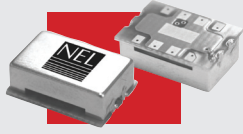


# SR-A29B0 Series



## Size, mm

9 x 14

## I/O

8 pad

## Supply Voltage

3.3V / 2.5V

- Patent Pending, harmonic multiplication for extremely low jitter
- High frequency output eliminates the need for PLL multiplication
- Stabilities over temperatures as low as  $\pm 20$ ppm eliminates SAW oscillator temperature problems

# Differential Positive ECL (DPECL)

## SR-A29B0 Series *Rev G*

Frequency Range: 250.0 MHz-1.7 GHz

## 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
- User specified tolerance available
- Will withstand SMD reflow temperatures of 183°C for 4 minutes maximum
- High shock resistance, to 1000g
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Cover connected to ground
- 3.3V and 2.5V versions available

## Creating a Part Number

### SR - A29BX - FREQ

#### Package Code

SR 8 pad 9x14 mm SMD

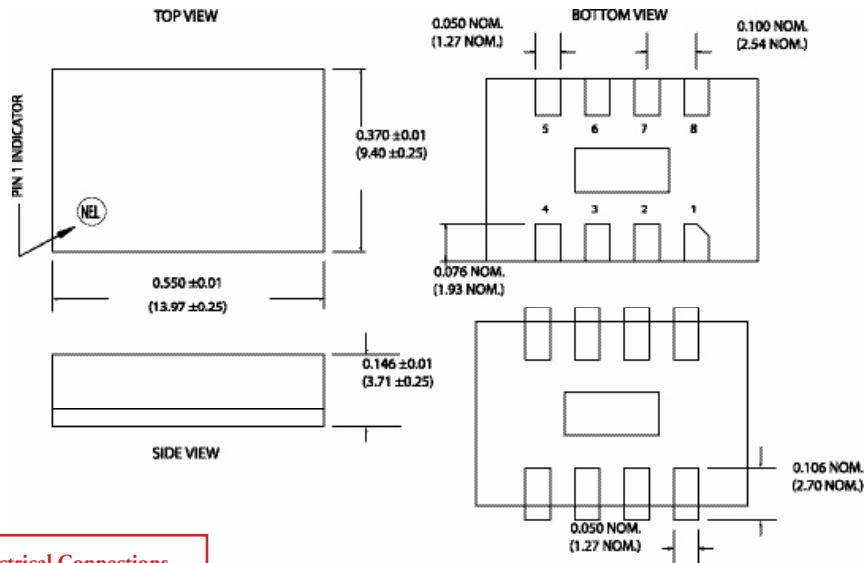
#### Input Voltage

Code	Specification
A	3.3 V
B	2.5 V

#### Tolerance/Performance

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

## Drawing Specifications



### Electrical Connections

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

Recommended Board Layout  
Dimensions shown in inches (mm).

*The metallic center pad was designed for mechanical support. Grounding of this pad is optional. It measures 0.088 x 0.190 NOM (2.24 x 4.83 NOM).*



For the most up to date specifications on each NEL product, log on to our website—[www.nelfc.com](http://www.nelfc.com)

# Differential Positive ECL (DPECL)

## SR-A29B0 Series *Rev G*

Frequency Range: 250.0 MHz-1.7 GHz

### Operating Conditions and Output Characteristics

#### Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	—	—	250.0MHz	—	1.7GHz
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	t <sub>r</sub> , t <sub>f</sub>	20-80%V <sub>O</sub> with 50 ohm load to V <sub>CC</sub> -2V	—	350 psec	600 psec
RMS Random Jitter <sup>(5)</sup>	—	—	—	—	1 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>	—	3.135 V	3.3 V	3.465 V
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	—	—	—	—	—
Lead Temperature	T <sub>L</sub>	Soldering, 10 sec.	—	—	300°C
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-833, Method 1011, Condition A
Vibration	0.060" double amplitude 10 Hz to 55 Hz, 35g's 55 Hz to 2000 Hz
Soldering Condition	300°C for 10 seconds

#### 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 dependent, phase noise specification references a 1.0GHz part.
- 5) RMS jitter bandwidth of 12kHz to 20MHz.