

Differential Positive ECL (DPECL) Fast Edge SD-B2920 Series

PRELIMINARY

Description

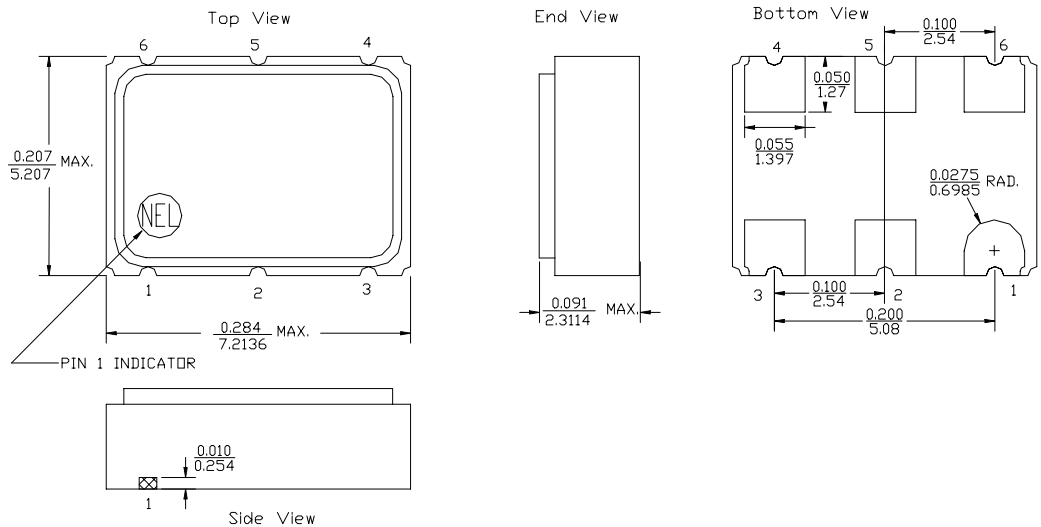
The **SD-B2920 Series** of quartz crystal oscillators provide DPECL Fast Edge compatible signals. Systems designers may now specify space-saving, cost-effective packaged PECL oscillators to meet their timing requirements.

Features

- Wide frequency range– 100.0 to 125.0MHz (Consult factory for complete frequency range)
- 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
- Metal lid electrically connected to ground to reduce EMI
- 2.5 volt operation
- 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 _{EE} /Ground
4	Output
5	/Output
6	V _{CC}



SD-B2920 Series Continued
Differential Positive ECL (DPECL) Fast Edge

Rev. F

Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency ⁽⁶⁾	-----	-----	100.000MHz	-----	125.0MHz
Duty Cycle	-----	@ V _{CC} -1.29V	45/55%	-----	55/45%
Logic 0 ⁽²⁾	V _{OL}	-----	V _{CC} -1.95V	-----	V _{CC} -1.60V
Logic 1 ⁽²⁾	V _{OH}	-----	V _{CC} -1.02V	-----	V _{CC} -0.74V
Rise & Fall Time	tr,tf	20-80%V _O with 50 ohm load to V _{CC} -2V	-----	-----	600 psec
T _{pd} ⁽⁴⁾	-----	-----	-200 psec	-----	+200 psec
Jitter, RMS ⁽³⁾	-----	-----	-----	-----	3 psec
Enable Voltage ⁽⁵⁾	-----	with V _{EE} = 0V	V _{CC} -0.4V	-----	-----
Disable Voltage	-----	with V _{EE} = 0V	-----	-----	0.4V
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}	-----	2.375V	2.5V	2.625V
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	-----	-----	-----	210 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 x 10 ⁻⁸ atm.cc/sec of helium

Footnotes:

- 1) Standard frequency stability (±20,±25,±50ppm & others available)
- 2) V_{OL}, V_{OH}, referenced to ground (V_{EE}) with V_{CC} = 2.5V
- 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.
- 6) Consult factory for complete frequency range.

Creating a Part Number

SD - B292X - FREQ

<p>Package Code</p> <p>SD 6 pad 5x7mm SMD</p>	<p>Tolerance/Performance</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>
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<p>Input Voltage</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 30%;">Code</td> <td>Specification</td> </tr> <tr> <td>A</td> <td>3.3V</td> </tr> <tr> <td>B</td> <td>2.5V</td> </tr> <tr> <td></td> <td>5V</td> </tr> </table>	Code	Specification	A	3.3V	B	2.5V		5V	
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