

### LVDS SU-A2D10 Series

#### Description

The **SU-A2D10 Series** of quartz crystal oscillators provides a LVDS compatible signal.

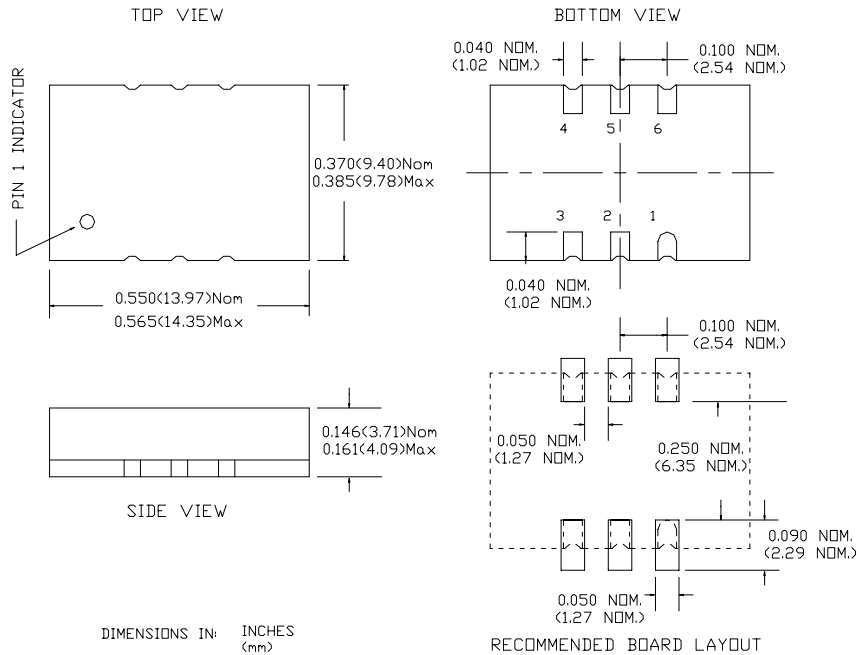
#### Features

- Wide frequency range—80.0MHz to 370.0MHz
- User specified tolerance available
- High shock resistance, to 1000g
- 3.3 volt operation (other voltages available upon request)
- Cover connected to ground
- Enable/Disable
- LVDS output on pin 4, complement on Pin 5
- COTS/Dual use
- Low Jitter - Wavecrest jitter characterization available
- High Reliability - NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Overtone technology
- High Q Crystal actively tuned oscillator circuit
- Power supply decoupling internal
- No internal PLL avoids cascading PLL problems
- High frequencies due to proprietary design

#### Electrical Connection

Pin Connection

- |   |                 |
|---|-----------------|
| 1 | Enable/Disable  |
| 2 | N.C             |
| 3 | Ground          |
| 4 | Q Output        |
| 5 | /Q Output       |
| 6 | V <sub>CC</sub> |



SU-A2D10 Series Continued  
LVDS

Rev. K

**Operating Conditions and Output Characteristics (6)****Electrical Characteristics**

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	80.0MHz	-----	370.0MHz
Duty Cycle <sup>(2)</sup>	-----	@ V <sub>O</sub> /2	45/55%	-----	55/45%
Logic 0 <sup>(2)</sup>	V <sub>OL</sub>	-----	0.80V	-----	1.10V
Logic 1 <sup>(2)</sup>	V <sub>OH</sub>	-----	1.25V	-----	1.55V
Differential Voltage <sup>(2)</sup>	V <sub>OD</sub>	-----	250 mV	-----	450 mV
Disable Voltage	-----	V <sub>EE</sub> =0V	-----	-----	0.8V
Enable Voltage <sup>(5)</sup>	-----	V <sub>EE</sub> =0V	2.0V	-----	-----
Rise & Fall Time <sup>(2)</sup>	tr,tf	20-80%V <sub>O</sub>	-----	-----	700 ps
Tpd <sup>(4)</sup>	-----	-----	-0.5 ns	-----	+0.5 ns
Jitter, Integrated	J	Integrated from phase noise, 12kHz to 20MHz, RMS	-----	0.1 ps	-----
Jitter, Wavecrest Characterized <sup>(3)</sup>	-----	Random Period Accum, pk-to-pk 200MHz	-----	2.3ps 28ps	-----
Phase Noise	£(Δf)	@ 10Hz @ 100Hz @ 1kHz @ 10kHz @ 100kHz @ >1Mhz	-----	-65 dBc/Hz -100 dBc/Hz -130 dBc/Hz -143 dBc/Hz -143 dBc/Hz -145 dBc/Hz	-----
Frequency Stability <sup>(1)</sup>	dF/F	Overall conditions including: voltage, calibration, temp., 10 yr aging, shock, vibration	-100ppm	-----	+100ppm

**General Characteristics**

Parameter	Symbol	Conditions	Min	Typical	Max
Supply Voltage	V <sub>CC</sub>	3.3V±5%	3.135V	3.3V	3.465V
Supply Current	I <sub>CC</sub>	-----	0.0 mA	-----	80 mA
Output current	I <sub>O</sub>	Continuous Output Current	0.0 mA	-----	±50.0 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>	-----	-----	-----	277 mW
Load	100 ohms across differential outputs				
Start-up time	t <sub>S</sub>	-----	-----	2 ms	10 ms

**Environmental and Mechanical Characteristics**

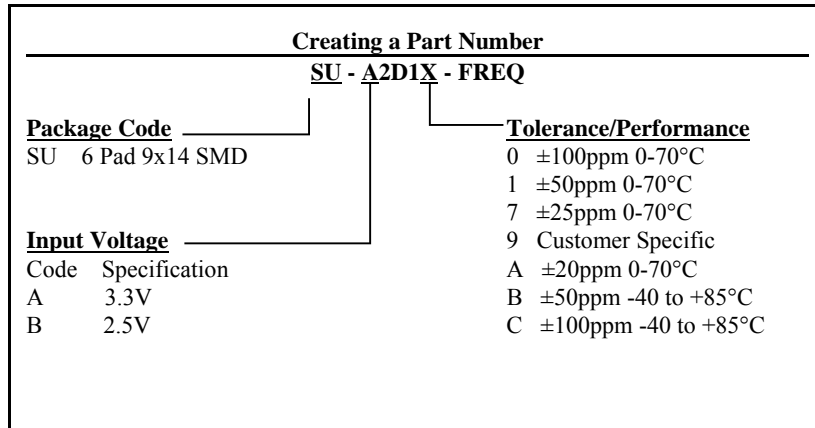
Mechanical Shock	Per MIL-STD-202, Method 213, Condition E
Thermal Shock	Per MIL-STD-883, Method 1011, Condition A
Vibration	0.060" double amplitude 10 Hz to 55 Hz, 35g's 55Hz to 2000 Hz

**Footnotes:**

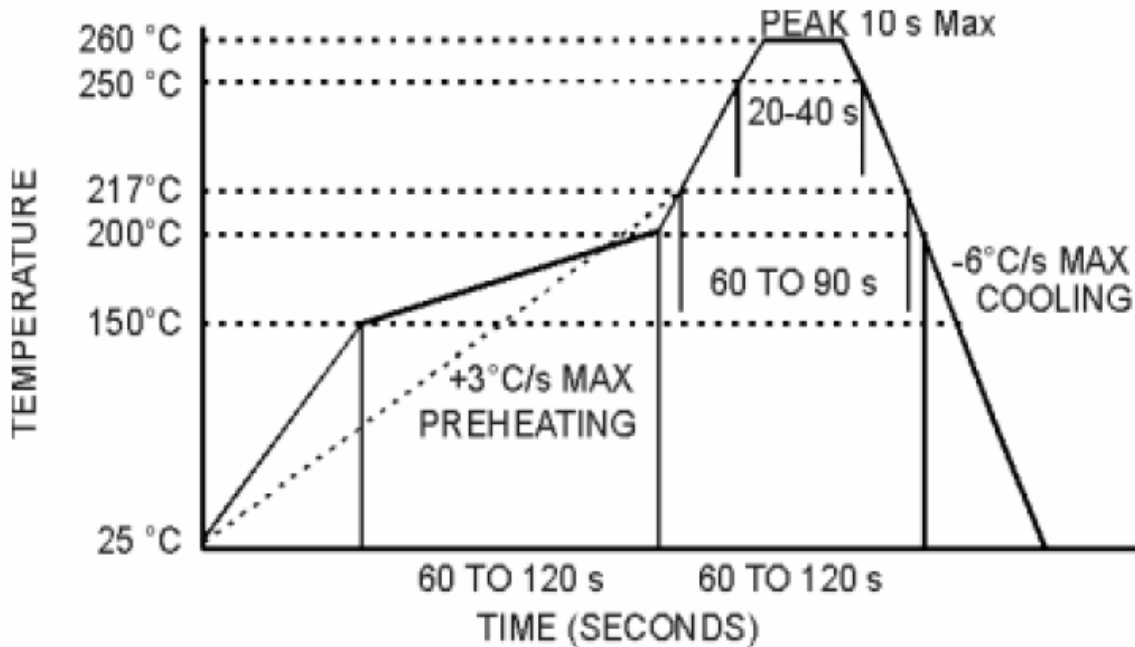
- Standard frequency stability (±20,±25,±50ppm & others available)
- With Load of 100 ohms across differential outputs.
- Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization.
- Tpd is phase shift between the falling edge of pin 4 and the rising edge of pin 5.
- Open to enable pin also enables the output.
- All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal Load.

SU-A2D10 Series Continued

Rev. K



Max Reflow Profile



The device may be reflowed once. Reflowing upside down is not allowed. NO CLEAN assembly is recommended.