

CMOS (TTL Compatible)
SJ-460 Series

Rev. D

Description

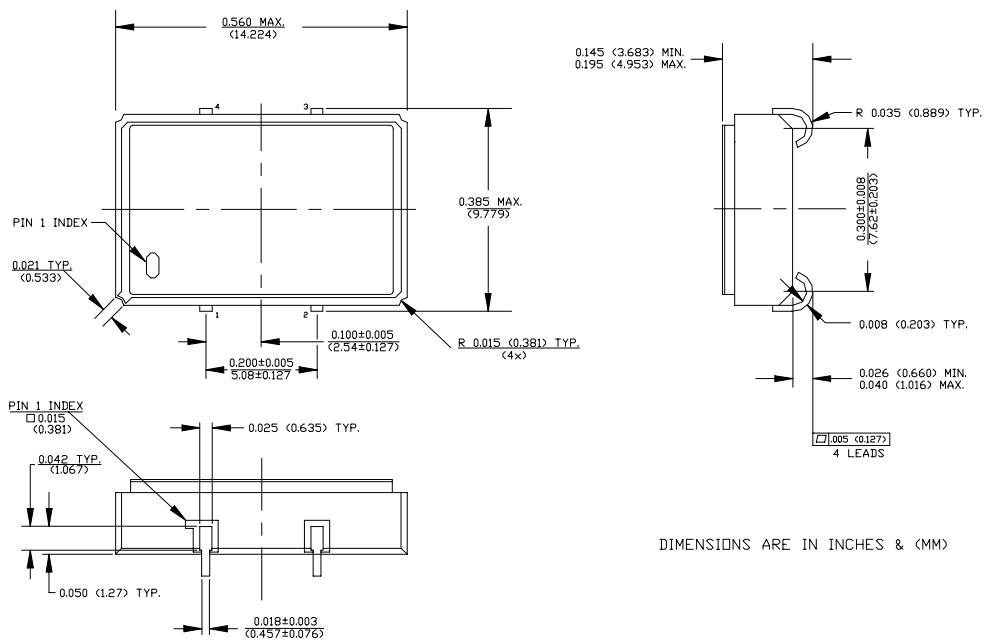
The **SJ-460 Series** of quartz crystal oscillators are designed to survive standard wave soldering operations without damage.

Features

- Wide frequency range—2.25MHz to 36.0MHz
- 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 3000g
- Metal lid electrically connected to ground to reduce EMI
- Low Jitter
- CMOS and TTL output levels
- High Q Crystal actively tuned oscillator circuit
- Low power consumption
- Power supply decoupling internal
- No internal PLL avoids cascading PLL problems
- High frequencies due to proprietary design
- Gold plated leads

Electrical Connection

| Pin | Connection |
|-----|-----------------|
| 1 | N.C. |
| 2 | Ground |
| 3 | Output |
| 4 | V _{DD} |



SJ-460 Series Continued
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Operating Conditions and Output Characteristics

Electrical Characteristics

| Parameter | Symbol | Conditions | Min | Typical | Max |
|------------------------------------|----------|--|--------------------------------|---------|--------------|
| Frequency | ---- | ---- | 2.25MHz | ---- | 36.0MHz |
| Duty Cycle | ---- | @ $V_{DD}/2$ | 45/55% | ---- | 55/45% |
| Logic 0 | V_{OL} | @ 600 μ A @ 16mA | ---- | ---- | 0.2V 0.4V |
| Logic 1 | V_{OH} | @ 600 μ A @ 16mA | $V_{DD}-0.2V$ $V_{DD}-0.4V$ | ---- | ---- |
| Rise & Fall Time | tr,tf | 10-90% V_O | ---- | ---- | 3 ns |
| Jitter, RMS ⁽²⁾ | ---- | ---- | ---- | ---- | 8.0 psec |
| 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 | V_{DD} | ---- | 4.5V | 5.0V | 5.5V |
| Supply Current | I_{DD} | No Load | 0.0 mA | ---- | 30 mA |
| Output current | I_O | ---- | 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 20MHz or greater | ---- | ---- | 2 ms 10 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 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 characterization.

| Creating a Part Number | |
|-------------------------|------------------------------|
| SJ - A46X - FREQ | |
| Package Code | Tolerance/Performance |
| SJ 4 J Lead SMD | 0 ± 100 ppm 0-70°C |
| | 1 ± 50 ppm 0-70°C |
| | 7 ± 25 ppm 0-70°C |
| Input Voltage | 9 Customer Specific |
| Code Specification | A ± 20 ppm 0-70°C |
| A 3.3V | B ± 50 ppm -40 to +85°C |
| 5V | C ± 100 ppm -40 to +85°C |

Test Load:

