

VCXO Series (PECL)
SU-A369X Series

PATENT PENDING

Description

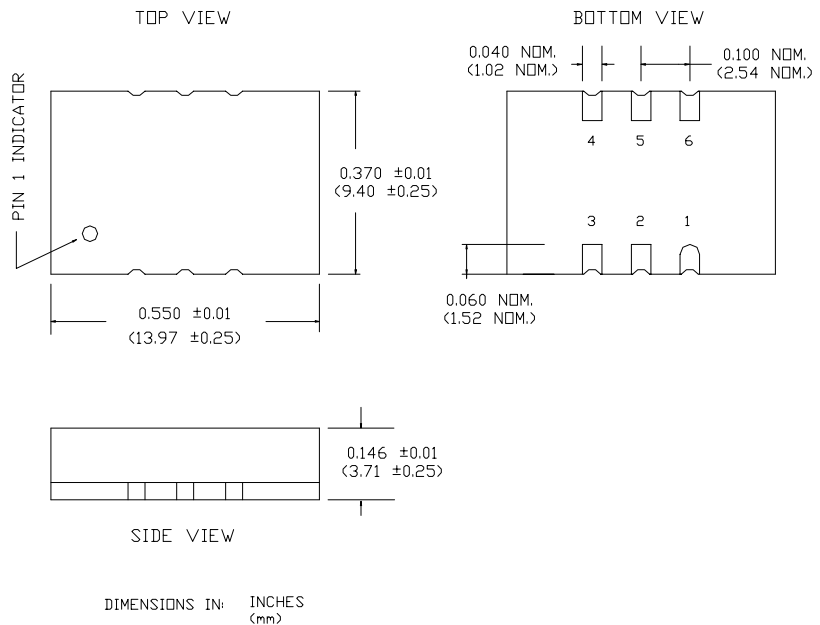
The **SU-A369X Series** of voltage controlled quartz crystal oscillators provide frequency control by applying a voltage to Pin 1. This unit supplies DPECL compatible outputs which are enabled when Pin 2 is set to a logic low or left open.

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} |



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} | ---- | $V_{CC}-1.810V_{dc}$ | ---- | $V_{CC}-1.620V_{dc}$ |
| Logic 1 | V_{OH} | ---- | $V_{CC}-1.200V_{dc}$ | ---- | $V_{CC}-0.880V_{dc}$ |
| 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 | ---- | $\pm 100ppm$ | ---- |
| 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 | $V_{CC}-V_{EE}$ | $3.3V \pm 5\%$ | 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 1×10^{-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 | Tolerance/Performance |
| SU 6 Pad 9x14mm SMD | 1 $\pm 50ppm$ 0-70°C |
| | 9 Customer Specific |
| | B $\pm 50ppm$ -40 to +85°C |
| Input Voltage | |
| Code | Specification |
| A | 3.3V |

