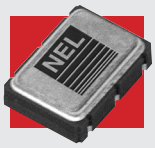
SH-A368X Series



Size, Low Profile, mm
5 x 7 x 1.45

I/O
6 pad

Supply Voltage
3.3V

VCXO Series (PECL)
SH-A368X Series *Rev B*

Frequency Range: 60.0 MHz to 200.0 MHz

Description

The SH-A368X 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–60.0MHz to 200.0MHz
- Wide Absolute Pull Range
- Will withstand SMD reflow temperatures of 253°C for 4 minutes maximum
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 1000g
- 3.3 volt operation
- Metal lid electrically connected to ground to reduce EMI
- 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
- RoHS Compliant, Lead Free Construction

Creating a Part Number

SH - A368X - FREQ

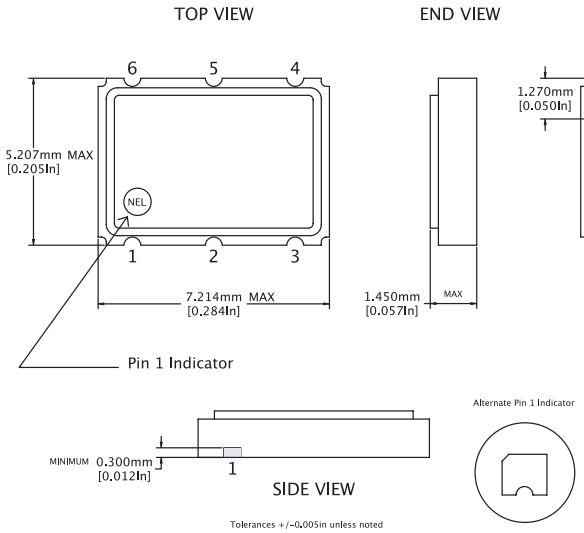
Package Code
SH 6 pad 5x7mm SMD

Input Voltage

Code	Specification
A	3.3 V

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

Drawing Specifications



Electrical Connections

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

Dimension shown in mm and (inches).

NEL FREQUENCY CONTROLS, INC.

For the most up to date specifications on each NEL product, log on to our website—www.nelfc.com

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

VCXO Series (PECL)
SH-A368X Series *Rev B*

Frequency Range: 60.0 MHz to 200.0 MHz

Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	—	—	60.0 MHz	—	200.0 MHz
Duty Cycle	—	@V_O /2	45/55%	—	55/45%
Logic 0	V_{OL}	—	V_{CC} -1.810 Vdc	—	V_{CC} -1.620 Vdc
Logic 1	V_{OH}	—	V_{CC} -1.200 Vdc	—	V_{CC} -0.880 Vdc
Rise & Fall Time	tr, tf	20-80% V_O	—	—	1.25 ns
Jitter, RMS(1)	—	—	—	3 psec	—
Absolute Pull Range(4)	APR	V_{CO} = 0.3 to 3.0V	—	±100ppm	—
V_{CO} Input Impedance	—	50na dc current max	100K ohm	—	—
V_{CO} Linearity	—	V_{CO} = 0.3 to 3.0V	—	—	10%
Transfer Function(2)	—	V_{CO} = 0.3 to 3.0V	—	Positive	—

General Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Supply Voltage	V_{CC}-V_{EE}	3.3V ±5%	3.135 V	3.3 V	3.465 V
Supply Current	I_{CC}	—	—	—	120 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	—	—	—	416 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 55 Hz 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) Logic levels are dependant on specified load of 50 ohms to Vcc-2 volts
4) Pullability is frequency dependant. Consult factory.