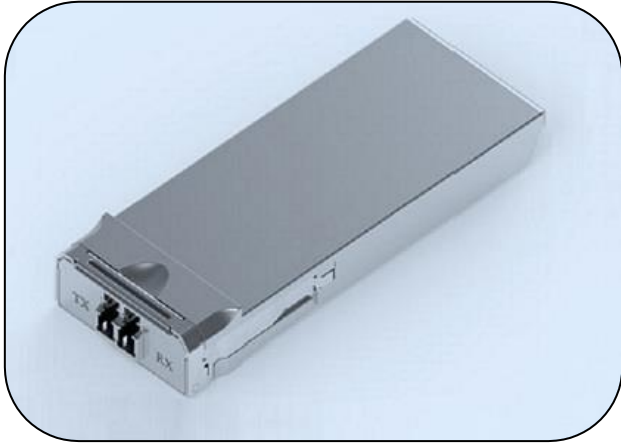


## XHS319-10LY

### 100GBASE-LR4 CFP2 10 km Optical Transceiver Module



#### Applications

- 100GbE IEEE 802.3ba 100GBASE-LR4
- OTN-OTU4
- Switch to switch or Switch to router applications

#### Description

The XenOpt CFP2 100GBASE-LR4 multi-rate optical transceiver is a hot pluggable 100Gbps small-form-factor transceiver module. It complies with IEEE802.3ba and CFP2 MSA and is meant to support Telecom and Datacom systems.

#### Features

- CFP2 MSA qualified hot pluggable
- 1310 nm band cooled EA-DFB LD and PIN ROSA
- Operating optical data rate up to 112 Gbps
- Maximum distance 10 km
- Compliant to IEEE 802.3ba specification for 100GBASE-LR4
- OTU4 qualified
- Operating electrical serial data rate up to 27.952493 Gbps
- 4 parallel electrical serial interface
- MDIO diagnostic and management interface
- CDR recovering and retiming
- Total Power Consumption less than 6 W
- 3.3 V power supply
- Dual LC optical receptacle
- Operating case temperature 0°C to +70°C
- Compliant with CFP2 MSA hardware specification and CFP MSA management specification

### Absolute Maximum Ratings

| Parameter                  | Symbol          | Min  | Max                  | Unit |
|----------------------------|-----------------|------|----------------------|------|
| Supply Voltage             | V <sub>cc</sub> | -0.3 | 3.6                  | V    |
| Input Voltage              | V <sub>in</sub> | -0.3 | V <sub>cc</sub> +0.3 | V    |
| Storage Temperature        | T <sub>s</sub>  | -20  | 85                   | °C   |
| Case Operating Temperature | T <sub>c</sub>  | 0    | 70                   | °C   |
| Humidity (non-condensing)  | Rh              | 5    | 95                   | %    |

### Recommended Operating Conditions

| Parameter                  | Symbol          | Min  | Typical  | Max   | Unit |
|----------------------------|-----------------|------|----------|-------|------|
| Supply Voltage             | V <sub>cc</sub> | 3.13 | 3.3      | 3.47  | V    |
| Operating Case temperature | T <sub>c</sub>  | 0    |          | 70    | °C   |
| Data Rate Per Lane         | f <sub>d</sub>  |      | 25.78125 | 28.05 | Gbps |
| Humidity                   | Rh              | 5    |          | 85    | %    |
| Power Dissipation          | P <sub>m</sub>  |      | 2        | 6     | W    |

### Electrical Specifications

| Parameter  | Symbol            | Min                  | Typical | Max             | Unit  |
|--|-------------------|----------------------|---------|-----------------|-------|
| Differential Input Impedance                       | Z <sub>in</sub>   | 90                   | 100     | 110             | ohm   |
| Differential Output Impedance                      | Z <sub>out</sub>  | 90                   | 100     | 110             | ohm   |
| Differential Input Voltage Amplitude <sup>1</sup>  | ΔV <sub>in</sub>  | 300                  |         | 1100            | mVp-p |
| Differential Output Voltage Amplitude <sup>2</sup> | ΔV <sub>out</sub> | 500                  |         | 800             | mVp-p |
| Skew   | Sw                |                      |         | 300             | ps    |
| Input Logic Level High                             | V <sub>IH</sub>   | 2.0                  |         | V <sub>cc</sub> | V     |
| Input Logic Level Low                              | V <sub>IL</sub>   | 0                    |         | 0.8             | V     |
| Output Logic Level High                            | V <sub>OH</sub>   | V <sub>cc</sub> -0.5 |         | V <sub>cc</sub> | V     |
| Output Logic Level Low                             | V <sub>OL</sub>   | 0                    |         | 0.4             | V     |

#### Notes

1. Differential input voltage amplitude is measured between TxnP and TxnN.
2. Differential output voltage amplitude is measured between RxnP and RxnN.

**Optical Characteristics (Top=0~70°C, VCC=3.13 to 3.46 Volts)**

| Parameter  | Symbol      | Unit | Min     | Typ      | Max                  |
|--|-------------|------|---------|----------|----------------------|
| <b>Optical Transmitter Characteristics</b>         |             |      |         |          |                      |
| Signaling Rate for Each Lane (100GbE)              | -           | Gbps |         | 25.78125 |                      |
| Signaling Rate for Each Lane (OTU4)                |             |      |         | 27.9525  |                      |
| Four lane Wavelength Range                         | $\lambda_1$ | nm   | 1294.53 | 1295.56  | 1296.59              |
|  | $\lambda_2$ |      | 1299.02 | 1300.05  | 1301.09              |
|  | $\lambda_3$ |      | 1303.54 | 1304.58  | 1305.63              |
|  | $\lambda_4$ |      | 1308.09 | 1309.14  | 1310.19              |
| Average Launch Power for Each Lane (100GbE)        | Pa          | dBm  | -4.3    |          | +4.5                 |
| Average Launch Power for Each Lane (OTU4)          |             |      | -2.9    |          | +4.5                 |
| Extinction Ratio (100GbE)                          | EX          | dB   | 7       |          |                      |
| Extinction Ratio (OTU4)                            |             |      | 7       |          |                      |
| <b>Optical Receiver Characteristics</b>            |             |      |         |          |                      |
| Receiver Sensitivity in OMA for Each Lane (100GbE) | Sen         | dBm  | -       | -        | -8.6 <sup>(1)</sup>  |
| Receiver Sensitivity for Each Lane (OTU4)          |             |      |         |          | -10.3 <sup>(2)</sup> |
| Los Assert   |             | dBm  |         |          | -15                  |
| Los De-assert                                      |             | dBm  | -19     |          |                      |
| Los Hysteresis                                     |             | dB   |         | 1        | 2                    |

**Notes**

1. Measured with 25.78125 Gbps, PRBS 231-1, BER<10<sup>-12</sup> CASE
2. Measured with 27.95 Gbps, PRBS 231-1 , BER<10<sup>-12</sup>

**Electrical Characteristics**

(Tested under recommended operating conditions, unless otherwise noted.)

| Parameter                             | Symbol   | Unit     | Min           | Typ | Max       | Note |
|---------------------------------------|----------|----------|---------------|-----|-----------|------|
| <b>Receiver</b>                       |          |          |               |     |           |      |
| Differential Data Output Swing        | Vout, pp | mV       | 400           | -   | 800       |      |
| Differential Signal Output Resistance |          | $\Omega$ | 80            | -   | 120       |      |
| Differential Signal Input Resistance  |          | $\Omega$ | 80            | -   | 120       |      |
| LOS Fault                             | -        | V        | $V_{dd3}-0.5$ | -   | $V_{dd3}$ |      |
| LOS Normal                            | -        | V        | 0             | -   | + 0.5     | 1    |

**Note**

1. Vdd3 is host +3.3V power supply.

## Ordering information

| Part number | Product Description   |
|-------------|---|
| XHS319-10LY | CFP2, 100GE/OTU4, 100GBASE-LR4, 10 km, Pout -4.3 ~ +4.5 PIN <-8.6 dBm, LC, DDMI, 0°C ~ 70°C |

### Notes

<sup>1</sup> For accurate order specification please contact XenOpt reseller before placing an order. The content of this document is subject to change without notice.

These modules are available in multiple customized compatible versions. **Please specify any compatibility requirements at time of ordering.** Standard MSA compatible pluggable components may not work or some function of these components may not be available in devices that require customized compatible devices. Pluggable components compatible with one type of communications equipment may not work in other type of communications equipment.

### Important Notice

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