



LVC MOS SC-A1420 Series

Rev. C

Description

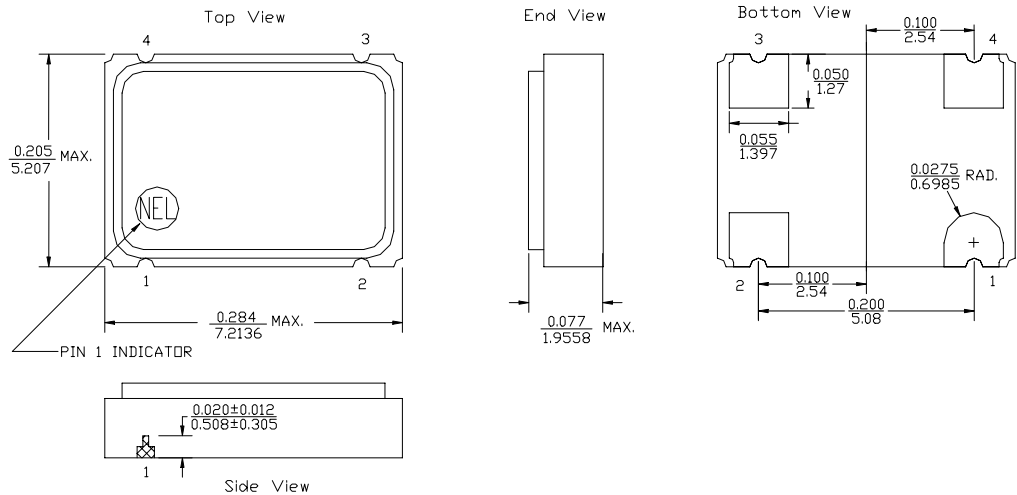
The **SC-A1420 Series** of quartz crystal oscillators provide enable/disable 3-state LVC MOS compatible signals for bus connected systems. Supplying Pin 1 of the SC-A1420 units with a logic "1" or open enables its Pin 3 output. In the disable mode, Pin 3 presents a high impedance to the load.

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 - Wavecrest 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 _{DD}



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

SC-A1420 Series Continued
LVCMOS

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Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	1.0MHz	-----	80.0MHz
Duty Cycle	-----	@ $V_{DD}/2$	45/55%	-----	55/45%
Logic 0	V_{OL}	@ 600 μ A	-----	-----	0.2V
Logic 1	V_{OH}	@ 600 μ A	$V_{DD}-0.2V$	-----	-----
Rise & Fall Time	tr,tf	10-90% V_{O} :			
		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 ⁽²⁾	-----	Random Period Accum, pk-to-pk	-----	2.3ps 26ps	-----
Phase Noise	$\mathcal{L}(\Delta f)$	@ 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_{DZ}	-----	-----	-----	-----	25 ns
Enable Voltage	-----	-----	2.0V	-----	-----
Disable Voltage	-----	-----	-----	-----	0.8V
Frequency Stability ⁽¹⁾	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 ⁽³⁾	V_{DD}	3.3 \pm 10%	2.97V	3.3V	3.63V
Supply Current	I_{DD}	No Load	0.0 mA	-----	40 mA
Output current	I_O	Low level Output Current	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	-----	-----	-----	145 mW
Load	-----	-----	-----	-----	15pf
Start-up Time	t_s	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 1×10^{-8} atm.cc/sec

Footnotes:

- Standard frequency stability (\pm 20, \pm 25, \pm 50ppm & others available)
- Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization.
- External high frequency power supply decoupling required.

Creating a Part Number

SC - A142X - FREQ

Package Code

SC 4 pad 5x7mm SMD

Tolerance/Performance

0 \pm 100ppm 0-70°C
 1 \pm 50ppm 0-70°C
 7 \pm 25ppm 0-70°C
 9 Customer Specific
 A \pm 20ppm 0-70°C
 B \pm 50ppm -40 to +85°C
 C \pm 100ppm -40 to +85°C

Input Voltage

Code	Specification
A	3.3V
B	2.5V
	5V



**FREQUENCY
CONTROLS, INC.**