CRYSTAL CLOCK OSCILLATORS

Data Sheet 0021F

Rev. H

CMOS (LVTTL Compatible)

SJ-A460 Series

Description

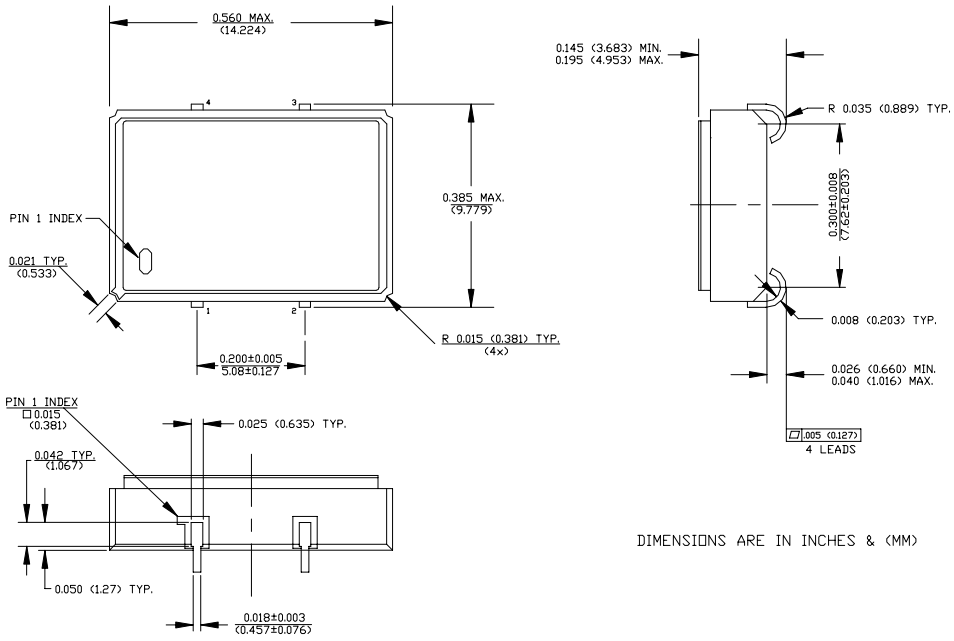
The **SJ-A460 Series** of quartz crystal oscillators are designed to survive standard wave soldering operations without damage.

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_{DD}



NEL FREQUENCY CONTROLS, INC.

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SJ-A460 Series Continued
CMOS (LVTTL 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}	@ 600µA	-----	-----	0.2V
Logic 1	V_{OH}	@ 600µA	V_{DD}-0.2V	-----	-----
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}	3.3V±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	-----	±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	-----	-----	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 x 10^{-8} atm.cc/sec of helium

Footnotes:
1) Standard frequency stability (±20,±25,±50ppm & others available)
2) Jitter performance is frequency dependent. Please contact factory for full characterization. RMS jitter bandwidth of 12kHz to 20MHz.

Creating a Part Number

SJ - A46X - FREQ

Package Code
SJ 4 J Lead SMD

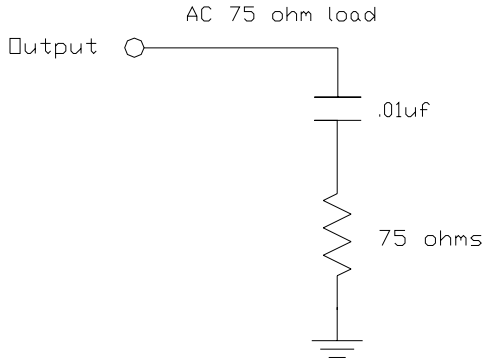
Input Voltage

Code	Specification
A	3.3V
	5V

Tolerance/Performance

0	±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

Test Load:



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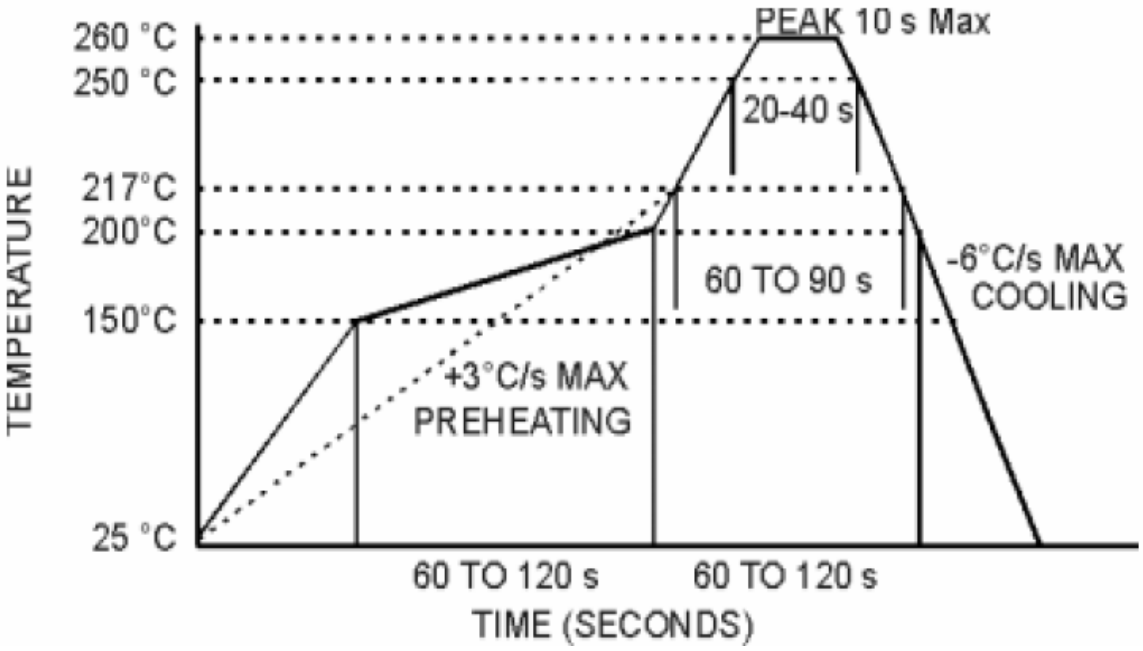
SJ-A460 Series Continued

Max Reflow Profile



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