

# 3.3V LVDS Low Jitter XO

**LN**


7.0 x 5.0mm Ceramic SMD

### Product Features

- 1 to 800 MHz Frequency Range
- <4 ps RMS jitter
- Tight stability over a broad range of operating conditions
- Designed for standard reflow & washing techniques
- Pb-free and RoHS/Green compliant

### Product Description

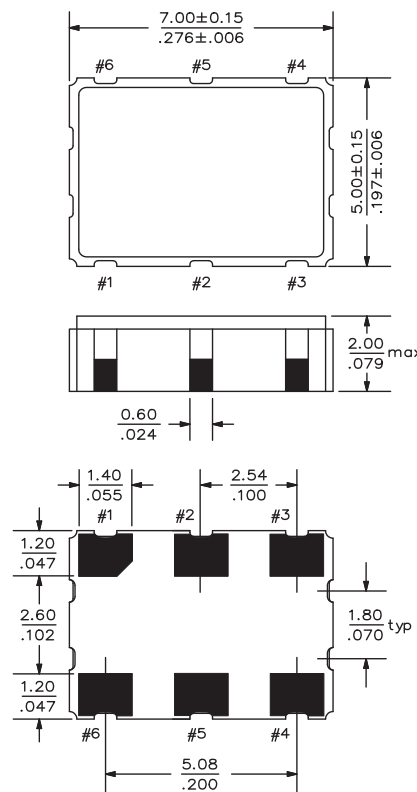
The LN Series 3.3V crystal clock oscillator achieves superb stability over a broad range of operating conditions and frequencies. The output clock signal is compatible with LVDS logic levels. The device, available on tape and reel, is contained in a 7.0 x 5.0mm surface-mount ceramic package.

### Applications

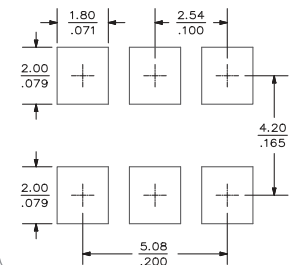
The LN Series is an ideal reference clock for high-speed applications including:

- 1/10 Gigabit Ethernet
- 2/4/10G Fibre Channel
- Serial Attached SCSI (SAS)
- Server & Storage platforms
- SONET/SDH linecards
- Network Processors

### Package:



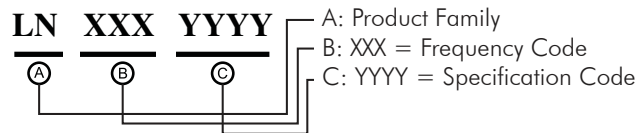
### Recommended Land Pattern:



### Pin Functions:

Pin	Function
1	OE or NC
2	OE or NC
3	V <sub>EE</sub>
4	Q Output
5	$\bar{Q}$ Output
6	V <sub>CC</sub>

### Part Ordering Information:



Following the above format, Saronix-eCera part numbers will be assigned upon confirmation of exact customer requirements.

### Electrical Performance

Parameter	Min.	Typ.	Max.	Units	Notes
Output Frequency	1		800	MHz	As specified
Supply Voltage	3.13	3.3	3.47	V	
Supply Current			25	mA	≤ 24 MHz
			45	mA	> 24 to 96 MHz
			80	mA	> 96 to 800 MHz
Frequency Stability			±20 to ±50	ppm	See Note 1 below
Operating Temperature Range	-40		+85	°C	As specified
Output Logic 0, V <sub>OL</sub>	0.9	1.1		V	
Output Logic 1, V <sub>OH</sub>		1.4	1.6	V	
Output Amplitude Differential	500		900	mV	
Output Load	100Ω +5pF across the outputs				output requires termination
Duty Cycle	45		55	%	Measured at 50% of the Differential Waveform
Differential Rise/Fall Time		0.7	1.0	ns	Measured at 20/80% of the Differential Waveform
Jitter, Phase		2.5	4	ps	RMS (1-σ) 12kHz to 20MHz Frequency Band
Jitter, Accumulated			6	ps	RMS (1-σ) 10,000 adjacent periods
Jitter, Total			40	ps	pk-pk 10,000 random periods
Phase Noise		-90		dBc/Hz	100 Hz offset (155.52 MHz output)
		-115		dBc/Hz	1 kHz offset (155.52 MHz output)
		-125		dBc/Hz	10 kHz offset (155.52 MHz output)
		-119		dBc/Hz	100 kHz offset (155.52 MHz output)

#### Notes:

- As specified. Stability includes all combinations of Operating Temperature, Load changes, rated Input (Supply) Voltage changes, initial Calibration Tolerance (25°C), Aging (5 years at 40°C average Effective Ambient Temperature), Shock and Vibration.
- For specifications other than those listed, please contact sales

### Output Enable / Disable Function (Active High Default and Active Low\*)

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (pin OE), Output Enable	V <sub>OH</sub>			V	
Input voltage (pin OE), Output Disable			V <sub>OL</sub>	V	
*Input Voltage (OE pin), Output Enable			V <sub>OL</sub>	V	
*Input voltage (OE pin), Output Disable	V <sub>OH</sub>			V	

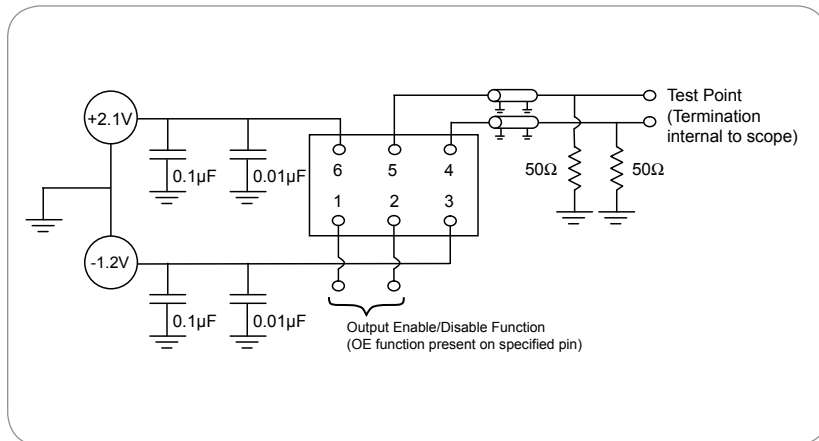
#### \*Note:

- Oe active low option is available. Please contact sales.

### Absolute Maximum Ratings

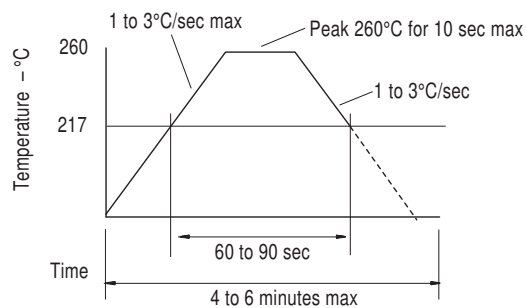
Parameter	Min.	Typ.	Max.	Units	Notes
Storage Temperature	-55		+125	°C	

### Test Circuit



### Reflow Soldering Profile

As per IPC/JEDEC J-STD-020C



### Reliability Test Ratings

This product is rated to meet the following test conditions:

Type	Parameter	Test Condition
Mechanical	Shock	MIL-STD-883, Method 2002, Condition B
Mechanical	Solderability	JESD22-B102-D Method 2 (Preconditioning E)
Mechanical	Terminal strength	MIL-STD-883, Method 2004, Condition D
Mechanical	Gross leak	MIL-STD-883, Method 1014, Condition C
Mechanical	Fine leak	MIL-STD-883, Method 1014, Condition A2 ( $R_1 = 2 \times 10^{-8}$ atm cc/s)
Mechanical	Solvent resistance	MIL-STD-202, Method 215
Environmental	Thermal shock	MIL-STD-883, Method 1011, Condition A
Environmental	Moisture resistance	MIL-STD-883, Method 1004
Environmental	Vibration	MIL-STD-883, Method 2007, Condition A
Environmental	Resistance to soldering heat	J-STD-020C Table 5-2 Pb-free devices (2 cycles max)

### Output Waveform

