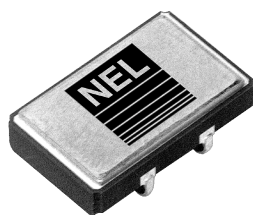


Rev. D



CMOS (TTL Compatible) SJ-460 Series

Description

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

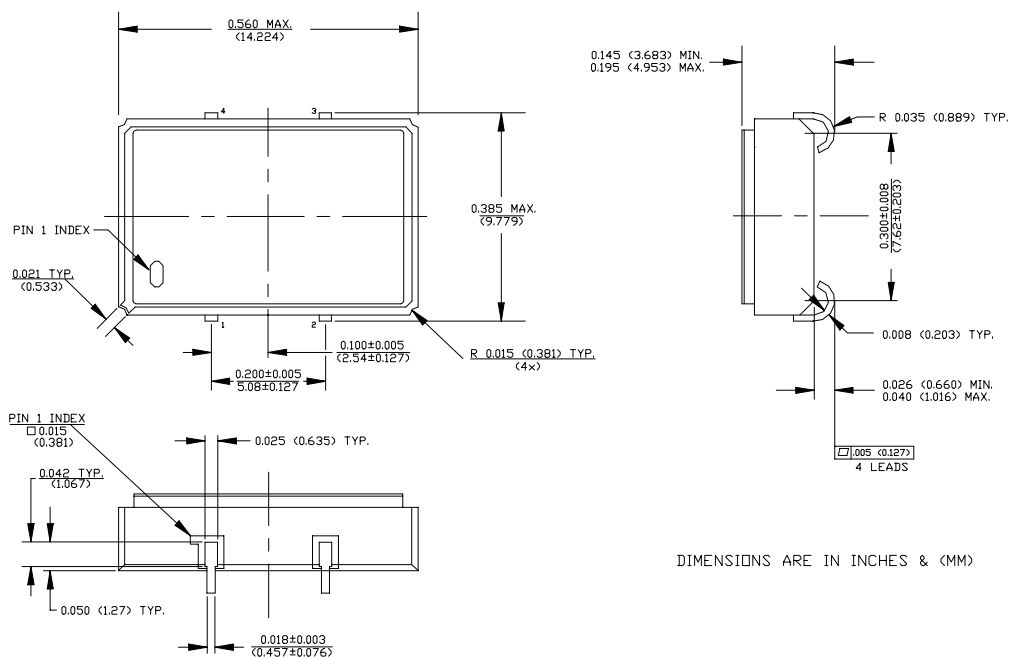
Features

- 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} |



**FREQUENCY
CONTROLS, INC.**

357 Beloit Street, P.O. Box 457, Burlington, WI 53105-0457 U.S.A. Phone 262/763-3591 FAX 262/763-2881

Email: nelsales@nelfc.com www.nelfc.com

SJ-460 Series Continued
CMOS (TTL Compatible)

Rev. D

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	$t_{r,f}$	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-883, 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:

- 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.

Creating a Part Number

SJ - A46X - FREQ

Package Code

SJ 4 J Lead SMD

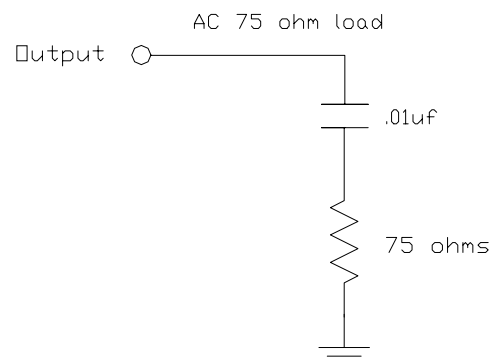
Input Voltage

Code	Specification
A	3.3V
	5V

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

Test Load:



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