Rev. J

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.

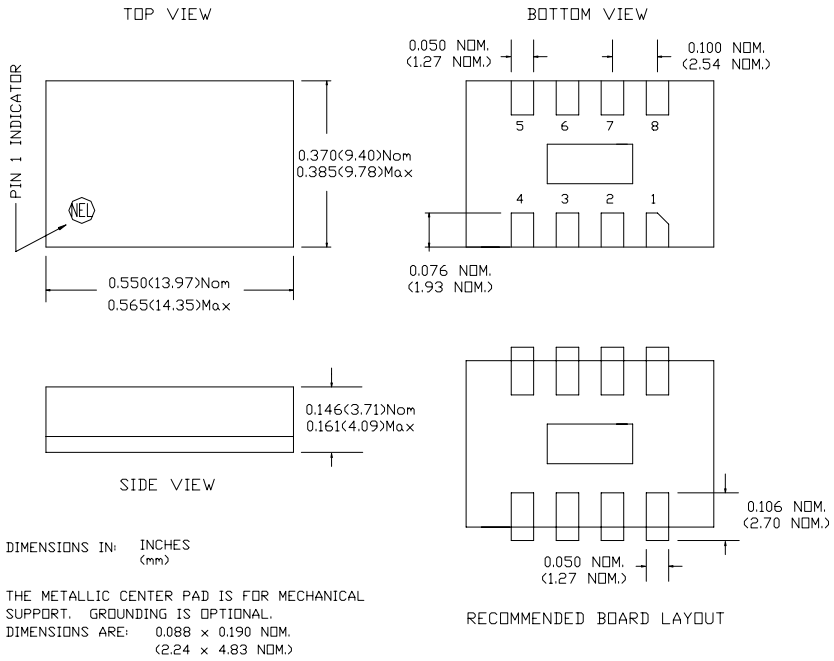
Features

- 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 ±20ppm 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

Electrical Connection

Pin	Connection
1	V_{CC}
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.



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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 (1)	V_{OL}	-----	V_{CC}-1.810V	-----	V_{CC}-1.620V
Logic 1(1)	V_{OH}	-----	V_{CC}-1.025V	-----	V_{CC}-0.880V
Rise & Fall Time	tr,tf	20-80%V_O with 50 ohm load to V_{CC}-2V	-----	350 psec	600 psec
Jitter RMS (5)	-----	-----	-----	0.3 psec	0.5 psec
Jitter Deterministic	-----	-----	-----	6 psec	12 psec
Enable Voltage(2)	----	with V_{EE}=0V	0V	-----	1.0V
Disable Voltage	-----	with V_{EE}=0V	3.0V	-----	V_{CC}
Frequency Stability(3)	dF/F	Overall conditions including: voltage, calibration, temp., 10 yr aging, shock, vibration	-100ppm	-----	+100ppm
Phase Noise(4)	-----	@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_{CC}	3.3V±5%	3.135V	3.3V	3.465V
Supply Current	I_{CC}	50 ohm termination To 2.00V below V_{CC}	0.0 mA	-----	120 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
Input: Logic High (ECL) - Disables V_{EE} or Open - Enables					
Solder temperature	T_L	4 minutes	-----	-----	253°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-883, Method 1011, Condition A
Vibration	0.060" double amplitude 10 Hz to 55 Hz, 35g's 55Hz to 2000 Hz

Footnotes:
1) V_{OL}, V_{OH}, 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

SR - A29BX - FREQ

Package Code
SR 8 pad 9x14mm SMD

Input Voltage

Code	Specification
A	3.3V
B	2.5V

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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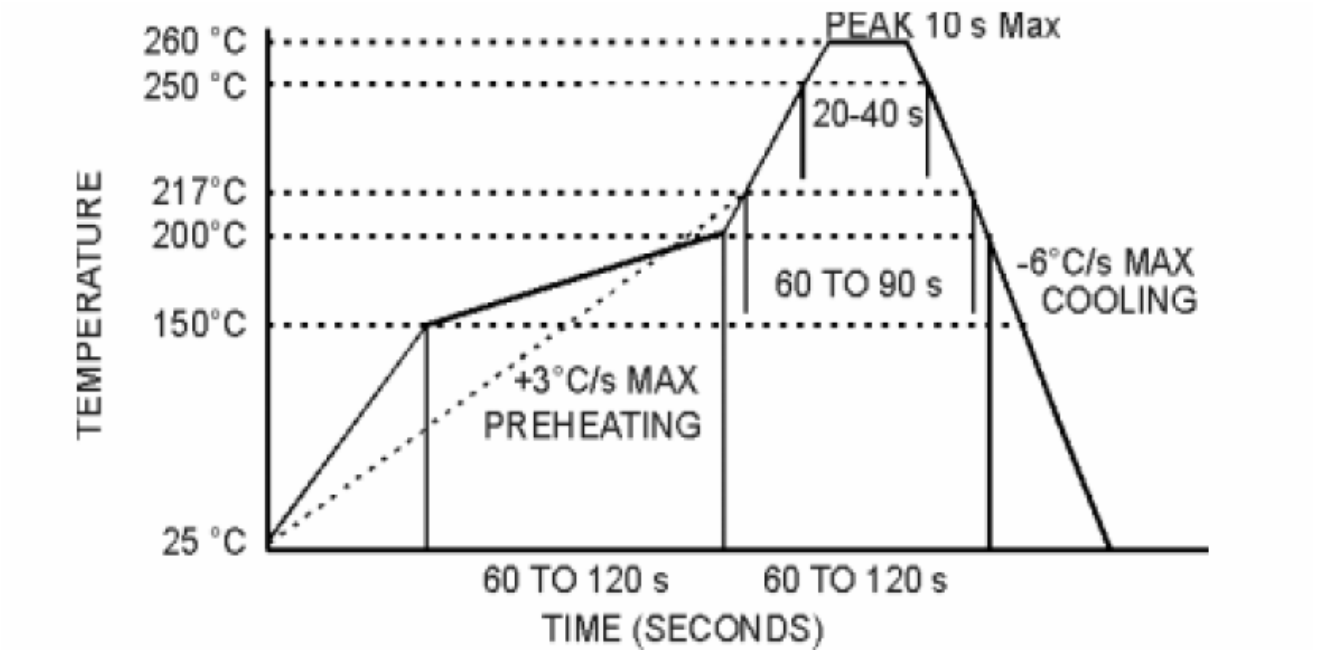
Max Reflow Profile



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