

FD Series Crystal Clock Oscillator (XO) Legacy S1633 Series 5.0 x 3.2mm

3.3V CMOS Low Jitter XO





5.0 x3.2mm Ceramic SMD

Product Features

- 1 to 133MHz Frequency Range
- <1 ps RMS jitter with fundamental or overtone design
- Low power standby mode
- Pb-free and RoHS/Green compliant

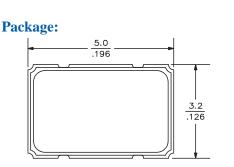
Product Description

The FD 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 5.0 x 3.2mm surface-mount ceramic package.

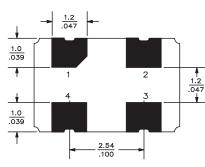
Applications

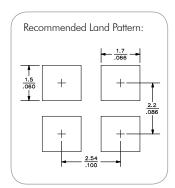
The FD Series is ideal for compact, highdensity applications requiring low jitter or tight stability, including:

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





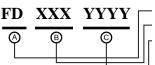




Pin Functions:

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

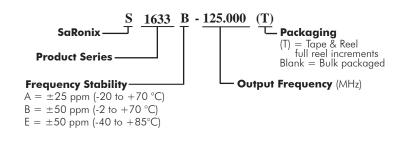
Part Ordering Information:



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:



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Electrical Performance

	Parameter Min. Typ. Max. Units		Units	Notes			
Output Frequency		1		133	MHz	As specified	
Supply Voltage		2.97	3.30	3.63	V		
Supply Current, Output Enabled				15		1 to 50 MHz	
				25	mA	50 to 80 MHz	
				45		80 to 133 MHz	
Supply Current,	Standby Mode			10	μΑ	Output Hi-Z	
Frequency Stabi	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 See Note 2 belo		See Note 2 below			
Duty Cycle		45		55	%	Measured 50% V _{DD}	
D' 1 D 11	up to 40 MHz			7		Measured 20/80% of waveform	
Rise and Fall Time	40 to 80 MHz			5	ns		
Time	80 to 133 MHz			2.5			
Jitter, Phase	1 to 133 MHz			1	ps RMS (1-o)	10kHz to 20 MHz frequency band	
Jitter, Accumulated	up to 80 MHz			5	= DMC (1)	20.000 adjacent periods	
	80 to 133 MHz			3	ps RMS (1- σ)		
Jitter,	up to 80 MHz			50		100.000 random periods	
Total	80 to 133 MHz			30	ps pk-pk		

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 othere than those listed, please contact sales.

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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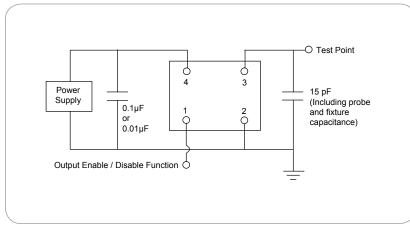


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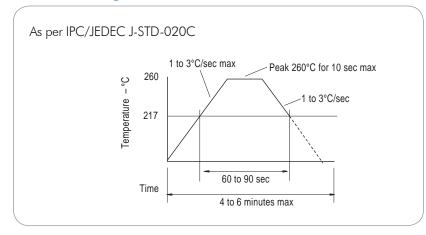
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Test Circuit



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)

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