SJ-A1420 Series

Size, mm
9 x 14
I/O
4 J Lead
Supply Voltage
3.3V / 5V

LVCMOS
SJ-A1420 Series *Rev S*
Frequency Range: 1.0 MHz to 80.0 MHz

Description

The SJ-A1420 Series of quartz crystal oscillators provide enable/disable 3-state LVCMOS compatible signals for bus connected systems. Supplying Pin 1 of the SJ-A1420 units with a logic "1" or open enables its Pin 3 output. In the disable mode, Pin 3 presents a high impedance to the load. All units are designed to survive standard wave soldering operations without damage.

Features

- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low jitter - Wavecrest jitter characterization available
- Wide frequency range—1.0 MHz to 80.0 MHz
- 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
- 3.3 Volt operation
- High Q crystal actively tuned oscillator circuit
- Power supply decoupling internal
- No internal PLL avoids cascading PLL problems
- Low power consumption
- Gold plated leads
- RoHS Compliant, Lead Free Construction

Creating a Part Number

SJ - A142X - FREQ

Package Code
SJ 4 J Lead 9x14 mm SMD

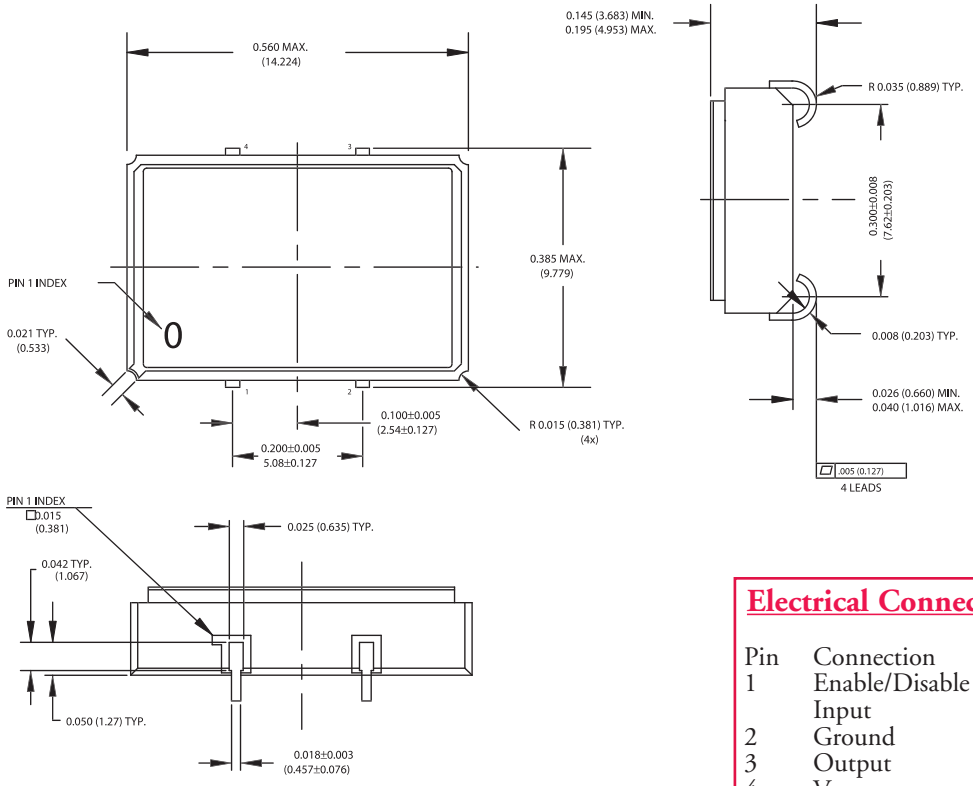
Input Voltage

Code	Specification
A	3.3 V
	5 V

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

Drawing Specifications



Dimensions shown in inches and millimeters.

Electrical Connection

Pin	Connection
1	Enable/Disable Input
2	Ground
3	Output
4	V_{DD}

NEL FREQUENCY CONTROLS, INC.

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Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	—	—	1.0 MHz	—	80.0 MHz
Duty Cycle	—	@V_{DD}/2	45/55%	—	55/45%
Logic 0	V_{OL}	@600 µA	—	—	0.2 V
Logic 1	V_{OH}	@600 µA	V_{DD} -0.2V	—	—
Rise & Fall Time	t_r, t_f	10-90%	—	—	8 ns
T_{pz}	—	—	—	—	25 ns
Enable/Disable Logic High Voltage	—	—	1.6 V	—	—
Enable/Disable Logic Low Voltage	—	—	—	—	0.4 V
Jitter, RMS[2]	—	—	—	3 psec	—
Frequency Stability[1]	dF/F	Overall conditions including: voltage, calibration, temp., 10 yr aging, shock, vibration	-100 ppm	—	+100 ppm

General Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Supply Voltage[3]	V_{DD}	3.3V±10%	2.97 V	3.3 V	3.63 V
Supply Current	I_{DD}	No Load	0.0 mA	25 mA	40 mA
Output Current	I_O	—	0.0 mA	—	±16.0 mA
Operating Temperature	T_A	—	0ºC	—	70ºC
Storage Temperature	T_S	—	-55ºC	—	125ºC
Power Dissipation	P_D	—	—	—	145 mW
Lead Temperature	T_L	Soldering, 10 sec.	—	—	300ºC
Load	—	—	—	—	15 pf
Start-up Time	t_S	—	—	2 ms	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 55 Hz to 2000 Hz
Soldering Condition	300ºC for 10 seconds
Hermetic Seal	Leak rate less than 1 x 10^{-8} atm.cc/sec of helium

Footnotes:

1) Standard frequency stability (±20, ±25, ±50 ppm & others available).
2) Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization. RMS jitter bandwidth of 12kHz to 20MHz.
3) Internal high frequency power source decoupling.

Test Load