

#### 0231A321-PRO

Huawei® 0231A321 Compatible TAA Compliant 1000Base-ZX SFP Transceiver (SMF, 1550nm, 120km, 0 to 70C, LC)

#### **Features**

- INF-8074 and SFF-8472 Compliance
- Uncooled DFB transmitter and APD receiver
- 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:**

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

### **Product Description**

This Huawei® 0231A321 compatible SFP transceiver provides 1000Base-ZX throughput up to 120km over single-mode fiber (SMF) using a wavelength of 1550nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Huawei® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

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

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. — made or designated country end products.



Rev. 121422

# **Regulatory Compliance**

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4
- ESD to the LC Receptacle: compatible with IEC 61000-4-3
- EMI/EMC compatible with FCC Part 15 Subpart B Rules, EN55022:2010
- Laser Eye Safety compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1,2
- RoHS compliant with EU RoHS 2.0 directive 2015/863/EU

## **Absolute Maximum Ratings**

| Parameter                  | Symbol           | Min. | Max. | Unit |
|----------------------------|------------------|------|------|------|
| Maximum Supply Voltage     | Vcc              | -0.5 | 4.0  | V    |
| Storage Temperature        | TS               | -40  | 85   | °C   |
| Operating Case Temperature | Тс               | 0    | 70   | °C   |
| Operating Humidity         | RH               | 5    | 85   | %    |
| Receiver Power             | R <sub>MAX</sub> |      | -8   | dBm  |
| Maximum Bitrate            | B <sub>max</sub> |      | 1.25 | Gbps |

# **Electrical Characteristics** (TOP=25°C, Vcc=3.3Volts)

| Parameter                      | Symbol            | Min. | Тур. | Max. | Unit | Notes |
|--------------------------------|-------------------|------|------|------|------|-------|
| Power Supply Voltage           | Vcc               | 3.15 | 3.30 | 3.43 | V    |       |
| Power Supply Current           | Icc               |      |      | 303  | mA   |       |
| Power Consumption              | P <sub>DISS</sub> |      |      | 1    | W    |       |
| Transmitter                    |                   |      |      |      |      |       |
| Differential data input swing  | Vin,pp            | 120  |      | 850  | mV   |       |
| Input differential impedance   | Zin               | 80   | 100  | 120  | Ω    |       |
| Receiver                       |                   |      |      |      |      |       |
| Differential data output swing | Vout, pp          | 300  |      | 850  | mV   |       |
| Output differential impedance  | Zin               | 80   | 100  | 120  | Ω    |       |

**Optical Characteristics** 

| Parameter                      | Symbol           | Min. | Тур. | Max. | Unit | Notes |
|--------------------------------|------------------|------|------|------|------|-------|
| Transmitter                    |                  |      |      |      |      |       |
| Optical Power (average)        | P <sub>AVE</sub> | 0    |      | 5    | dBm  | 1     |
| Optical Extinction Ratio       | ER               | 9    |      |      | dB   |       |
| Optical Wavelength             | Τλ               | 1500 | 1550 | 1580 | nm   |       |
| Insertion loss                 | IL               |      | 0.35 |      |      |       |
| Receiver                       |                  |      |      |      |      |       |
| Receiver Sensitivity (average) | R <sub>AVE</sub> |      |      | -30  | dBm  | 2     |
| Receiver overload              | P <sub>max</sub> | -8   |      |      | dBm  | 3     |
| Receiver wavelength            | Rλ               | 1260 |      | 1565 | nm   |       |

## Notes:

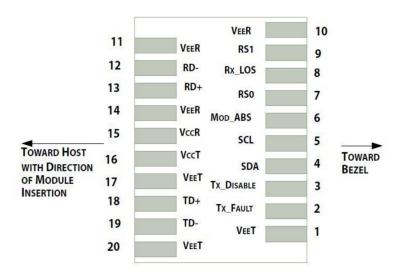
- 1. Coupled into a Single-mode fibre
- 2. Average power, back-to-back, @1.25Gbps, BER 1E<sup>-12</sup>, PRBS 2<sup>31</sup>-1.
- 3. Exceeding the Receiver overload can physically damage the module. Please use appropriate attenuation.

#### **Pin Descriptions**

| Pin | Symbol     | Name/Descriptions   | Ref. |
|-----|------------|---|------|
| 1   | VeeT       | Transmitter Ground (Common with Receiver Ground).                             | 1    |
| 2   | TX Fault   | Transmitter Fault. LVTTL-O  | 2    |
| 3   | TX Disable | Transmitter Disable. Laser output disabled on high or open. LVTT-I.           | 3    |
| 4   | SDA        | 2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I/O. |      |
| 5   | SCL        | 2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I.   |      |
| 6   | MOD_ABS    | Module Absent, Connect to VeeT or VeeR in Module.                             | 4    |
| 7   | RS0        | Rate Select 0. Not used   | 5    |
| 8   | LOS        | Loss of Signal indication. Logic 0 indicates normal operation. LVTTL-O.       | 2    |
| 9   | RS1        | Rate Select 1. Not used   | 5    |
| 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. CML-O.                                |      |
| 13  | RD+        | Receiver Non-inverted DATA out. AC Coupled. CML-O.                            |      |
| 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. CML-I.                          |      |
| 19  | TD-        | Transmitter Inverted DATA in. AC Coupled. CML-O.                              |      |
| 20  | VeeT       | Transmitter Ground (Common with Receiver Ground).                             | 1    |

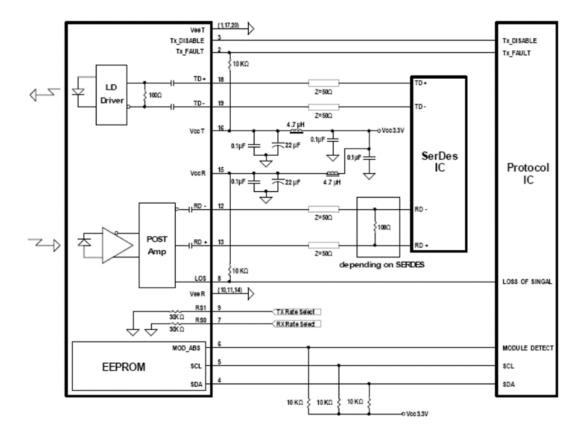
### **Notes:**

- 1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
- 2. This contact is an open collector/drain output and should be pulled up to the Vcc\_Host with resister in the range  $4.7K\Omega$  to  $10K\Omega$ . Pull ups can be connected to one or several power supplies, however the host board design shall ensure that no module contract has voltage exceeding module VccT/R +0.5.V.
- 3. Tx\_Disable is an input contact with a  $4.7K\Omega$  to  $10K\Omega$  pull-up resistor to VccT inside module.
- 4. Mod\_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull the contract up to Vcc\_Host with a resistor in the range from  $4.7K\Omega$  to  $10K\Omega$ . Mod\_ABS is asserted "High" when the SFP+ module is physically absent from a host slot.
- 5. Internally pulled down per SFF-8431



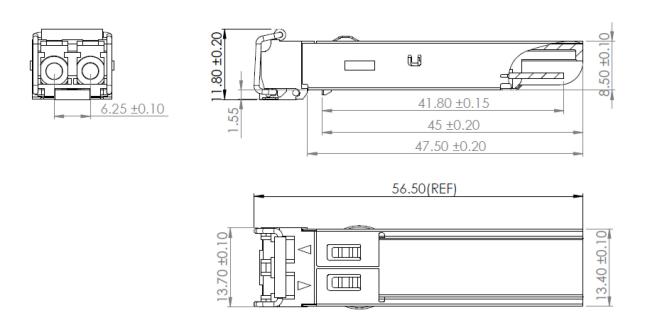
Pin-out of connector Block on Host board

## **Recommended Circuit Schematic**



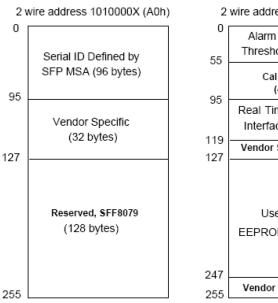
### **Mechanical Specifications**

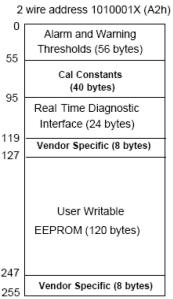
Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).



#### **EEPROM Information**

EEPROM memory map specific data field description is as below:





#### **About Us:**

Proline Options is one of North America's leading providers of transceivers and high speed cabling. With a reputation for quality, tested products that cover the connectivity spectrum, Proline Options has a solution for you regardless of the specification.

At Proline Options, every product is tested in its intended application - never batch or spec tested only. We run bandwidth, distance and IOS network tests. We have documented an impressive 0.03% failure rate over the last 10 years. To continue this rate of success we invest millions annually in our own on-site testing lab.

Tel: 855.933.3223

Email: sales@prolineoptions.com

Email: <a href="mailto:techsupport@prolineoptions.com">techsupport@prolineoptions.com</a>
Web: <a href="mailto:https://www.prolineoptions.com">https://www.prolineoptions.com</a>