



## LVC MOS SC-A1440 Series

Rev. A

### Description

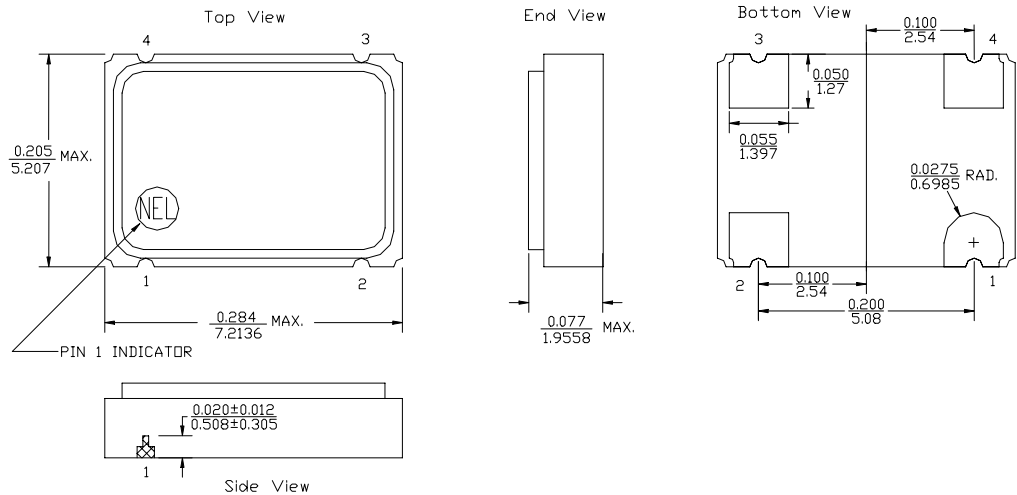
The **SC-A1440 Series** of quartz crystal oscillators provide enable/disable 3-state LVC MOS compatible signals for bus connected systems. Supplying Pin 1 of the SC-A1440 units with a logic "1" or open enables its Pin 3 output. In the disable mode, Pin 3 presents a high impedance to the load.

### Features

- Wide frequency range—220.0MHz to 250.0MHz
- User specified tolerance available
- Space-saving alternative to discrete component oscillators
- 3.3 Volt operation
- High shock resistance, to 1000g
- Low Jitter - Wavecrest jitter characterization available
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- High Q Crystal actively tuned oscillator circuit
- Power supply decoupling internal
- No internal PLL avoids cascading PLL problems
- High frequencies due to proprietary design
- Metal lid electrically connected to ground to reduce EMI
- Gold plated pads
- RoHS Compliant, Lead Free Construction

### Electrical Connection

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



ALL DIMENSIONS:  $\frac{IN}{mm}$   
All tolerances are ±0.005 inches (±0.127 mm) unless otherwise specified.

SC-A1440 Series Continued  
LVCMOS

Rev. A

## Operating Conditions and Output Characteristics

### Electrical Characteristics

| Parameter                          | Symbol   | Conditions   | Min           | Typical | Max      |
|------------------------------------|----------|--|---------------|---------|----------|
| Frequency                          | -----    | -----  | 220.0MHz      | -----   | 250.0MHz |
| Duty Cycle                         | -----    | @ $V_{DD}/2$   | 45/55%        | -----   | 55/45%   |
| Logic 0                            | $V_{OL}$ | @ 600 $\mu$ A  | -----         | -----   | 0.2V     |
| Logic 1                            | $V_{OH}$ | @ 600 $\mu$ A  | $V_{DD}-0.2V$ | -----   | -----    |
| Rise & Fall Time                   | tr,tf    | 10-90% $V_O$   | -----         | -----   | 2.0 ns   |
| Jitter, RMS <sup>(2)</sup>         | -----    | Overtone   | -----         | -----   | 3 psec   |
| $T_{pz}$                           | -----    | -----  | -----         | -----   | 100 ns   |
| Enable Voltage                     | -----    | -----  | 2.0V          | -----   | -----    |
| Disable Voltage                    | -----    | -----  | -----         | -----   | 0.8V     |
| Frequency Stability <sup>(1)</sup> | dF/F     | Overall conditions including:<br>voltage, calibration, temp.,<br>10 yr aging, shock, vibration | -100ppm       | -----   | +100ppm  |

### General Characteristics

| Parameter                     | Symbol   | Conditions               | Min    | Typical | Max           |
|-------------------------------|----------|--------------------------|--------|---------|---------------|
| Supply Voltage <sup>(3)</sup> | $V_{DD}$ | 3.3V $\pm$ 10%           | 2.97V  | 3.3V    | 3.63V         |
| Supply Current                | $I_{DD}$ | No Load                  | 0.0 mA | 85 mA   | 110 mA        |
| Output current                | $I_O$    | Low level Output Current | 0.0 mA | -----   | $\pm$ 25.0 mA |
| Operating temperature         | $T_A$    | -----                    | 0°C    | -----   | 70°C          |
| Storage temperature           | $T_S$    | -----                    | -55°C  | -----   | 125°C         |
| Power Dissipation             | $P_D$    | -----                    | -----  | -----   | 399 mW        |
| Solder temperature            | $T_L$    | 4 minutes                | -----  | -----   | 253°C         |
| Load                          | -----    | -----                    | -----  | -----   | 15pf          |
| Start-up Time                 | $t_s$    | -----                    | -----  | -----   | 10 ms         |

### Environmental and Mechanical Characteristics

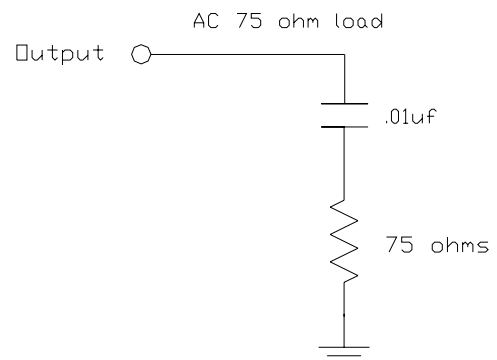
|                  |   |
|------------------|---|
| Mechanical Shock | Per MIL-STD-202, Method 213, Condition E                      |
| Thermal Shock    | Per MIL-STD-883, Method 1011, Condition A                     |
| Vibration        | 0.060" double amplitude 10 Hz to 55 Hz, 35g's 55Hz to 2000 Hz |
| Hermetic Seal    | Leak rate less than $1 \times 10^{-8}$ atm.cc/sec of helium   |

#### Footnotes:

- 1) Standard frequency stability ( $\pm$ 20, $\pm$ 25, $\pm$ 50ppm & 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.

| Creating a Part Number   |                              |
|--------------------------|------------------------------|
| <b>SC - A144X - FREQ</b> |                              |
| <b>Package Code</b>      | <b>Tolerance/Performance</b> |
| SC 4 pad 5x7mm SMD       | 0 $\pm$ 100ppm 0-70°C        |
|                          | 1 $\pm$ 50ppm 0-70°C         |
|                          | 7 $\pm$ 25ppm 0-70°C         |
|                          | 9 Customer Specific          |
| <b>Input Voltage</b>     | A $\pm$ 20ppm 0-70°C         |
| Code Specification       | B $\pm$ 50ppm -40 to +85°C   |
| A 3.3V                   | C $\pm$ 100ppm -40 to +85°C  |
| 5V                       |                              |

#### Test Load:



SC-A1440 Series Continued

Max Reflow Profile

