

# 1.8V CMOS Low Jitter XO





7.0 x 5.0mm Ceramic SMD

#### **Product Features**

- <1 ps RMS jitter with non-PLL design
- 1 to 166 MHz Frequency Range
- 1.8V LVCMOS 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**

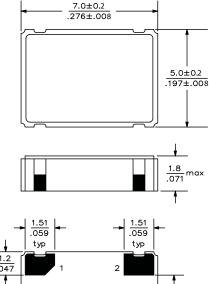
The FN Series includes a 1.8V crystal clock oscillator that achieves superb jitter and stability over a broad range of operating conditions and frequencies. The output clock signal, generated internally with a non-PLL oscillator design, is compatible with JESD8-7 logic levels. The device, available on tape and reel, is contained in a 7.0 x 5.0mm surface-mount ceramic package.

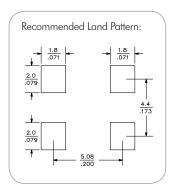
## **Applications**

The FN Series is an ideal reference clock for applications requiring low jitter and low power, including:

- Portable Electronics
- Server & Storage platforms
- 802.11a/b/g WiFi

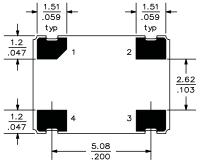
## Package:



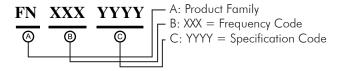


## **Pin Functions:**

Pin	Function
1	OE Function
2	Ground
3	Clock Output
4	$V_{\mathrm{DD}}$

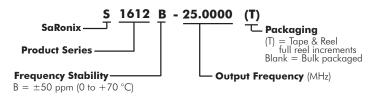


## **Part Ordering Information:**



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

## **Legacy Ordering Information - For Reference Only:**



SaRonix-eCera™ is a Pericom® Semiconductor company • US: +1-408-435-0800 TW: +886-3-4518888

• www.saronix-ecera.com







FN Series Crystal Clock Oscillator (XO) **Legacy S1612 Series | 7.0 x 5.0mm** 

#### **Electrical Performance**

	Parameter	Min.	Min. Typ. Max. Units		Notes	
Output Frequen	cy	1		166	MHz	As specified
Supply Voltage		+1.62	+1.8	+1.98	V	
				4		1 to 36 MHz
	Supply Current, Output Enabled			7		36 to 50 MHz
Supply Current				10	mA	50 to 70 MHz
				20		70 to 100 MHz
				40		>100 MHz
Samuelas Carmant	Supply Current, Standby Mode			10	μΑ	1 to <36 MHz, 100 to 166 MHz
Supply Current	, Standby Mode			100	μΑ	36 to 70 MHz
Frequency Stab	ility			±20 to ±50	ppm	See Note 1 below
On arating Toma	a a ratura	-20		+70	°C	Commercial (standard)
Operating Temperature		-40		+85		Industrial (standard)
Output Logic 0,	V <sub>OL</sub>			10% V <sub>DD</sub>	V	
Output Logic 1,	$V_{\mathrm{OH}}$	90% V <sub>DD</sub>			V	
Output Load				15	pF	
Duty Cycle		45		55	%	Measured 50% V <sub>DD</sub>
Rise and Fall	up to 36 MHz			4		Measured 20/80% of waveform
Time	36 to 166 MHz			2.5	ns	
Jitter, Phase	1 to 166 MHz			1	ps RMS (1-σ)	10kHz to 20 MHz frequency band
Jitter, Accumulated	up to 80 MHz			5	DMC (1	20.000 adjacent periods
	80 to 166 MHz			3	ps RMS (1-σ)	
Jitter,	up to 80 MHz			50	na nle nle	100 000 randam nariada
Total	80 to 166 MHz			30	ps pk-pk	100.000 random periods

#### Notes:

## **Output Enable / Disable Function**

Parameter	Min.	Тур.	Max.	Units	Notes
Input Voltage (pin 1), Output Enable	0.7V <sub>DD</sub>			V	or open
Input Voltage (pin 1), Output Disable (low power standby)			0.3V <sub>DD</sub>	V	Output is Hi-Z
Internal Pullup Resistance	30			kΩ	
Output Disable Delay			200	ns	
Output Enable Delay			10	ms	

## **Absolute Maximum Ratings**

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

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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.

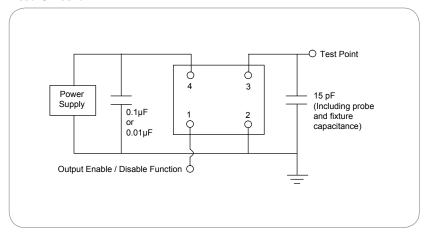
For specifications othere than those listed, please contact sales.



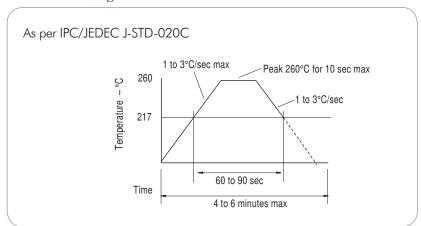


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#### **Test Circuit**



## **Reflow Soldering Profile**



## **Reliability Test Ratings**

This product is rated to meet the following test conditions:

Туре	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)

