# 0231A562-SKY

HP® 0231A562 Compatible 1000Base-SX SFP Transceiver (MMF, 850nm, 550m, LC, DOM)

**Product Description**

This HP® 0231A562 compatible SFP transceiver provides 1000Base-SX throughput up to 550m over multi-mode fiber (MMF) using a wavelength of 850nm via an LC connector. It can operate at temperatures between 0 and 70C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with HP®. 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. 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:**

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

**Applications:**

- 1000Base-SX Ethernet
- Access and Enterprise
- 1x Fibre Channel

*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.***

## Absolute Maximum Ratings

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Supply Voltage** | Vcc | -0.5 | | 4.0 | V | |
| **Storage Temperature** | Tstg | -40 | | 85 | °C | |
| **Case Operating Temperature** | Tc | 0 | | 70 | °C | |
| **Operating Humidity** | RH | 5 | | 95 | % | |
| **Data Rate (Gigabit Ethernet)** | | | 1.25 | | Gbps | |
| **Data Rate (Fibre Channel)** | | | 1.063 | | Gbps | |
| **50/125µm MMF** | L | | | 550 | m | |
| **Power Consumption** | | | | 0.87 | W | |

## Electrical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Power Supply Voltage** | Vcc | 3.13 | 3.30 | 3.47 | V | |
| **Power Supply Current** | Icc | | | 250 | mA | |
| **Transmitter** | | | | | | |
| **Input Differential Impedance** | RIN | | 100 | | Ω | 1 |
| **Single-Ended Data Input Swing** | VIN,pp | 250 | | 1200 | mV | |
| **Tx_Disable - High** | | Vcc-1.3 | | Vcc | V | |
| **Tx_Disable - Low** | | Vee | | Vee+0.8 | V | |
| **Tx_Fault - High** | | Vcc-0.5 | | Vcc | V | |
| **Tx_Fault - Low** | | Vee | | Vee+0.5 | V | |
| **Receiver** | | | | | | |
| **Single-Ended Data Output Swing** | VOUT,pp | 300 | 400 | 800 | mV | 2 |
| **Data Output Rise Time** | Tr | | | 175 | ps | 3 |
| **Data Output Fall Time** | Tf | | | 175 | ps | 3 |
| **LOS - High** | | Vcc-0.5 | | Vcc | V | |
| **LOS - Low** | | Vee | | Vee+0.5 | V | |

**Notes:**

1. AC coupled.
2. Into 100Ω differential termination.
3. 20-80%.

**Optical Characteristics**

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Transmitter** | | | | | | |
| **Average Output Power** | PO | -9 | | -4 | dBm | 1 |
| **Optical Wavelength** | λ | 830 | 850 | 860 | nm | |
| **Spectral Width** | σ | | | 0.85 | nm | |
| **Optical Rise/Fall Time** | Tr/Tf | | | 260 | ps | 2 |
| **Total Jitter** | TJ | | | 200 | ps | |
| **Optical Extinction Ratio** | ER | 9 | | | dB | |
| **Receiver** | | | | | | |
| **Receiver Sensitivity** | RSENS | | | -18 | dBm | 3, 4 |
| **Maximum Received Power** | $RX_{MAX}$ | 0 | | | dBm | |
| **Center Wavelength** | λC | 770 | | 860 | nm | |
| **LOS De-Assert** | LOSD | | | -26 | dBm | |
| **LOS Assert** | LOSA | -40 | | | dBm | |
| **LOS Hysteresis** | | 0.5 | | 5 | dB | |

**Notes:**

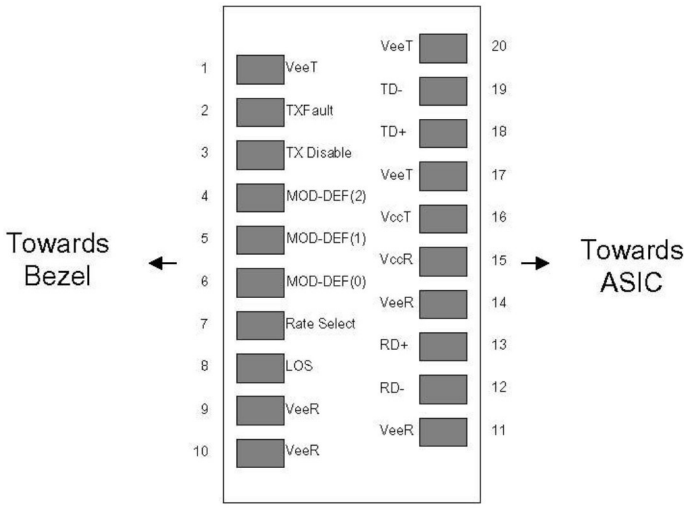
1. Class 1 laser safety.
2. Unfiltered, 20-80%. Complies with GE and 1xFC eye masks when filtered.
3. Measured with conformance signals defined in FC-PI-2 Rev. 10.0 specifications.
4. Measured with PRBS $2^7$-1 at $10^{-10}$ BER.

**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** | MOD_DEF(2) | Module Definition 2. Data Line for Serial ID. | 3 |
| **5** | MOD_DEF(1) | Module Definition 1. Clock Line for Serial ID. | 3 |
| **6** | MOD_DEF(0) | Module Definition 0. Grounded within the module. | 3 |
| **7** | Rate Select | No Connection Required. | |
| **8** | LOS | Loss of Signal Indication. “Logic 0” indicates normal operation. | 4 |
| **9** | VeeR | Receiver Ground (Common with Transmitter Ground). | 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 |

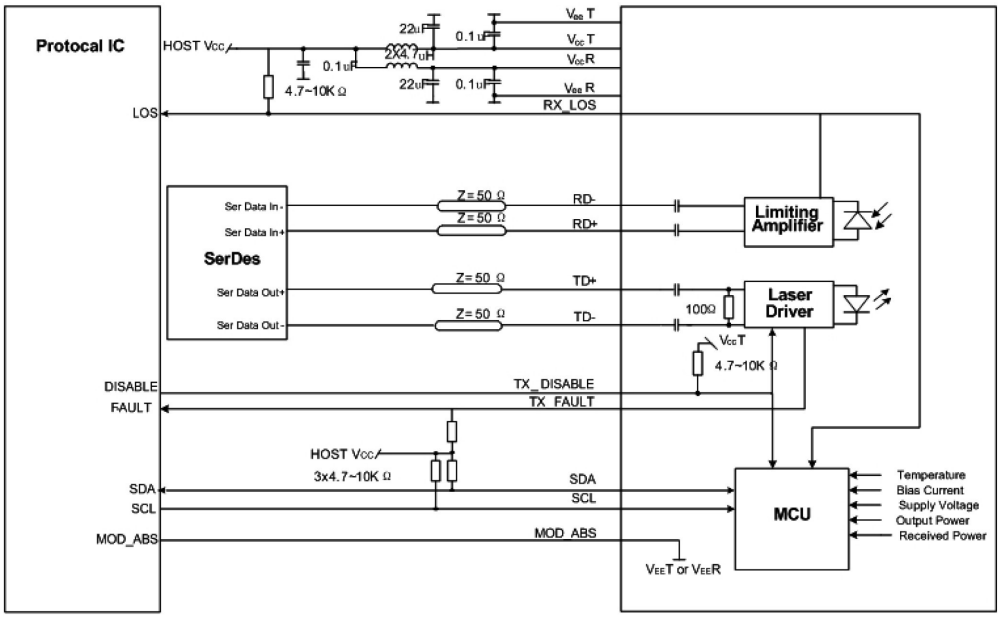
**Notes:**

1. The circuit ground is internally isolated from the chassis ground.
2. Laser output is disabled on Tx_Disable>2.0V or open, enabled on Tx_Disable<0.8V.
3. Should be pulled up with 4.7kΩ to 10kΩ on the host board to a voltage between 2.0V and 3.6V. MOD_DEF(0) pulls the line low to indicate that the module is plugged in.
4. LOS is an open collector output. Should be pulled up with 4.7kΩ to 10kΩ on the host board to a voltage between 2.0V and 3.6V. “Logic 0” indicates normal operation. “Logic 1” indicates a loss of signal.



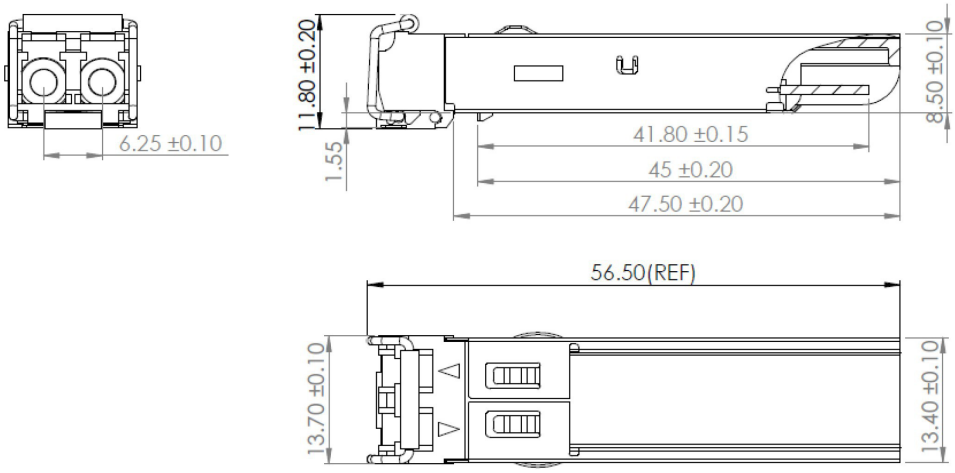

Pin-Out of Connector Block on the Host Board

**Recommended Circuit Schematic**



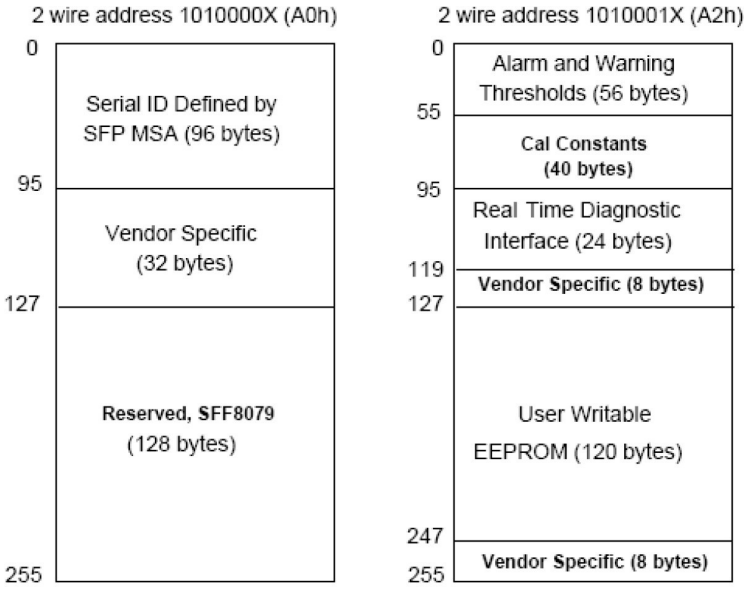
**Mechanical Specifications**

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).




**EEPROM Information**

EEPROM memory map-specific data field description is as below:



# 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.