

CMOS SC-1420 Series

Description

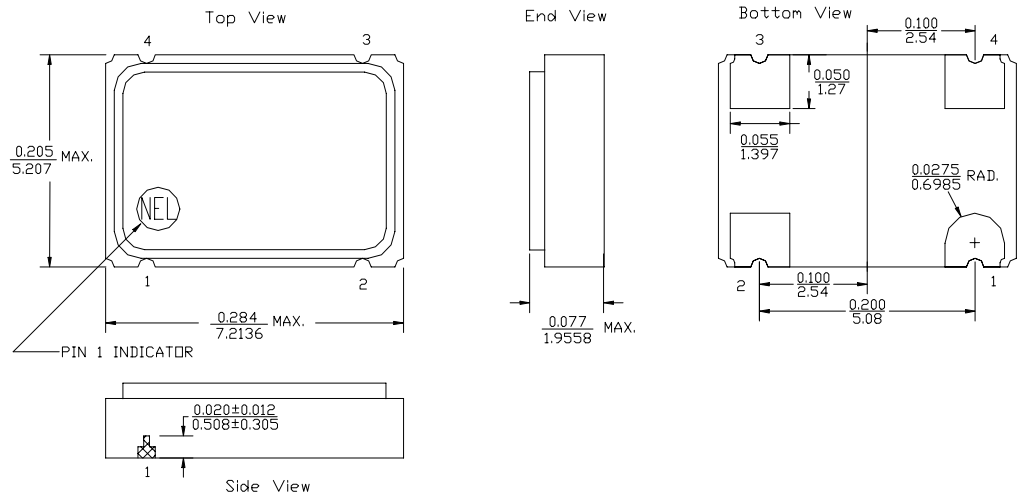
The **SC-1420 Series** of quartz crystal oscillators provide enable/disable 3-state CMOS compatible signals for bus connected systems. Supplying Pin 1 of the SC-1420 units with a logic "1" or open enables its Pin 3 output. In the disable mode, Pin 3 presents a high impedance to the load.

Features

- Wide frequency range—1.0MHz to 80.0MHz
- User specified tolerance available
- Will withstand vapor phase temperatures of 253°C for 4 minutes maximum
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 1000g
- Low Jitter
- No internal PLL avoids cascading PLL problems
- Metal lid electrically connects to ground to reduce EMI
- Gold plated pads

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-1420 Series Continued
CMOS

Rev. E

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} | @ 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 | ---- | ---- | 8.0 ns |
| Jitter, RMS ⁽²⁾ | ---- | Overtone | ---- | ---- | 5 psec |
| | | Fundamental | ---- | ---- | 8 psec |
| 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} | ---- | 4.75V | 5.0V | 5.25V |
| 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 | ---- | ---- | ---- | 210 mW |
| Lead temperature | T_L | Soldering, 10 sec. | ---- | ---- | 300°C |
| 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-833, Method 1011, Condition A |
| Vibration | 0.060" double amplitude 10 Hz to 55 Hz, 35g's 55Hz to 2000 Hz |
| Soldering Condition | 300°C for 10 seconds |
| Hermetic Seal | Leak rate less than 1×10^{-8} atm.cc/sec |

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 characterization.
- 3) External high frequency power supply decoupling required.

| Creating a Part Number | |
|--------------------------|------------------------------|
| SC - A142X - FREQ | |
| Package Code | Tolerance/Performance |
| SC 4 pad 5x7mm SMD | 0 ± 100 ppm 0-70°C |
| | 1 ± 50 ppm 0-70°C |
| | 7 ± 25 ppm 0-70°C |
| | 9 Customer Specific |
| Input Voltage | A ± 20 ppm 0-70°C |
| Code Specification | B ± 50 ppm -40 to +85°C |
| A 3.3V | C ± 100 ppm -40 to +85°C |
| 5V | |