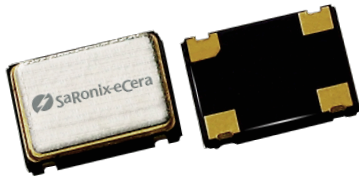


3.3V CMOS Low Jitter XO

FDQ



5.0 x 3.2mm Ceramic SMD

Product Features

- AEC-Q200 Qualified
- 1 to 156.25 MHz Frequency Range
- <1 ps RMS jitter
- 3.3V 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

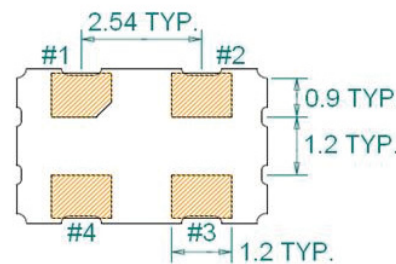
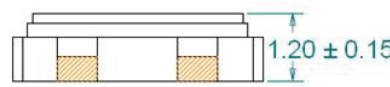
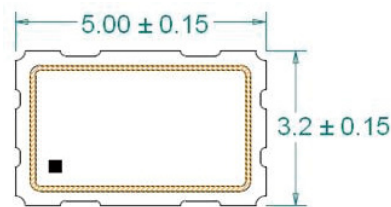
The FDQ Series 3.3V crystal clock oscillator achieves superb jitter and stability over a broad range of operating conditions and frequencies. The output clock signal, generated internally with a non-PLL oscillator design, is compatible with LVCMOS/LVTTL logic levels. The device, available on tape and reel, is contained in a 5.0 x 3.2mm surface-mount ceramic package.

Applications

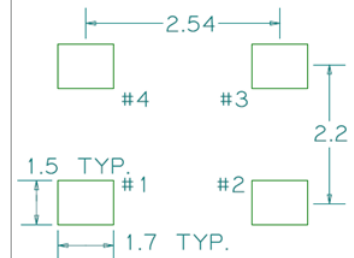
The FDQ series is an ideal reference clock for Automotive applications requiring low jitter and low power, including:

- Infotainment systems
- Head units

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



Recommended Land Pattern:

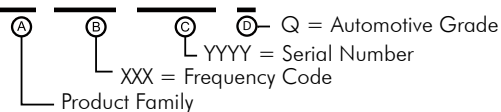


Pin Functions:

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

Part Ordering Information:

FD XXX YYYY Q



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 | +3.135 | +3.3 | +3.465 | V | |
| Supply Current, Output Enabled | | | 15 | mA | 1 to 50 MHz |
| | | | 25 | | 50.0001 to 90 MHz |
| | | | 40 | | 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 | | 4.5 | 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 _{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+3.3V>

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