

SFP-2-5GBASE-SX-I-C

MSA and TAA 2.5GBase-SX SFP Transceiver (MMF, 850nm, 550m, LC, DOM, -40 to 85C)

Features:

- SFF-8074i and SFF-8472 Compliance
- VCSEL Transmitter and PIN Receiver
- Duplex LC Connector
- Industrial Temperature: -40 to 85 Celsius
- Multi-Mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead-Free



Applications:

- 2.5GBase-SX Ethernet
- 1x Fibre Channel
- Access and Enterprise

Product Description

This MSA Compliant SFP transceiver provides 2.5GBase-SX throughput up to 550m over multi-mode fiber (MMF) using a wavelength of 850nm via an LC connector. It is built to MSA standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. 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.

ProLabs' 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."



Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5		4.0	V	1
Storage Temperature	Tstg	-40		85	°C	2
Operating Case Temperature	Tc	-40		85	°C	3
Data Rate	DR		2.5		Gbps	4
Bit Error Rate	BER			10 ⁻¹²		

Notes:

1. For the electrical power interface.
2. Ambient temperature.
3. Case temperature.
4. IEEE 802.3.

Link Distances

Data Rate	Fiber Type	Distance Range (m)
2.5Gbps	62.5/125μm MMF	300
2.5Gbps	50/125μm MMF	500

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.15	3.30	3.43	V	
Power Supply Current	Icc		130	180	mA	
Transmitter						
Input Differential Impedance	RIN	80	100	120	Ω	
Single-Ended Data Input Swing	VIN,pp	250		1200	mV	
Transmit Disable Voltage	VD	2		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V	
Receiver						
Single-Ended Data Output Swing	VOOUT,pp	250	350	550	mV	
LOS Fault	VLOSA			Host_Vcc	V	
LOS Normal	VLOSD	Vee		Vee+0.5	V	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Output Optical Power	P _{TX}	−9		−3	dBm	1
Optical Center Wavelength	λ_C	830	850	860	nm	
Extinction Ratio	ER	8.2			dB	
Spectral Width (RMS)	$\Delta\lambda$			0.85	nm	
Optical Rise/Fall Time (20-80%)	T _r /T _f			150	ps	
Receiver						
Receiver Overload	P _{OL}	0			dBm	2
Optical Center Wavelength	λ_C	770		860	nm	
Receiver Sensitivity	RXSEN			−17	dBm	2
Optical Return Loss	ORL	27			dB	
LOS Assert	LOSA	−35			dBm	
LOS De-Assert	LOSD			−18	dBm	
LOS Hysteresis	LOSH	0.5	3	5	dB	

Notes:

1. Class 1 product.
2. Measured with worst ER, 2⁷−1 PRBS, and BER<10^{−12}.

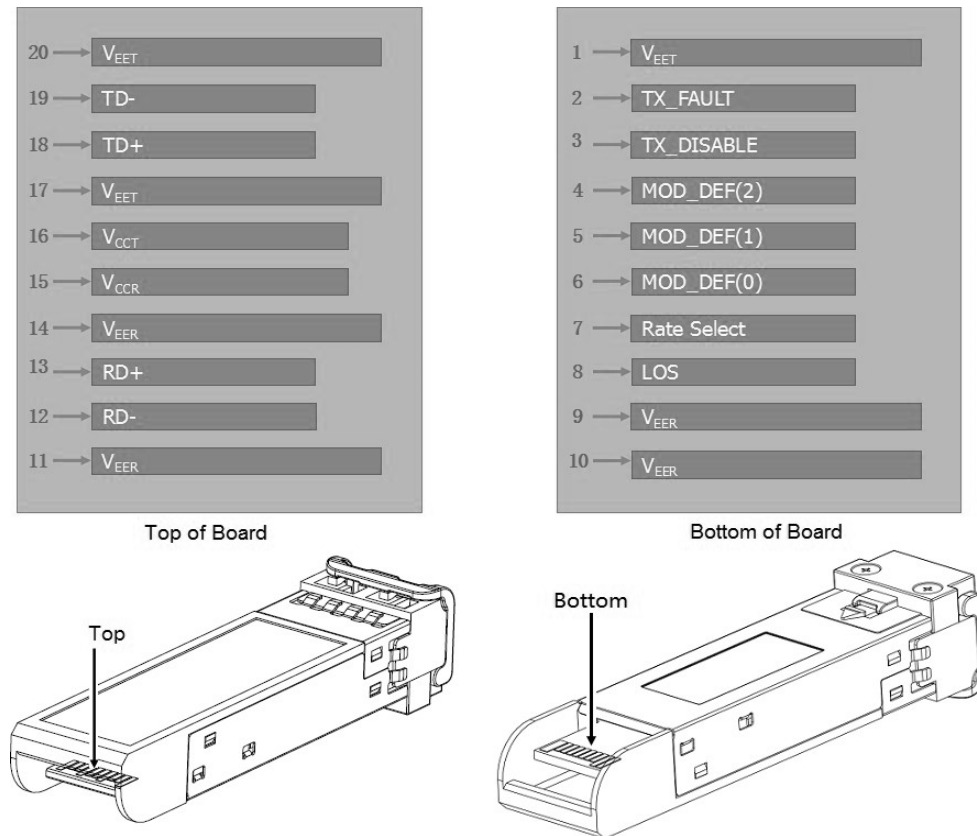
Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	Tx_Fault	Transmitter Fault. LVTTTL-O.	2
3	Tx_Disable	Transmitter Disable. Laser output disabled on "high" or "open." LVTTTL-I.	3
4	SDA	2-Wire Serial Interface Data (Same as MOD-DEF2 in INF-8074i). LVTTTL-I/O.	
5	SCL	2-Wire Serial Interface Clock (Same as MOD-DEF2 in INF-8074i). LVTTTL-I.	
6	MOD_ABS	Module Absent. Connect to the 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. LVTTTL-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-I.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

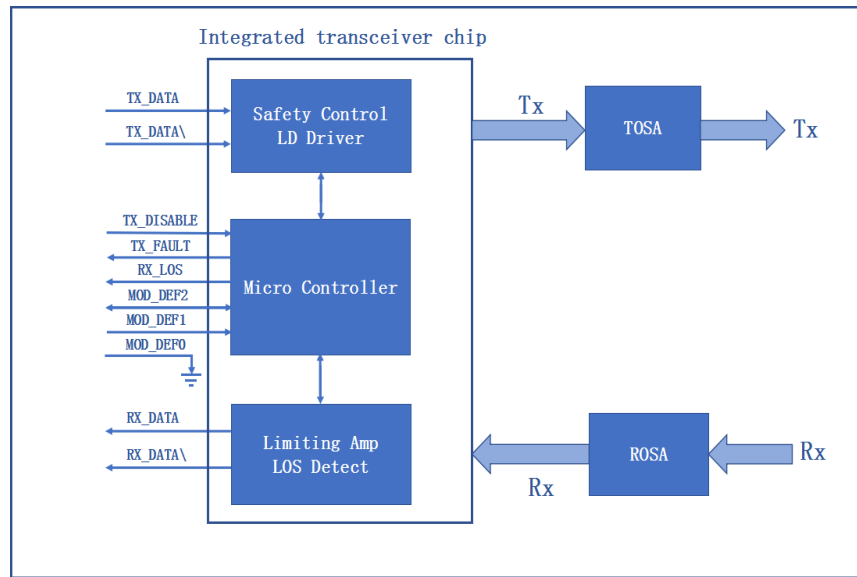
Notes:

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 4.7kΩ to 10kΩ. 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 4.7kΩ to 10kΩ pull-up resistor to the VccT inside the module.
4. MOD_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull the contact up to the Host_Vcc with a resistor in the range from 4.7kΩ to 10kΩ. 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

Block Diagram of Transceiver



Mechanical Specifications

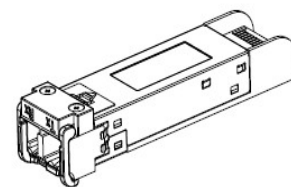
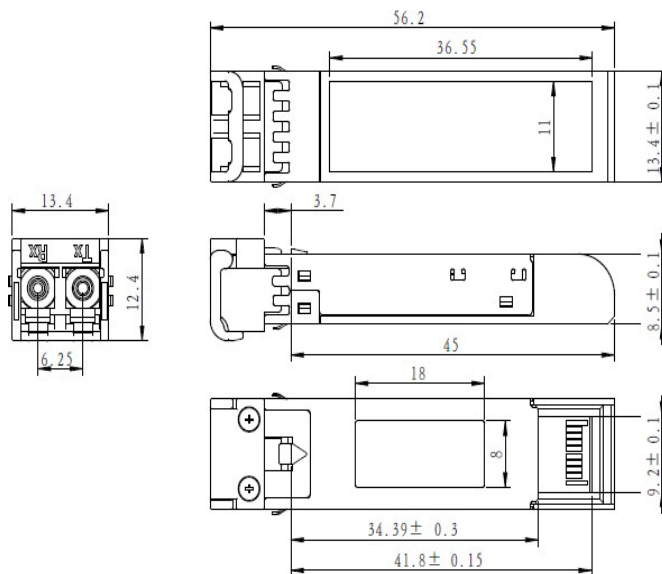
Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).

All Dimensions are $\pm 0.2\text{mm}$ Unless Otherwise Specified

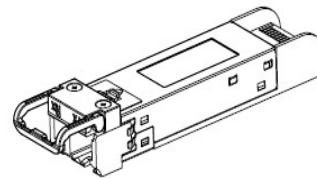
Unit: mm

Net Weight of Module: 15.5g/pcs

Net Weight of Dust Cap: 0.95g/pcs



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About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.



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