



LVC MOS SC-B1440 Series

Description

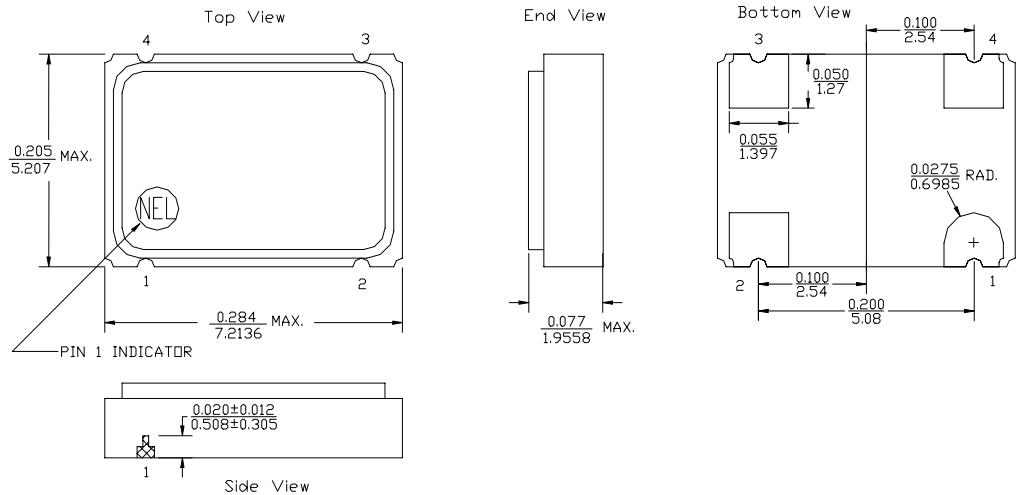
The **SC-B1440 Series** of quartz crystal oscillators provide enable/disable 3-state LVC MOS compatible signals for bus connected systems. Supplying Pin 1 of the SC-B1440 units with a logic "1" or open enables its Pin 3 output. In the disable mode, Pin 3 presents a high impedance to the load.

Features

- Wide frequency range—70.0MHz to 220.0MHz (Contact factory for other frequencies)
- User specified tolerance available
- Space-saving alternative to discrete component oscillators
- 2.5 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 _{DD} |



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

SC-B1440 Series Continued
LVCMOS

Rev. M

Operating Conditions and Output Characteristics

Electrical Characteristics

| Parameter | Symbol | Conditions | Min | Typical | Max |
|---|---------------|--|---------------|---|----------|
| Frequency | ----- | ----- | 70.0MHz | ----- | 220.0MHz |
| Duty Cycle | ----- | @ $V_{DD}/2$ | 45/55% | ----- | 55/45% |
| Logic 0 | V_{OL} | @ 600 μ A | ----- | ----- | 0.2V |
| Logic 1 | V_{OH} | @ 600 μ A | $V_{DD}-0.2V$ | ----- | ----- |
| Rise & Fall Time | tr,tf | 10-90% V_O | ----- | ----- | 2.0 ns |
| Jitter, Integrated | J | Integrated from phase noise, 12kHz to 20MHz, RMS | ----- | 0.1 ps | ----- |
| Jitter, Wavecrest Characterized ⁽²⁾ | ----- | Random Period Accum, pk-to-pk | ----- | 2.3ps 26ps | ----- |
| Phase Noise | $f(\Delta f)$ | @ 10Hz @ 100Hz @ 1kHz @ 10kHz @ 100kHz @ >1Mhz | ----- | -70 dBc/Hz -105 dBc/Hz -130 dBc/Hz -145 dBc/Hz -150 dBc/Hz -150 dBc/Hz | ----- |
| T_{pz} | ----- | ----- | ----- | ----- | 100 ns |
| Enable Voltage | ----- | ----- | 1.6V | ----- | ----- |
| Disable Voltage | ----- | ----- | ----- | ----- | 0.4V |
| Frequency Stability ⁽¹⁾ | dF/F | Overall conditions including: voltage, calibration, temp., 10 yr aging, shock, vibration | -100ppm | ----- | +100ppm |

General Characteristics

| Parameter | Symbol | Conditions | Min | Typical | Max |
|-------------------------------|----------|--------------------------|--------|---------|---------------|
| Supply Voltage ⁽³⁾ | V_{DD} | ----- | 2.375V | 2.5V | 2.625V |
| Supply Current | I_{DD} | No Load | 0.0 mA | 40 mA | 60 mA |
| Output current | I_O | Low level Output Current | 0.0 mA | ----- | ± 25.0 mA |
| Operating temperature | T_A | ----- | 0°C | ----- | 70°C |
| Storage temperature | T_S | ----- | -55°C | ----- | 125°C |
| Power Dissipation | P_D | ----- | ----- | ----- | 158 mW |
| Load | ----- | ----- | ----- | ----- | 15pf |
| Start-up Time | t_s | ----- | ----- | ----- | 10 ms |

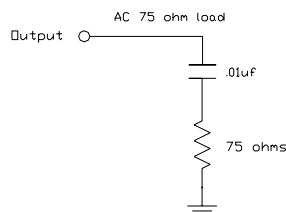
Environmental and Mechanical Characteristics

| | |
|------------------|---|
| 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 1×10^{-8} atm.cc/sec of helium |

Footnotes:

- Standard frequency stability ($\pm 20, \pm 25, \pm 50$ ppm & others available)
- Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization.
- Internal high frequency power source decoupling.

Test Load:



Creating a Part Number

SC - B144X - FREQ

Package Code

SC 4 pad 5x7mm SMD

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

Input Voltage

| Code | Specification |
|------|---------------|
| A | 3.3V |
| B | 2.5V |
| | 5V |

SC-B1440 Series Continued

Max Reflow Profile

