

SR-A2A70 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 ± 20 ppm eliminates SAW oscillator temperature problems

Differential Sine Wave SR-A2A70 Series

0435A Rev J

Frequency Range: 250.0 MHz-1.7 GHz

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 – 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 - A2A7X - FREQ

Package Code

SR 8 pad 9x14 mm SMD

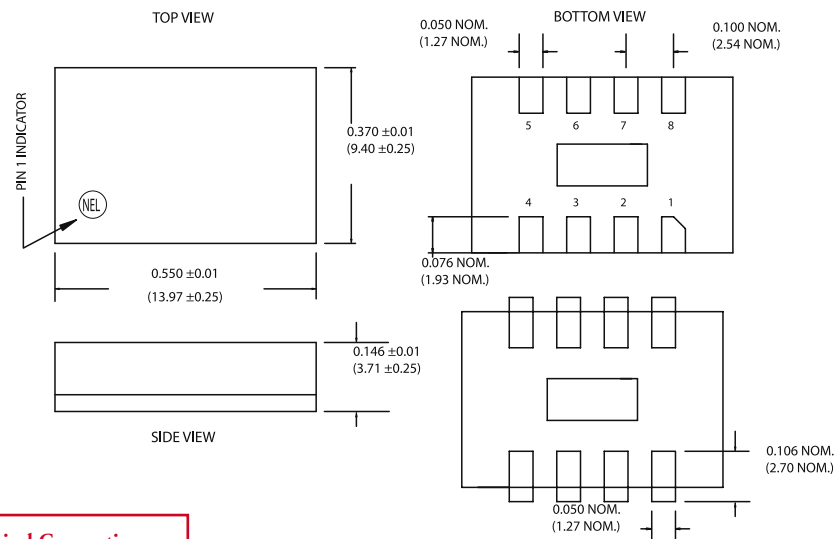
Input Voltage

| Code | Specification |
|------|---------------|
| A | 3.3 V |
| B | 2.5 V |

Tolerance/Performance

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

Drawing Specifications



Electrical Connections

| Pin | Connection |
|-----|-----------------|
| 1 | V _{CC} |
| 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).



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Differential Sine Wave

SR-A2A70 Series 0435A Rev J

Frequency Range: 250.0MHz-1.7 GHz

Operating Conditions and Output Characteristics

Electrical Characteristics

| Parameter | Symbol | Conditions | Min | Typical | Max |
|------------------------------------|-----------|--|--------------|----------|--------------|
| Frequency | — | — | 250.0 MHz | — | 1.7 GHz |
| Harmonic Spurious | — | — | — | -25dBc | -20dBc |
| Nonharmonic Spurious | — | — | — | — | -60dBc |
| Output Voltage | V_{p-p} | — | 0.60 V | 0.85 V | — |
| Jitter RMS ⁽⁵⁾ | — | — | — | 0.3 psec | 0.5 psec |
| Enable Voltage ⁽³⁾ | — | — | $0.7 V_{CC}$ | — | — |
| Disable Voltage | — | — | — | — | $0.3 V_{CC}$ |
| Frequency Stability ⁽¹⁾ | dF/F | Overall conditions including: voltage, calibration, temp., 10 yr aging, shock, vibration | -100ppm | — | +100ppm |
| Phase Noise ⁽²⁾ | — | @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} | $3.3V \pm 5\%$ | 3.135 V | 3.3 V | 3.465 V |
| Supply Current | I_{CC} | 50 ohm termination | 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 |
| Lead Temperature | T_L | Soldering, 10 sec. | — | — | 300°C |
| Load ⁽⁴⁾ | 50 ohm termination | — | — | — | — |
| 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-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) Standard frequency stability (± 20 , ± 25 , ± 50 ppm & others available).
- 2) Phase Noise characterization available. Phase Noise is frequency dependent, phase noise specification references a 1.0GHz part.
- 3) Open to enable pin also enables the 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.