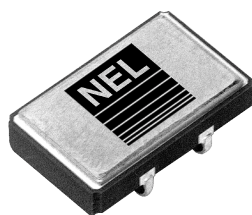


CRYSTAL CLOCK OSCILLATORS

Data Sheet 0012K

Rev. H



TTL SJ-160 Series

Description

The **SJ-160 Series** of quartz crystal oscillators are designed to survive standard wave soldering operations without damage.

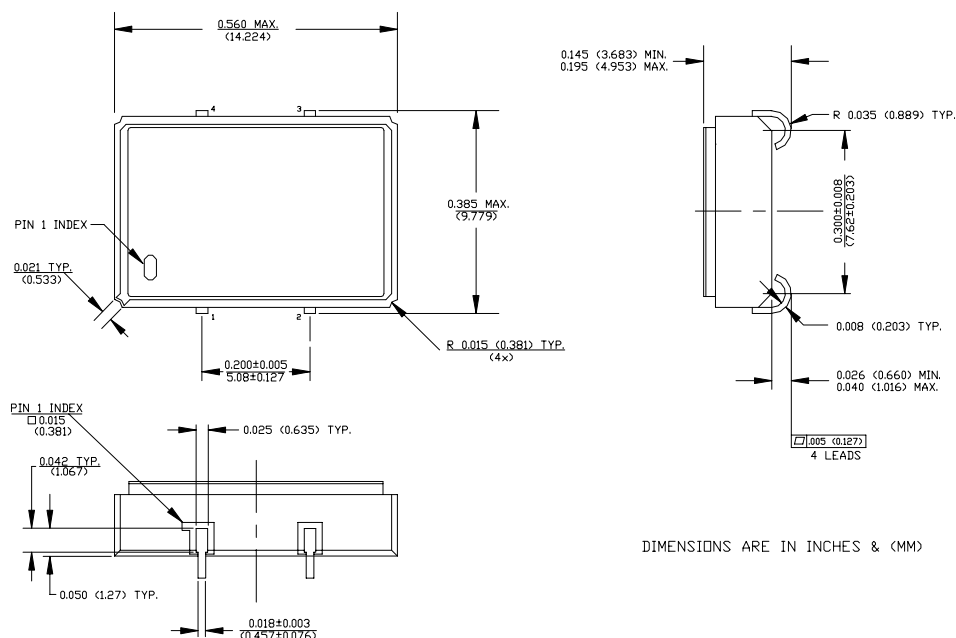
Features

- Wide frequency range—2.25MHz to 85.0MHz
- 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
- High Q Crystal actively tuned oscillator circuit
- Power supply decoupling internal
- No internal PLL avoids cascading PLL problems
- High frequencies due to proprietary design
- Gold plated leads
- Low power consumption
- RoHS Compliant, Lead Free Construction

Electrical Connection

Pin Connection

- | | |
|---|-----------------|
| 1 | N.C. |
| 2 | Grd & Case |
| 3 | Output |
| 4 | V _{CC} |



**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-160 Series Continued
TTL

Rev. H

Operating Conditions and Output Characteristics**Electrical Characteristics**

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	2.25MHz	-----	85.0MHz
Duty Cycle	-----	@ $V_{CC}/2$	40/60%	-----	60/40%
Logic 0	V_{OL}	@ 16mA	-----	-----	0.4V
Logic 1	V_{OH}	@ 0.4mA	2.4V	-----	-----
Rise & Fall Time	tr,tf	@ 0.4 to 2.4V	-----	-----	-----
		<40MHz	-----	-----	8.0 ns
		40MHz or greater	-----	-----	5.0 ns
Jitter, RMS ⁽²⁾	-----	<40MHz OT & >40MHz	-----	-----	5 psec
		<40MHz Fund	-----	-----	8 psec
Frequency Stability ⁽¹⁾	dF/F	Overall conditions including: voltage, calibration, temp., 10 yr aging, shock, vibration	-100ppm	-----	+100ppm

General Characteristics

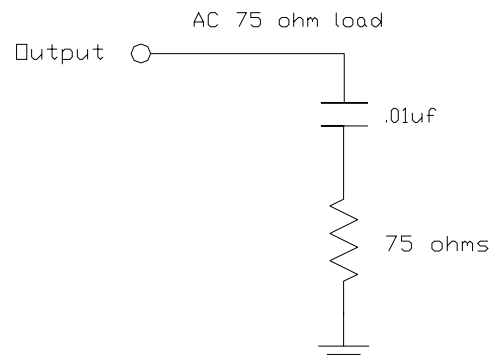
Parameter	Symbol	Conditions	Min	Typical	Max
Supply Voltage	V_{CC}	-----	4.75V	5.0V	5.25V
Supply Current	I_{CC}	No Load	0.0 mA	-----	50 mA
Output current	I_O	-----	0.0 mA	-----	±16.0 mA
Operating temperature	T_A	-----	0°C	-----	70°C
Storage temperature	T_S	-----	-55°C	-----	125°C
Power Dissipation	P_D	-----	-----	-----	263 mW
Lead temperature	T_L	Soldering, 10 sec.	-----	-----	300°C
Load	-----	-----	-----	-----	10 TTL gate
Start-up Time	t_s	<20MHz	-----	-----	2 ms
		20MHz or greater	-----	-----	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:

- 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.
RMS jitter bandwidth of 12kHz to 20MHz.

Test Load:**Creating a Part Number**

SJ - X16X - FREQ

Package Code

SJ 4 J Lead 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
	5V

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