



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!



## Contact us

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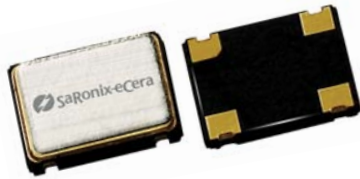
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# 3.3V CMOS Low Jitter XO

**FN**



7.0 x 5.0mm Ceramic SMD

## Product Features

- 1 to 166 MHz Frequency Range
- <1 ps RMS jitter
- 3.3V CMOS/TTL compatible logic levels
- Pin-compatible with standard 7.0 x 5.0mm packages
- Designed for standard reflow and washing techniques
- Low power standby mode
- Pb-free and RoHS/Green compliant

## Product Description

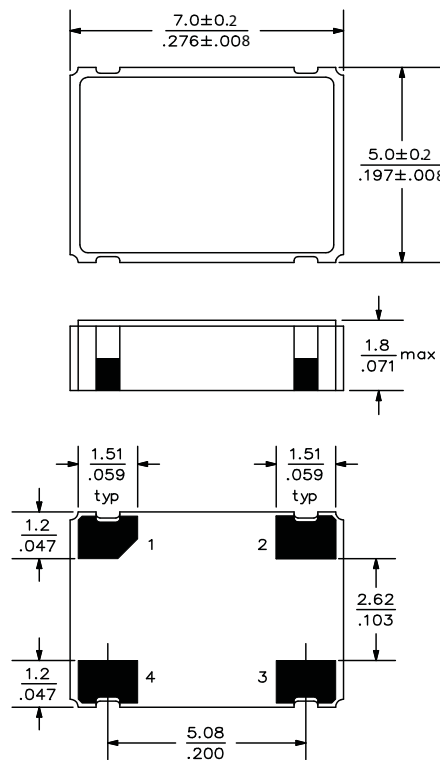
The FN Series 3.3V crystal clock oscillator achieves superb jitter and stability over a broad range of operating conditions and frequencies. The output clock signal, generated internally with a non-PLL oscillator design, is compatible with LVCMOS/LVTTL logic levels. The device, available on tape and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

## Applications

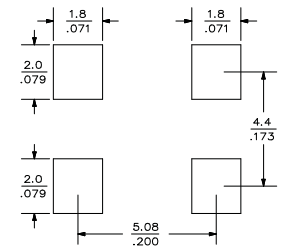
Ideal for low jitter or tight stability applications:

- Ethernet
- 802.11a/b/g WiFi
- Fibre Channel
- EPON
- SONET/SDH linecards
- DSLAM
- T1/E1, T3/E3 linecards
- Serial Attached SCSI (SAS)
- Server & Storage platforms

## Package:



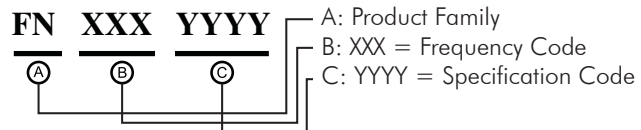
## Recommended Land Pattern:



## Pin Functions:

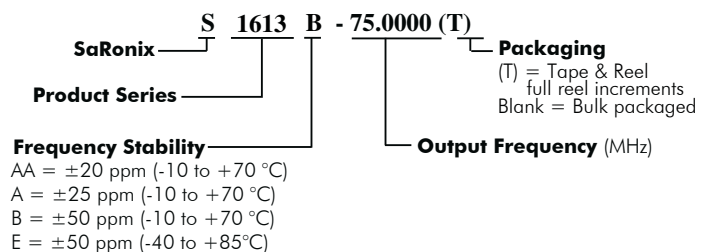
Pin	Function
1	OE Function
2	Ground
3	Clock Output
4	V <sub>DD</sub>

## Part Ordering Information:



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

## Legacy Ordering Information - For Reference Only:



### Electrical Performance

Parameter	Min.	Typ.	Max.	Units	Notes
Output Frequency	1		166	MHz	As specified
Supply Voltage	+2.97	+3.3	+3.63	V	
Supply Current, Output Enabled			15	mA	1 to 32 MHz
			25		32 to 50 MHz
			40		50 to 80 MHz
			55		80 to 166 MHz
Supply Current, Standby Mode			10	μA	1 to 36 MHz, 100 to 166 MHz
			100	μA	36 to 70 MHz
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 <sub>OL</sub>			10% V <sub>DD</sub>	V	
Output Logic 1, V <sub>OH</sub>	90% V <sub>DD</sub>			V	
Output Load			15	pF	
Duty Cycle	45		55	%	Measured 50% V <sub>DD</sub>
Rise and Fall Time	up to 50 MHz		7	ns	Measured 20/80% of waveform
	50 to 80 MHz		5		
	80 to 124 MHz		3		
	125 to 166 MHz		2.5		
Jitter, Phase	1 to 166 MHz		1	ps RMS (1-σ)	10kHz to 20 MHz frequency band
Jitter, Accumulated	up to 80 MHz		5	ps RMS (1-σ)	20.000 adjacent periods
	80 to 166 MHz		3		
Jitter, Total	up to 80 MHz		50	ps pk-pk	100.000 random periods
	80 to 166 MHz		30		

#### Notes:

- 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.
- For specifications other than those listed, please contact sales.

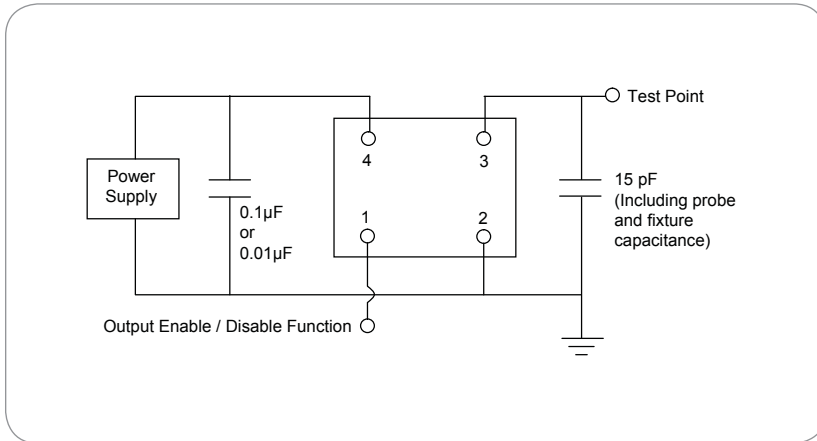
### Output Enable / Disable Function

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (pin 1), Output Enable	2.0			V	or open
Input Voltage (pin 1), Output Disable (low power standby)			0.5	V	Output is Hi-Z
Internal Pullup Resistance	50			kΩ	
Output Disable Delay			100	ns	
Output Enable Delay			10	ms	

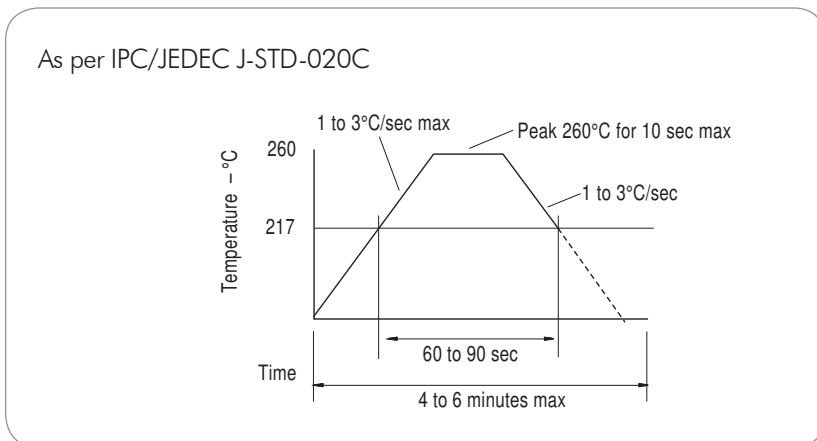
### Absolute Maximum Ratings

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

### Test Circuit



### Reflow Soldering Profile



### 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)