



### CMOS (LVTTL Compatible) SJ-A460 Series

### Description

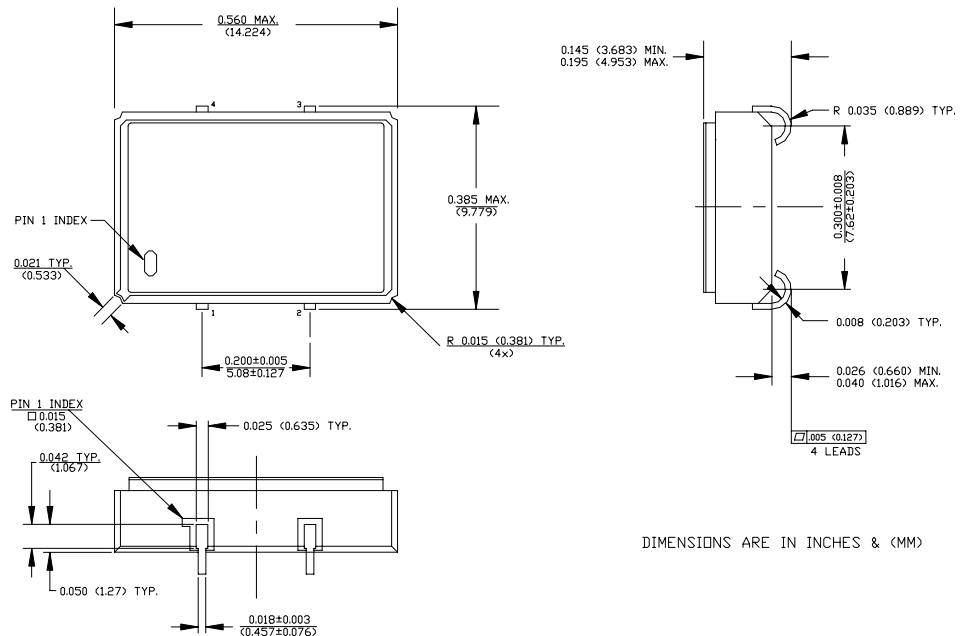
The **SJ-A460 Series** of quartz crystal oscillators are designed to survive standard wave soldering operations without damage.

### Features

- Wide frequency range—2.25MHz to 36.0MHz
- User specified tolerance available
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 3000g
- Metal lid electrically connected to ground to reduce EMI
- 3.3 volt operation
- COTS/Dual use
- Low Jitter
- CMOS and LVTTL 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
- RoHS Compliant, Lead Free Construction

### Electrical Connection

Pin	Connection
1	N.C.
2	Ground
3	Output
4	V <sub>DD</sub>



**SJ-A460 Series** Continued  
CMOS (LVTTTL Compatible)

**Rev. H**

## 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 $\mu$ A	-----	-----	0.2V
Logic 1	$V_{OH}$	@ 600 $\mu$ A	$V_{DD}-0.2V$	-----	-----
Rise & Fall Time	tr,tf	10-90% $V_O$	-----	-----	3 ns
Jitter, RMS <sup>(2)</sup>	-----	-----	-----	-----	8.0 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	$V_{DD}$	3.3V $\pm$ 5%	3.135	3.3V	3.465V
Supply Current	$I_{DD}$	No Load	0.0 mA	-----	40 mA
Output current	$I_O$	-----	0.0 mA	-----	$\pm$ 16.0 mA
Operating temperature	$T_A$	-----	0°C	-----	70°C
Storage temperature	$T_S$	-----	-55°C	-----	125°C
Power Dissipation	$P_D$	-----	-----	-----	138 mW
Load	-----	-----	-----	-----	15pf
Start-up Time	$t_s$	<20MHz 20MHz or greater	-----	-----	2 ms 10 ms

### Environmental and Mechanical Characteristics

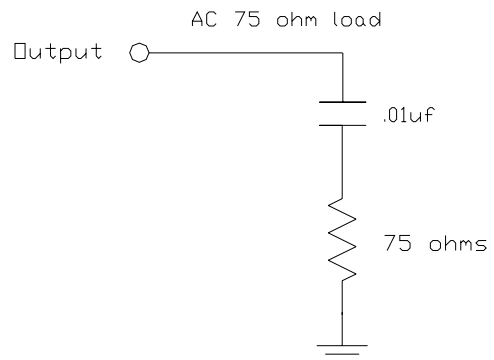
Mechanical Shock	Per MIL-STD-202, Method 213, Condition E
Thermal Shock	Per MIL-STD-883, Method 1011, Condition A
Vibration	0.060" double amplitude 10 Hz to 55 Hz, 35g's 55Hz to 2000 Hz
Hermetic Seal	Leak rate less than $1 \times 10^{-8}$ atm.cc/sec of helium

#### Footnotes:

- Standard frequency stability ( $\pm$ 20, $\pm$ 25, $\pm$ 50ppm & 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 - A46X - FREQ</b>	
<b>Package Code</b>	<b>Tolerance/Performance</b>
SJ 4 J Lead SMD	0 $\pm$ 100ppm 0-70°C
	1 $\pm$ 50ppm 0-70°C
	7 $\pm$ 25ppm 0-70°C
	9 Customer Specific
<b>Input Voltage</b>	A $\pm$ 20ppm 0-70°C
Code Specification	B $\pm$ 50ppm -40 to +85°C
A 3.3V	C $\pm$ 100ppm -40 to +85°C
5V	

#### Test Load:



SJ-A460 Series Continued

Max Reflow Profile

