

SFP+ MODULE: TS-SFP+-SR**SFP+ 10G SFP MM TX: 850 nm, FP 300 M LC (double port LC) with DDM****Compatible CISCO, ALCATEL, HP, HUAWEI, etc...****Product Features**

- Optical interface compliant to IEEE 802.3ae 10GBASE-LR
- Hot-pluggable SFP footprint
- Electrical interface compliant to SFF-8431
- 850 nm VCSEL laser transmitter
- Advanced firmware allow customer system encryption information to be stored in transceiver
- All-metal housing for superior EMI performance Single +3.3V power supply
- Low power consumption
- Commercial operating temperature range: 0°C to +70°C

**Applications**

- 10GBASE-SR/SW 10G Ethernet
- 10G SONET/SDH
- Other optical links

General

This 850 nm VCSEL 10Gigabit SFP+ transceiver is designed to transmit and receive optical data over 50/125 μm or 62.5/125 μm multimode optical fiber.

I. Pin Descriptions

Pin	Symbol	Name/Description	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground)	1
2	TX Fault	Transmitter Fault.	
3	TX Disable	Transmitter Disable. Laser output disabled on high or open.	
4	SDA	2-Wire Serial Interface Data Line.	2
5	SCL	2-Wire Serial Interface Clock	2
6	MOD_DEF	Module Definition 0. Grounded within the module.	
7	RS0	Received Rate Select	
8	RX_LOS	Received Loss of Signal Indication Active Low.	
9	RS0	Trasmitter Rate Select (not used)	
10	VeeR	Module Receiver Ground	1
11	VeeR	Module Receiver Ground	1
12	RD-	Receiver Inverted DATA out.	
13	RD+	Receiver Non-inverted DATA	
14	VeeR	Module Receiver Ground	1
15	VccR	Receiver Power V3.3 Supply	
16	VccT	Transmitter Power V3.3 Supply	
17	VeeT	Module Transmitter Ground	1
18	TD+	Transmitter Non-Inverted DATA in.	
19	TD-	Transmitter Inverted DATA in.	
20	VeeT	Module Transmitter Ground	1

Notes:

1. Module ground pins GND are isolated from the module case.
2. Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.45V on the host board.

II. Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Maximum Supply Voltage	Vcc	0		3.6	V	
Storage Temperature	TS	-40		85	°C	
Case Operating Temperature	TC	-5		+70	°C	
Relative Humidity	RH	5		95	%	

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

Parameter	Symbol	Min	Typ	Max	Unit	Note
Transmitter						
Single ended data output Voltage Tolerance		-0.3		4	V	
Common Mode Voltage Tolerance		15			mV	
Tx Input Diff Voltage	VI	90		350	mV	
Tx Fault	VoL	-0.3		0.4	V	At 0.7 mA
Data Dependent Input Jitter	DDJ			0.1	UI	
Receiver						
Single ended data output Voltage		-0.3		4	V	
Rx Output Diff Voltage	Vo	150		425	mV	
Data output Rise and fall time	Tf/Tr	28			ps	20% to 80 %
Total Jitter	TJ			0.7	UI	
Deterministic Jitter	DJ			0.42	UI	

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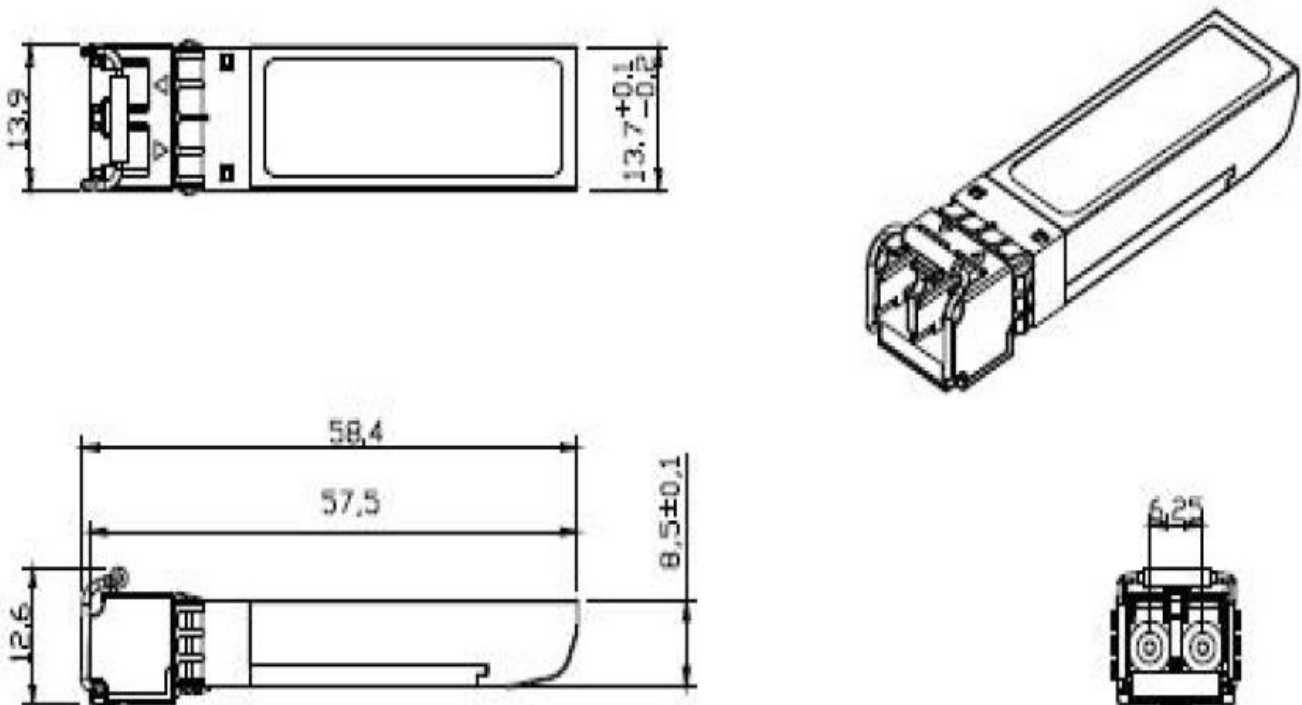
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IV. Optical Characteristics (TOP=25°C, Vcc=3.3 Volts)

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Transmitter						
Output Opt. Power	PO	-5	-		dBm	
Optical Wavelength	λ	840	850	860	nm	
Average Optical Power	Pavg	-7		+1	dBm	
Laser Off Power	Poff	-	-	-30	dBm	
Optical Extinction Ratio	ER	3.5	-	-	dB	
Receiver						
Average Rx Sensitivity	RSENS	-	-	-14.4	dBm	
Optical Center Wavelength	λ_r	840	850	860	nm	
LOS De-Assert	LOSD	-	-	-12	dBm	
LOS Assert	LOSA	-30	-	-	dBm	
LOS Hysteresis		0.5	-	-	dB	

V. Mechanical Specifications

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



10G 850nm - 300M