



### TTL SJ-160 Series

### Description

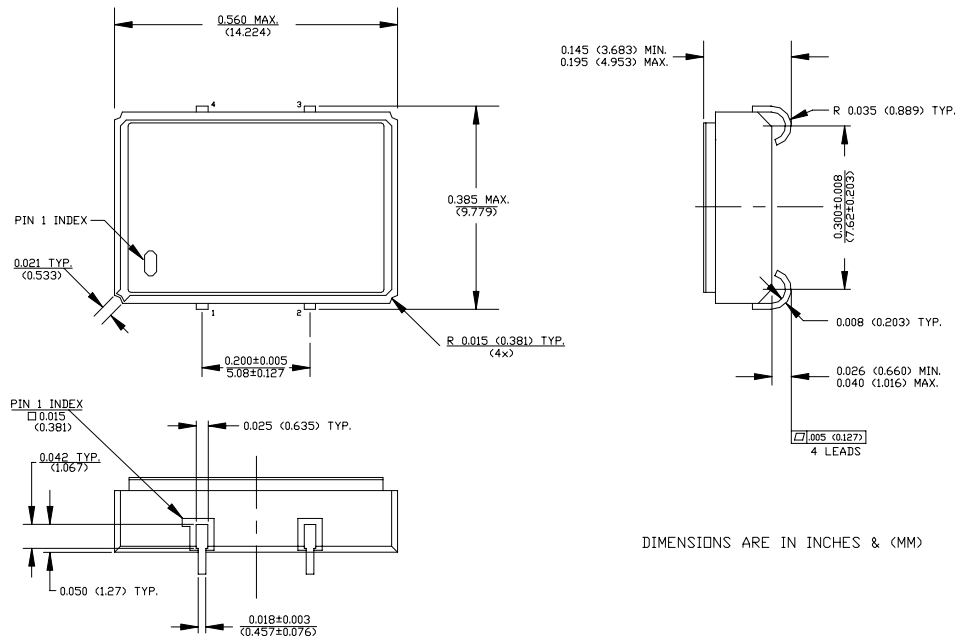
The **SJ-160 Series** of quartz crystal oscillators are designed to survive standard wave soldering operations without damage.

### Features

- Wide frequency range—2.25MHz to 85.0MHz
- User specified tolerance available
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 3000g
- Metal lid electrically connected to ground to reduce EMI
- COTS/Dual use
- 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 <sub>CC</sub>



**SJ-160 Series** Continued  
TTL

**Rev. L**

## 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 <sup>(2)</sup>	-----	<40MHz OT & >40MHz	-----	-----	5 psec
		<40MHz Fund	-----	-----	8 psec
Frequency Stability <sup>(1)</sup>	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	$V_{CC}$	5.0V±5%	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
Load	-----	-----	-----	-----	10 TTL gate
Start-up Time	$t_s$	<20MHz	-----	-----	2 ms
		20MHz or greater	-----	-----	10 ms

### Environmental and Mechanical Characteristics

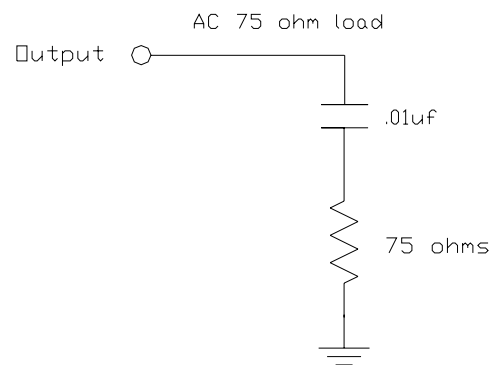
Mechanical Shock	Per MIL-STD-202, Method 213, Condition E
Thermal Shock	Per MIL-STD-883, Method 1011, Condition A
Vibration	0.060" double amplitude 10 Hz to 55 Hz, 35g's 55Hz to 2000 Hz
Hermetic Seal	Leak rate less than $1 \times 10^{-8}$ atm.cc/sec of helium

#### Footnotes:

- Standard frequency stability ( $\pm 20, \pm 25, \pm 50$ ppm & others available)
- Jitter performance is frequency dependent. Please contact factory for full characterization. RMS jitter bandwidth of 12kHz to 20MHz.

Creating a Part Number	
<b>SJ - X16X - FREQ</b>	
<b>Package Code</b>	<b>Tolerance/Performance</b>
SJ 4 J Lead SMD	0 ±100ppm 0-70°C
	1 ±50ppm 0-70°C
	7 ±25ppm 0-70°C
<b>Input Voltage</b>	9 Customer Specific
Code Specification	A ±20ppm 0-70°C
A 3.3V	B ±50ppm -40 to +85°C
5V	C ±100ppm -40 to +85°C

#### Test Load:



SJ-160 Series Continued

Max Reflow Profile

