

### Differential Positive ECL (DPECL) SR-A29B0 Series

#### Description

The **SR-A29B0 Series** of quartz crystal oscillators provide DPECL Fast Edge compatible signals. This device is to operate using positive voltage and uses multiple ground pins for improved signal integrity. This device is intended to operate on positive voltage for PECL applications.

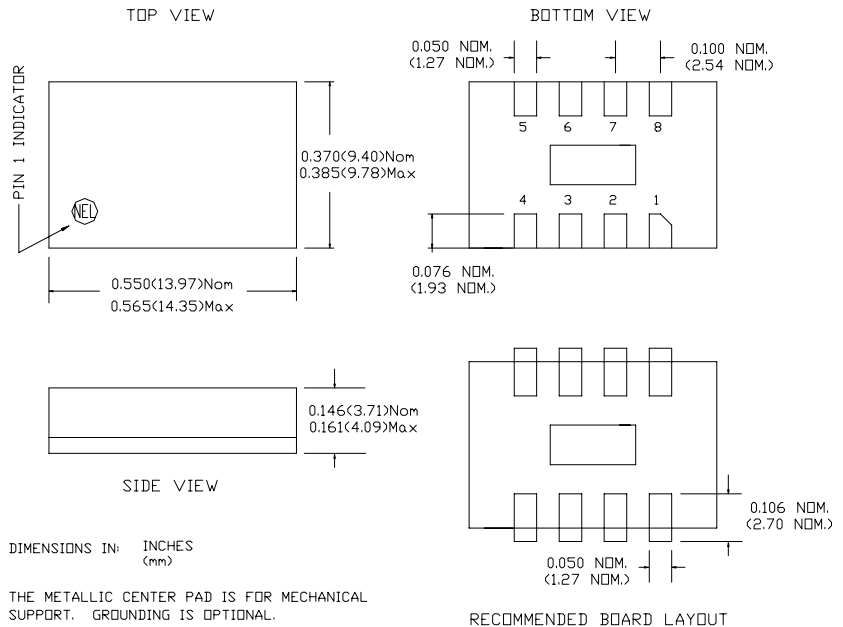
#### Features

- Wide frequency range - 250.0MHz to 1.7GHz
- Low noise analog multiplication
- High frequency output eliminates the need for PLL multiplication
- Stabilities over temperatures as low as  $\pm 20$ ppm eliminates SAW oscillator temperature problems
- 3.3V and 2.5V version available
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- User specified tolerance available
- Cover connected to ground
- High shock resistance, to 1000g
- COTS/Dual use

#### Electrical Connection

Pin Connection

- |   |                 |
|---|-----------------|
| 1 | V <sub>CC</sub> |
| 2 | Ground          |
| 3 | NC or Ground    |
| 4 | Q Output        |
| 5 | /Q Output       |
| 6 | Ground          |
| 7 | Ground          |
| 8 | Enable          |



NEL recommends connecting the large pad located between the general signal pads to ground for heat transfer and improved RF grounding.

## SR-A29B0 Series Continued Differential Positive ECL (DPECL)

Rev. M

### Operating Conditions and Output Characteristics

#### Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	250.0MHz	-----	1.7GHz
Sub-Harmonic	-----	-----	-----	-45dBc	-40dBc
Harmonic	-----	-----	-----	-----	-10dBc
Duty Cycle	-----	@ 50% points	45/55%	-----	55/45%
Logic 0 <sup>(1)</sup>	V <sub>OL</sub>	-----	V <sub>CC</sub> -1.810V	-----	V <sub>CC</sub> -1.620V
Logic 1 <sup>(1)</sup>	V <sub>OH</sub>	-----	V <sub>CC</sub> -1.025V	-----	V <sub>CC</sub> -0.880V
Rise & Fall Time	tr,tf	20-80%V <sub>O</sub> with 50 ohm load to V <sub>CC</sub> -2V	-----	350 psec	600 psec
Jitter RMS <sup>(5)</sup>	-----	-----	-----	0.3 psec	0.5 psec
Jitter Deterministic	-----	-----	-----	6 psec	12 psec
Enable Voltage <sup>(2)</sup>	----	with V <sub>EE</sub> =0V	0V	-----	1.0V
Disable Voltage	----	with V <sub>EE</sub> =0V	3.0V	-----	V <sub>CC</sub>
Frequency Stability <sup>(3)</sup>	dF/F	Overall conditions including: voltage, calibration, temp., 10 yr aging, shock, vibration	-100ppm	-----	+100ppm
Phase Noise <sup>(4)</sup>	-----	@ 100Hz	-----	-----	-80 dBc/Hz
	-----	@ 1kHz	-----	-----	-115 dBc/Hz
	-----	@ 10kHz	-----	-----	-130 dBc/Hz
	-----	@ 100kHz	-----	-----	-130 dBc/Hz
	-----	@ 1MHz	-----	-----	-135 dBc/Hz
	-----	@ 10MHz	-----	-----	-135 dBc/Hz

#### General Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Supply Voltage	V <sub>CC</sub>	3.3V±5%	3.135V	3.3V	3.465V
Supply Current	I <sub>CC</sub>	50 ohm termination To 2.00V below V <sub>CC</sub>	0.0 mA	-----	120 mA
Output current	I <sub>O</sub>	Low level 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
Input: Logic High (ECL) - Disables V <sub>EE</sub> or Open - Enables					
Load		50 Ohm to V <sub>CC</sub> -2V or Thevenin Equivalent, Bias Required			
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

#### Footnotes:

- 1) V<sub>OL</sub>, V<sub>OH</sub>, referenced to ground
- 2) Open to Enable pin also enables the output.
- 3) Standard frequency stability (others available)
- 4) Phase Noise characterization available. Phase Noise is frequency dependant, phase noise specification references a 1.0GHz part.
- 5) Jitter performance is frequency dependant. Please contact factor for full Aeroflex characterization. RMS bandwidth of 12kHz to 20MHz.

Creating a Part Number	
<b>SR - A29BX - FREQ</b>	
<b>Package Code</b>	<b>Tolerance/Performance</b>
SR 8 pad 9x14mm 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	

SR-A29B0 Series Continued

Max Reflow Profile



The device may be reflowed once. Reflowing upside down is not allowed. NO CLEAN assembly is recommended.