

### 3.3V LVDS High Frequency Crystal Clock Oscillator (XO)



Actual Size = 5 x 7mm



#### Product Features

- Tight stability over a broad range of operating conditions
- 3.3V LVDS compatible logic levels
- Pin-compatible with standard 5x7mm packages
- Designed for standard reflow and washing techniques
- Pb-free and RoHS/Green compliant

#### Product Description

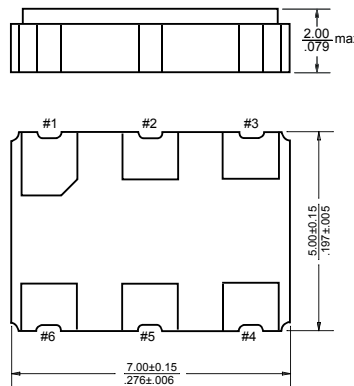
The SDS3811 Series is a 3.3V crystal clock oscillator that achieves superb stability over a broad range of operating conditions and frequencies. The output clock signal is compatible with LVDS logic levels. The device, available on tape and reel, is contained in a 5x7mm surface-mount ceramic package.

#### Applications

The SDS3811 Series is an ideal reference clock for high-speed applications including:

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

#### Packaging Outline



#### Pin Functions

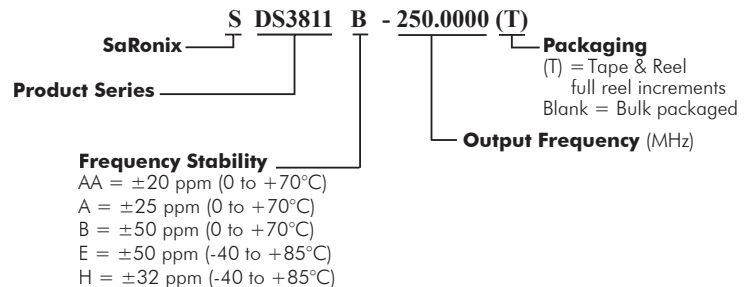
Pin	Function
1	NC
2	OE
3	V <sub>EE</sub>
4	Q Output
5	$\bar{Q}$ Output
6	V <sub>CC</sub>

#### Common Frequencies

Contact SaRonix for additional frequencies

106.2500 MHz	156.2500 MHz	250.0000 MHz
125.0000 MHz	175.0000 MHz	312.5000 MHz
150.0000 MHz	200.0000 MHz	350.0000 MHz
155.5200 MHz	212.5000 MHz	

#### Ordering Information



**Electrical Performance**

Parameter	Min.	Typ.	Max.	Units	Notes
Output frequency	104		350	MHz	As specified
Supply voltage	2.97	3.3	3.63	V	
Supply current		18	25	mA	
Frequency stability			±20 to ±50	ppM	See Note 1 below
Operating temperature	-40		+85	°C	As specified
Amplitude Differential	500		900	mVp-p	
Output load	100Ω and 5pF LVDS				
Duty cycle	45		55	%	measured 50% of waveform
Rise and fall time			1	ns	measured 20/80% of waveform
Jitter, total			50	ps pk-pk	

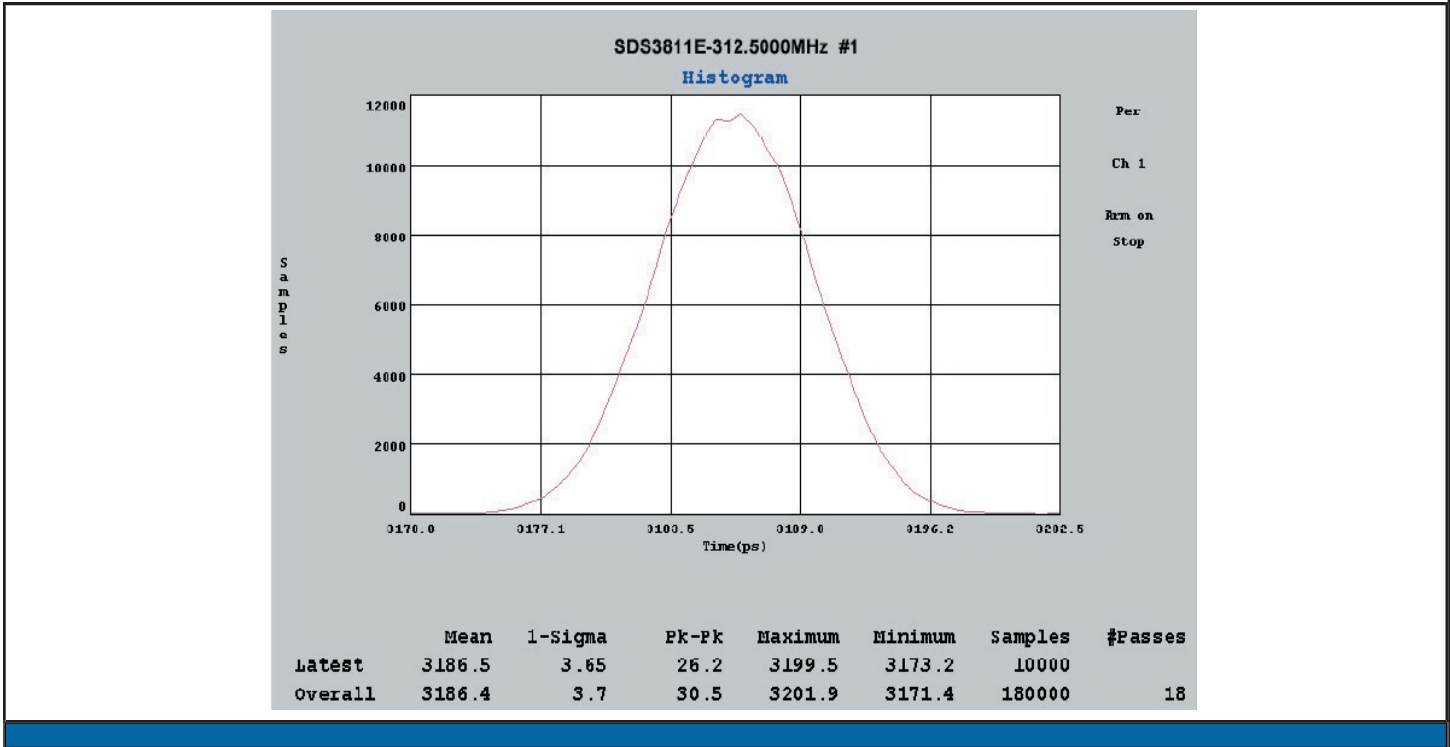
**Notes:**

- As specified. Stability includes all combinations of operating temperature, load changes, rated input (supply) voltage changes, initial calibration tolerance (25°C), aging (1 year at 25°C average effective ambient temperature), shock and vibration.

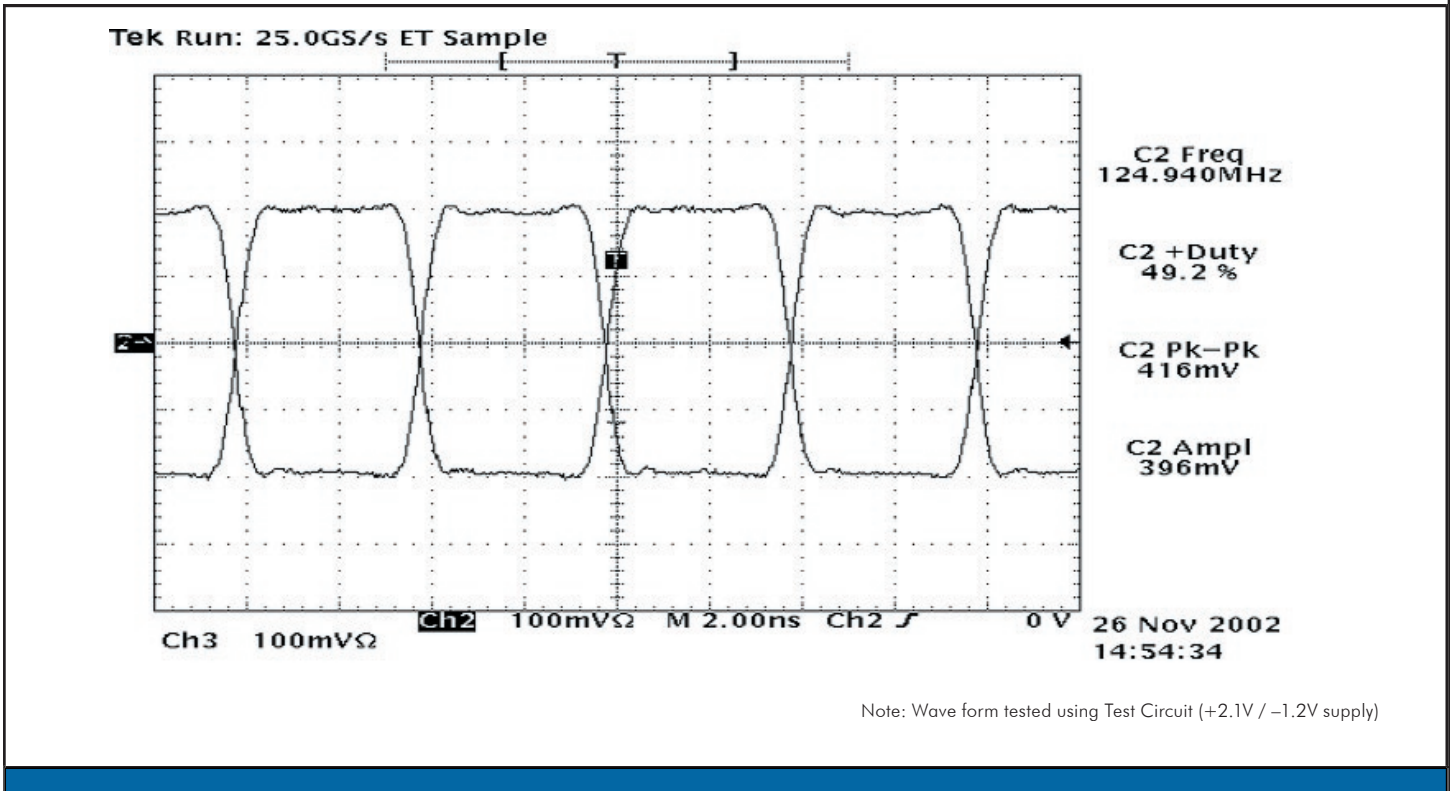
**Output Enable / Disable Function**

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (OE pin), Output Enable			0.8	V	or open
Input voltage (OE pin), Output Disable	2.2			V	Outputs disabled to Hi-Z
Internal Pulldown Resistance	50			kΩ	
Output Disable Delay			100	ns	
Output Enable Delay			100	ns	

**Typical Pk-Pk Jitter**



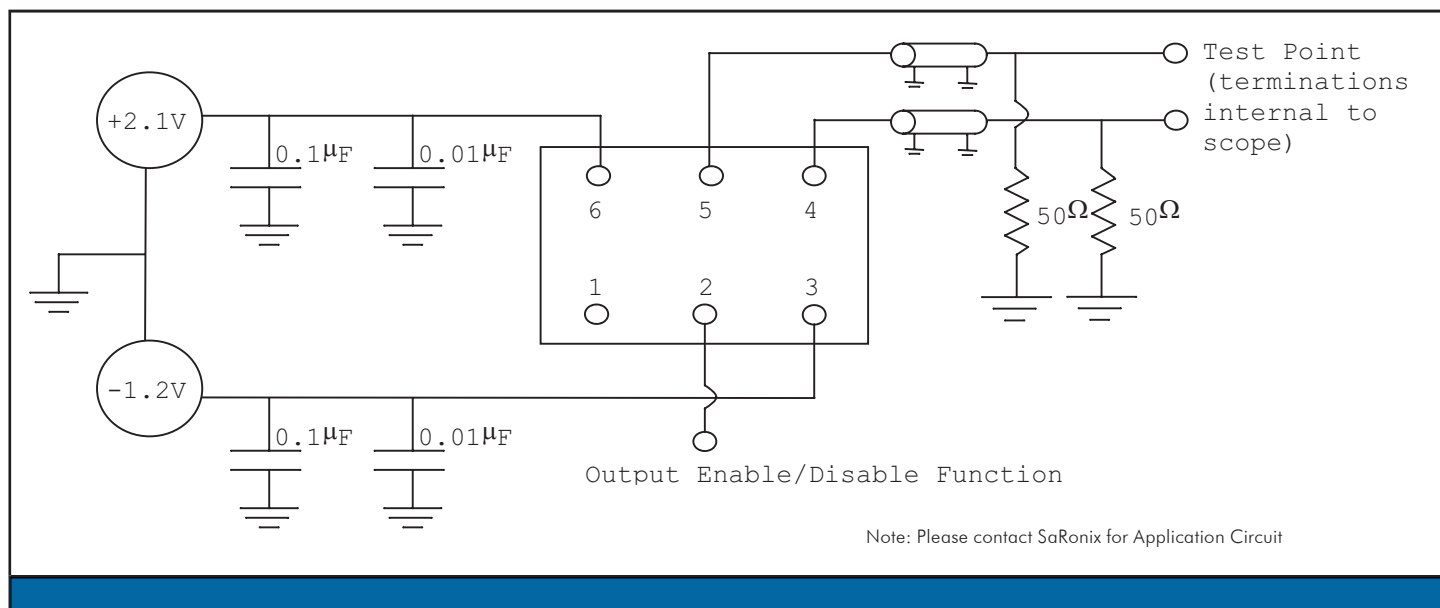
**Typical Output Waveform**



**Absolute Maximum Ratings**

Parameter	Min.	Typ.	Max.	Units	Notes
Storage temperature	-55		+125	°C	
Supply Voltage			+7	V	

**Test Circuit**

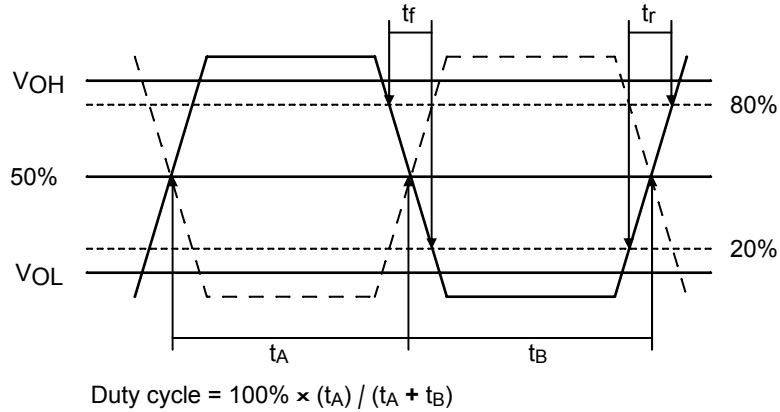


**Reliability Test Ratings**

This product is rated to meet the following test conditions:

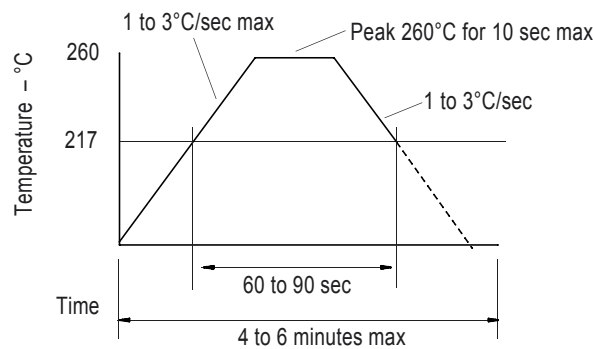
Type	Parameter	Test Condition
Mechanical	Shock	MIL-STD-883, Method 2002, Condition B
Mechanical	Solderability	JESD22-B102-D Method 2 (Preconditioning E)
Mechanical	Terminal strength	MIL-STD-883, Method 2004, Condition D
Mechanical	Gross leak	MIL-STD-883, Method 1014, Condition C
Mechanical	Fine leak	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**

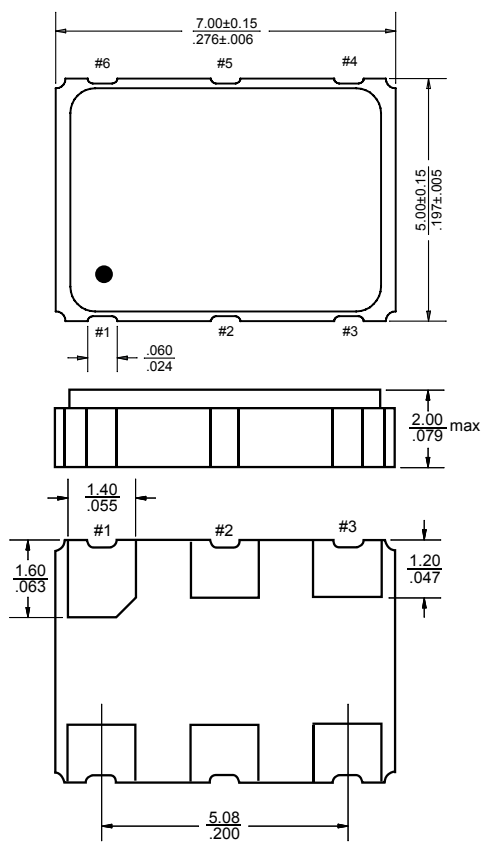


**Reflow Soldering Profile**

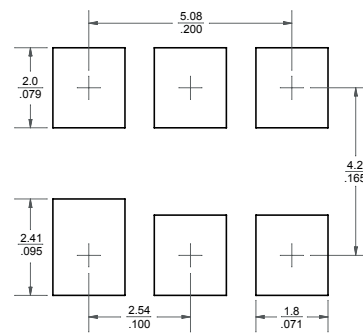
As per IPC/JEDEC J-STD-020C



**Mechanical Drawings**



**Recommended Land Pattern\***



\*External high-frequency power decoupling is recommended. (see test circuit for minimum recommendation). To ensure optimal performance, do not route traces beneath the package.

Scale: None. Dimensions are in mm/inches.

**Marking LINE 1:** SDS3811 X (SaRonix, Model, Stability code)  
**Marking LINE 2:** Frequency (Frequency code)  
**Marking LINE 3:** ● YY WW X (Pin 1, Year, Week, Origin)

**\*\* Exact location of markings may vary**