

#### SFP-1M-BX-D-I-OPC

MSA and TAA 100Base-BX SFP Transceiver (SMF, 1550nmTx/1310nmRx, 20km, LC, DOM, -40 to 85C)

#### **Features**

- INF-8074 and SFF-8472 Compliance
- Simplex LC Connector
- Single-mode Fiber
- Industrial Temperature -40 to 85 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free



# **Applications:**

- 100Base Ethernet
- Access and Enterprise

### **Product Description**

This MSA compliant SFP transceiver provides 100Base-BX throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1550nmTx/1310nmRx via an LC connector. This bidirectional unit must be used with another transceiver or network appliance of complementing wavelengths. It is capable of withstanding rugged environments and can operate at temperatures between -40 and 85C. All of our transceivers are built to comply with Multi-Source Agreement (MSA) standards and are uniquely serialized and tested for data-traffic and application to ensure seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows 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.

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

# **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.	Тур.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5		3.6	V
Storage Temperature	TS	-40		+85	°C
Operating Case Temperature	Тс	-40		+85	°C
Operating Humidity	RH	5		85	%
Receiver Power	R <sub>MAX</sub>			-8	dBm
Data Rate			155		Mbps

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

Parameter	Symbol	Min.	Тур.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.15	3.30	3.45	V	
Power Supply Current	Icc			300	mA	
Transmitter						
LVPECL Inputs (Differential)	Vin	400		2000	mVpp	1
Input differential impedance	Zin	85	100	115	Ω	2
Receiver						
LVPECL Outputs (Differential)	Vout	400		2000	mVpp	1
Output differential impedance	Zout	85	100	115	Ω	

#### **Notes:**

- 1. LVPECL logic, internally AC coupled
- 2. Rin > 100 kohms @ DC

**Optical Characteristics** 

Parameter	Symbol	Min.	Тур.	Max.	Unit	Notes
Transmitter						
Optical Power (average)	P <sub>AVE</sub>	-15		-8	dBm	1
Optical Extinction Ratio	ER	8.2			dB	2
Optical Wavelength	Τλ	1530	1550	1570	nm	
Spectral Width (RMS)	Δλ			4	nm	
Rise/Fall Time (20% ~ 80%)	tr/tf			2	ns	
Total Jitter	TJ			1.5	ns	
Pout@TX Disable Asserted	Pout			-45	dBm	
Output Optical Eye	IUT-T G.957	IUT-T G.957 Compliant				
Receiver						
Receiver Sensitivity (average)	R <sub>AVE</sub>			-34	dBm	3
Receiver overload	P <sub>max</sub>	-8			dBm	4
Receiver wavelength	Rλ	1260	1310	1360	nm	

### Notes:

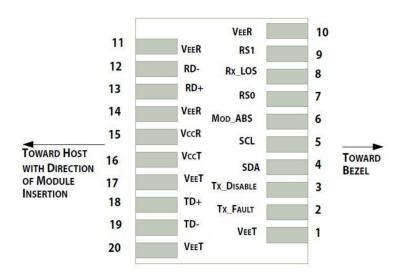
- 1. Output power is measured by coupling into a 9/125 mm single-mode fiber.
- 2. Filtered, measured with a PRBS 2<sup>23</sup>-1 test pattern @155Mbps.
- 3. Minimum average optical power is measured at BER less than 1E-12 and PRBS  $2^{23}$ -1 test pattern.
- 4. Exceeding the Receiver overload can physically 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

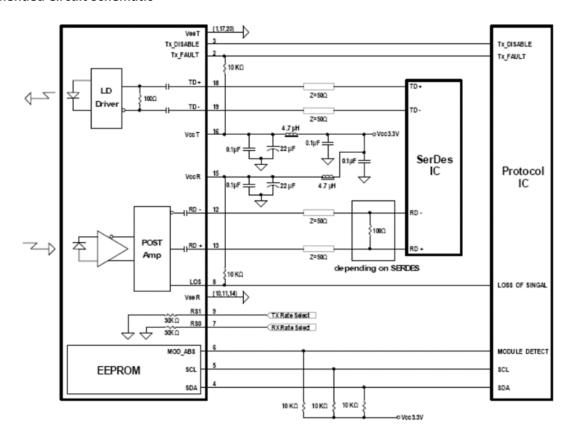
### **Notes:**

- 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

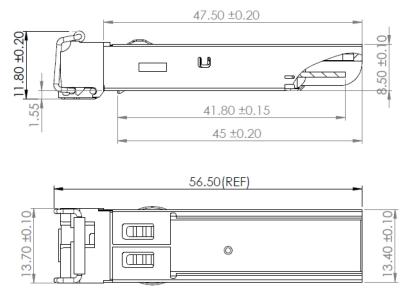
# **Recommended Circuit Schematic**



## **Mechanical Specifications**

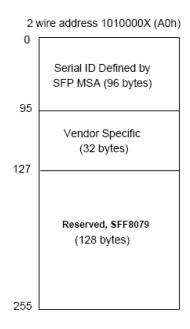
Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).

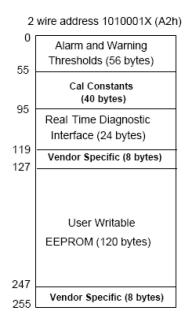




### **EEPROM Information**

EEPROM memory map specific data field description is as below:





## **OptioConnect**

## Innovation for the Future of High-Speed Networking

#### Who We Are

OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

### What We Do

At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our Al-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

### **Smarter Networks by Design**

Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

### **Our Team**

Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

### **Our Mission**

To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

## **Let's Connect**

Discover how OptioConnect's intelligent infrastructure solutions can power your network's next leap forward. <a href="https://www.optioconnect.com">www.optioconnect.com</a> | info@optioconnect.com







