



## LVC MOS SC-D1420 Series

Rev. H

### Description

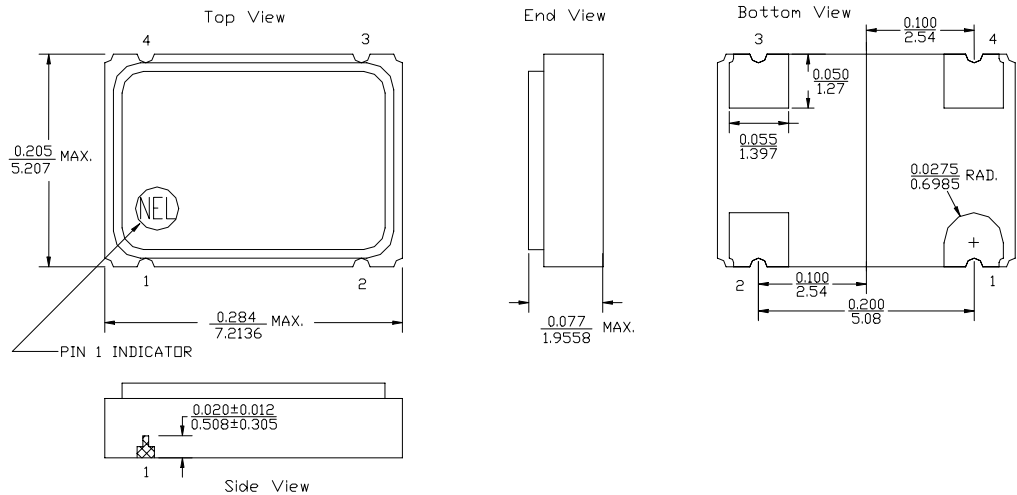
The **SC-D1420 Series** of quartz crystal oscillators provide enable/disable 3-state LVC MOS compatible signals for bus connected systems. Supplying Pin 1 of the SC-D1420 units with a logic "1" or open enables its Pin 3 output. In the disable mode, Pin 3 presents a high impedance to the load.

### Features

- Wide frequency range—1.0MHz to 40.0MHz
- User specified tolerance available
- Space-saving alternative to discrete component oscillators
- 1.2 Volt operation
- High shock resistance, to 1000g
- Power supply decoupling internal
- COTS/Dual use
- 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 <sub>DD</sub>



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

SC-D1420 Series Continued  
LVCMOS

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## Operating Conditions and Output Characteristics

### Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	1.0MHz	-----	40.0MHz
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% $V_O$	-----	-----	10.0 ns
Jitter, Integrated	J	Integrated from phase noise, 12kHz to 20MHz, RMS	-----	0.1 ps	-----
Jitter, Wavecrest Characterized <sup>(2)</sup>	-----	Random Period	-----	2.3ps	-----
		Accum, pk-to-pk	-----	26ps	-----
Phase Noise <sup>(4)</sup>	$\mathcal{L}(\Delta f)$	@ 10Hz	-----	-70 dBc/Hz	-----
		@ 100Hz	-----	-105 dBc/Hz	-----
		@ 1kHz	-----	-130 dBc/Hz	-----
		@ 10kHz	-----	-145 dBc/Hz	-----
		@ 100kHz	-----	-150 dBc/Hz	-----
		@ >1Mhz	-----	-150 dBc/Hz	-----
$T_{pz}$	-----	-----	-----	-----	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>	$V_{DD}$	-----	1.14V	1.2V	1.26V
Supply Current	$I_{DD}$	No Load	0.0 mA	-----	2.0 mA
Output current	$I_O$	Low level Output Current	0.0 mA	-----	$\pm 600\mu$ A
Operating temperature	$T_A$	-----	0°C	-----	70°C
Storage temperature	$T_S$	-----	-55°C	-----	125°C
Power Dissipation	$P_D$	-----	-----	-----	2.52 mW
Load	-----	-----	-----	-----	6 pf
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 $1 \times 10^{-8}$ atm.cc/sec

### Footnotes:

- 1) Standard frequency stability ( $\pm 20, \pm 25, \pm 50$ ppm & others available)
- 2) Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization.
- 3) Internal high frequency power source decoupling.
- 4) If phase noise data at a particular frequency is needed, contact factory.

Creating a Part Number	
<b>SC -D142X - FREQ</b>	
<b>Package Code</b>	<b>Tolerance/Performance</b>
SC 4 pad 5x7mm SMD	0 $\pm 100$ ppm 0-70°C
	1 $\pm 50$ ppm 0-70°C
	7 $\pm 25$ ppm 0-70°C
	9 Customer Specific
<b>Input Voltage</b>	A $\pm 20$ ppm 0-70°C
Code Specification	B $\pm 50$ ppm -40 to +85°C
D 1.2V	C $\pm 100$ ppm -40 to +85°C

SC-D1420 Series Continued

Max Reflow Profile

