

VCXO Series (CMOS) SH-A3200 Series

PRELIMINARY

Description

The **SH-A3200 Series** of voltage controlled quartz crystal oscillators provide frequency control by applying a voltage to Pin 1. This unit supplies a CMOS compatible output which are enabled when Pin 2 is set to a logic high or left open.

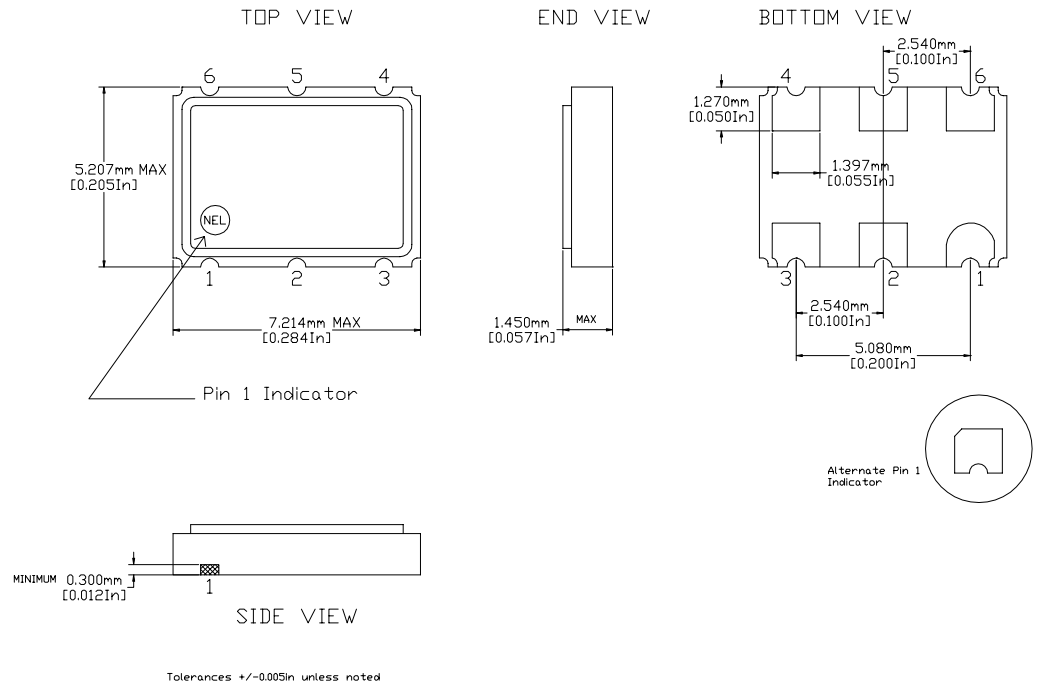
Features

- Wide frequency range 60.0MHz to 160.0MHz
- Will withstand vapor phase temperatures of 253°C for 4 minutes maximum
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 1000g
- 3.3 or 2.5 volt operation
- Metal lid electrically connected to ground to reduce EMI
- Low Jitter - Wavecrest jitter characterization available
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- High Q Crystal actively tuned oscillator circuit
- Power supply decoupling internal
- No internal PLL avoids cascading PLL problems
- High frequencies due to proprietary design
- Gold plated pads
- RoHS Compliant, Lead Free Construction

Electrical Connection

Pad Connection

- | | |
|---|-----------------|
| 1 | V _{CO} |
| 2 | Enable |
| 3 | Ground |
| 4 | Output |
| 5 | NC |
| 6 | V _{DD} |



SH-A3200 Series Continued
VCXO (HCMOS)

Rev. -

Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	----	----	60.0MHz	----	160.0MHz
Duty Cycle	----	@ V _O /2	45/55%	----	55/45%
Logic 0	V _{OL}	----	----	----	0.4V
Logic 1	V _{OH}	----	2.4V	----	----
Rise & Fall Time	tr,tf	0.8V-2.0V	----	----	1.6 ns
Jitter, cycle to cycle	----	----	----	----	100 psec
Absolute Pull Range	APR	V _{CO} =0.3 to 3.0V	±100ppm	----	----
Vco input impedance	----	50na dc current max	130K ohm	----	----
Vco linearity	----	V _{CO} =0.3 to 3.0V	----	----	10%
Transfer function ⁽¹⁾	----	V _{CO} =0.3 to 3.0V	----	Positive	----
Phase Noise	----	@ 100Hz	----	----	-95 dBc/Hz
		@ 1kHz	----	----	-122 dBc/Hz
		@ 10kHz	----	----	-138 dBc/Hz

General Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Supply Voltage	V _{DD}	3.3V±10%	2.97V	3.3V	3.63V
Supply Current	I _{DD}	----	----	----	20 mA
Output current	I _O	----	0.0 mA	----	±8.5 mA
Operating temperature	T _A	----	0°C	----	70°C
Storage temperature	T _S	----	-65°C	----	150°C
Power Dissipation	P _D	----	----	----	73 mW
Lead temperature	T _L	Soldering, 10 sec.	----	----	260°C
Load	----	----	----	15pf	----

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 55Hz to 2000 Hz
Soldering Condition	300°C for 10 seconds
Hermetic Seal	Leak rate less than 1 x 10 ⁻⁸ atm.cc/sec of helium

Footnotes:

- 1) Frequency increase with increase in control voltage and is monotonic
- 2) Phase noise characterization available

