

### LVC MOS B6-X142X Series

#### Description

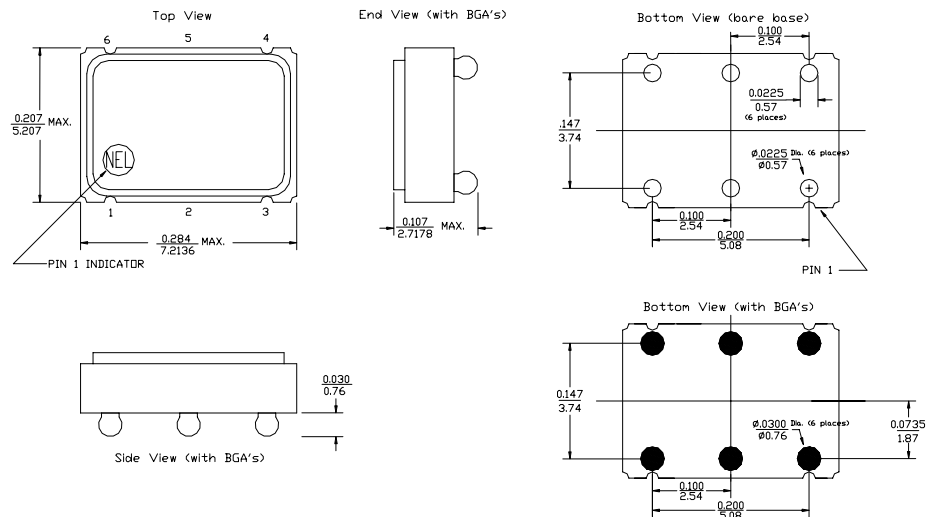
The **B6-X142X Series** of quartz crystal oscillators provide enable/disable 3-state LVC MOS compatible signals for bus connected systems. Supplying Pin 1 of the B6-X142X units with a logic "1" or open enables its Pin 4 output. In the disable mode, a high impedance is presented to the load.

#### Features

- Wide frequency range: 1.0MHz to 80.0MHz
- User specified tolerance available
- Space-saving alternative to discrete component oscillators
- 3.3 & 2.5Volt operation
- High shock resistance, to 1000g
- Power supply decoupling internal
- COTS/Dual use
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low Jitter - Wavecrest jitter characterization available
- No internal PLL avoids cascading PLL problems
- Metal lid electrically connected to ground to reduce EMI
- Ball Grid Array Material: 63Sn/37Pb 0.030"

#### Electrical Connection

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



\*\*\* PRELIMINARY DRAWING \*\*\*

ALL DIMENSIONS:  $\frac{IN}{PIN}$   
 OUTER PACKAGE TOLERANCES ARE  $\pm 0.010$  IN ( $\pm 0.254$  MM)  
 PACKAGE PAD LOCATION AND DIAMETER TOLERANCES ARE  $\pm 0.002$  IN ( $\pm 0.05$  MM)

**B6-X142X Series** Continued  
LVCMOS

Rev. D

## Operating Conditions and Output Characteristics (5)

### Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	1.0MHz	-----	80.0MHz
Duty Cycle	-----	@ $V_{DD}/2$	45/55%	-----	55/45%
Logic 0	$V_{OL}$	@ 600 $\mu$ A	-----	-----	0.2V
Logic 1	$V_{OH}$	@ 600 $\mu$ A	$V_{DD}-0.2V$	-----	-----
Rise & Fall Time	tr,tf	10-90% $V_O$	-----	-----	8.0 ns
Jitter, Integrated	J	Integrated from phase noise, 12kHz to 20MHz, RMS	-----	0.1ps	-----
Jitter, Wavecrest Characterized <sup>(2)</sup>	-----	Random Period Accum, pk-to-pk	-----	2.3ps 26ps	-----
Phase Noise <sup>(4)</sup>	$f(\Delta f)$	@ 10Hz @ 100Hz @ 1kHz @ 10kHz @ 100kHz @ >1Mhz	-----	-70 dBc/Hz -105 dBc/Hz -130 dBc/Hz -145 dBc/Hz -150 dBc/Hz -150 dBc/Hz	-----
$T_{pz}$	-----	-----	-----	-----	25 ns
Enable Voltage	-----	-----	1.6V	-----	-----
Disable Voltage	-----	-----	-----	-----	0.4V
Frequency Stability <sup>(1)</sup>	dF/F	Overall conditions including: voltage, calibration, temp.. 10 year aging, shock, vibration	-100ppm	-----	+100ppm

### General Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Supply Voltage <sup>(3)</sup>	$V_{DD}$	3.3V $\pm$ 10% 2.5V $\pm$ 10%	2.97V 2.25V	3.3V 2.5V	3.63V 2.75V
Supply Current	$I_{DD}$	No Load	0.0 mA	25 mA	40 mA
Output current	$I_O$	Low level Output Current	0.0 mA	-----	$\pm$ 16.0 mA
Operating temperature	$T_A$	-----	0°C	-----	70°C
Storage temperature	$T_S$	-----	-55°C	-----	125°C
Power Dissipation	$P_D$	3.3V 2.5V	-----	-----	145 mW 110 mW
Load	-----	-----	-----	-----	15pf
Start-up Time	$t_s$	20MHz or greater Less than 20MHz	-----	-----	10 ms 2 ms

### Environmental and Mechanical Characteristics

Mechanical Shock	Per MIL-STD-202, Method 213, Condition E
Thermal Shock	Per MIL-STD-883, Method 1011, Condition A
Vibration	0.060" double amplitude 10 Hz to 55 Hz, 35g's 55Hz to 2000 Hz
Hermetic Seal	Leak rate less than $1 \times 10^{-8}$ atm.cc/sec

#### Footnotes:

- Standard frequency stability ( $\pm$ 20, $\pm$ 25, $\pm$ 50ppm & others available)
- Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization.
- Internal high frequency power supply decoupling
- If phase noise data at a particular frequency is needed, contact factory.
- All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°, Nominal Vcc & Nominal Load.

Creating a Part Number	
<b>B6 - X142X - FREQ</b>	
<b>Package Code</b>	<b>Tolerance/Performance</b>
B6 6 Solder Joint 5x7mm SMD 0.030" BGA	0 $\pm$ 100ppm 0-70°C 1 $\pm$ 50ppm 0-70°C 7 $\pm$ 25ppm 0-70°C 9 Customer Specific A $\pm$ 20ppm 0-70°C B $\pm$ 50ppm -40 to +85°C C $\pm$ 100ppm -40 to +85°C
<b>Input Voltage</b>	
Code Specification	
A 3.3V	
B 2.5V	

B6-X142X Series Continued

# Recommended Reflow Profile

