

ADTRN-OC3-BX54-PRO

ADTRAN® 1184543P-BX54 Compatible TAA Compliant 100Base-BX SFP Transceiver (SMF, 1550nmTx/1490nmRx, 80km, DOM, 0 to 70C, LC)

Features

- INF-8074 and SFF-8472 Compliance
- Simplex 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:

- 100Base Ethernet
- Access and Enterprise

Product Description

This ADTRAN® 1184543P-BX54 compatible SFP transceiver provides 100Base-BX throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1550nmTx/1490nmRx via an LC connector. It is guaranteed to be 100% compatible with the equivalent ADTRAN® 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.



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. | Typ. | Max. | Unit |
|-----------------------------|--------|------|------|------|------|
| Operating Relative Humidity | RH | 5 | | 85 | % |
| Operating Case Temperature | Tc | 0 | | 70 | °C |
| Storage Temperature | Tstg | -40 | | 85 | °C |
| Maximum Supply Voltage | Vcc | -0.5 | | 3.6 | V |
| Supply Current | Icc | | | 300 | mA |
| Data Rate | OC-3 | | 155 | | Mbps |
| | 100M | | 100 | | |

Electrical Characteristics (VCC=3.14V to 3.46V)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---------------------------------|---------|------|------|-----------|------|----------------------------|
| Power Supply Voltage | Vcc | 3.15 | 3.3 | 3.47 | V | |
| Transmitter | | | | | | |
| LVPECL Inputs (Differential) | Vin | 400 | | 2000 | mVpp | AC Coupled Inputs (Note1) |
| Input Impedance (Differential) | Zin | 85 | 100 | 115 | Ω | Rin > 100KΩ @DC |
| TX_Dis | Disable | 2 | | Vcc + 0.3 | V | |
| | Enable | 0 | | 0.8 | V | |
| TX_Fault | Fault | 2 | | Vcc + 0.3 | V | |
| | Normal | 0 | | 0.5 | V | |
| Receiver | | | | | | |
| LVPECL Outputs (Differential) | Vout | 400 | | 2000 | mVpp | AC Coupled Outputs (Note1) |
| Output Impedance (Differential) | Zout | 85 | 100 | 115 | Ω | |
| TX_Disable Assert Time | T_off | | | 10 | Us | |
| RX_Los | LOS | 2 | | Vcc + 0.3 | V | |
| | Normal | 0 | | 0.8 | V | |
| MOD_DEF(0.2) | VOH | 2.5 | | | V | With Serial ID |
| | VOL | 0 | | 0.5 | V | |

Notes:

1. LVPECL logic, internally AC coupled.

Optical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|-----------------------------|-----------------------|------|------|------|------|-------|
| 9µm Core Diameter SMF | L | | 120 | | km | |
| Data Rate | | | 155 | | Mbps | |
| Transmitter | | | | | | |
| Center Wavelength | λ_c | 1510 | 1550 | 1580 | nm | |
| Side Mode Suppression Ratio | SMSR | 30 | | | dB | |
| Spectral Width (-20dB) | $\Delta\lambda$ | | | 1 | nm | |
| Average Output Power | Pout | 0 | | 5 | dBm | 1 |
| Extinction Ratio | ER | 9 | | | dB | 2 |
| Rise/Fall Time(20% - 80%) | tr/tf | | | 1.5 | ns | |
| Total Jitter | TJ | | | 1.5 | ns | |
| Pout@TX Disable Asserted | Pout | | | -45 | dBm | |
| Output Optical Eye | IUT-T G.957 Compliant | | | | | |
| Receiver | | | | | | |
| Center Wavelength | λ_c | 1470 | | 1570 | nm | |
| Receiver Sensitivity | Pmin | | | -34 | dBm | 3 |
| Receiver Overload | Pmax | 0 | | | dB | |
| LOS Assert | LOSA | -45 | | | dBm | |
| LOS De-Assert | LOSD | | | -35 | dBm | |
| LOS Hysteresis | LOSH | 1 | | | dB | |

Notes:

1. Output power is measured by coupling into a 9/125nm single-mode fiber.
2. Filtered, measured with a PRBS $2^{23}-1$ test pattern @ 155Mbps.
3. Minimum average optical power is measured at BER less than $1E-12$ and PRBS $2^{23}-1$ test pattern.

Pin Descriptions

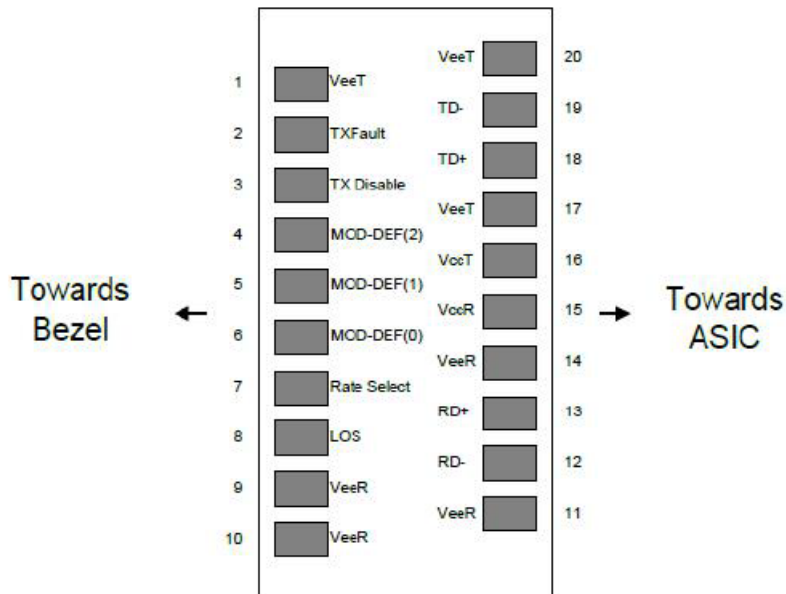
| Pin | Symbol | Name/Descriptions | Plug Seq. | Notes |
|-----|-------------------|---|-----------|------------------------|
| 1 | VEET | Transmitter ground. | 1 | 5 |
| 2 | TX Fault | Transmitter Fault Indication. | 3 | 1 |
| 3 | TX <u>Disable</u> | Transmitter Disable. Module disables on high or open. | 3 | 2 |
| 4 | MOD_DEF 2 | Module Definition 2. Two wire serial ID interface. | 3 | 3 |
| 5 | MOD_DEF 1 | Module Definition 1. Two wire serial ID interface. | 3 | 3 |
| 6 | MOD_DEF 0 | Module Definition 0. Grounded within the module. | 3 | 3 |
| 7 | Rate Select | No connection required. | 3 | Function not available |
| 8 | LOS | Loss of Signal. | 3 | 4 |
| 9 | VeeR | Receiver ground. | 1 | 5 |
| 10 | VeeR | Receiver ground. | 1 | 5 |
| 11 | VeeR | Receiver ground. | 1 | 5 |
| 12 | RD- | Receiver Inverted Data out. | 3 | 6 |
| 13 | RD+ | Receiver Data out. | 3 | 7 |
| 14 | VeeR | Receiver ground. $3.3 \pm 5\%$ | 1 | 5 |
| 15 | VccR | Receiver power. $3.3 \pm 5\%$ | 2 | 7 |
| 16 | VccT | Transmitter power. | 2 | 7 |
| 17 | VeeT | Transmitter ground. | 1 | 5 |
| 18 | TD+ | Transmitter Data in. | 3 | 8 |
| 19 | TD- | Transmitter Inverted data in. | 3 | 8 |
| 20 | VeeT | Transmitter ground. | 1 | 5 |

Notes:

- TX Fault is an open collector/drain output, which should be pulled up with a 4.7K-10k resistor on the host board. Pull up voltage between 2.0V and $V_{ccT}/R + 0.3V$. When high, output indicates a laser fault of some kind. Low indicated normal operation. In the low state, the output will be pulled to $<0.8V$.
- TX disables is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7-10K resistor. It states:
 - Low (0 - 0.8V): Transmitter on (>0.5 , $<2.0V$): Undefined;
 - High (2.0 – 3.465V): Transmitter Disable Open: Transmitter Disabled;
- Mod-Def 0, 1, 2. These are the module definition pins. They should be pulled up with a 4.7K – 10K resistor on the host board. The pull up voltage shall be V_{ccT} or V_{ccR} .
 - Mod-Def 0 is grounded by the module to indicate that the module is present;
 - Mod-Def1 is the clock line of two wire serial interface for serial ID;
 - Mod-Def2 is the data line of two wore serial interface for serial ID.
- LOS (Loss of Signal) is an open collector/drain output, which should be pulled up with a 4.7K – 10K resistor. Pull up voltage between 2.0V and $V_{ccT}/R + 0.3V$. When high, this output indicated the received optical power is below the worst-case receiver Sensitivity (as defined by the standard in use). Low indicated normal operation. In the low state, the output will be pulled to $<0.8V$.

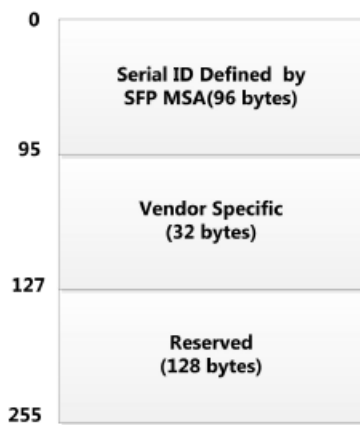
5. VeeR and VeeT may be internally connected within the SFP module.
6. RD -/+ : These are the differential receiver outputs. They are AC coupled 100 differential lines which should be terminated with 100 (differential) at the user SERDES. The AC coupling is done inside the module and thus not required on the host board. The voltage swing on these lines will be between 400 and 2000 mV differential (200 - 1000 mV single ended) when promptly terminated.
7. VccR and VccT are the receiver and transmitter power supplies. They are defined as a $3.3V \pm 5\%$ at the SFP connector pin. Maximum supply current is 300mA. Recommended host board power supply filtering is show below. Inductors with DC resistance of less that 1Ω should be used in order to maintain the required voltage at the SFP input pin with 3.3V supply voltage. When the recommended supply-filtering network is used, hot plugging of the SFP transceiver module will result in an rush current of no more than 30m,A greater than the steady state value. VccR and VccT may be internally connected within the SFP transceiver module.
8. TD-/+ : These are the differential transmitter inputs. They are AC-coupled, differential lines with 100 differential terminations inside the module. The AC coupling is done inside the module and is thus not required o the host board. The inputs will accept differential swings of 400 – 2000mV(200- 1000mV single-ended).

Electrical Pin-out Details

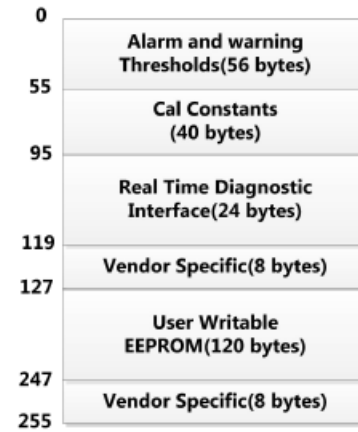


2 Wire Address

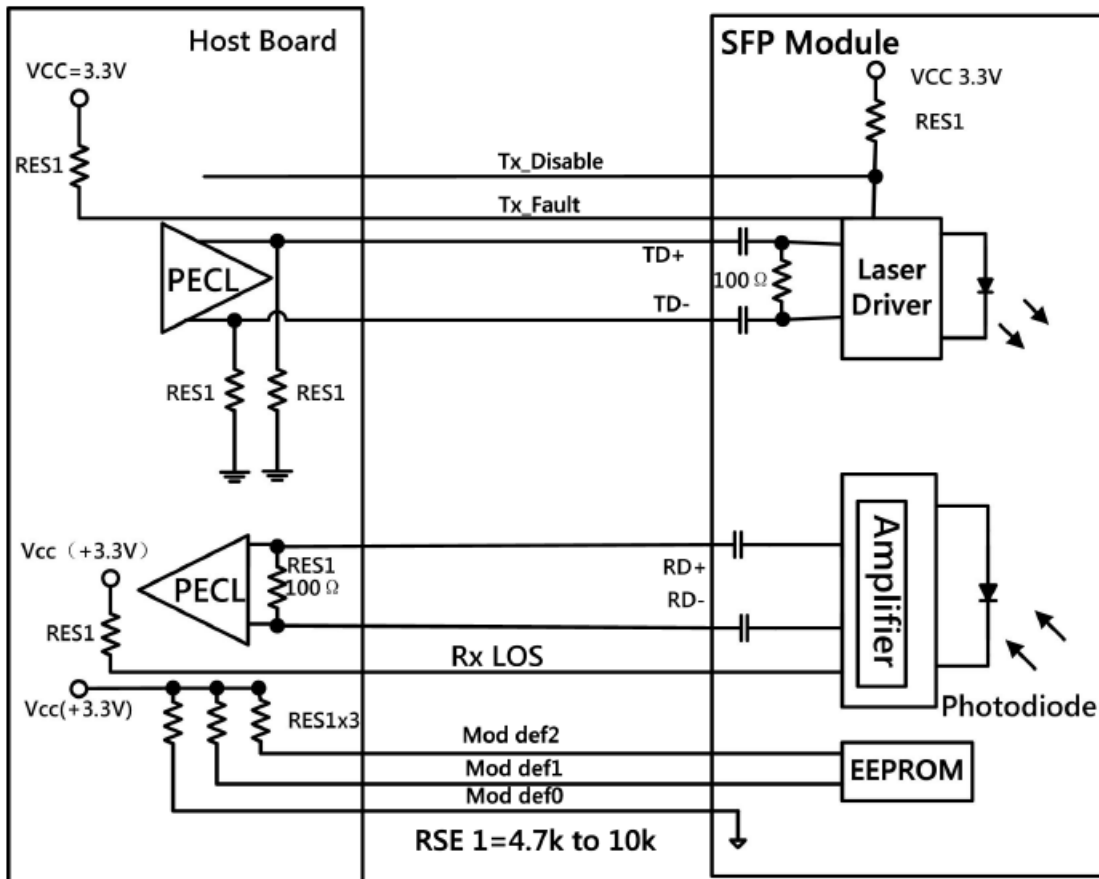
2 wire address 1010000X(A0h)



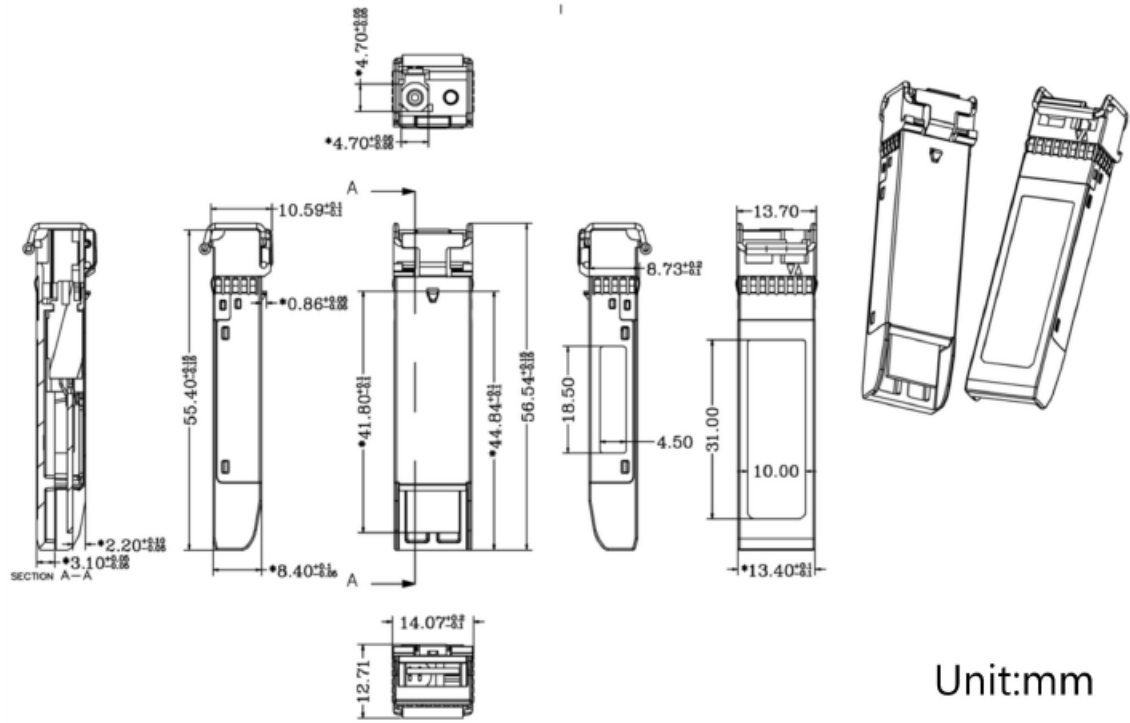
2 wire address 1010000X (A2h)



Recommended Circuit Schematic



Mechanical Specifications



Unit:mm

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: techsupport@prolineoptions.com

Web: <https://www.prolineoptions.com>