

### Differential Sine Wave SR-A2A70 Series

#### Description

The **SR-A2A70 Series** of quartz crystal oscillators provide Differential Sine Wave signals. This device is to operate using positive voltage and uses multiple ground pins for improved signal integrity.

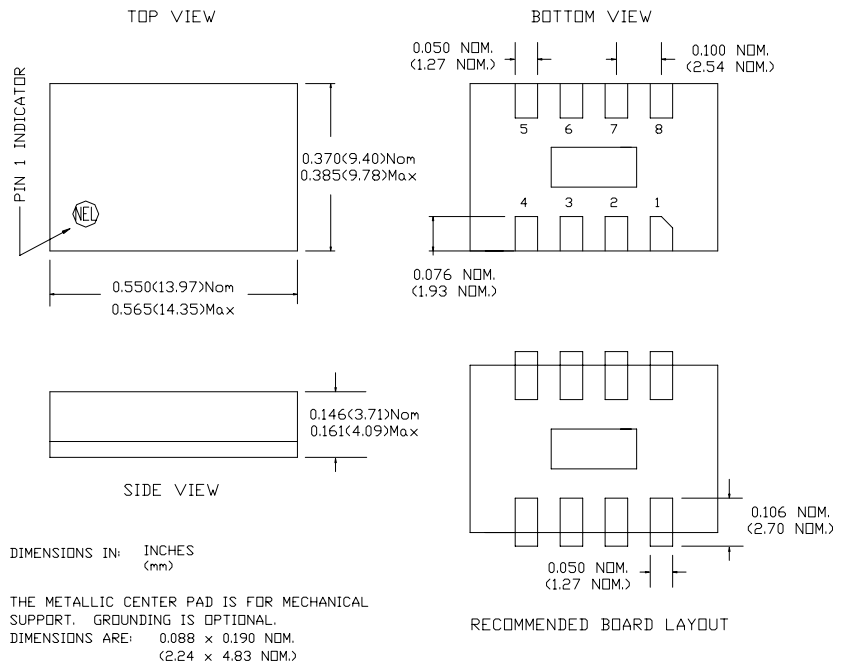
#### Features

- Wide frequency range – 250MHz to 700MHz
- 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-A2A70 Series Continued Differential Sine Wave

Rev. U

### Operating Conditions and Output Characteristics

#### Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	250MHz	-----	700MHz
Sub-Harmonic	-----	-----	-----	-45dBc	-40dBc
Harmonic	-----	-----	-----	-----	-10dBc
Output Voltage	V <sub>P-P</sub>	F<1GHz	0.60V	0.85V	-----
		F>1GHz	0.3V	0.4V	-----
Jitter RMS <sup>(5)</sup>	-----	-----	-----	0.3 psec	0.5 psec
Jitter Deterministic	-----	-----	-----	6ps	12ps
Enable Voltage <sup>(3)</sup>	----	PECL logic low or floating	-----	-----	V <sub>CC</sub> -1.475V
Disable Voltage	-----	PECL logic high	V <sub>CC</sub> -1.165V	-----	-----
Frequency Stability <sup>(1)</sup>	dF/F	Overall conditions including: voltage, calibration, temp., 10 yr aging, shock, vibration	-100ppm	-----	+100ppm
Phase Noise <sup>(2)</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	-----	-----	140 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
Load <sup>(4)</sup>	50 Ohm termination	-----	-----	-----	-----
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) Standard frequency stability (±20,±25,±50ppm & others available)
- 2) Phase Noise characterization available. Phase Noise is frequency dependant, phase noise specification references a 1.0GHz part.
- 3) Open to Enable pin also enables to output.
- 4) Internally AC coupled output
- 5) Jitter performance is frequency dependent. Please contact factory for full Aeroflex characterization.  
RMS jitter bandwidth of 12kHz to 20MHz

Creating a Part Number	
<b>SR - A2A7X - 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-A2A70 Series Continued

Max Reflow Profile



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