

3.3V CMOS Low Jitter XO





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

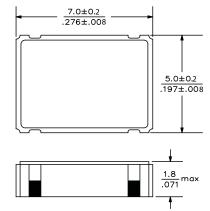
The FN Series 3.3V crystal clock oscillator achieves superb jitter and stability over a broad range of operating conditions and frequencies. The output clock signal, generated internally with a non-PLL oscillator design, is compatible with LVCMOS/LVTTL logic levels. The device, available on tape and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

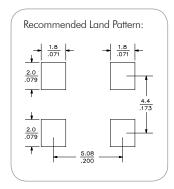
Applications

Ideal for low jitter or tight stability applications:

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

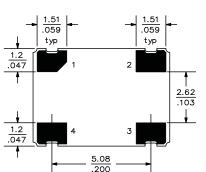
Package:



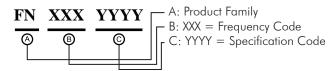


Pin Functions:

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

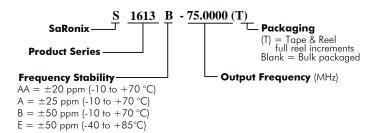


Part Ordering Information:



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

Legacy Ordering Information - For Reference Only:



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• www.saronix-ecera.com



FN Series Crystal Clock Oscillator (XO) Legacy \$1613 Series | 7.0 x 5.0mm

Electrical Performance

	Parameter Min. Typ. Max. Units		Notes				
Output Frequen	cy	1		166	MHz	As specified	
Supply Voltage		+2.97	+3.3	+3.63	V		
Supply Current, Output Enabled				15		1 to 32 MHz	
				25	mA	32 to 50 MHz	
				40		50 to 80 MHz	
				55		80 to 166 MHz	
				10	μΑ	1 to 36 MHz, 100 to 166 MHz	
Supply Current,	Supply Current, Standby Mode			100	μΑ	36 to 70 MHz	
Frequency Stab	ility			±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}			10% V _{DD}	V		
Output Logic 1,	V _{OH}	90% V _{DD}			V		
Output Load				15	pF		
Duty Cycle		45		55	%	Measured 50% V _{DD}	
	up to 50 MHz			7			
Rise and Fall	se and Fall 50 to 80 MHz		5		Measured 20/80% of waveform		
Time	80 to 124 MHz			3	ns	ivieasured 20/80% of waveform	
	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	DMC (1)	20.000 adjacent periods	
	80 to 166 MHz			3	ps RMS (1-σ)		
Jitter,	up to 80 MHz			50	ng nle nle	100 000 random pariods	
Total	80 to 166 MHz			30	ps pk-pk	100.000 random periods	

Output Enable / Disable Function

Parameter	Min.	Тур.	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.	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.

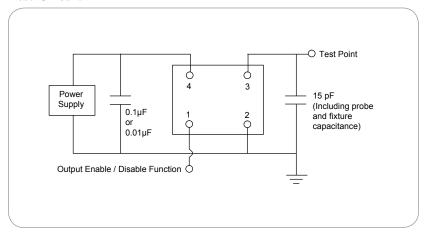
For specifications othere than those listed, please contact sales.



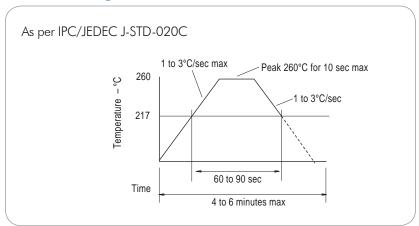


FN Series Crystal Clock Oscillator (XO) **Legacy S1613 Series | 7.0 x 5.0mm**

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)



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