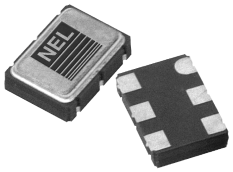
CRYSTAL CLOCK OSCILLATORS

Data Sheet 0208D

Rev. B



HSTL
SD-A2C00 Series

PRELIMINARY

Description

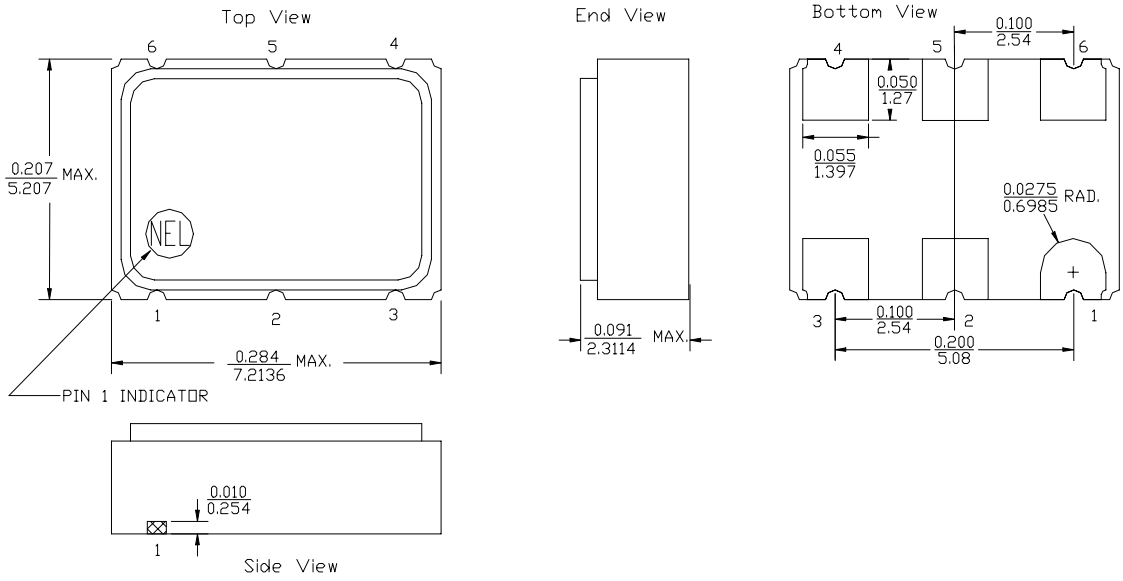
The **SD-A2C00 Series** of quartz crystal oscillators provide HSTL compatible signals. Systems designers may now specify space-saving, cost-effective packaged HSTL oscillators to meet their timing requirements.

Features

- Wide frequency range–50.0MHz to 250.0MHz
- User specified tolerance available
- Will withstand vapor phase temperatures of 253°C for 4 minutes maximum
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 1000g
- 3.3 volt operation
- Metal lid electrically connected to ground to reduce EMI
- Fast rise and fall times <800 ps
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low Jitter - Wavecrest jitter characterization available
- 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

Electrical Connection

Pin	Connection
1	V_{CC}
2	Enable/Disable
3	V_{EE}
4	Output
5	Output Complement
6	V_{CCO}



NEL FREQUENCY CONTROLS, INC.

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SD-A2C00 Series Continued
HSTL

Rev. B

Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	50.0MHz	-----	250.0MHz
Duty Cycle (2)	-----	@ V_O /2	45/55%	-----	55/45%
Logic 0 (2)	V_{OL}	-----	0.0V	-----	0.4V
Logic 1 (2)	V_{OH}	-----	1.0V	-----	1.2V
Rise & Fall Time (2)	tr,tf	20-80%V_O	-----	-----	800 psec
T_{pd} (4)	-----	-----	-200 psec	-----	+200 psec
Jitter, RMS(3)	-----	-----	-----	-----	3 psec
Enable (Low) voltage	-----	-----	-----	-----	800mV
Disable (High) voltage	-----	-----	2.00V	-----	-----
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}	-----	3.15V	3.3V	3.45V
Output Supply Current	V_{CCO}	-----	1.6V	-----	2.00V
Supply Current	I_{CC}	Ground Current	0.0 mA	-----	100 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	-----	-----	-----	345 mW
Lead temperature	T_L	Soldering, 10 sec.	-----	-----	300°C
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-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 x 10^{-8} atm.cc/sec of helium

Footnotes:
1) Standard frequency stability (±20,±25,±50ppm & others available)
2) Test Load per HSTL Class I of EIA/JEDEC Standard EIA/JESD8-6.
3) Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization.
4) Tpd is phse shift between the falling edge of pin 4 and the rising edge of pin 5.
5) Open to enable pin also enables the output.

Creating a Part Number

SD - A2C0X - FREQ

Package Code
SD 6 pad 5x7mm SMD

Input Voltage

Code	Specification
A	3.3V
	5V

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

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