



## OSFP-800GB-2XDR4-LPO-C-SKY

Cisco® Compatible 800GBase-2xDR4 PAM4 OSFP-IHS Transceiver (SMF, 1310nm, 500m, 2xMPO-12, DOM, CMIS 5.0) LPO

### Product Description

This Cisco® compatible OSFP-IHS Transceiver provides 800GBase-2xDR4 throughput up to 500m over single-mode fiber (SMF) PAM4 using a wavelength of 1310nm via a 2xMPO-12 connector. It can operate at temperatures between 0 and 70C. All of our transceivers are built to comply with Multi-Source Agreement (MSA) standards and are uniquely serialized and tested for data-traffic and application to ensure seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows access to real-time operating parameters. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Skylane's transceivers are RoHS compliant and lead-free.

### Features:

- OSFP MSA Compliant
- Supports 106.25Gbps Data Rate Per Channel
- Dual MPO-12 Connector APC
- 1310nm PIN Array for up to 500m Reach over SMF
- Electrically Hot-Pluggable
- Integrated Silicon Photonics Modulator Chip 1310nm High-Power DFB Laser
- Operating Temperature: 0 to 70 Celsius
- Single 3.3V Power Supply
- RoHS Compliant and Lead-Free



### Applications:

- 800GBase Ethernet

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*For your product safety, please read the following information carefully before any manipulation of the transceiver:*



#### **ESD**

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 / JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



#### **LASER SAFETY**

This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

*The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.*

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### Absolute Maximum Ratings

| Parameter                               | Symbol | Min.              | Typ.          | Max.  | Unit | Notes |
|-----------------------------------------|--------|-------------------|---------------|-------|------|-------|
| Power Supply Voltage                    | Vcc    | -0.5              |               | 3.6   | V    |       |
| Storage Temperature                     | Tstg   | -40               |               | 85    | °C   |       |
| Operating Case Temperature              | Tc     | 0                 |               | 70    | °C   | 1     |
| Relative Humidity                       | RH     | 5                 |               | 85    | %    |       |
| Optical Receiver Damage Threshold Input | Pdmg   | 5.0               |               |       | dBm  |       |
| Data Rate                               | BR     |                   | 53.125 @ PAM4 |       | GBd  | 2     |
| Transmission Distance                   | TD     |                   |               | 500   | M    |       |
| Coupled Fiber                           |        | Single-Mode Fiber |               |       |      | 3     |
| Power Supply Voltage                    | Vcc    | 3.135             | 3.3           | 3.465 | V    |       |
| Power Supply Current                    | Icc    |                   |               | 2424  | mA   | 4     |

### Notes:

1. Without air flow.
2. Each optical channel.
3. 9/125μm SMF.
4. When Vcc is 3.3V.

### Link Power Budget

| Parameter                                  | Symbol | Min. | Typ. | Max. | Unit | Notes |
|--------------------------------------------|--------|------|------|------|------|-------|
| Power Budget for Maximum TDECQ             |        |      | 7.8  |      | dB   |       |
| Operating Distance                         |        |      | 500  |      | m    |       |
| Channel Insertion Loss                     |        |      | 4    |      | dB   |       |
| Allocation for Penalties for Maximum TDECQ |        |      | 3.8  |      | dB   |       |

## Optical Characteristics

| Parameter                                                        | Symbol    | Min.   | Typ.            | Max.   | Unit  | Notes |
|------------------------------------------------------------------|-----------|--------|-----------------|--------|-------|-------|
| <b>Transmitter</b>                                               |           |        |                 |        |       |       |
| Signaling Speed Per Lane                                         |           |        | 53.125 ± 100ppm |        | GBd   |       |
| Modulation Format                                                |           |        | PAM4            |        |       |       |
| Lane Wavelengths                                                 | $\lambda$ | 1304.5 |                 | 1317.5 | nm    | 1     |
| Average Launch Power Per Lane                                    |           | -2.9   |                 | 4.0    | dBm   |       |
| Transmit OMA Per Lane                                            |           | -0.8   |                 | 4.2    | dBm   |       |
| Transmitter and Dispersion Eye Closure for PAM4 (TDECQ) Per Lane | TDECQ     |        |                 | 3.4    | dB    |       |
| SMSR                                                             |           | 30     |                 |        | dB    |       |
| Optical Extinction Ratio                                         | ER        | 3.5    |                 |        | dB    |       |
| Average Launch Power Off Per Lane                                | Poff      |        |                 | -15    | dBm   |       |
| RIN <sub>17.1</sub> OMA (Maximum)                                | RIN       |        |                 | -136   | dB/Hz |       |
| Transmitter Reflectance                                          | TR        |        |                 | -26    | dB    |       |
| <b>Receiver</b>                                                  |           |        |                 |        |       |       |
| Signaling Speed Per Lane                                         |           |        | 53.125 ± 100ppm |        | GBD   |       |
| Modulation Format                                                |           |        | PAM4            |        |       |       |
| Lane Wavelengths                                                 | $\lambda$ | 1304.5 |                 | 1317.5 | nm    | 1     |
| Damage Threshold Per Lane                                        |           | 5.0    |                 |        | dBm   | 2     |
| Receive Power (OMA) Per Lane                                     | ROMA      |        |                 | 4.2    | dBm   |       |
| Average Input Power Per Channel                                  | RXpx      | -5.9   |                 | 4.0    | dBm   |       |
| Receiver Sensitivity (OMA) Per Lane                              | RXsens    |        |                 | -4.4   | dBm   | 3     |
| Receiver Reflectance                                             | RR        |        |                 | -26    | dB    |       |

### Notes:

1. The wavelength assignment is suitable for all channels.
2. Measured with PRBS31Q test pattern and BER@2.4x10<sup>-4</sup>.
3. The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level.

## Pin Descriptions

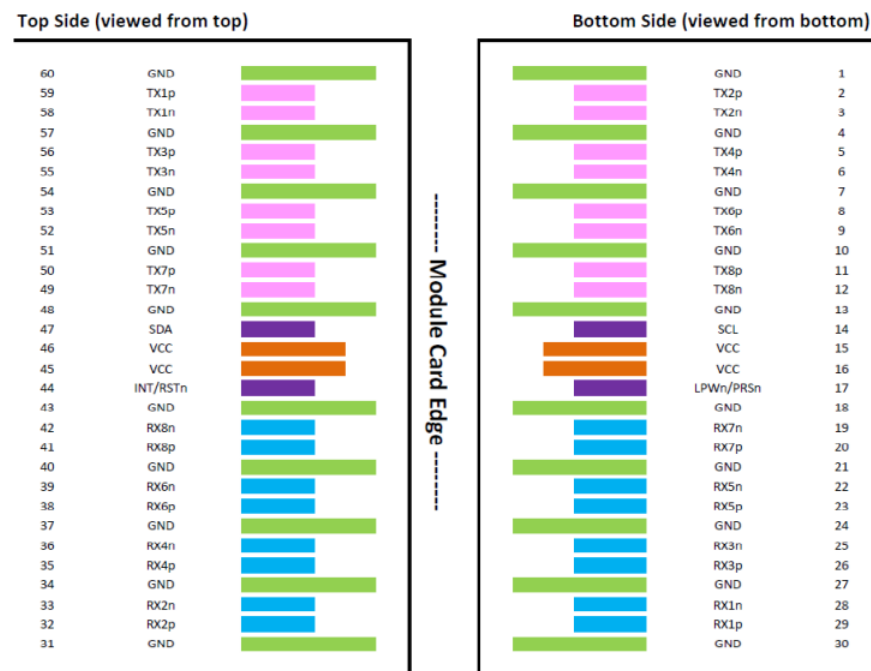
| Pin | Symbol    | Name/Description               | Notes |
|-----|-----------|--------------------------------|-------|
| 1   | GND       | Module Ground.                 | 1     |
| 2   | Tx2+      | Transmitter Non-Inverted Data. |       |
| 3   | Tx2-      | Transmitter Inverted Data.     |       |
| 4   | GND       | Module Ground.                 | 1     |
| 5   | Tx4+      | Transmitter Non-Inverted Data. |       |
| 6   | Tx4-      | Transmitter Inverted Data.     |       |
| 7   | GND       | Module Ground.                 | 1     |
| 8   | Tx6+      | Transmitter Non-Inverted Data. |       |
| 9   | Tx6-      | Transmitter Inverted Data.     |       |
| 10  | GND       | Module Ground.                 | 1     |
| 11  | Tx8+      | Transmitter Non-Inverted Data. |       |
| 12  | Tx8-      | Transmitter Inverted Data.     |       |
| 13  | GND       | Module Ground.                 | 1     |
| 14  | SCL       | 2-Wire Serial Interface Clock. | 2     |
| 15  | Vcc       | +3.3V Power Supply.            |       |
| 16  | Vcc       | +3.3V Power Supply.            |       |
| 17  | LPWn/PRSn | Low-Power Mode/Module Present. |       |
| 18  | GND       | Module Ground.                 | 1     |
| 19  | Rx7-      | Receiver Inverted Data.        |       |
| 20  | Rx7+      | Receiver Non-Inverted Data.    |       |
| 21  | GND       | Module Ground.                 | 1     |
| 22  | Rx5-      | Receiver Inverted Data.        |       |
| 23  | Rx5+      | Receiver Non-Inverted Data.    |       |
| 24  | GND       | Module Ground.                 | 1     |
| 25  | Rx3-      | Receiver Inverted Data.        |       |
| 26  | Rx3+      | Receiver Non-Inverted Data.    |       |
| 27  | GND       | Module Ground.                 | 1     |
| 28  | Rx1-      | Receiver Inverted Data.        |       |
| 29  | Rx1+      | Receiver Non-Inverted Data.    |       |
| 30  | GND       | Module Ground.                 | 1     |
| 31  | GND       | Module Ground.                 | 1     |
| 32  | Rx2+      | Receiver Non-Inverted Data.    |       |
| 33  | Rx2-      | Receiver Inverted Data.        |       |
| 34  | GND       | Module Ground.                 | 1     |
| 35  | Rx4+      | Receiver Non-Inverted Data.    |       |
| 36  | Rx4-      | Receiver Inverted Data.        |       |
| 37  | GND       | Module Ground.                 | 1     |

|    |          |                                |   |
|----|----------|--------------------------------|---|
| 38 | Rx6+     | Receiver Non-Inverted Data.    |   |
| 39 | Rx6-     | Receiver Inverted Data.        |   |
| 40 | GND      | Module Ground.                 | 1 |
| 41 | Rx8+     | Receiver Non-Inverted Data.    |   |
| 42 | Rx8-     | Receiver Inverted Data.        |   |
| 43 | GND      | Module Ground.                 | 1 |
| 44 | INT/RSTn | Module Input/Module Reset.     |   |
| 45 | Vcc      | +3.3V Power Supply.            |   |
| 46 | Vcc      | +3.3V Power Supply.            |   |
| 47 | SDA      | 2-Wire Serial Interface Data.  | 2 |
| 48 | GND      | Module Ground.                 | 1 |
| 49 | Tx7-     | Transmitter Inverted Data.     |   |
| 50 | Tx7+     | Transmitter Non-Inverted Data. |   |
| 51 | GND      | Module Ground.                 | 1 |
| 52 | Tx5-     | Transmitter Inverted Data.     |   |
| 53 | Tx5+     | Transmitter Non-Inverted Data. |   |
| 54 | GND      | Module Ground.                 | 1 |
| 55 | Tx3-     | Transmitter Inverted Data.     |   |
| 56 | Tx3+     | Transmitter Non-Inverted Data. |   |
| 57 | GND      | Module Ground.                 | 1 |
| 58 | Tx1-     | Transmitter Inverted Data.     |   |
| 59 | Tx1+     | Transmitter Non-Inverted Data. |   |
| 60 | GND      | Module Ground.                 | 1 |

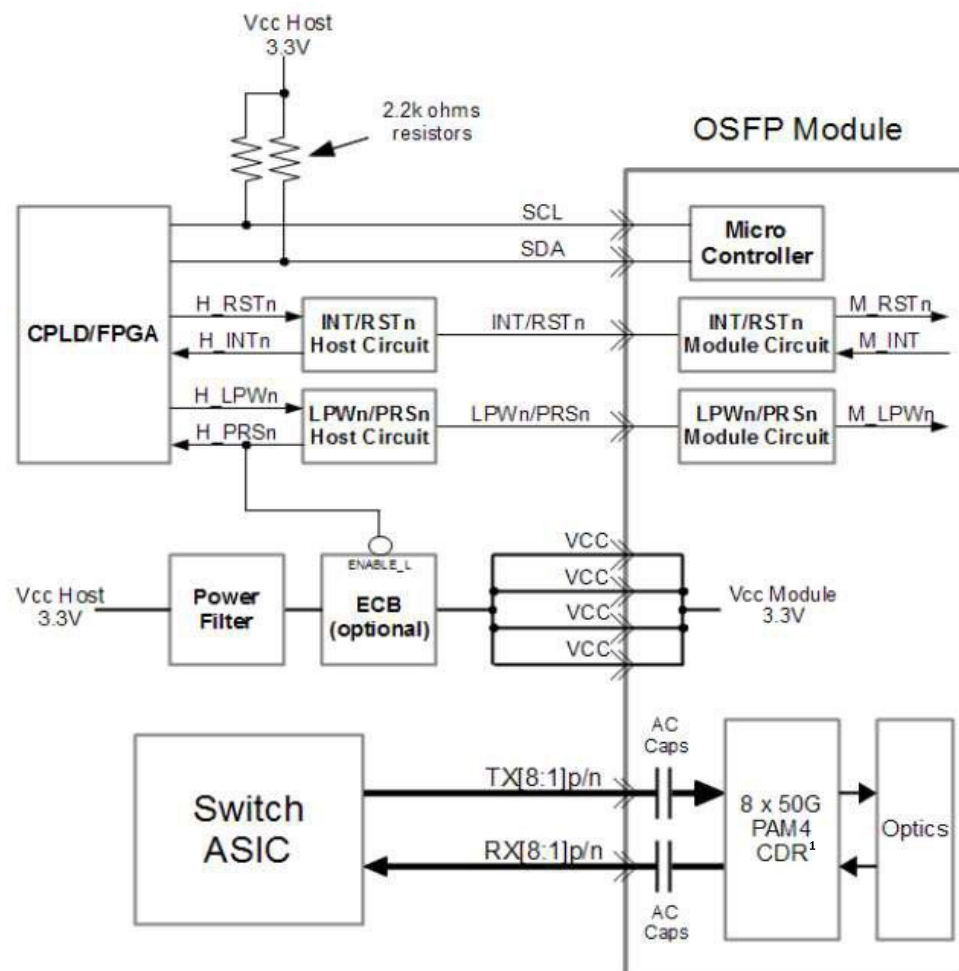
**Notes:**

1. OSFP uses common ground (GND) for all signals and supply (power). All are common within the OSFP module, and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal common ground plane.
2. Open-drain with pull-up resistor on the host.

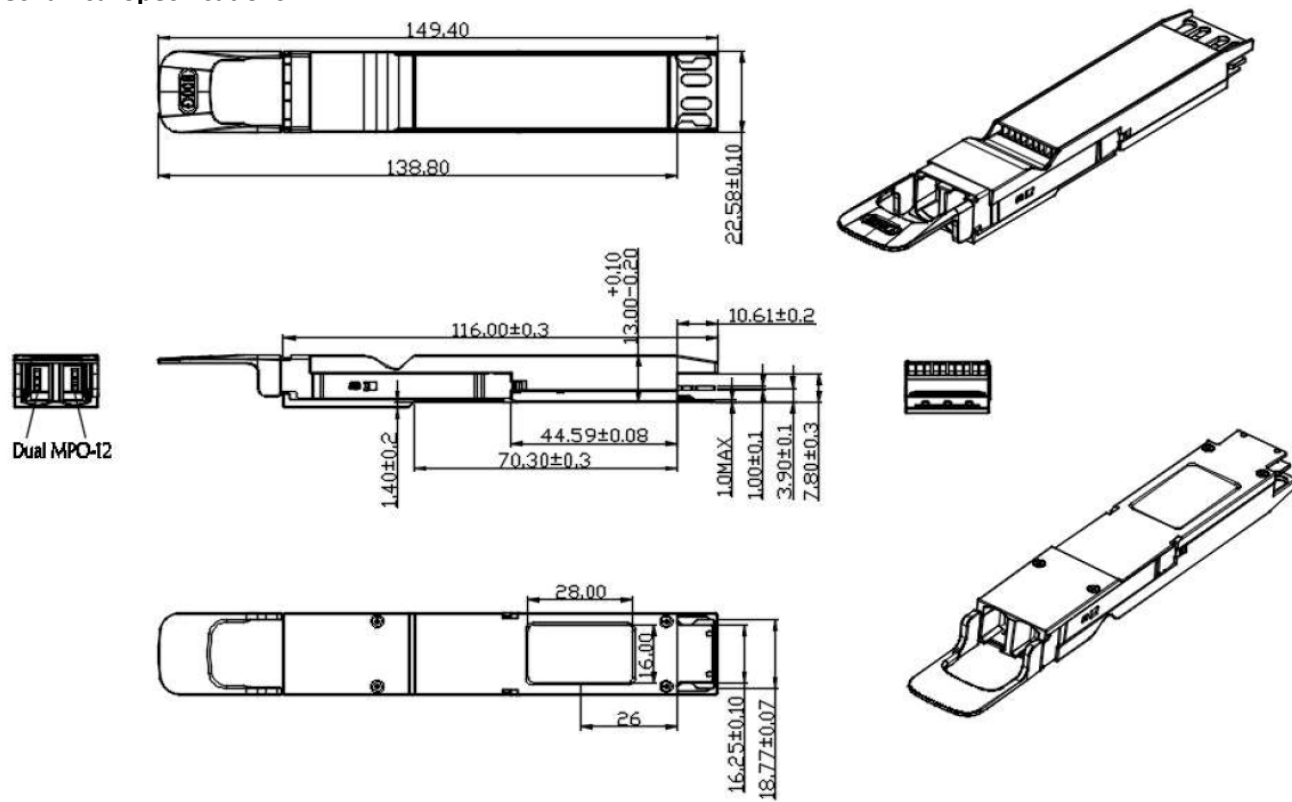
Electrical Pad Layout



Transceiver Block Diagram



## Mechanical Specifications



# About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box.

