

## SFC55160GE0DAA2

Cisco® Compatible 1000Base-CWDM SFP Transceiver (SMF, 1550nm, 160km, LC, DOM)

### Product Description

This Cisco® compatible SFP transceiver provides 1000Base-CWDM throughput up to 160km over single-mode fiber (SMF) using a wavelength of 1550nm via an LC connector. It can operate at temperatures between 0 and 70C. The listed reach has been determined using a link budget calculation and tested in a standard environment. Actual link distances achieved will be dependent upon the deployed environment. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Cisco®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide seamless network integration. 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:

- INF-8074 and SFF-8472 Compliance
- Duplex LC Connector
- Commercial Temperature 0 to 70 Celsius
- Single-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



### Applications:

- Gigabit Ethernet over DWDM
- Access and Enterprise

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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 |
|----------------------------|--------|-------|------|------------|------|-------|
| Data Rate                  | DR     | 0.622 |      | 1.25       | Gbps |       |
| Bit Error Rate             | BER    |       |      | $10^{-12}$ |      |       |
| Operating Case Temperature | Tc     | 0     |      | 70         | C    | 1, 4  |
| Storage Temperature        | Tstg   | -40   |      | 85         | C    | 2     |
| Supply Current             | Icc    |       | 200  | 300        | mA   | 3     |
| Maximum Voltage            | VMAX   | -0.5  |      | 4          | V    | 3     |

### Notes:

1. Case temperature.
2. Ambient temperature.
3. For the electrical power interface.
4. Commercial temperature.

## Electrical Characteristics

| Parameter                      | Symbol   | Min.    | Typ. | Max.     | Unit     | Notes |
|--------------------------------|----------|---------|------|----------|----------|-------|
| Input Voltage                  | Vcc      | 3.14    | 3.3  | 3.46     | V        |       |
| Supply Current                 | Icc      |         | 200  | 300      | mA       | 3     |
| Transmitter                    |          |         |      |          |          |       |
| Input Differential Impedance   | RIN      |         | 100  |          | $\Omega$ |       |
| Single-Ended Data Input Swing  | VIN,pp   | 250     |      | 1200     | mV       |       |
| Transmit Disable Voltage       | VD       | Vcc-1.3 |      | Vcc      | V        |       |
| Transmit Enable Voltage        | VEN      | Vee     |      | Vee+0.8  | V        |       |
| Transmit Disable Assert Time   |          |         |      | 10       | us       |       |
| Receiver                       |          |         |      |          |          |       |
| Single-Ended Data Output Swing | VOOUT,pp | 300     | 400  | 800      | mV       |       |
| Data Output Rise/Fall Time     | Tr/Tf    |         | 100  | 175      | ps       |       |
| LOS Asserted                   | VLOSA    | Vcc-0.5 |      | Host_Vcc | V        |       |
| LOS De-Asserted                | VLOSD    | Vee     |      | Vee+0.5  | V        |       |

## Optical Characteristics

| Parameter                       | Symbol                    | Min. | Typ. | Max. | Unit  | Notes |
|---------------------------------|---------------------------|------|------|------|-------|-------|
| Transmitter                     |                           |      |      |      |       |       |
| Output Optical Power            | PTX                       | 3    |      | 7    | dBm   | 1     |
| Optical Center Wavelength       | $\lambda_C$               | 1545 | 1551 | 1557 | nm    |       |
| Extinction Ratio                | ER                        | 9    |      |      | dB    |       |
| Side-Mode Suppression Ratio     | SMSR                      | 30   |      |      | dB    |       |
| Spectral Width (-20dB)          | $\Delta\lambda$           |      |      | 1    | nm    |       |
| Optical Rise/Fall Time (20-80%) | $T_r/T_f$                 |      |      | 180  | ps    |       |
| Relative Intensity Noise        | RIN                       |      |      | -120 | dB/Hz |       |
| Transmitter Jitter (Pk-Pk)      | TJ                        |      |      | 100  | ps    |       |
| Output Eye                      | Compliant with IEEE 802.3 |      |      |      |       |       |
| Receiver                        |                           |      |      |      |       |       |
| Optical Input Wavelength        | $\lambda_C$               | 1270 |      | 1620 | nm    |       |
| Receiver Sensitivity            | Rx_SEN                    |      |      | -34  | dBm   | 2     |
| Receiver Overload               | POL                       | -7   |      |      | dBm   |       |
| LOS Assert                      | LOSA                      | -42  |      |      | dBm   |       |
| LOS De-Assert                   | LOSD                      |      |      | -34  | dBm   |       |
| LOS Hysteresis                  | LOSH                      | 0.5  |      |      | dB    |       |

### Notes:

1. Average launch power.
2. Measured with a 2<sup>7</sup>-1 test pattern over 120km @1.25Gbps with BER<10<sup>-12</sup>.

## Pin Descriptions

| Pin | Symbol     | Name/Description                                                 | Notes |
|-----|------------|------------------------------------------------------------------|-------|
| 1   | VeeT       | Transmitter Ground (Common with Receiver Ground).                | 1     |
| 2   | Tx_Fault   | Transmitter Fault.                                               |       |
| 3   | Tx_Disable | Transmitter Disable. Laser output disabled on “high” or “open.”  | 2     |
| 4   | SDA        | 2-Wire Serial Interface Data.                                    | 3     |
| 5   | SCL        | 2-Wire Serial Interface Clock.                                   | 3     |
| 6   | MOD_ABS    | Module Absent. Grounded within the module.                       | 3     |
| 7   | RS0        | No Connection Required.                                          |       |
| 8   | LOS        | Loss of Signal Indication. “Logic 0” indicates normal operation. | 4     |
| 9   | RS1        | No Connection Required.                                          | 1     |
| 10  | VeeR       | Receiver Ground (Common with Transmitter Ground).                | 1     |
| 11  | VeeR       | Receiver Ground (Common with Transmitter Ground).                | 1     |
| 12  | RD–        | Receiver Inverted Data Out. AC Coupled.                          |       |
| 13  | RD+        | Receiver Non-Inverted Data Out. AC Coupled.                      |       |
| 14  | VeeR       | Receiver Ground (Common with Transmitter Ground).                | 1     |
| 15  | VccR       | Receiver Power Supply.                                           |       |
| 16  | VccT       | Transmitter Power Supply.                                        |       |
| 17  | VeeT       | Transmitter Ground (Common with Receiver Ground).                | 1     |
| 18  | TD+        | Transmitter Non-Inverted Data In. AC Coupled.                    |       |
| 19  | TD–        | Transmitter Inverted Data In. AC Coupled.                        |       |
| 20  | VeeT       | Transmitter Ground (Common with Receiver Ground).                | 1     |

### Notes:

1. The circuit ground is isolated from the chassis ground.
2. Disabled: TDIS>2V or open, enabled: TDIS<0.8V.
3. Should be pulled up with 4.7kΩ to 10kΩ on the host board to a voltage between 2V and 3.6V.
4. LOS is open collector output.

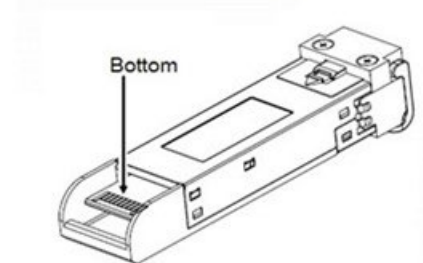
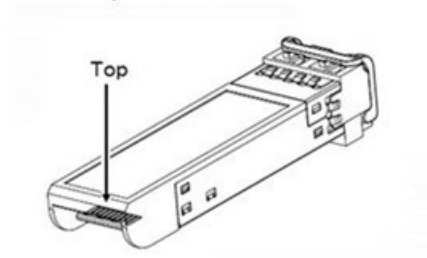
## Electrical Pad Layout



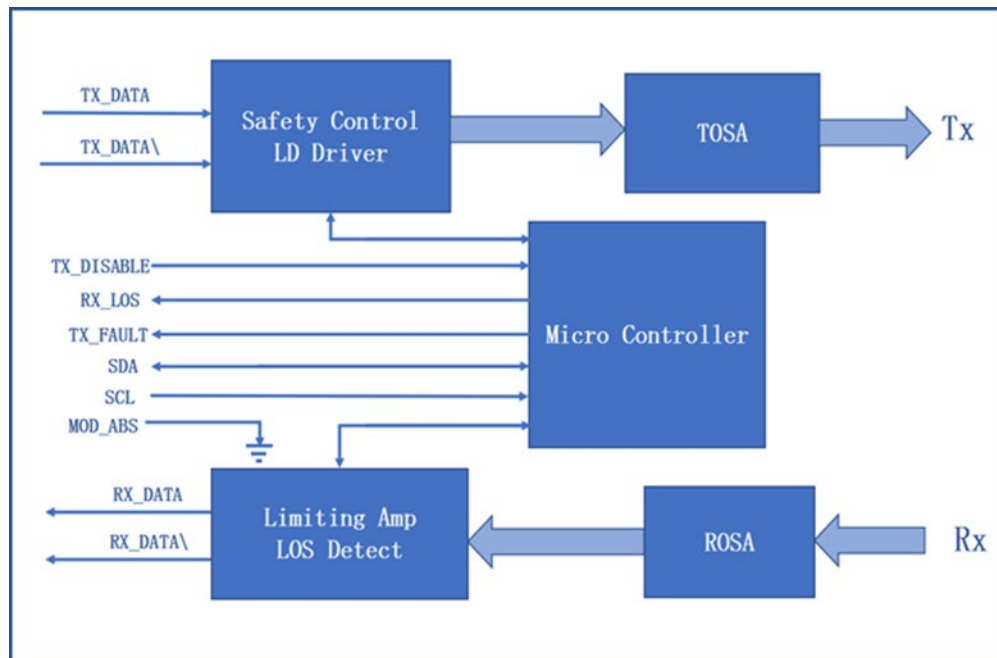
Top of Board



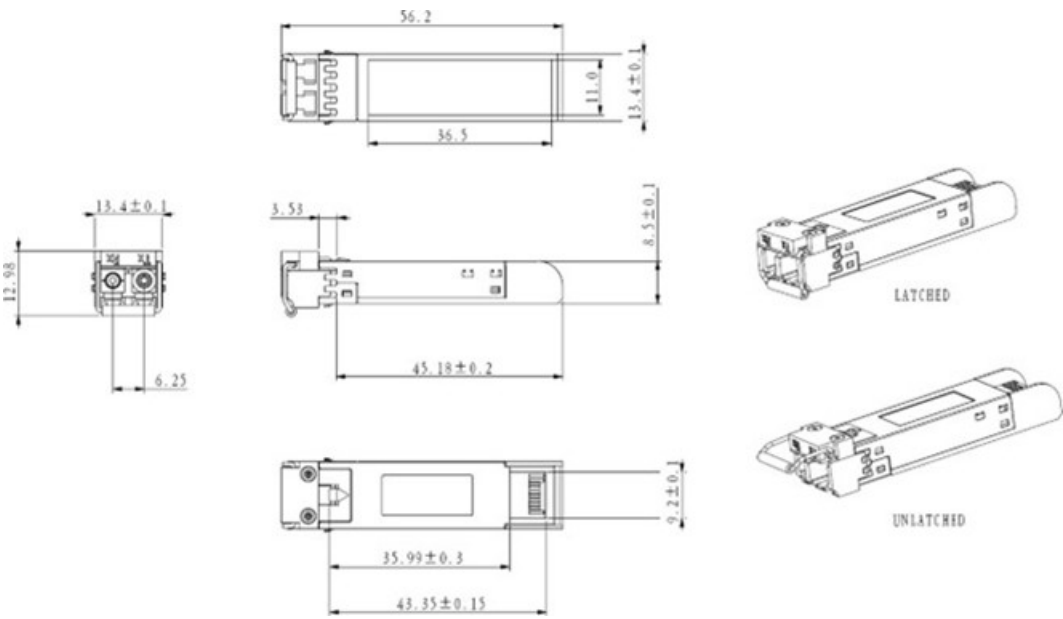
Bottom of Board



## Block Diagram of Transceiver



**Mechanical Specifications**



All dimensions are ±0.2mm unless otherwise specified.  
Unit: mm

# 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.

