



## LVC MOS SC-A1420 Series

Rev. D

### Description

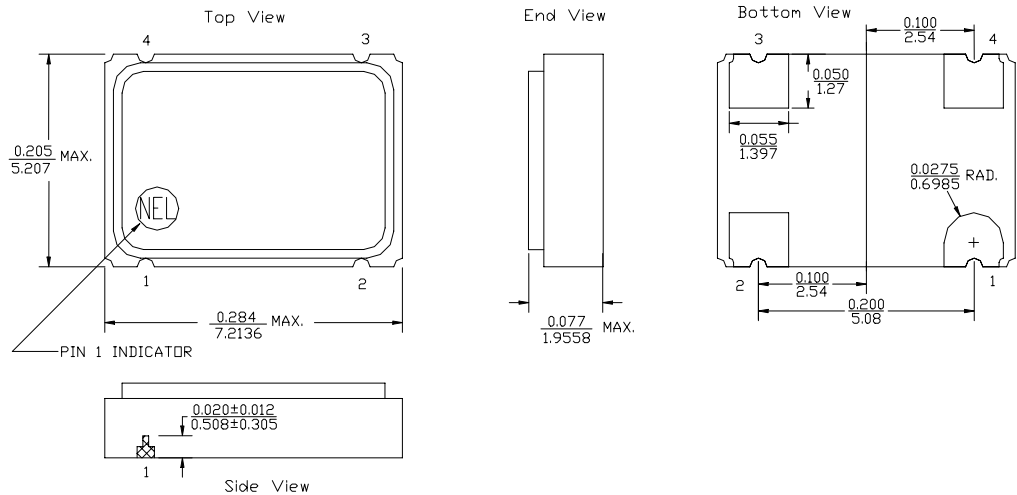
The **SC-A1420 Series** of quartz crystal oscillators provide enable/disable 3-state LVC MOS compatible signals for bus connected systems. Supplying Pin 1 of the SC-A1420 units with a logic "1" or open enables its Pin 3 output. In the disable mode, Pin 3 presents a high impedance to the load.

### Features

- Wide frequency range—1.0MHz to 80.0MHz
- User specified tolerance available
- Space-saving alternative to discrete component oscillators
- 3.3 Volt operation
- High shock resistance, to 1000g
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low Jitter - Wavcrest jitter characterization available
- No internal PLL avoids cascading PLL problems
- Metal lid electrically connected to ground to reduce EMI
- Gold plated pads
- RoHS Compliant, Lead Free Construction

### Electrical Connection

Pin	Connection
1	Enable/Disable
2	Ground
3	Output
4	V <sub>DD</sub>



ALL DIMENSIONS:  $\frac{\text{IN}}{\text{mm}}$   
 All tolerances are ±0.005 inches (±0.127 mm) unless otherwise specified.

SC-A1420 Series Continued  
LVCMOS

Rev. D

## Operating Conditions and Output Characteristics

### Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	1.0MHz	-----	80.0MHz
Duty Cycle	-----	@ V <sub>DD</sub> /2	45/55%	-----	55/45%
Logic 0	V <sub>OL</sub>	@ 600μA	-----	-----	0.2V
Logic 1	V <sub>OH</sub>	@ 600μA	V <sub>DD</sub> -0.2V	-----	-----
Rise & Fall Time	tr,tf	10-90%V <sub>O</sub> :			
		1.0 to 20.0MHz	-----	3.5ns	5.0ns
		20.1 to 50.0MHz	-----	3.3ns	4.5ns
		50.1 to 80.0MHz	-----	1.5ns	4.0ns
Jitter, Integrated	J	Integrated from phase noise, 12kHz to 20MHz, RMS	-----	0.1 ps	-----
Jitter, Wavecrest Characterized <sup>(2)</sup>	-----	Random Period Accum, pk-to-pk	-----	2.3ps	-----
Phase Noise <sup>(4)</sup>	£(Δf)	@ 10Hz	-----	-70 dBc/Hz	-----
		@ 100Hz	-----	-105 dBc/Hz	-----
		@ 1kHz	-----	-130 dBc/Hz	-----
		@ 10kHz	-----	-145 dBc/Hz	-----
		@ 100kHz	-----	-150 dBc/Hz	-----
		@ >1Mhz	-----	-150 dBc/Hz	-----
T <sub>pz</sub>	-----	-----	-----	-----	25 ns
Enable Voltage	-----	-----	2.0V	-----	-----
Disable Voltage	-----	-----	-----	-----	0.8V
Frequency Stability <sup>(1)</sup>	dF/F	Overall conditions including: voltage, calibration, temp., 10 year aging, shock, vibration	-100ppm	-----	+100ppm

### General Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Supply Voltage <sup>(3)</sup>	V <sub>DD</sub>	3.3±10%	2.97V	3.3V	3.63V
Supply Current	I <sub>DD</sub>	No Load	0.0 mA	-----	40 mA
Output current	I <sub>O</sub>	Low level Output Current	0.0 mA	-----	±16.0 mA
Operating temperature	T <sub>A</sub>	-----	0°C	-----	70°C
Storage temperature	T <sub>S</sub>	-----	-55°C	-----	125°C
Power Dissipation	P <sub>D</sub>	-----	-----	-----	145 mW
Load	-----	-----	-----	-----	15pf
Start-up Time	t <sub>s</sub>	20MHz or greater	-----	-----	10 ms
		Less than 20MHz	-----	-----	2 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 <sup>-8</sup> atm.cc/sec

### Footnotes:

- Standard frequency stability (±20,±25,±50ppm & others available)
- Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization.
- External high frequency power supply decoupling required.
- If phase noise data at a particular frequency is needed, contact factory.

### Creating a Part Number

SC - A142X - FREQ

#### Package Code

SC 4 pad 5x7mm 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
B	2.5V
	5V



**FREQUENCY  
CONTROLS, INC.**