



LVC MOS SC-B1440 Series

Rev. P

Description

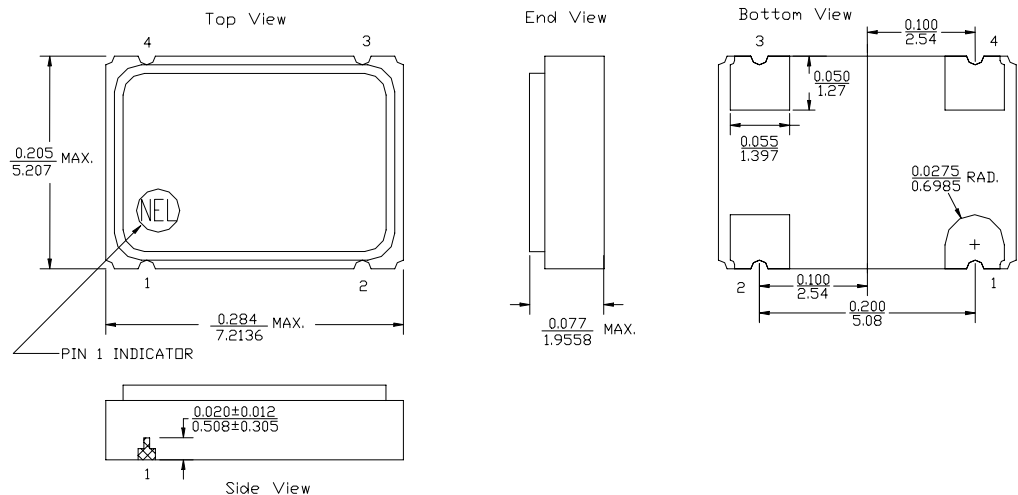
The **SC-B1440 Series** of quartz crystal oscillators provide enable/disable 3-state LVC MOS compatible signals for bus connected systems. Supplying Pin 1 of the SC-B1440 units with a logic "1" or open enables its Pin 3 output. In the disable mode, Pin 3 presents a high impedance to the load.

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
- COTS/Dual use
- 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

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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	$t_{r,tf}$	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 ⁽⁴⁾	$f(\Delta f)$	@ 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} 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

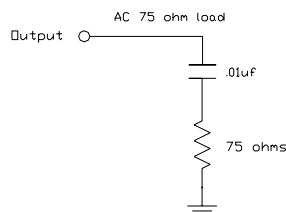
Environmental and Mechanical Characteristics

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.
- If phase noise data at a particular frequency is needed, contact factory

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

