Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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3.3V PECL Low Jitter XO

SN

7.0 x 5.0mm Ceramic SMD

Product Features

- 50 to 220 MHz Frequency Range
- <1 ps RMS jitter with advanced non-PLL, patented design (U.S. Patent #7002423)
- Thicker crystal for improved reliability
- RoHS compliant

Product Description

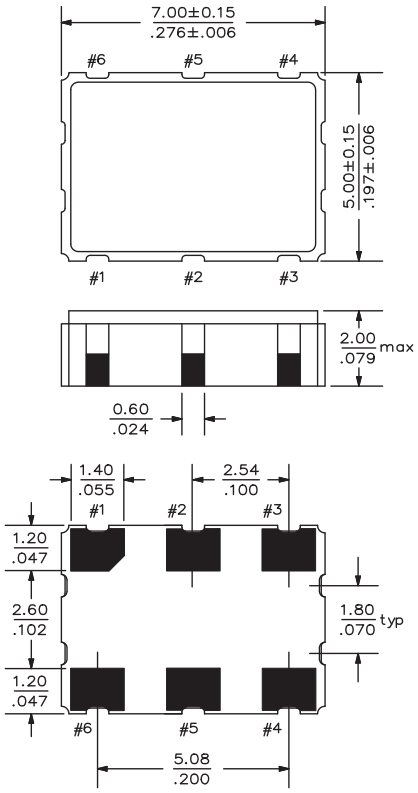
The SN Series 3.3V crystal clock oscillator achieves superb jitter and stability over a broad range of operating conditions and frequencies. The output clock signal, generated internally with a patented oscillator design, is compatible with LVPECL logic levels. The device, available on tape and reel,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

Applications

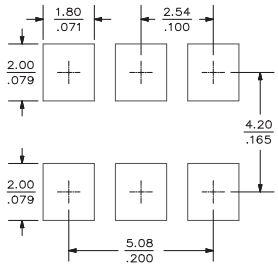
The SN Series is an ideal reference clock for high-speed applications requiring low jitter, including:

- 1/10 Gigabit Ethernet
- 2/4/10G Fibre Channel
- Serial Attached SCSI (SAS)
- Server & Storage platforms
- SONET/SDH linecards
- Passive Optical Network (PON) devices
- HD Video Systems

Package:



Recommended Land Pattern:



Pin Functions:

Pin	Function
1	OE or NC
2	OE or NC
3	V_{EE}
4	Q Output
5	$\overline{Q}$ Output
6	V_{CC}

Part Ordering Information:

SN XXX YYYY

- A: Product Family
- B: XXX = Frequency Code
- C: YYYY = Specification Code

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

Legacy Ordering Information - For Reference Only:

S EL383 3 B - 212.500 (T)

- **SaRonix**
- **Product Series**
- **Output Enable/Disable Function**
  - 0 = N/C pin 1, and pin 2
  - 3 = OE pin 1, N/C pin 2
  - 4 = N/C pin 1, OE pin 2
- **Frequency Stability**
  - A = ±25 ppm (-10 to +70°C)
  - B = ±50 ppm (-10 to +70°C)
  - E = ±50 ppm (-40 to +85°C)
- **Output Frequency** (MHz)
- **Packaging**
  - (T) = Tape & Reel full reel increments
  - Blank = Bulk packaged

Electrical Performance

Parameter	Min.	Typ.	Max.	Units	Notes
Output Frequency	50		220	MHz	As specified
Supply Voltage	2.97	3.30	3.63	V	
Supply Current, Output Enabled		60	70	mA	
Supply Current, Output Disabled			25	µA	
Frequency Stability			±20 to ±50	ppm	See Note 1 below
Operating Temperature Range	-20		+70	°C	Commercial (standard)
	-40		+85		Industrial (standard)
Output Logic 0, V_{OL}			V_{CC} – 1.620	V	0 to +85°C
			V_{CC} – 1.555	V	-40 to 0°C
Output Logic 1, V_{OH}	V_{CC} – 1.025			V	0 to +85°C
	V_{CC} – 1.085			V	-40 to +0°C
Output Load	50Ω to V_{CC} – 2V				output requires termination
Duty Cycle	45		55	%	Measured 50% V_{DD}
Rise and Fall Time		500	850	ns	Measured 20/80% of waveform
Jitter, Phase		0.25	1	ps RMS (1-σ)	12 kHz to 20 MHz frequency band
Jitter, Total		25	40	ps pk–pk	1000 random periods

Notes:
1. Stability includes all combinations of operating temperature, load changes, rated input (supply) voltage changes, initial calibration tolerance (25°C), aging (5 year at 40°C average effective ambient temperature), shock and vibration.
2. For specifications othere than those listed, please contact sales.

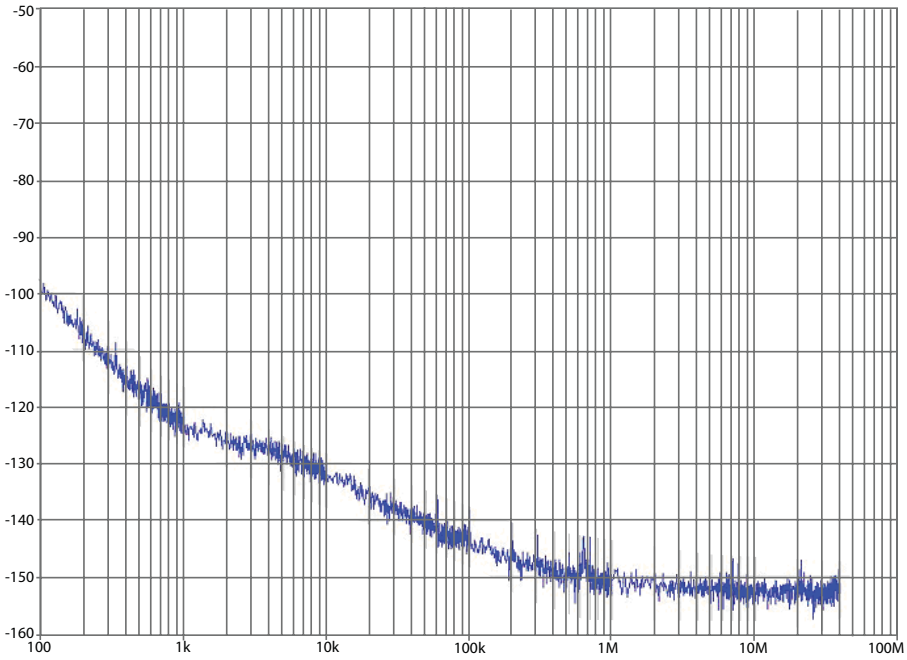
Output Enable / Disable Function

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (pin OE), Output Enable	2.2			V	or open
Input Voltage (pin OE), Output Disable (low power standby)			0.8	V	Outputs disabled to Hi-Z
Internal Pullup Resistance	50			kΩ	
Output Disable Delay			200	ns	
Output Enable Delay			10	ms	

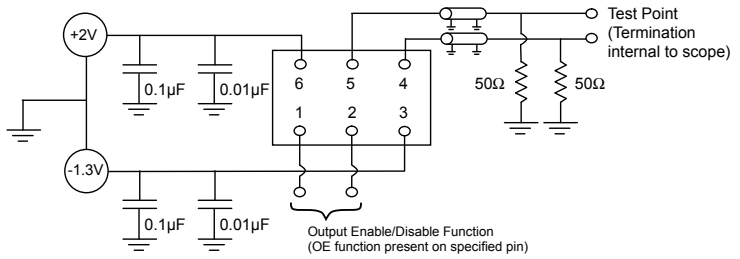
Absolute Maximum Ratings

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

Typical Phase Noise

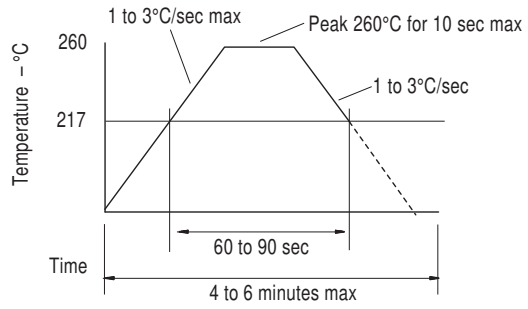


Test Circuit



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 ($R_1 = 2x10^{-8}$ 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)