

### LVDS SR-A2D30 Series

### PATENT PENDING

#### Description

The **SR-A2D30 Series** of quartz crystal oscillators provides a LVDS compatible signal. This device uses multiple ground pins for improved signal integrity.

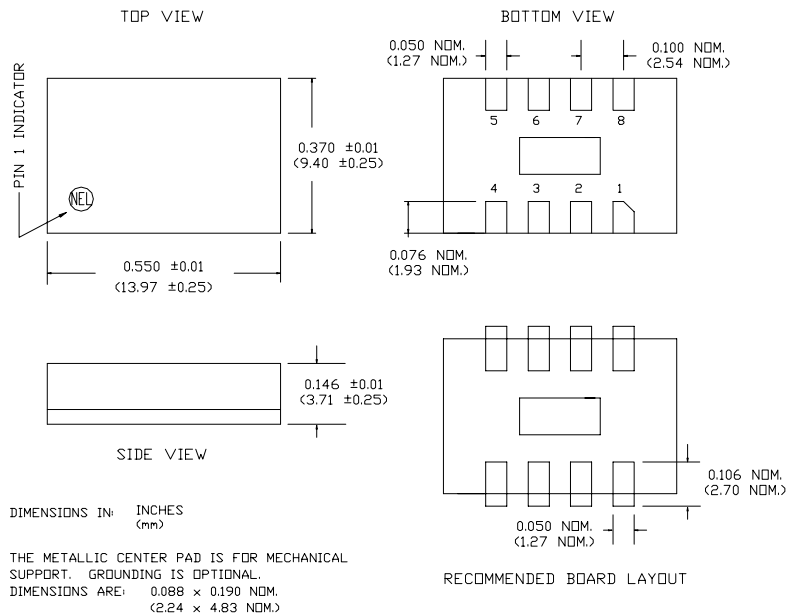
#### Features

- Wide frequency range - 250.0MHz to 750.0MHz
- 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
- 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
- Will withstand SMD reflow temperatures of 183°C for 4 minutes maximum
- High shock resistance, to 1000g

#### 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          |



SR-A2D30 Series Continued  
LVDS

Rev. B

## Operating Conditions and Output Characteristics

### Electrical Characteristics

| Parameter                                 | Symbol                | Conditions   | Min      | Typical | Max         |
|---|-----------------------|--|----------|---------|-------------|
| Frequency                                 | -----                 | -----  | 250.0MHz | -----   | 750.0MHz    |
| Duty Cycle <sup>(1)</sup>                 | -----                 | @ 50% points   | 45/55%   | -----   | 55/45%      |
| Logic 0 <sup>(1)</sup>                    | V <sub>OL</sub>       | -----  | 0.925V   | -----   | -----       |
| Logic 1 <sup>(1)</sup>                    | V <sub>OH</sub>       | -----  | -----    | -----   | 1.474V      |
| Differential Voltage Swing <sup>(1)</sup> | V <sub>DIFF-OUT</sub> | -----  | 500mV    | 700mV   | -----       |
| Rise & Fall Time <sup>(1)</sup>           | tr,tf                 | 20-80%V <sub>O</sub>   | -----    | -----   | 300 psec    |
| RMS Random Jitter <sup>(5)</sup>          | -----                 | -----  | -----    | -----   | 1 psec      |
| Enable Voltage <sup>(2)</sup>             | -----                 | with V <sub>EE</sub> =0V   | -----    | -----   | 0.8V        |
| Disable Voltage                           | -----                 | with V <sub>EE</sub> =0V   | 2.0V     | -----   | -----       |
| Frequency Stability <sup>(3)</sup>        | dF/F                  | Overall conditions including:<br>voltage, calibration, temp.,<br>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>   | -----                    | 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<br>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-883, 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  |

#### Footnotes:

- 1) With load of 100 ohms across differential outputs.
- 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) RMS jitter bandwidth of 12kHz to 20MHz

