

### Datasheet

#### XFP Optical Transceiver Product Features

- 10GBASE-LR/LW Ethernet 8.5dB XFP
- 10 km LR XFP for SMF @ 10Gbps
- 1310nm DFB+PIN Laser 10 km XFP
- 0°C - 70°C Temperature - Extended/Industrial Available
- 2-Wire Interface Digital Diagnostic Monitoring (SFF-8724)
- Hot-swappable for XFP LC ports
- OptoSpan 1 year standard warranty
- Use with Finisar, Avago, JDSU & networks not requiring OEM compatibility
- XFP MSA, IEEE 802.3ae
- RoHS compliant

\* For OEM Compatibility, use Platinum Series Part# PXP-10GT31K010

#### XFP-10G-K010T31



#### Applications

- 10GBASE-LR @ 10.31Gbps
- 10 Gigabit Ethernet
- Fibre Channel 8x
- Fibre Channel 4x

#### Description

OptoSpan XFP-10G-K010T31 is a Duplex 10GBASE-LR/LW Ethernet 10G Ethernet / 8G FC XFP transceiver designed for long distance optical communications up to 10 km with signaling rates up to 10Gbps.

OptoSpan 10Gb Standard optical transceivers are compatible with many brands such as Finisar, Avago, JDSU and network environments that do not require any special compatibility. For networks that require special OEM compatibility, such as CISCO, BROCADE, JUNIPER, ALCATEL, HP, NORTEL, EMC, QLOGIC and other OEMs, consider OptoSpan Platinum OEM Series transceiver model# PXP-10GT31K010.

All OptoSpan long-reach XFP s are ROHS compliant, allow for real-time diagnostic monitoring as per SFF-8472 and designed to meet Multi-Source Agreement (MSA) standards for Duplex transceivers with LC interface.

#### Optical Budget Calculation for 10 km XFP Optical Transceiver

| XFP-10G-K010T31             | Distance: 10 km |            |            |            | Fiber: 1310nm SMF   |                 |
|-----------------------------|-----------------|------------|------------|------------|---------------------|-----------------|
|                             | Tx Min dBm      | Tx Max dBm | Rx Min dBm | Rx Max dBm | Link Attenuation dB | Power Budget dB |
| Product Specifications      | -6              | 0          | -14.5      | +0.5       |                     |                 |
| Optical Calculation Results |                 |            | -11.5      | -5.5       | 5.5                 | 8.5             |



XFP 10 km transceiver | 10G LR Ethernet

## General Specifications

| Parameter                       | Unit | Min. | Typ. | Max  |
|---------------------------------|------|------|------|------|
| Absolute Maximum Ratings        |      |      |      |      |
| Maximum Supply Voltage          | V    | -0.5 |      | 4.0  |
| Storage Temperature             | °C   | -40  |      | 85   |
| Case Operating Temperature      | °C   | 0    |      | 70   |
| Recommended Operating Condition |      |      |      |      |
| Supply Voltage                  | V    | 3.13 |      | 3.45 |
| Supply Current                  | mA   |      |      |      |
| Data Rate                       | Gbps | 9.95 |      | 11.1 |

## Electrical Characteristics

| Parameter                         | Unit | Min.    | Typ. | Max     |
|-----------------------------------|------|---------|------|---------|
| Transmitter                       |      |         |      |         |
| Differential Input Voltage Swing  | mVpp | 120     |      | 820     |
| Input Differential Impedance      | ohm  |         | 100  |         |
| Transmit Disable Voltage - High   | V    | 2.0     |      | Vcc     |
| Transmit Disable Voltage - Low    | V    | GND     |      | GND+0.8 |
| Transmit Fault Voltage - High     | V    |         |      |         |
| Transmit Fault Voltage - Low      | V    |         |      |         |
| Receiver                          |      |         |      |         |
| Differential Output Voltage Swing | mVpp | 340     | 650  | 850     |
| Differential Output Impedance     | ohms |         |      |         |
| LOS Output Voltage - High         | V    | Vcc-0.5 |      | VccHOST |
| LOS Output Voltage - Low          | V    | GND     |      | GND+0.5 |



XFP 10 km transceiver | 10G LR Ethernet

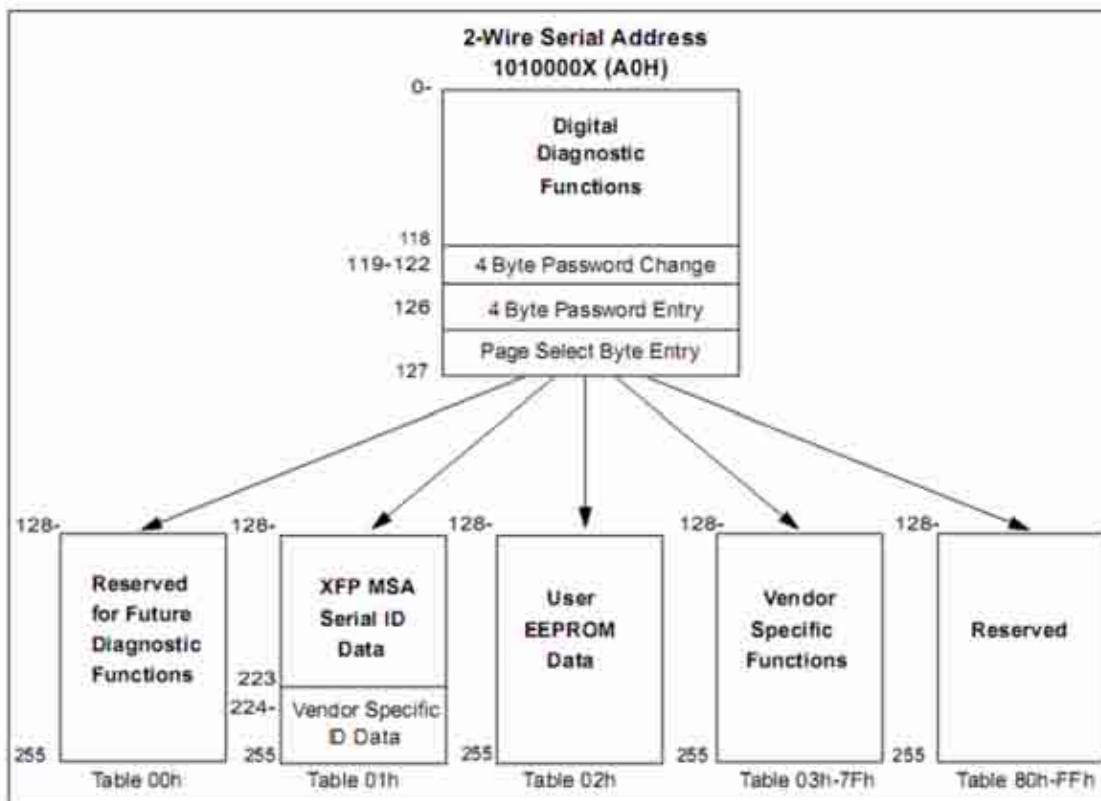
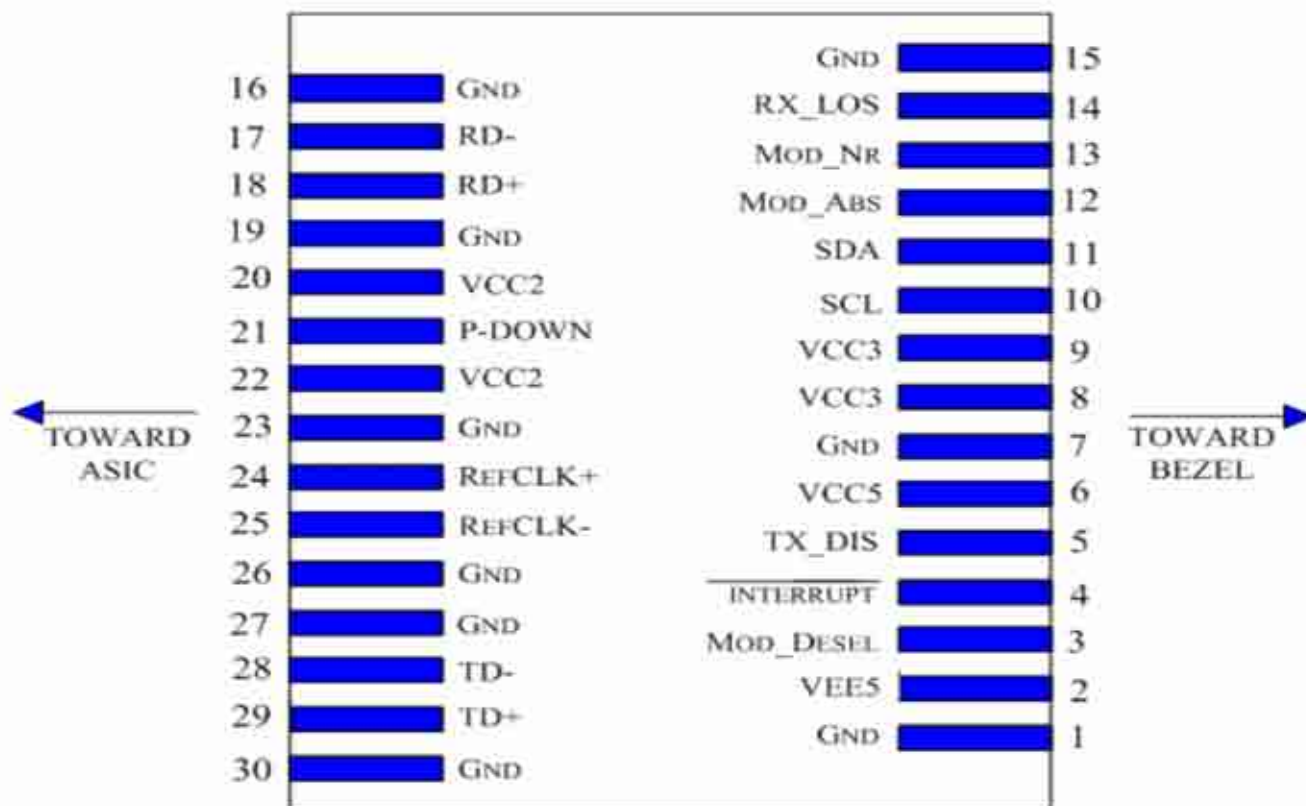
## Optical Characteristics

| Parameter                       | Unit | Min.  | Typ. | Max   |
|---------------------------------|------|-------|------|-------|
| <b>Transmitter</b>              |      |       |      |       |
| Output Optical Power            | dBm  | -6    |      | 0     |
| Optical Extinction Ratio        | dB   | 6     |      |       |
| Optical Wavelength              | nm   | 1290  |      | 1330  |
| Spectral Width                  | nm   |       |      |       |
| Side Mode Suppression Ratio     | dB   |       |      | 30    |
| <b>Receiver</b>                 |      |       |      |       |
| Optical Center Wavelength       | nm   | 1270  |      | 1600  |
| Receiver Sensitivity @ 10.31Gbp | dBm  | -14.5 |      | +0.5  |
| LOS DE-Assert                   | dBm  |       |      | -16.5 |
| LOS Assert                      | dBm  | -28.5 |      |       |

## Laser Safety

This is a class 1 Laser Product according to IEC 60825-1:1993:+A1:1997+A2:2001. This product complies with 21 CFR 1040.10 and 1040 except for deviations pursuant to Laser Notice No. 50, dated July 26, 2001.

## PIN Layout



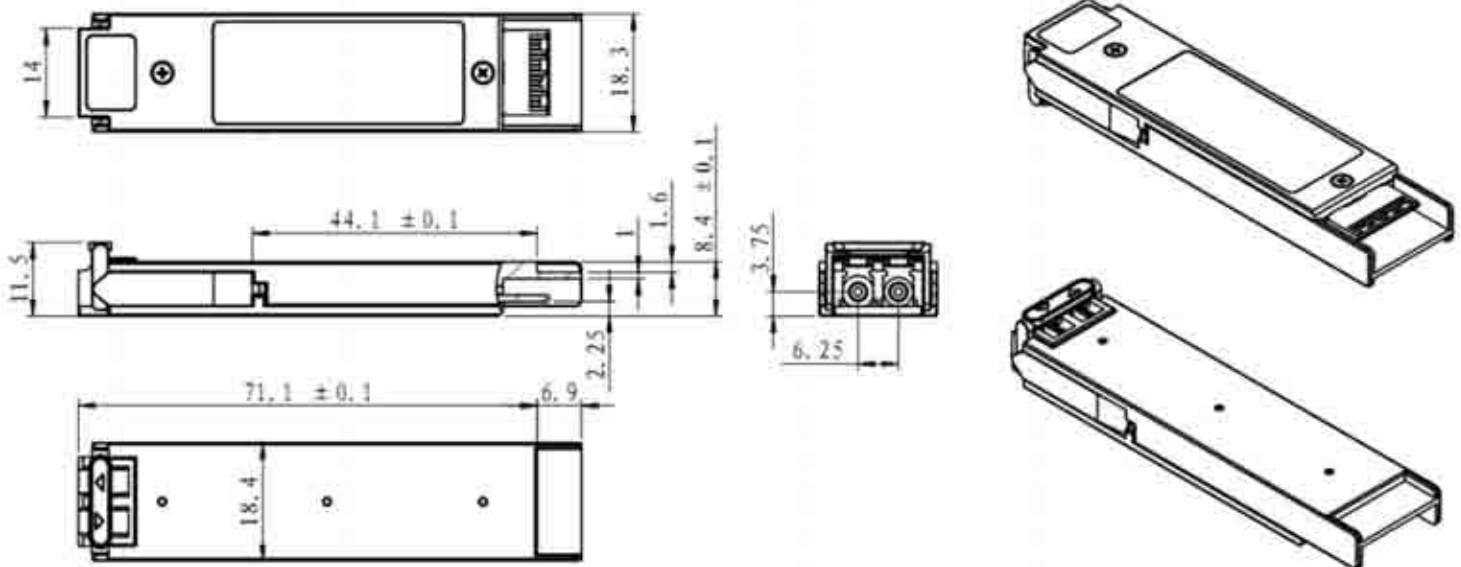
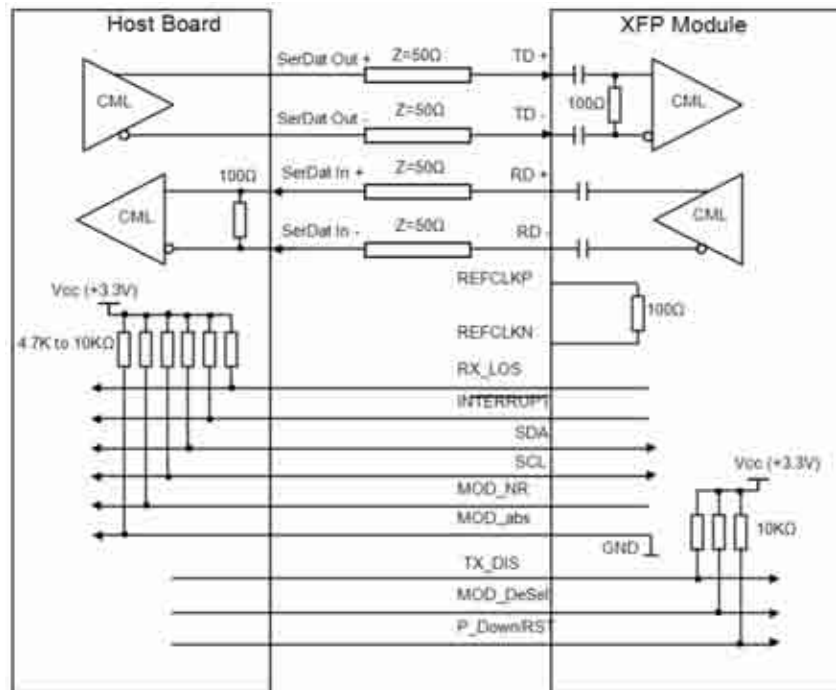


**XFP 10 km transceiver | 10G LR Ethernet**

## **PIN Functions**

| <b>Pin #</b> | <b>Name - Description</b>                                |
|--------------|----------------------------------------------------------|
| 1            | Module Ground                                            |
| 2            | Optional –5.2 Power Supply – Not required                |
| 3            | Module De-select                                         |
| 4            | Interrupt (bar)                                          |
| 5            | Transmitter Disable; Transmitter laser source turned off |
| 6            | +5 Power Supply                                          |
| 7            | Module Ground                                            |
| 8            | +3.3V Power Supply                                       |
| 9            | +3.3V Power Supply                                       |
| 10           | Serial 2-wire interface clock                            |
| 11           | Serial 2-wire interface data line                        |
| 12           | Module Absent; Indicates module is not present.          |
| 13           | Module Not Ready;                                        |
| 14           | Receiver Loss of Signal indicator                        |
| 15           | Module Ground                                            |
| 16           | Module Ground                                            |
| 17           | Receiver inverted data output                            |
| 18           | Receiver non-inverted data output                        |
| 19           | Module Ground                                            |
| 20           | +1.8V Power Supply – Not required                        |
| 21           | Reset                                                    |
| 22           | +1.8V Power Supply – Not required                        |
| 23           | Module Ground                                            |
| 24           | Reference Clock non-inverted input                       |
| 25           | Reference Clock non-inverted input                       |
| 26           | Module Ground                                            |
| 27           | Module Ground                                            |
| 28           | Transmitter inverted data input                          |
| 29           | Transmitter non-inverted data input                      |
| 30           | Module Ground                                            |

### Mechanical Layouts



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