

LVDS SR-A2D20 Series

Description

The **SR-A2D20 Series** of quartz crystal oscillators provide LVDS compatible signals in a ceramic SMD package. Systems designers may now specify space-saving, cost-effective packaged LVDS oscillators to meet their timing requirements.

Features

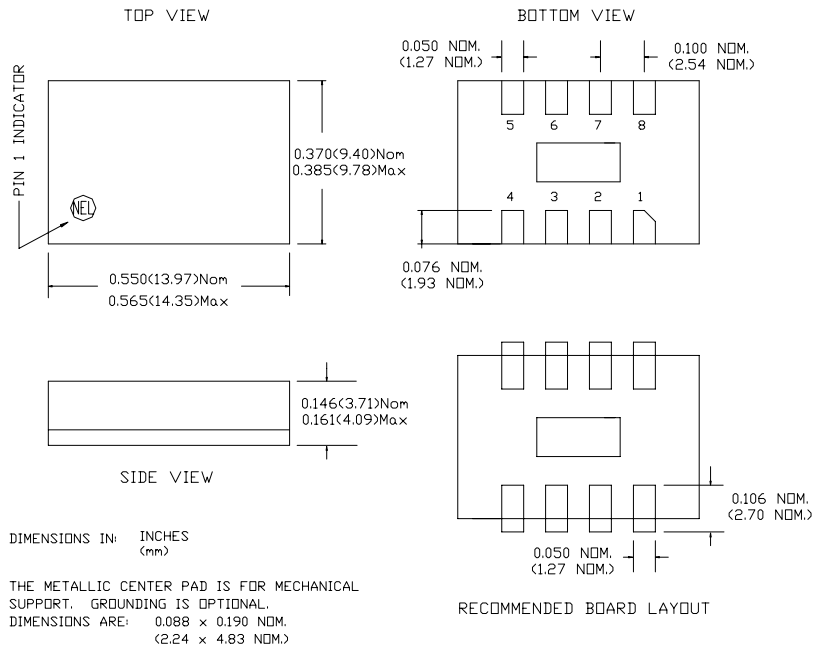
- Wide frequency range—100.0MHz to 640.0MHz
- User specified tolerance available
- Space-saving alternative to discrete component oscillators
- High shock resistance, to 1000g
- 3.3 volt operation (other voltages available upon request)
- Metal lid electrically connected to ground to reduce EMI
- Enable/Disable
- 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
- Gold plated pads
- RoHS Compliant, Lead Free Construction

Electrical Connection

Pin Connection

- | | |
|---|--------------|
| 1 | Vcc |
| 2 | Ground |
| 3 | NC or Ground |
| 4 | Q Output |
| 5 | /Q Output |
| 6 | Ground |
| 7 | Ground |
| 8 | Enable |

NEL recommends connecting the large pad located between the general signal pads to ground for heat transfer and improved RF grounding.



SR-A2D20 Series Continued
LVDS

Rev. D

Operating Conditions and Output Characteristics

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Frequency	-----	-----	100.0MHz	-----	640.0MHz
Duty Cycle ⁽²⁾	-----	@ V _O /2	45/55%	-----	55/45%
Logic 0 ⁽²⁾	V _{OL}	-----	0.80V	-----	1.10V
Logic 1 ⁽²⁾	V _{OH}	-----	1.25V	-----	1.55V
Differential Voltage ⁽²⁾	V _{OD}	-----	250 mV	-----	450 mV
Enable Voltage	-----	V _{EE} =0V	-----	-----	0.8V
Disable Voltage ⁽⁵⁾	-----	V _{EE} =0V	2.0V	-----	-----
Rise & Fall Time ⁽²⁾	tr,tf	20-80%V _O	-----	-----	600 ps
Jitter, RMS ⁽³⁾	-----	-----	-----	-----	1 psec
Frequency Stability ⁽¹⁾	dF/F	Overall conditions including: voltage, calibration, temp., 10 yr aging, shock, vibration	-100ppm	-----	+100ppm
Phase Noise ⁽⁴⁾	-----	@ 100Hz	-----	-----	-80 dBc/Hz
	-----	@ 1kHz	-----	-----	-115 dBc/Hz
	-----	@ 10kHz	-----	-----	-130 dBc/Hz
	-----	@ 100kHz	-----	-----	-130 dBc/Hz
	-----	@ 1MHz	-----	-----	-135 dBc/Hz
	-----	@ 10MHz	-----	-----	-135 dBc/Hz

General Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max
Supply Voltage	V _{CC}	3.3V±5%	3.135V	3.3V	3.465V
Supply Current	I _{CC}	-----	0.0 mA	-----	80 mA
Output current	I _O	Continuous Output Current	0.0 mA	-----	±50.0 mA
Operating temperature	T _A	-----	0°C	-----	70°C
Storage temperature	T _S	-----	-55°C	-----	125°C
Power Dissipation	P _D	-----	-----	-----	277 mW
Load	100 ohms across differential outputs				
Start-up time	t _s	-----	-----	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

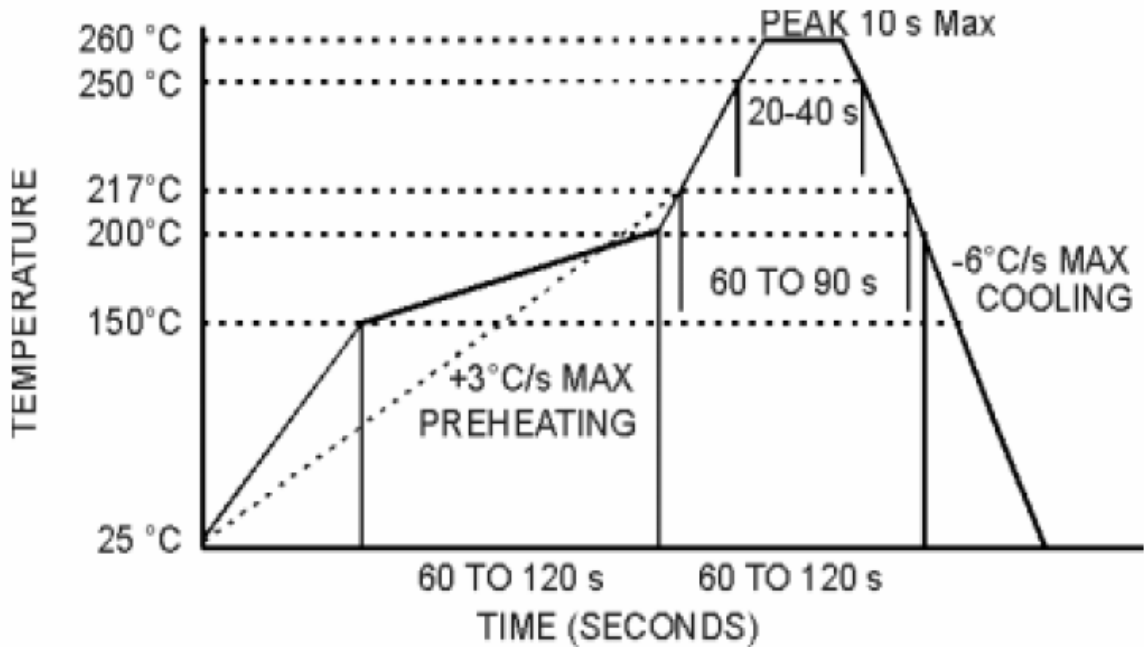
Footnotes:

- Standard frequency stability (others available)
- With Load of 100 ohms across differential outputs.
- Jitter performance is frequency dependent. Please contact factory for full Wavecrest characterization. RMS jitter bandwidth of 12kHz to 20MHz.
- Phase noise characterization available. Phase Noise is frequency dependant, phase noise specification references a 1.0GHz part.
- Open to enable pin also enables the output.

Creating a Part Number	
SR - A2D2X - FREQ	
Package Code	Tolerance/Performance
SR 8 pad 9x14 SMD	0 ±100ppm 0-70°C
	1 ±50ppm 0-70°C
	7 ±25ppm 0-70°C
	9 Customer Specific
Input Voltage	A ±20ppm 0-70°C
Code Specification	B ±50ppm -40 to +85°C
A 3.3V	C ±100ppm -40 to +85°C
B 2.5V	

SR-A2D20 Series Continued

Max Reflow Profile



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