



LVC MOS SC-A1420 Series

Rev. C

Description

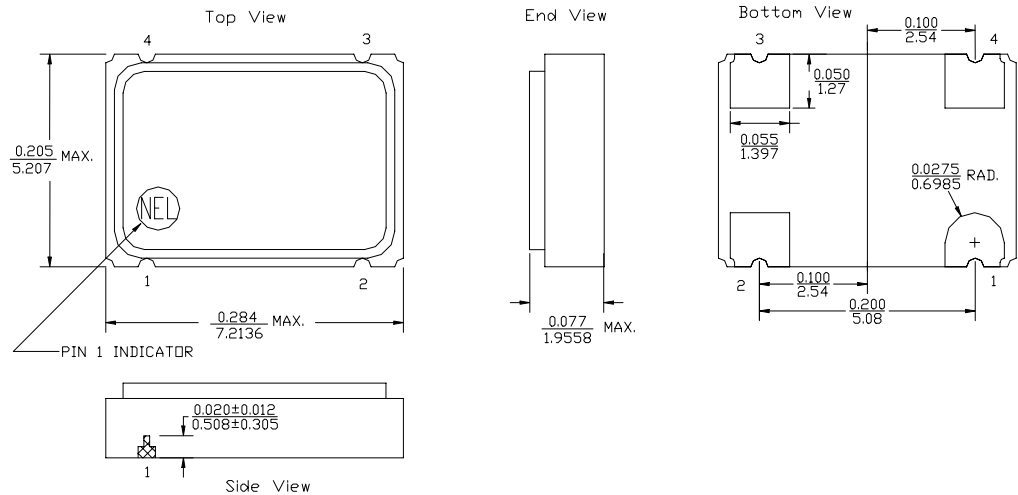
The **SC-A1420 Series** of quartz crystal oscillators provide enable/disable 3-state LVC MOS compatible signals for bus connected systems. Supplying Pin 1 of the SC-A1420 units with a logic "1" or open enables its Pin 3 output. In the disable mode, Pin 3 presents a high impedance to the load.

Features

- Wide frequency range—1.0MHz to 80.0MHz
- User specified tolerance available
- Space-saving alternative to discrete component oscillators
- 3.3 Volt operation
- High shock resistance, to 1000g
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low Jitter - Wavcrest jitter characterization available
- No internal PLL avoids cascading PLL problems
- 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-A1420 Series Continued
LVCMOS

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Operating Conditions and Output Characteristics

Electrical Characteristics

| Parameter | Symbol | Conditions | Min | Typical | Max |
|---|-----------------|--|-----------------------|---------------|---------|
| Frequency | ----- | ----- | 1.0MHz | ----- | 80.0MHz |
| Duty Cycle | ----- | @ V _{DD} /2 | 45/55% | ----- | 55/45% |
| Logic 0 | V _{OL} | @ 600µA | ----- | ----- | 0.2V |
| Logic 1 | V _{OH} | @ 600µA | V _{DD} -0.2V | ----- | ----- |
| Rise & Fall Time | tr,tf | 10-90%V _O : | | | |
| | | 1.0 to 20.0MHz | ----- | 3.5ns | 5.0ns |
| | | 20.1 to 50.0MHz | ----- | 3.3ns | 4.5ns |
| | | 50.1 to 80.0MHz | ----- | 1.5ns | 4.0ns |
| 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 | £(Δf) | @ 10Hz | ----- | -70 dBc/Hz | ----- |
| | | @ 100Hz | ----- | -105 dBc/Hz | ----- |
| | | @ 1kHz | ----- | -130 dBc/Hz | ----- |
| | | @ 10kHz | ----- | -145 dBc/Hz | ----- |
| | | @ 100kHz | ----- | -150 dBc/Hz | ----- |
| | | @ >1Mhz | ----- | -150 dBc/Hz | ----- |
| T _{pz} | ----- | ----- | ----- | ----- | 25 ns |
| Enable Voltage | ----- | ----- | 2.0V | ----- | ----- |
| Disable Voltage | ----- | ----- | ----- | ----- | 0.8V |
| Frequency Stability ⁽¹⁾ | dF/F | Overall conditions including: voltage, calibration, temp.. 10 year aging, shock, vibration | -100ppm | ----- | +100ppm |

General Characteristics

| Parameter | Symbol | Conditions | Min | Typical | Max |
|-------------------------------|-----------------|--------------------------|--------|---------|----------|
| Supply Voltage ⁽³⁾ | V _{DD} | 3.3±10% | 2.97V | 3.3V | 3.63V |
| Supply Current | I _{DD} | No Load | 0.0 mA | ----- | 40 mA |
| Output current | I _O | Low level Output Current | 0.0 mA | ----- | ±16.0 mA |
| Operating temperature | T _A | ----- | 0°C | ----- | 70°C |
| Storage temperature | T _S | ----- | -55°C | ----- | 125°C |
| Power Dissipation | P _D | ----- | ----- | ----- | 145 mW |
| Load | ----- | ----- | ----- | ----- | 15pf |
| Start-up Time | t _s | 20MHz or greater | ----- | ----- | 10 ms |
| | | Less than 20MHz | ----- | ----- | 2 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 x 10 ⁻⁸ atm.cc/sec |

Footnotes:

- Standard frequency stability (±20,±25,±50ppm & others available)
- Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization.
- External high frequency power supply decoupling required.

Creating a Part Number

SC - A142X - FREQ

Package Code

SC 4 pad 5x7mm SMD

Tolerance/Performance

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

Input Voltage

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

