

### Differential Positive ECL (DPECL) Fast Edge SD-A2920 Series

### Description

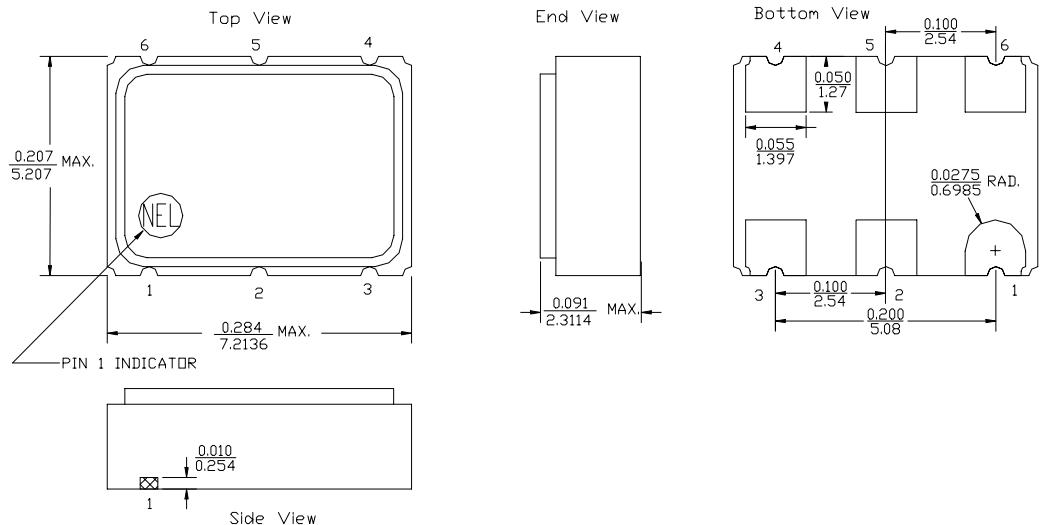
The **SD-A2920 Series** of quartz crystal oscillators provide DPECL Fast Edge compatible signals. Systems designers may now specify space-saving, cost-effective packaged PECL oscillators to meet their timing requirements.

### Features

- Wide frequency range—75.0MHz to 250.0MHz (Preliminary from 180+MHz to 250MHz)
- 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 <600 ps
- 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

### Electrical Connection

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



**SD-A2920 Series** Continued  
Differential Positive ECL (DPECL) Fast Edge

**Rev. F**

## Operating Conditions and Output Characteristics

### Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	75.0MHz	-----	250.0MHz
Duty Cycle	-----	@ $V_{CC}$ -1.29V	45/55%	-----	55/45%
Logic 0 <sup>(2)</sup>	$V_{OL}$	-----	1.35V	-----	1.70V
Logic 1 <sup>(2)</sup>	$V_{OH}$	-----	2.28V	-----	2.56V
Rise & Fall Time	$t_{r,f}$	20-80% $V_O$ with 50 ohm load to $V_{CC}$ -2V	-----	-----	600 psec
$T_{pd}$ <sup>(4)</sup>	-----	-----	-200 psec	-----	+200 psec
Jitter, RMS <sup>(3)</sup>	-----	-----	-----	-----	3 psec
Enable Voltage <sup>(5)</sup>	-----	with $V_{EE} = 0V$	2.0V	-----	-----
Disable Voltage	-----	with $V_{EE} = 0V$	-----	-----	0.8V
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	$V_{CC}$	-----	3.15V	3.3V	3.45V
Supply Current	$I_{CC}$	50 ohm termination To 2.00V below $V_{CC}$	0.0 mA	-----	80 mA
Output current	$I_O$	Low level 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	$P_D$	-----	-----	-----	276 mW
Lead temperature	$T_L$	Soldering, 10 sec.	-----	-----	300°C
Load	-----	50 Ohm to $V_{CC}$ -2V or Thevenin Equivalent, Bias Required	-----	-----	-----
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 $1 \times 10^{-8}$ atm.cc/sec of helium

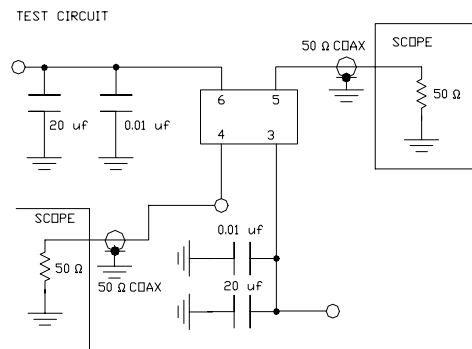
#### Footnotes:

- 1) Standard frequency stability ( $\pm 20, \pm 25, \pm 50$ ppm & others available)
- 2)  $V_{OL}, V_{OH}$ , referenced to ground ( $V_{EE}$ ) with  $V_{CC} = 3.3V$
- 3) Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization.
- 4)  $T_{pd}$  is phase shift between the falling edge of pin 4 at 2.0V and the rising edge of pin 5 at 2.01V.
- 5) Open to enable pin also enables the output.

**Creating a Part Number**

**SD - A292X - FREQ**

<p><b>Package Code</b></p> <p>SD 6 pad 5x7mm SMD</p> <p><b>Input Voltage</b></p> <table border="0"> <tr> <td>Code</td> <td>Specification</td> </tr> <tr> <td>A</td> <td>3.3V</td> </tr> <tr> <td></td> <td>5V</td> </tr> </table>	Code	Specification	A	3.3V		5V	<p><b>Tolerance/Performance</b></p> <p>0 ±100ppm 0-70°C</p> <p>1 ±50ppm 0-70°C</p> <p>7 ±25ppm 0-70°C</p> <p>9 Customer Specific</p> <p>A ±20ppm 0-70°C</p> <p>B ±50ppm -40 to +85°C</p> <p>C ±100ppm -40 to +85°C</p>
Code	Specification						
A	3.3V						
	5V						



TEST CIRCUIT USES A SPLIT SUPPLY OF +2V AND -1.3V FOR EASE OF TESTING.