

# SJ-A1420 Series



## Size, mm

9 x 14

## I/O

4 J Lead

## Supply Voltage

3.3V / 5V

# LVC MOS

## SJ-A1420 Series *Rev S*

Frequency Range: 1.0 MHz to 80.0 MHz

### Description

The **SJ-A1420 Series** of quartz crystal oscillators provide enable/disable 3-state LVC MOS compatible signals for bus connected systems. Supplying Pin 1 of the SJ-A1420 units with a logic "1" or open enables its Pin 3 output. In the disable mode, Pin 3 presents a high impedance to the load. All units are designed to survive standard wave soldering operations without damage.

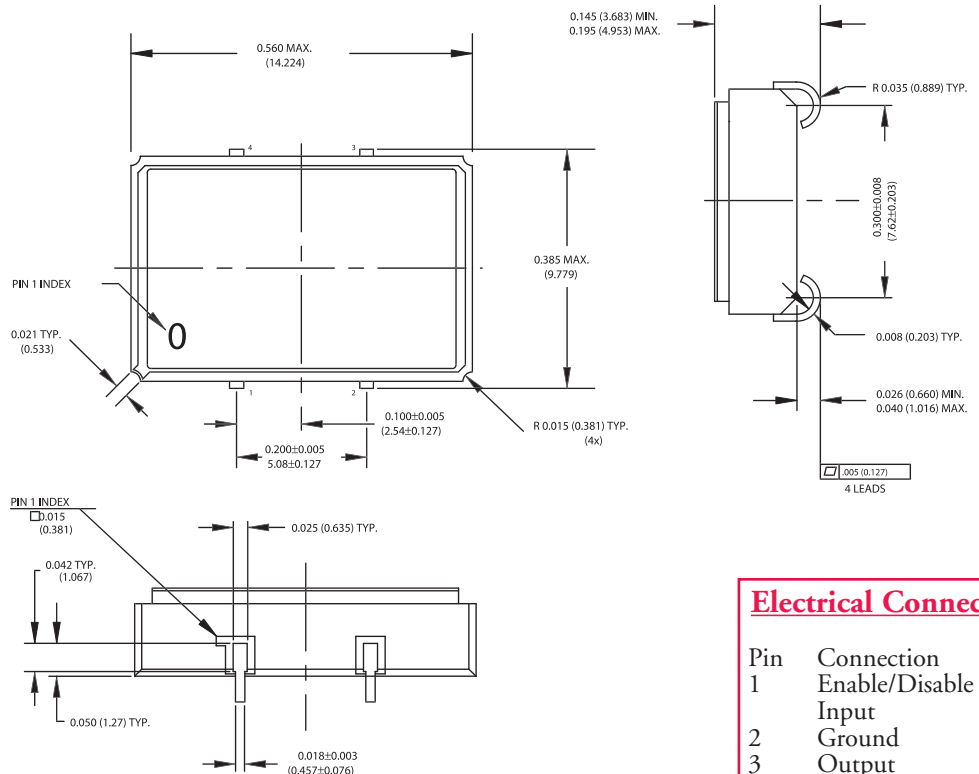
### Features

- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low jitter - Wavecrest jitter characterization available
- Wide frequency range—1.0 MHz to 80.0 MHz
- User specified tolerance available
- Will withstand vapor phase temperatures of 253°C for 4 minutes maximum
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 3000g
- Metal lid electrically connected to ground to reduce EMI
- 3.3 Volt operation
- High Q crystal actively tuned oscillator circuit
- Power supply decoupling internal
- No internal PLL avoids cascading PLL problems
- Low power consumption
- Gold plated leads
- RoHS Compliant, Lead Free Construction

### Creating a Part Number

|                      |    |                          |  |                              |                         |
|----------------------|----|--------------------------|--|------------------------------|-------------------------|
|                      |    | <b>SJ - A142X - FREQ</b> |  |                              |                         |
| <b>Package Code</b>  | SJ | 4 J Lead 9x14 mm SMD     |  | <b>Tolerance/Performance</b> | 0 ±100 ppm 0-70°C       |
| <b>Input Voltage</b> |    |                          |  |                              | 1 ±50 ppm 0-70°C        |
| Code                 | A  | 3.3 V                    |  |                              | 7 ±25 ppm 0-70°C        |
| Specification        |    | 5 V                      |  |                              | 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 Connection

| Pin | Connection           |
|-----|----------------------|
| 1   | Enable/Disable Input |
| 2   | Ground               |
| 3   | Output               |
| 4   | V <sub>DD</sub>      |

Dimensions shown in inches and millimeters.



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# LVCMOS

## SJ-A1420 Series *Rev S*

Frequency Range: 1.0 MHz to 80.0 MHz

### Operating Conditions and Output Characteristics

#### Electrical Characteristics

| Parameter                          | Symbol                          | Conditions   | Min                   | Typical | Max      |
|------------------------------------|---------------------------------|--|-----------------------|---------|----------|
| Frequency                          | —                               | —  | 1.0 MHz               | —       | 80.0 MHz |
| Duty Cycle                         | —                               | @V <sub>DD</sub> /2  | 45/55%                | —       | 55/45%   |
| Logic 0                            | V <sub>OL</sub>                 | @600 $\mu$ A   | —                     | —       | 0.2 V    |
| Logic 1                            | V <sub>OH</sub>                 | @600 $\mu$ A   | V <sub>DD</sub> -0.2V | —       | —        |
| Rise & Fall Time                   | t <sub>r</sub> , t <sub>f</sub> | 10-90%   | —                     | —       | 8 ns     |
| T <sub>pz</sub>                    | —                               | —  | —                     | —       | 25 ns    |
| Enable/Disable                     |                                 |  |                       |         |          |
| Logic High Voltage                 | —                               | —  | 1.6 V                 | —       | —        |
| Enable/Disable                     |                                 |  |                       |         |          |
| Logic Low Voltage                  | —                               | —  | —                     | —       | 0.4 V    |
| Jitter, RMS <sup>(2)</sup>         | —                               | —  | —                     | 3 psec  | —        |
| Frequency Stability <sup>(1)</sup> | dF/F                            | Overall conditions including:<br>voltage, calibration, temp.,<br>10 yr aging, shock, vibration | -100 ppm              | —       | +100 ppm |

#### General Characteristics

| Parameter                     | Symbol          | Conditions         | Min    | Typical | Max           |
|-------------------------------|-----------------|--------------------|--------|---------|---------------|
| Supply Voltage <sup>(3)</sup> | V <sub>DD</sub> | 3.3V $\pm$ 10%     | 2.97 V | 3.3 V   | 3.63 V        |
| Supply Current                | I <sub>DD</sub> | No Load            | 0.0 mA | 25 mA   | 40 mA         |
| Output Current                | I <sub>O</sub>  | —                  | 0.0 mA | —       | $\pm$ 16.0 mA |
| Operating Temperature         | T <sub>A</sub>  | —                  | 0°C    | —       | 70°C          |
| Storage Temperature           | T <sub>S</sub>  | —                  | -55°C  | —       | 125°C         |
| Power Dissipation             | P <sub>D</sub>  | —                  | —      | —       | 145 mW        |
| Lead Temperature              | T <sub>L</sub>  | Soldering, 10 sec. | —      | —       | 300°C         |
| Load                          | —               | —                  | —      | —       | 15 pf         |
| 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   |
| Hermetic Seal       | Leak rate less than 1 x 10 <sup>-8</sup> atm.cc/sec of helium  |

#### Footnotes:

- 1) Standard frequency stability ( $\pm$ 20,  $\pm$ 25,  $\pm$ 50 ppm & others available).
- 2) Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization. RMS jitter bandwidth of 12kHz to 20MHz.
- 3) Internal high frequency power source decoupling.

#### Test Load

