#### SFP-1GB-BX35-U-CN2-OPC

Ciena® Compatible TAA 1000Base-BX SFP Transceiver (SMF, 1310nmTx/1550nmRx, 10km, LC, DOM)

#### **Features**

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



## **Applications:**

- 1000Base-BX Ethernet
- 1x Fibre Channel
- Access (FTTx) and Enterprise

### **Product Description**

This Ciena® compatible SFP transceiver provides 1000Base-BX througCienaut up to 10km over single-mode fiber (SMF) using a wavelength of 1310nmTx/1550nmRx via an LC connector. This bidirectional unit must be used with another transceiver or network appliance of complementing wavelengths. It is guaranteed to be 100% compatible with the equivalent Ciena® 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. It is built to meet or exceed the specifications of Ciena®, as well as to comply with MSA (Multi-Source Agreement) standards to ensure seamless network integration. This transceiver is TCienae Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

# **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	Tstg	-40	85	°C
Operating Case Temperature	Тс	0	70	°C
Operating Humidity	RH	5	85	%
Receiver Power	R <sub>MAX</sub>		-3	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>	-9		-3	dBm	1
Optical Extinction Ratio	ER	9			dB	
Optical Wavelength	Τλ	1260	1310	1360	nm	
Insertion loss	IL		0.7			
Receiver						
Receiver Sensitivity (Average)	R <sub>AVE</sub>			-19.5	dBm	2
Receiver Overload	P <sub>max</sub>	-3			dBm	3
Receiver Wavelength	Rλ	1530	1550	1570	nm	

### Notes:

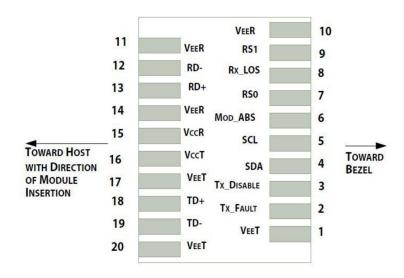
- 1. Coupled into a single-mode fiber.
- 2. Average power, back-to-back, @1.25Gbps, BER 1E<sup>-12</sup>, PRBS 2<sup>31</sup>-1.
- 3. Exceeding the receiver overload can physically damage the module. Please use appropriate attenuation.

#### **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 (Same as MOD-DEF2 in INF-8074i). LVTTL-I/O.	
5	SCL	2-Wire Serial Interface Clock (Same as MOD-DEF2 in INF-8074i). LVTTL-I.	
6	MOD_ABS	Module Absent. Connect to VeeT or VeeR in the 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

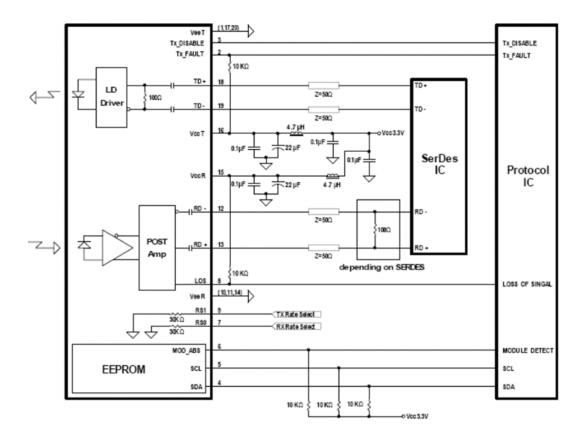
#### **Notes:**

- 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 Host\_Vcc with resistor 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 +0.5V.
- 3. Tx\_Disable is an input contact with a  $4.7K\Omega$  to  $10K\Omega$  pull-up resistor to VccT inside the module.
- 4. MOD\_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull the contract up to the Host\_Vcc 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 the Host Board

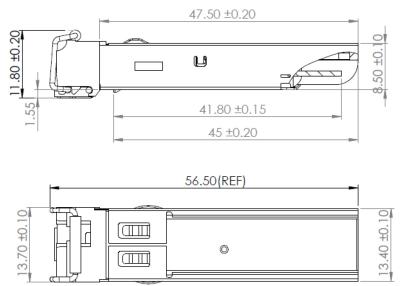
## **Recommended Circuit Schematic**



#### **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:

