

## LVDS SD-B2D00 Series

Rev. J

### Description

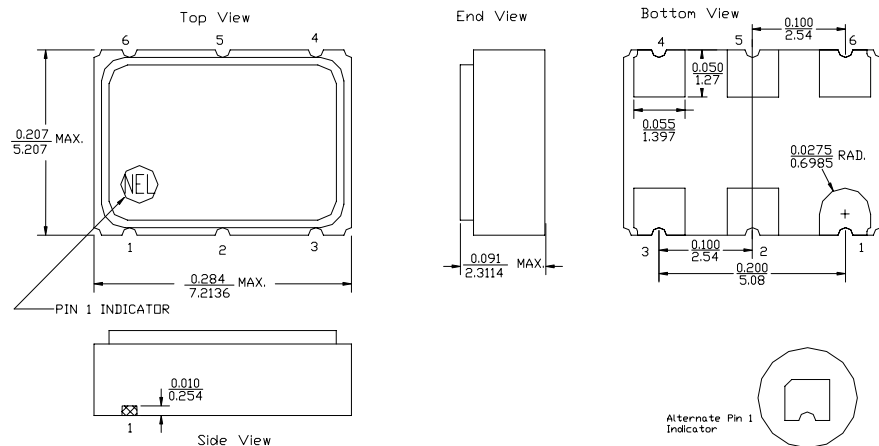
The **SD-B2D00 Series** of quartz crystal oscillators provide LVDS compatible signals in a ceramic SMD package. Systems designers may now specify space-saving, cost-effective packaged LVDS oscillators to meet their timing requirements.

### Features

- Wide frequency range—80.0MHz to 312.5MHz
- User specified tolerance available
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 1000g
- 2.5 volt operation (other voltages available upon request)
- Metal lid electrically connected to ground to reduce EMI
- Enable/Disable
- 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
- Overtone technology
- 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

### Electrical Connection

Pin	Connection
1	Enable/Disable
2	N.C.
3	Ground
4	Output
5	Output Complement
6	V <sub>CC</sub>



ALL DIMENSIONS:  $\frac{IN}{mm}$   
All tolerances are  $\pm 0.005$  inches ( $\pm 0.127$  mm) unless otherwise specified.

**SD-B2D00 Series** Continued  
LVDS

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## Operating Conditions and Output Characteristics

### Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	80.0MHz	-----	312.5MHz
Duty Cycle <sup>(2)</sup>	-----	@ V <sub>O</sub> /2	45/55%	-----	55/45%
Logic 0 <sup>(2)</sup>	V <sub>OL</sub>	-----	0.80V	-----	1.10V
Logic 1 <sup>(2)</sup>	V <sub>OH</sub>	-----	1.25V	-----	1.55V
Differential Voltage <sup>(2)</sup>	V <sub>OD</sub>	-----	250 mV	-----	450 mV
Disable Voltage	-----	V <sub>EE</sub> =0V	-----	-----	0.8V
Enable Voltage <sup>(5)</sup>	-----	V <sub>EE</sub> =0V	2.0V	-----	-----
Rise & Fall Time <sup>(2)</sup>	tr,tf	20-80%V <sub>O</sub>	-----	0.8 ns	1.0 ns
Tpd <sup>(4)</sup>	-----	-----	-0.5 ns	-----	+0.5 ns
Jitter, RMS <sup>(3)</sup>	-----	-----	-----	-----	3 psec
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	V <sub>CC</sub>	-----	2.375V	2.5V	2.625V
Supply Current	I <sub>CC</sub>	-----	0.0 mA	-----	80 mA
Output current	I <sub>O</sub>	Continuous Output Current	0.0 mA	-----	±50.0 mA
Operating temperature	T <sub>A</sub>	-----	0°C	-----	70°C
Storage temperature	T <sub>S</sub>	-----	-55°C	-----	125°C
Power Dissipation	P <sub>D</sub>	-----	-----	-----	210 mW
Solder temperature	T <sub>L</sub>	4 minutes	-----	-----	253°C
Load	100 ohms across differential outputs		-----	-----	-----
Start-up time	t <sub>s</sub>	-----	-----	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 <sup>-8</sup> 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.  
RMS jitter bandwidth of 12kHz to 20Mhz.
- 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

Creating a Part Number	
<b>SD - B2D0X - FREQ</b>	
<b>Package Code</b>	<b>Tolerance/Performance</b>
SD 6 Pad 5x7 SMD	0 ±100ppm 0-70°C
	1 ±50ppm 0-70°C
	7 ±25ppm 0-70°C
	9 Customer Specific
<b>Input Voltage</b>	A ±20ppm 0-70°C
Code Specification	B ±50ppm -40 to +85°C
A 3.3V	C ±100ppm -40 to +85°C
B 2.5V	
5V	



**FREQUENCY  
CONTROLS, INC.**