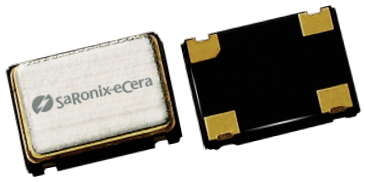
1.8V CMOS Low Jitter XO

FDQ



5.0 x 3.2mm Ceramic SMD

Product Features

- AEC-Q200 Qualified
- 1 to 156.25 MHz Frequency Range
- <1 ps RMS jitter
- 1.8V 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

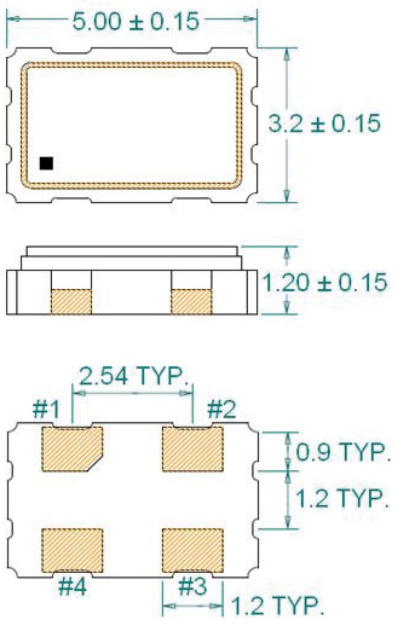
The FDQ Series 1.8V crystal clock oscillator achieves superb jitter and stability over a broad range of operating conditions and frequencies. The output clock signal, generated internally with a non-PLL oscillator design, is compatible with LVCMOS/LVTTL logic levels. The device, available on tape and reel, is contained in a 5.0 x 3.2mm surface-mount ceramic package.

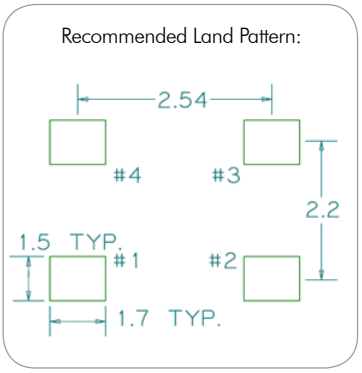
Applications

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_{DD}

Part Ordering Information:

FD XXX YYYY Q

- FD — Product Family
- XXX = Frequency Code
- YYYY = Serial Number
- Q = Automotive Grade

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

saRonix-eCera™

FDQ Series Crystal Clock Oscillator (XO)
AEC-Q200 Qualified | 5.0 x 3.2mm

Electrical Performance

Parameter		Min.	Typ.	Max.	Units	Notes
Output Frequency		1		156.25	MHz	As specified
Supply Voltage		+1.71	+1.8	+1.89	V	
Supply Current, Output Enabled				7	mA	1 to 50 MHz
				10		50.0001 to 90 MHz
				25		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_{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}
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 156.25 MHz		5		ps RMS (1-σ)	20.000 adjacent periods
Jitter, Peak to Peak	1 to 80 MHz			50	ps pk-pk	100.000 random periods
	80.0001 to 156.25 MHz			30		

Notes:
1. 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.
2. For specifications othere 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_{DD}			V	or open
Input Voltage (pin 1), Output Disable (low power standby)			0.3 V_{DD}	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+1.8V

For test circuit go to: 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