

## XFP-W23/W32-60-D

10GBASE, XFP, BiDi, SMF TRANSCEIVER 1270/1330nm & 1330/1270nm, 60km REACH, DUPLEX LC CONNECTOR

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### Product Features

- Supports 9.95Gb/s to 11.3Gb/s data rates
- Hot-pluggable XFP footprint
- XFP-W23-60-D: 1270nm DFB Transmitter/1330nm Receiver
- XFP-W32-60-D: 1330nm DFB Transmitter/1270nm Receiver
- XFI Loopback Mode
- Power dissipation < 2W
- Single + 3.3V Power Supply
- Up to 60km transmission on SMF
- 2-wire interface with integrated Digital Diagnostic monitoring
- EEPROM with Serial ID Functionality
- Compliant with XFP MSA with LC connector
- RoHS-6 Compliant (lead-free)
- Available operating temperature ranges:
  - Commercial: 0°C to 70°C
  - Industrial: -40°C to 85°C



### Product Applications

- 10GBASE-BX 10.3125Gb/s Ethernet
- 10GBASE-BX 9.953Gb/s Ethernet
- SONET OC-192 SR-1

### I. Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

| Parameter            | Symbol | Min.    | Typ. | Max.    | Units |
|----------------------|--------|---------|------|---------|-------|
| Storage Temperature  | TS     | -40     |      | 85      | °C    |
| Power Supply Voltage | Vcc    | -0.3    |      | 4.0     | V     |
| Power Supply Input   | Vcc    | Vcc-0.3 |      | Vcc+0.3 | V     |
| Relative Humidity    | RH     | 5       |      | 95      | %     |

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## II. Operating/Electrical Specifications

| Parameter                  | Symbol | Min. | Typ. | Max. | Units | Notes      |
|----------------------------|--------|------|------|------|-------|------------|
| Case Operating Temperature | TC     | 0    |      | +70  | °C    | Commercial |
|                            |        | -40  |      | +85  | °C    | Industrial |
| Power Supply Current       | Icc    |      |      | 600  | mA    |            |
| Power Supply Voltage       | Vcc    | 3.14 | 3.3  | 3.47 | V     |            |
| Transmission Distance      | TD     | 2    |      | 60   | km    |            |

## III. Optical Characteristics

| Parameter                               |              | Symbol   | Min.                        | Typ.    | Max. | Unit | Notes |   |
|---|--------------|----------|-----------------------------|---------|------|------|-------|---|
| Center Wavelength                       | XFP-W23-60-D | Tx       | $\lambda_c$                 | 1260    | 1270 | 1280 | nm    |   |
|   |              | Rx       |                             | 1320    | 1330 | 1340 |       |   |
|   | XFP-W32-60-D | Tx       |                             | 1320    | 1330 | 1340 |       |   |
|   |              | Rx       |                             | 1260    | 1270 | 1280 |       |   |
| Data Rate                               |              |          | 9.95                        | 10.3125 | 11.3 | Gbps |       |   |
| <b>Transmitter</b>                      |              |          |                             |         |      |      |       |   |
| Average Launched Power                  |              | Pout     | 0                           |         | 5    | dBm  |       |   |
| Average Launch power of OFF transmitter |              | Poff     |                             |         | -45  | dBm  | 1     |   |
| Side mode suppression ratio             |              | SMSR     | 30                          |         |      | dB   |       |   |
| Spectrum Bandwidth(-20dB)               |              | $\sigma$ |                             |         | 1    | nm   |       |   |
| Extinction Ratio                        |              | ER       | 3.5                         |         |      | dB   | 2     |   |
| Output Eye Mask                         |              |          | Compliant with IEEE 802.3ae |         |      |      |       | 2 |
| <b>Receiver</b>                         |              |          |                             |         |      |      |       |   |
| Input Saturation Power (Overload)       |              | Psat     | -6                          |         |      | dBm  | 3     |   |
| Receiver Sensitivity                    |              | Psen     |                             |         | -20  | dBm  | 3     |   |
| LOS De-Assert                           |              | LOSD     | -35                         |         |      | dBm  |       |   |
| LOS Assert                              |              | LOSA     |                             |         | -21  | dBm  |       |   |
| LOS Hysteresis                          |              | LOSH     | 0.5                         |         | 4    | dB   |       |   |

### Notes:

1. The optical power is launched into SMF
2. Measured with RPBS 2<sup>31</sup>-1 test pattern @10.3125Gbs
3. Measured with RPBS 2<sup>31</sup>-1 test pattern @10.3125Gbs BER=<10<sup>-12</sup>.

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### IV. Electrical Characteristics

| Parameter                          | Symbol  | Min. | Typ. | Max.    | Unit  | Notes |
|------------------------------------|---------|------|------|---------|-------|-------|
| Total power supply current         | Icc     |      |      | 600     | mA    |       |
| <b>Transmitter</b>                 |         |      |      |         |       |       |
| Differential Data Input Voltage    | VDT     | 120  |      | 820     | mVp-p |       |
| Differential line input Impedance  | RIN     | 85   | 100  | 115     | oHm   |       |
| Transmitter Fault Output - High    | VFaultH | 2.4  |      | Vcc     | V     |       |
| Transmitter Fault Output - Low     | VFaultL | -0.3 |      | 0.8     | V     |       |
| Transmitter Disable Voltage - High | VDisH   | 2    |      | Vcc+0.3 | V     |       |
| Transmitter Disable Voltage - Low  | VDisL   | -0.3 |      | 0.8     | V     |       |
| <b>Receiver</b>                    |         |      |      |         |       |       |
| Differential Data Output Voltage   | VDR     | 300  |      | 850     | mVp-p |       |
| Differential line Output Impedance | ROUT    | 80   | 100  | 120     | Ohm   |       |
| Receiver LOS Pull up Resistor      | RLOS    | 4.7  |      | 10      | KOhm  |       |
| Data Output Rise/Fall time         | tr/tf   | 20   |      |         | ps    |       |
| LOS Output Voltage - High          | VLOSH   | 2    |      | Vcc     | V     |       |
| LOS Output Voltage - Low           | VLOSL   | -0.3 |      | 0.4     | V     |       |

### V. Ordering Information

| Pivotal Part Number  | Description  |
|----------------------|--|
| <b>XFP-W23-60-D</b>  | XFP, BiDi, 1270TX/1330RX, ER SMF 60km 10G/OC-192 DDM, C-Temp |
| <b>XFP-W23-60-DI</b> | XFP, BiDi, 1270TX/1330RX, ER SMF 60km 10G/OC-192 DDM, I-Temp |
| <b>XFP-W32-60-D</b>  | XFP, BiDi, 1330TX/1270RX, ER SMF 60km 10G/OC-192 DDM, C-Temp |
| <b>XFP-W32-60-DI</b> | XFP, BiDi, 1330TX/1270RX, ER SMF 60km 10G/OC-192 DDM, I-Temp |

#### Notes:

1. Please contact sales for specific OEM Platform part numbers to fit your network.

#### Warranty

<https://pivotaloptics.com/warranty/>

#### Disclaimer

External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.