}<3.3V	25kHz	-----	-----
Enable Voltage (4)	-----	with V_{EE}=0V	0V	-----	0.8V
Disable Voltage	-----	with V_{EE}=0V	2.0V	-----	V_{CC}

General Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Supply Voltage	V_{CC}-V_{EE}	3.3V±5%	3.135V	3.3V	3.465V
Supply Current	I_{CC}	-----	-----	-----	150 mA
Output current	I_O	-----	0.0 mA	-----	±50.0 mA
Operating temperature	T_A	------	0°C	-----	70°C
Storage temperature	T_S	-----	-55°C	-----	125°C
Power Dissipation	P_D	-----	-----	-----	520 mW
Lead temperature	T_L	Soldering, 10 sec.	-----	-----	300°C
Load	50 Ohm to V_{CC}-2V or Thevenin Equivalent, Bias Required				

Environmental and Mechanical Characteristics

Mechanical Shock	Per MIL-STD-202, Method 213, Condition E
Thermal Shock	Per MIL-STD-833, Method 1011, Condition A
Vibration	0.060" double amplitude 10 Hz to 55 Hz, 35g's 55Hz to 2000 Hz
Soldering Condition	300°C for 10 seconds
Hermetic Seal	Leak rate less than 1 x 10^{-8} atm.cc/sec of helium

Footnotes:
1) Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization. RMS jitter bandwidth of 12kHz to 20MHz.
2) Frequency increase with increase in control voltage and is monotonic.
3) Pullability is frequency dependant. Consult factory.
4) Open to Enable pin also enables the outputs

Creating a Part Number

SU - A369X - FREQ

Package Code
SU 6 Pad 9x14mm SMD

Tolerance/Performance
1 ±50ppm 0-70°C
9 Customer Specific
B ±50ppm -40 to +85°C

Input Voltage

Code	Specification
A	3.3V

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