



5.0 x 3.2mm Ceramic SMD

ASSP XO™ for Networking



Product Features

- Very low phase jitter
- Thicker crystal for improved reliability
- Pb-free & RoHS compliant
- Industrial temperature range

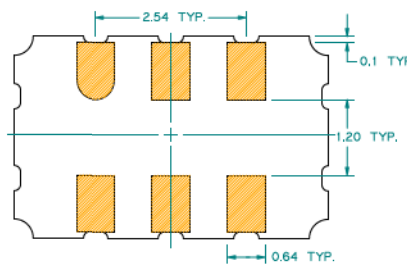
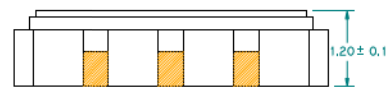
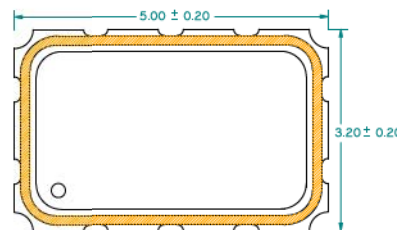
Product Description

The PD Series 3.3V, 159.375MHz crystal clock oscillator achieves superb jitter for 10GbE applications. The output clock signal, generated internally with a custom oscillator design, is compatible with LVPECL logic levels. The device, available on tape and reel, is contained in a 5.0 x 3.2mm surface-mount ceramic package.

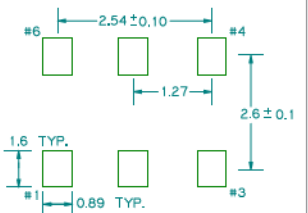
Applications

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

Package: (Scale: none, Dimensions are in mm)



Recommended Land Pattern:



Pin Functions:

| Pin | Function |
|-----|-------------------------|
| 1 | OE Function |
| 2 | N/C |
| 3 | V _{EE} |
| 4 | OUT |
| 5 | $\overline{\text{OUT}}$ |
| 6 | V _{CC} |

*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:

PD10GE159

Electrical Performance

| Parameter | Min. | Typ. | Max. | Units | Notes |
|---------------------------------|-----------------------------|---------|-------------------------|-------|---------------------------------|
| Output Frequency | | 159.375 | | MHz | |
| Supply Voltage | 2.97 | 3.30 | 3.63 | V | |
| Supply Current, Output Enabled | | | 80 | mA | |
| Supply Current, Output Disabled | | | 30 | μA | |
| Frequency Stability | | | ±50 | ppm | See Note 1 below |
| Operating Temperature Range | -20 | | +70 | °C | |
| Output Logic 0, V _{OL} | | | V _{CC} - 1.620 | V | |
| Output Logic 1, V _{OH} | V _{CC} - 1.025 | | | V | |
| Output Load | 50Ω to V _{CC} - 2V | | | | output requires termination |
| Duty Cycle | 45 | | 55 | % | Measured 50% waveform |
| Rise and Fall Time | | | 1.0 | ns | Measured 10/90% of waveform |
| Jitter, Phase RMS (1-σ) | | | 1.0 | ps | 12 kHz to 20 MHz frequency band |
| Jitter, pk-pk | | | 40 | ps | 100,000 random periods |

Notes:

1. Stability includes all combinations of operating temperature, load changes, rated input (supply) voltage changes, initial calibration tolerance (25°C), aging (5 year at 40°C average effective ambient temperature), shock and vibration.
2. 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 _{CC} | | | V | or open |
| Input Voltage (pin 1), Output Disable (low power standby) | | | 0.3* V _{CC} | V | Outputs disabled to Hi-Z |
| Output Disable Delay | | | 200 | ns | |
| Output Enable Delay | | | 2 | ms | |
| Internal Pull Up Resistance | | 50 | | kΩ | |

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/assp-xo/?part=PD10GE159>

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 tape and reel information go to: http://www.pericom.com/pdf/sre/tr_5032_xo.pdf