

3.3V CMOS Low-Jitter 156.25 MHz 10GbE XO

SX10GE156



7.0 x 5.0mm Ceramic SMD

ASSP XO™ for Networking



Product Features

- Very low phase jitter - 0.5ps RMS
- Thicker crystal for improved reliability
- Low output current - 20mA max.
- Industrial Temperature Range
- Pb-free & RoHS compliant

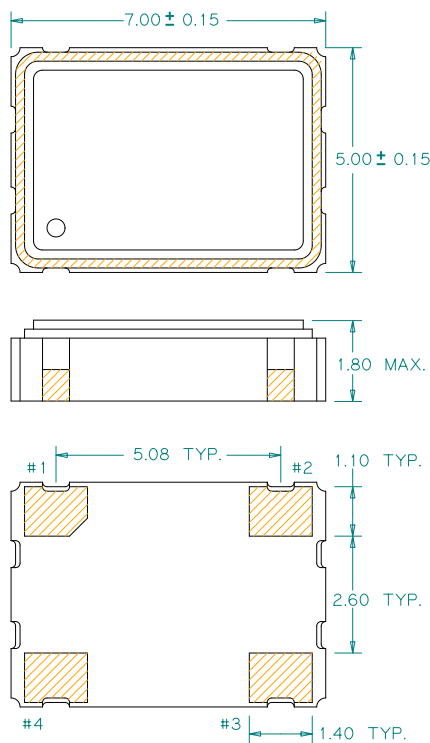
Product Description

This is an enhanced high-frequency 3.3V, 156.25MHz crystal clock oscillator with superb jitter and low operating current for 10 Gigabit Ethernet applications. The output clock signal, generated internally with a patented oscillator design, is compatible with LVCMOS logic levels.

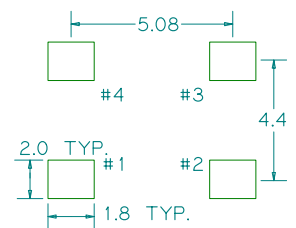
Applications

- 10 Gigabit Ethernet Network Interface Card (NIC)
- 10 Gigabit Ethernet Switch/Router
- 10 Gigabit Ethernet PHY Module
- Serial Attached iSCSI

Package:



Recommended Land Pattern:



Pin Functions:

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

*Extended high frequency power decoupling is recommended (see test circuit for minimum recommendation). To ensure optimal performance, do not route RF traces beneath the package.

Part Ordering Information:

SX10GE156

Electrical Performance

| Parameter | Min. | Typ. | Max. | Units | Notes |
|---------------------------------|---------------------|--------|---------------------|-------|--------------------------------|
| Output Frequency | | 156.25 | | MHz | |
| Supply Voltage | 2.97 | 3.3 | 3.63 | V | |
| Supply Current, Output Enabled | | 13 | 20 | mA | |
| Supply Current, Output Disabled | | | 10 | mA | Output Hi-Z |
| Frequency Stability | | | ±50 | ppm | See Note 1 below |
| Operating Temperature Range | -40 | | +85 | °C | Industrial |
| Output Logic 0, V _{OL} | | | 10% V _{DD} | V | |
| Output Logic 1, V _{OH} | 90% V _{DD} | | | V | |
| Output Load | | | 15 | pF | |
| Duty Cycle | 40 | | 60 | % | Measured 50% V _{DD} |
| Rise and Fall Time | | | 2 | ns | Measured 20/80% of waveform |
| Jitter, Phase RMS (1-σ) | | 0.25 | 0.5 | ps | 12kHz to 20 MHz frequency band |
| Jitter, pk-pk | | 30 | 40 | ps | 100.000 random periods |

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 | 2.2 | | | V | or open |
| Input Voltage (pin 1), Output Disable (low power standby) | | | 0.8 | V | Output is Hi-Z |
| Internal Pullup Resistance | 50 | | | kΩ | |
| Output Disable Delay | | | 100 | ns | |
| Output Enable Delay | | | 1 | ms | |

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/timing/oscillators/SX10GE156/>

For test circuit go to: http://www.pericom.com/pdf/sre/tc_pecl.pdf

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

For typical phase noise go to: http://www.pericom.com/pdf/sre/pn_SX10GE156.pdf

For tape and reel information go to: http://www.pericom.com/pdf/sre/tr_7050.pdf