

LVDS B6-X2D0X Series

Description

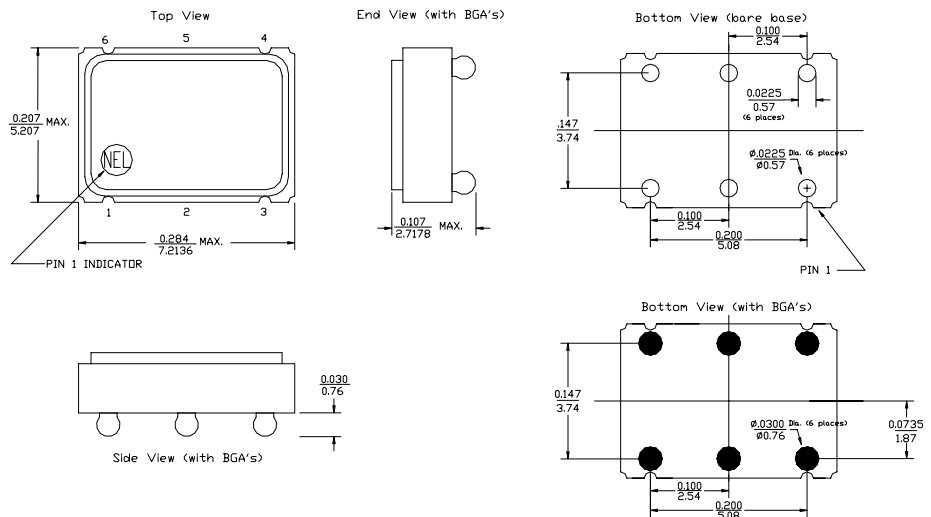
The **B6-X2D0X Series** of quartz crystal oscillators provide LVDS compatible signals in a ceramic SMD package. Systems designers may now specify space-saving, cost-effective packaged LVDS oscillators to meet their timing requirements.

Features

- Wide frequency range: 80.0MHz to 312.5MHz
- User specified tolerance ± 50 ppm
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 1000g
- 3.3 & 2.5 Volt operation
- Metal lid electrically connected to ground to reduce EMI
- Enable/Disable
- COTS/Dual use
- LVDS output on pin 4, complement on Pin 5
- Low Jitter - Wavecrest jitter characterization available
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Power supply decoupling internal
- No internal PLL avoids cascading PLL problems
- High frequencies due to proprietary design
- Ball Grid Array Material: 63Sn/37Pb 0.030"

Electrical Connection

Pin	Connection
1	Enable/Disable
2	Ground
3	Ground
4	Output
5	Output Complement
6	V _{CC}



*** PRELIMINARY DRAWING ***

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

B6-X2D0X Series Continued
LVDS

Rev. D

Operating Conditions and Output Characteristics (7)

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	----	----	80.0MHz	----	312.5MHz
Duty Cycle ⁽²⁾	----	@ V _O /2	45/55%	----	55/45%
Differential Output Voltage ⁽²⁾	V _{OD}	----	247mV	330mV	454mV
Differential Output Error ⁽²⁾	ΔV _{OD}	----	----	----	50mV
Offset Voltage ⁽²⁾	V _{OS}	----	1.125V	1.25V	1.375V
Offset Error ⁽²⁾	ΔV _{OS}	----	----	----	50mV
Disable Voltage	----	V _{EE} =0V	----	----	0.8V
Enable Voltage ⁽⁵⁾	----	V _{EE} =0V	2.0V	----	----
Rise & Fall Time ⁽²⁾	tr,tf	20-80%V _O	----	0.8 ns	1.0 ns
Tpd ⁽⁴⁾	----	----	-0.5 ns	----	+0.5 ns
Jitter, Integrated	J	Integrated from phase noise, 12kHz to 20MHz, RMS	----	0.1 ps	----
Jitter, Wavecrest Characterized ⁽³⁾	----	Random Period Accum, pk-to-pk	----	2.3ps 28ps	----
Phase Noise ⁽⁶⁾	£(Δf)	200MHz @ 10Hz @ 100Hz @ 1kHz @ 10kHz @ 100kHz @ >1MHz	----	-65 dBc/Hz -100 dBc/Hz -130 dBc/Hz -143 dBc/Hz -143 dBc/Hz -145 dBc/Hz	----
Frequency Stability ⁽¹⁾	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	V _{CC}	3.3V±5% 2.5V±5%	3.135V 2.375V	3.3V 2.5V	3.465V 2.625V
Supply Current	I _{CC}	----	0.0 mA	----	80 mA
Output current	I _O	Continuous Output Current	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	3.3V 2.5V	----	----	277 mW 210 mW
Load	100 ohms across differential outputs				
Start-up time	t _S	----	----	2 ms	10 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 x 10 ⁻⁸ atm.cc/sec of helium

Footnotes:

- Standard frequency stability (±20,±25,±50ppm & others available)
- With Load of 100 ohms across differential outputs.
- Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization.
- Tpd is phase shift between the falling edge of pin 4 and the rising edge of pin 5.
- Open to enable pin also enables the output
- 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 &

Creating a Part Number

B6 - X2D0X - FREQ

Package Code	Input Voltage	Tolerance/Performance
B6 6 Solder Joint 5x7 SMD 0.030" BGA	Code Specification	0 ±100ppm 0-70°C 1 ±50ppm 0-70°C 7 ±25ppm 0-70°C 9 Customer Specific
	A 3.3V B 2.5V	A ±20ppm 0-70°C B ±50ppm -40 to +85°C C ±100ppm -40 to +85°C

B6-X2D0X Series Continued

Recommended Reflow Profile

