

## LVC MOS SH-B1480 Series

### Description

The **SH-B1480 Series** of quartz crystal oscillators provide enable/disable 3-state LVC MOS compatible signals for bus connected systems. Supplying Pin 1 of the SH-B1480 units with a logic "1" or open enables its Pin 4 output. In the disable mode, Pin 4 presents a high impedance to the load.

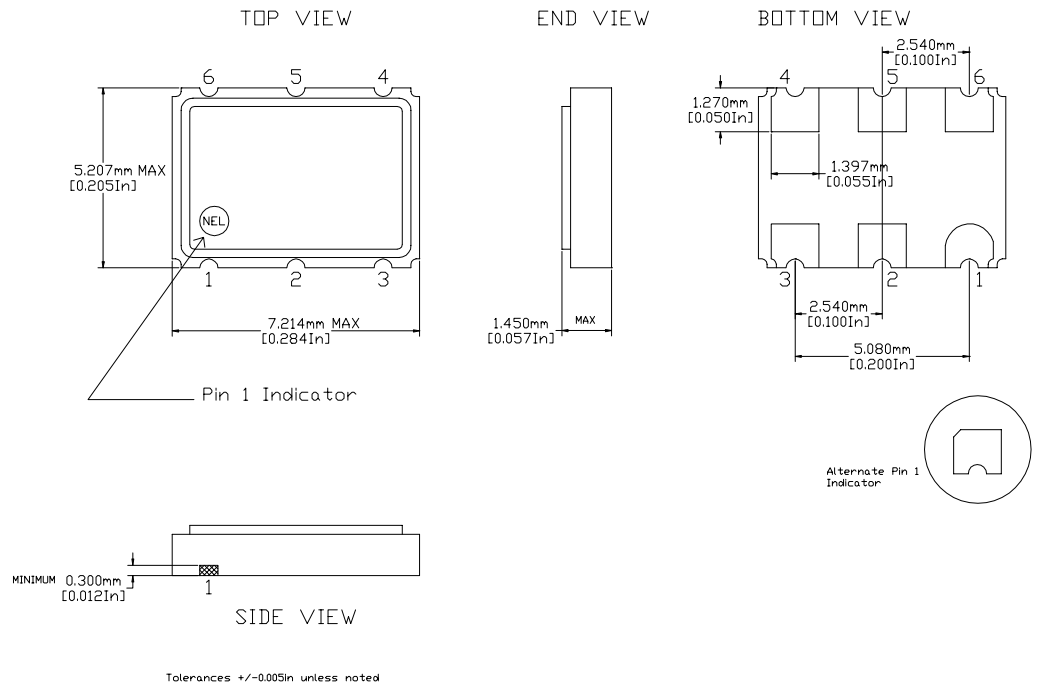
### Features

- Wide frequency range—150.0MHz to 280.0MHz (Contact factory for other frequencies)
- User specified tolerance available
- Will withstand SMD reflow temperatures of 253°C for 4 minutes maximum
- Space-saving alternative to discrete component oscillators
- 2.5 Volt operation
- High shock resistance, to 1000g
- 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
- Metal lid electrically connected to ground to reduce EMI
- Gold plated pads
- RoHS Compliant, Lead Free Construction

### Electrical Connection

Pin Connection

1	Enable/Disable
2	NC
3	Ground
4	Output
5	NC
6	V <sub>DD</sub>



SH-B1480 Series Continued  
LVCMOS

Rev. A

## Operating Conditions and Output Characteristics

### Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	----	----	150.0MHz	----	280.0MHz
Duty Cycle	----	@ $V_{DD}/2$	45/55%	----	55/45%
Logic 0	$V_{OL}$	@ 8.5mA	----	----	0.4V
Logic 1	$V_{OH}$	@ 8.5mA	$V_{DD}-0.4V$	----	----
Rise & Fall Time	tr,tf	10-90% $V_O$	----	1.2 ns	1.6 ns
Jitter, RMS <sup>(2)</sup>	----	Overtone	----	----	3 psec
$T_{pz}$	----	----	----	----	100 ns
Enable Voltage	----	----	1.6V	----	----
Disable Voltage	----	----	----	----	0.4V
Frequency Stability <sup>(1)</sup>	dF/F	Overall conditions including: voltage, calibration, temp., 10 yr aging, shock, vibration	-100ppm	----	+100ppm

### General Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Supply Voltage <sup>(3)</sup>	$V_{DD}$	2.5V±10%	2.25V	2.5V	2.75V
Supply Current	$I_{DD}$	No Load	0.0 mA	32 mA	40 mA
Output current	$I_O$	Low level Output Current	0.0 mA	----	±25.0 mA
Operating temperature	$T_A$	----	0°C	----	70°C
Storage temperature	$T_S$	----	-55°C	----	125°C
Power Dissipation	$P_D$	----	----	----	110 mW
Lead temperature	$T_L$	Soldering, 10 sec.	----	----	300°C
Load	----	----	----	----	15pf
Start-up Time	$t_s$	----	----	----	10 ms

### 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 $1 \times 10^{-8}$ atm.cc/sec of helium

### Footnotes:

- 1) Standard frequency stability (±20,±25,±50ppm & others available)
- 2) Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization. RMS jitter bandwidth of 12kHz to 20MHz.
- 3) Internal high frequency power source decoupling.

Creating a Part Number	
<b>SH - B148X - FREQ</b>	
<b>Package Code</b>	<b>Tolerance/Performance</b>
SH 6 pad 5x7mm SMD	0 ±100ppm 0-70°C
	1 ±50ppm 0-70°C
	7 ±25ppm 0-70°C
<b>Input Voltage</b>	9 Customer Specific
Code Specification	A ±20ppm 0-70°C
A 3.3V	B ±50ppm -40 to +85°C
B 2.5V	C ±100ppm -40 to +85°C
	5V

### Test Load:

