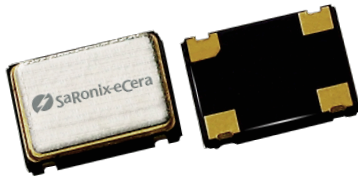


# 2.5V CMOS Low Jitter XO

**FDQ**



5.0 x 3.2mm Ceramic SMD

### Product Features

- AEC-Q200 Qualified
- 1 to 156.25 MHz Frequency Range
- <1 ps RMS jitter
- 2.5V CMOS/TTL compatible logic levels
- Pin-compatible with standard 5.0 x 3.2mm packages
- Designed for standard reflow and washing techniques
- Low power standby mode
- Pb-free and RoHS/Green compliant

### Product Description

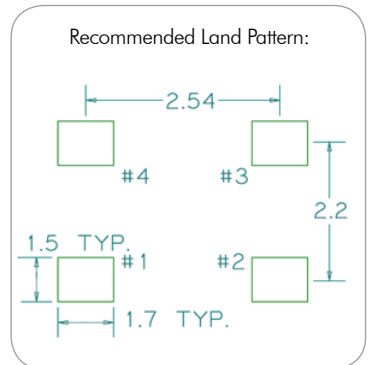
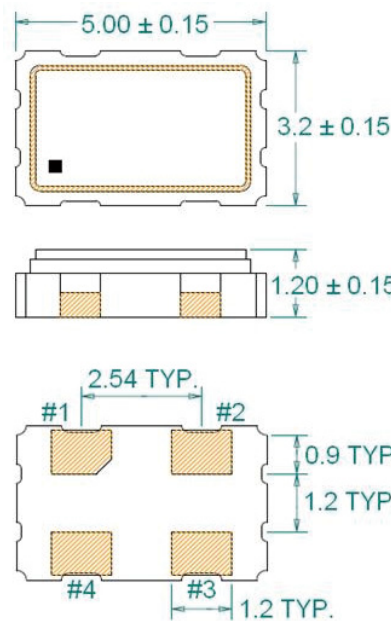
The FDQ Series 2.5V crystal clock oscillator achieves superb jitter and stability over a broad range of operating conditions and frequencies. The output clock signal, generated internally with a non-PLL oscillator design, is compatible with LVCMOS/LVTTL logic levels. The device, available on tape and reel, is contained in a 5.0 x 3.2mm surface-mount ceramic package.

### Applications

The FDQ series is an ideal reference clock for Automotive applications requiring low jitter and low power, including:

- Infotainment systems
- Head units

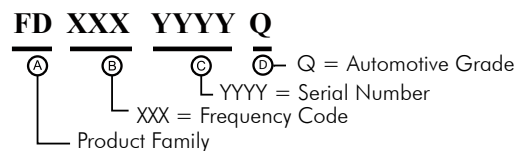
**Package: (Scale: none; dimensions are in mm)**



### 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.



## Electrical Performance

Parameter		Min.	Typ.	Max.	Units	Notes
Output Frequency		1		156.25	MHz	As specified
Supply Voltage		+2.375	+2.5	+2.625	V	
Supply Current, Output Enabled				8	mA	1 to 50 MHz
				20		50.0001 to 90 MHz
				35		90.0001 to 156.25 MHz
Supply Current, Standby Mode				10	μA	1 to 156.25 MHz
Frequency Stability				±25 to ±50	ppm	See Note 1 below
Operating Temperature Range		-40		+85	°C	AECQ Grade 3
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	1 to 50 MHz			5	ns	Measured 20/80% of waveform
	50.0001 to 156.25 MHz			2.5		
Jitter, Phase	10 to 40 MHz			1	ps RMS	12kHz to 5 MHz frequency band
	40.0001 to 156.25 MHz			1	ps RMS	12kHz to 20 MHz frequency band
Jitter, Accumulated	1 to 80 MHz			5	ps RMS (1-σ)	20.000 adjacent periods
	80.0001 to 156.25 MHz			3		
Jitter, Peak to Peak	1 to 80 MHz			50	ps pk-pk	100.000 random periods
	80.0001 to 156.25 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	0.7 V <sub>DD</sub>			V	or open
Input Voltage (pin 1), Output Disable (low power standby)			0.3 V <sub>DD</sub>	V	Output is Hi-Z
Internal Pullup Resistance	30			kΩ	
Output Disable Delay			200	ns	

## Absolute Maximum Ratings

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

**For the latest product information visit:** <http://www.pericom.com/products/crystals-and-crystal-oscillators/xo/?part=FDQ+2.5V>

**For test circuit go to:** [http://www.pericom.com/assets/sre/tc\\_cmos2.pdf](http://www.pericom.com/assets/sre/tc_cmos2.pdf)

**For soldering reflow profile and reliability test ratings go to:** <http://www.pericom.com/pdf/sre/reflow.pdf>

**For tape and reel information go to:** [http://www.pericom.com/pdf/sre/tr\\_5032\\_xo.pdf](http://www.pericom.com/pdf/sre/tr_5032_xo.pdf)