

LVDS SD-X2D00 Series

Description

The **SD-X2D00 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.

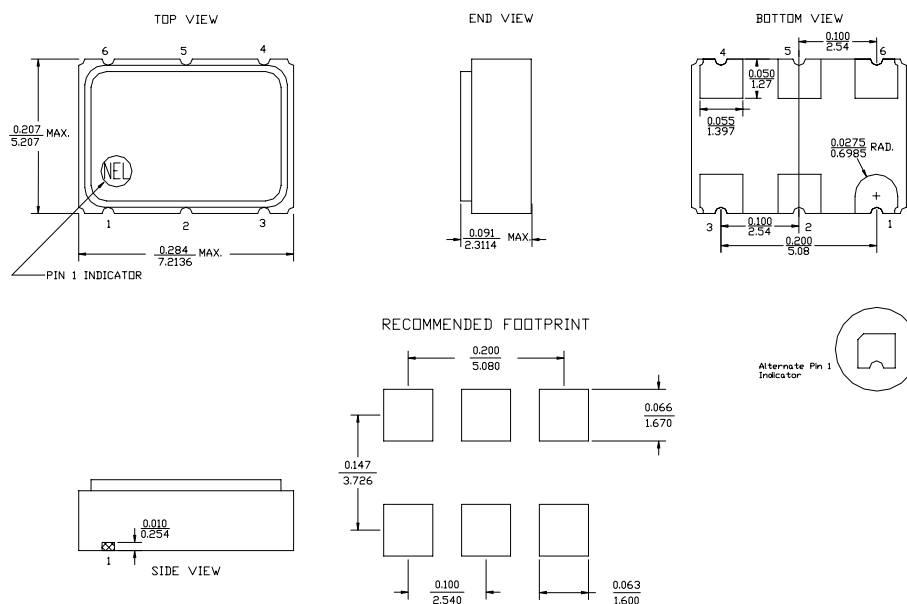
Features

- Wide frequency range—80.0MHz to 312.5MHz
- User specified tolerance available
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 1000g
- Metal lid electrically connected to ground to reduce EMI
- Enable/Disable
- LVDS output on pin 4, complement on Pin 5
- COTS/Dual use
- 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

NPin Connection

- | | |
|---|-------------------|
| 1 | Enable/Disable. |
| 2 | N.C |
| 3 | Ground |
| 4 | Output |
| 5 | Output Complement |
| 6 | V _{CC} |



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

SD-X2D00 Series Continued

Rev. W

LVDS

Operating Conditions and Output CharacteristicsElectrical Characteristics

Parameter ⁽⁷⁾	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	-----	-----	0.3V _{CC}
Enable Voltage ⁽⁵⁾	-----	V _{EE} =0V	0.7V _{CC}	-----	-----
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}	Code A:3.3V±5% Code B: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:

- 1) Standard frequency stability (±20,±25,±50ppm & others available)
- 2) With Load of 100 ohms across differential outputs.
- 3) Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization.
- 4) Tpd is phase shift between the falling edge of pin 4 and the rising edge of pin 5.
- 5) Open to enable pin also enables the output.
- 6) If phase noise data at a particular frequency is needed, contact factory.
- 7) All parameters are specified for normal conditions (25°C, V_{cc}, Load, etc.), unless specified otherwise.

Creating a Part Number

SD - X2D0X - FREQ

Package Code

SD 6 Pad 5x7 SMD

Tolerance/Performance

0 ±100ppm 0-70°C
 1 ±50ppm 0-70°C
 7 ±25ppm 0-70°C
 9 Customer Specific
 A ±20ppm 0-70°C
 B ±50ppm -40 to +85°C
 C ±100ppm -40 to +85°C

Input Voltage

Code	Specification
A	3.3V
B	2.5V


**FREQUENCY
CONTROLS, INC.**

SD-X2D00 Series Continued

Max Reflow Profile

