



**FEATURES:**

- Typical data rate 1.25Gbps
- 850nm VSCEL Laser and PIN photo detector
- Duplex LC receptacle
- Single +3.3V power supply
- Hot-pluggable
- International Class1 laser safety certified
- Operating temperature range: 0 ~ +70°C
- RoHS Compliant
- Support Digital Diagnostic Monitoring interface
- Max reach 550m on 50/125μm MMF

**APPLICATIONS:**

- Point-to-Point networking
- Gigabit Ethernet
- Other Optical Links

Part Number	Form Factor	Data Rate	Media	Distance (km)	Wavelength (nm)	Temperature (°C)
SFP-SX	SFP	1.25Gbps	MMF	0.55	850	0~70

1-ABSOLUTE MAXIMUM RATING:

Exceeding the limits below may damage the transceiver permanently.

Parameter	Symbol	Min	Typ	Max	Unit.	Note
Storage Temperature	TSTG	-40	-	85	°C	
Operating Relative Humidity	RH	5	-	95	%	
Supply Voltage	VCC	-0.5	-	4	V	

2-RECOMMENDED OPERATING CONDITIONS

Exceeding the limits below may damage the transceiver permanently.

Parameter	Symbol	Min	Typ	Max	Unit.	Note
Operating Case Temperature	Tc	0	-	70	°C	
Supply Voltage	VCC3	3.13	3.3	3.47	V	
Supply Current	ICC3	-	-	300	mA	+3.3V Supply
Data Rate	DR	-	10.3125	-	Gbps	

3- ELECTRICAL AND OPTICAL CHARACTERISTICS

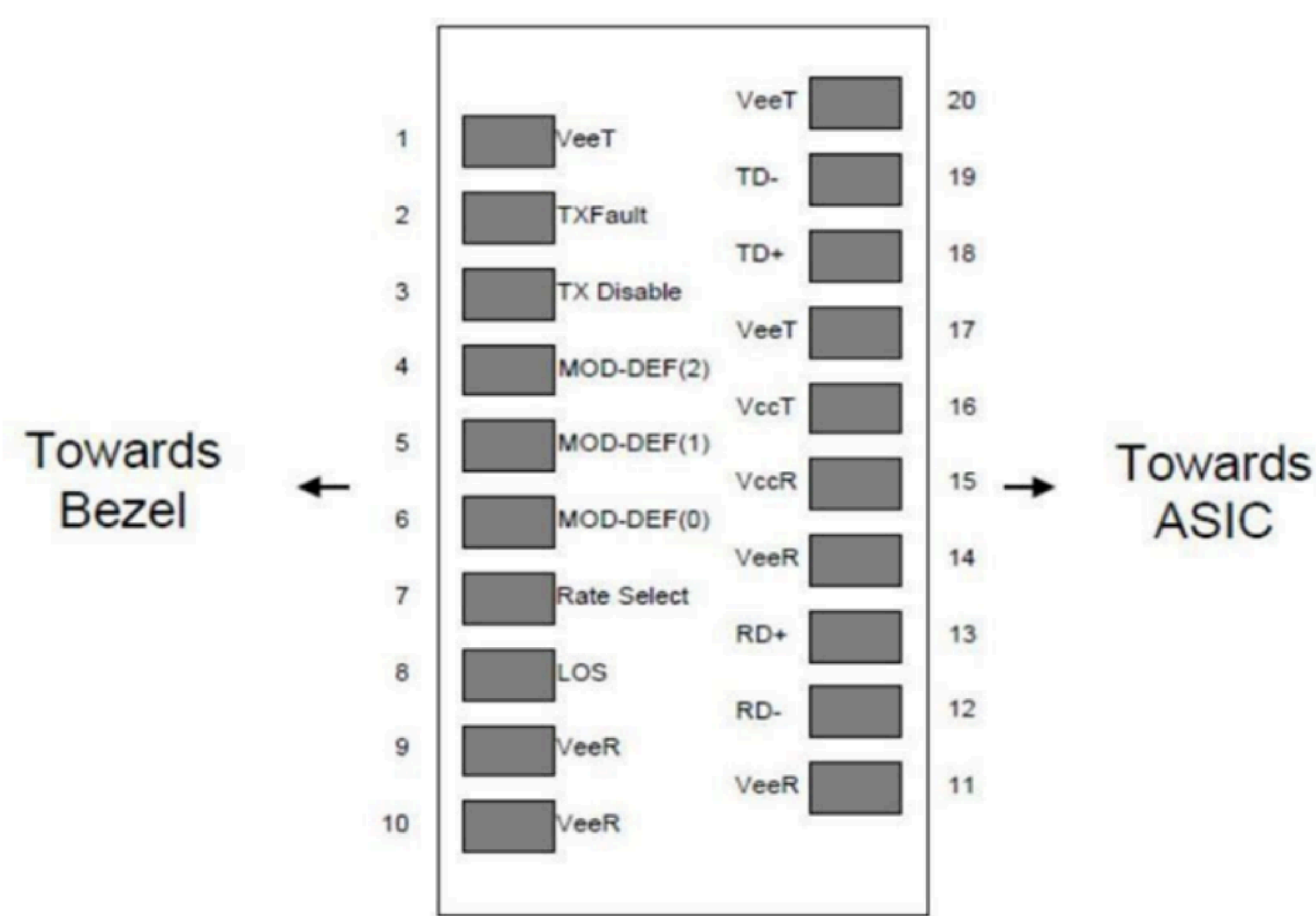
Parameter	Symbol	Min	Typ	Max	Unit.	Note
Transmitter@1.25Gbps						
Tx Differential Input Amplitude	Vin p-p	200	-	2400	mV	
Input Differential Impedance	Zin	-	100	-	Ω	
Output Optical Power	PO	-9.5	-	-3	dBm	
Extinction Ratio	ER	9	-	-	dB	
Center Wavelength Range	λc	830	850	860	nm	
Spectral Width	σ	-	-	3.5	nm	
Optical Return Loss Tolerance	RL	12	-	-	dB	
Output Optical Eye	Compliant with G.957					
Tx Disable Voltage	VOH	2	-	VCC	V	LVTTL
	VOL	0	-	0.8	V	LVTTL
Optical Power at Tx Disable	Ptxdis	-	-	-35	dBm	
Receiver@1.25Gbps						
Rx Differential Output Amplitude	Vout p-p	300	-	800	mV	
Receiver Optical Wavelength	λc	830	850	860	nm	
		-	-	-		
Receiver Sensitivity	Sen	-	-	-17	dBm	Note 1
Receiver Overload	OL	-3	-	-	dBm	
LOS Voltage	Normal	2	-	Vcc+0.3	V	LVTTL
	Fault	0	-	0.8	V	LVTTL
LOS Assert Level	LOSA	-30	-	-	dBm	
LOS De-Assert Level	LOSD	-	-	-19	dBm	
LOS Hysteresis	LOSH	0.5	-	6	dB	

Notes:  
1.Measured with 2^7-1 NRZ Pattern. BER≤1E-12@1.25Gpbs, ER=9dB

4-DIGITAL DIAGNOSTIC FUNCTIONS:

Parameter	Symbol	Min.	Max.	Unit	Repeatability	Notes
Temperature	DDMI_Temp	-3	3	°C	± 1°C	1LSB=1/256°C
Supply Voltage	DDMI_VCC	-3%	3%	V	± 1 %	1LSB=0.1mV
Bias Current	DDMI_Ibias	-10%	10%	mA	± 5 %	1LSB=2uA
TX Optical Power	DDMI_TX	-3	+3	dB	± 0.5 dB	1LSB=0.1uW
RX Optical Power	DDMI_RX	-3	+3	dB	± 1.5 dB	1LSB=0.1uW

5-PIN DIAGRAM:





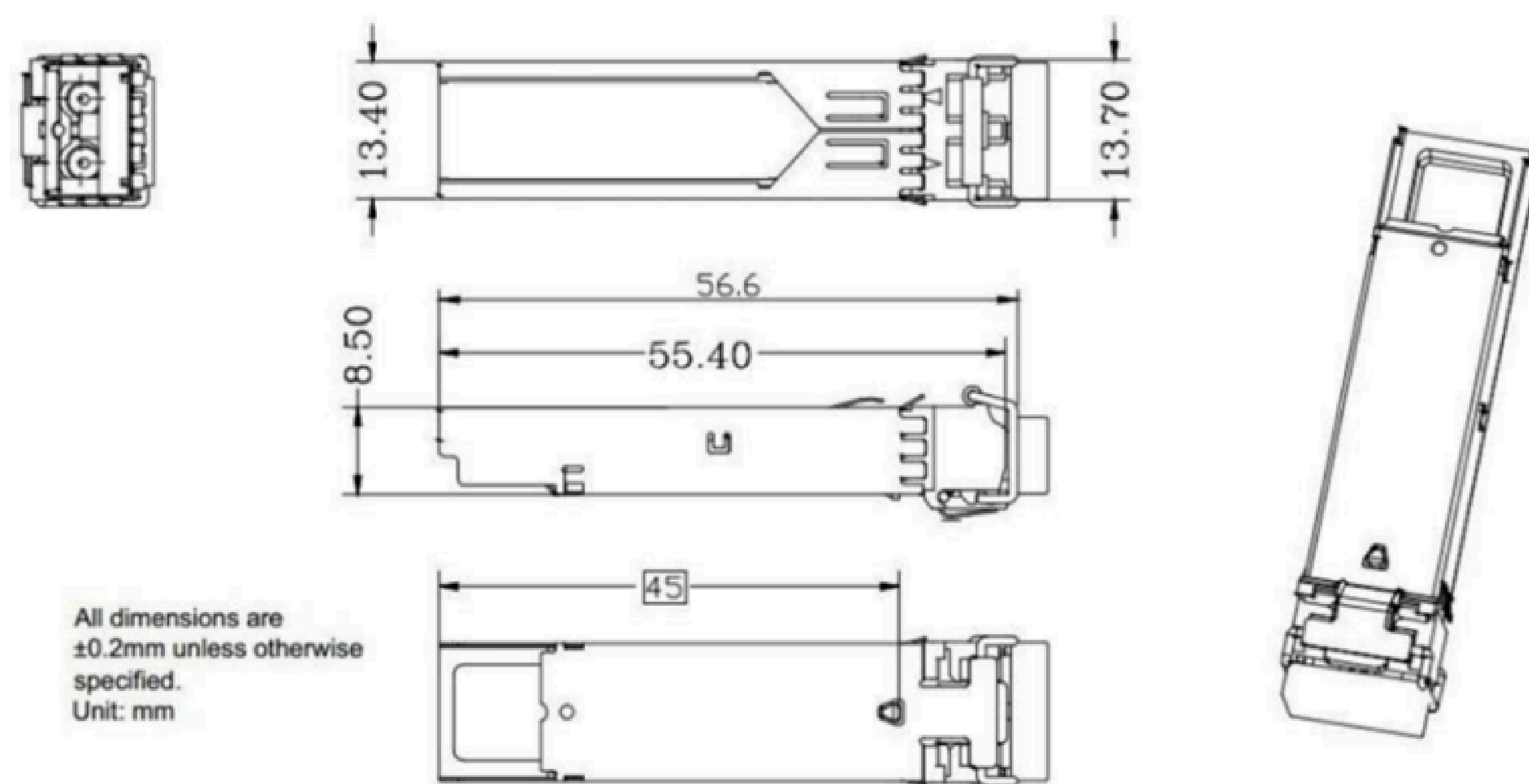
**6-DIGITAL DIAGNOSTIC FUNCTIONS:**

Pin	Symbol	Description	Notes
1	VeeT	Transmitter Ground (Common with Receiver Ground)	5
2	TX_Fault	Transmitter Fault, Low: normal; High: abnormal	1
3	TX_Disable	Transmitter Disable High: Transmitter off Low: Transmitter on	2
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	3
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	3
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	4
9	VEER	Receiver Ground(Common with Transmitter Ground)	5
10	VEER	Receiver Ground(Common with Transmitter Ground)	5
11	VEER	Receiver Ground(Common with Transmitter Ground)	5
12	RD-	Receiver Inverted DATA out. AC Coupled. CML-O	6
13	RD+	Receiver Non-inverted DATA out. AC Coupled. CML-O	6
14	VeeR	Receiver Ground	5
15	VccR	Receiver Power Supply	
16	VccT	Transmitter Power Supply	
17	VeeT	Transmitter Ground	5
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled. CML-I	7
19	TD-	Transmitter Inverted DATA in. AC Coupled. CML-I	7
20	VeeT	Transmitter Ground (Common with Receiver Ground)	5

Notes:

1. TX\_Fault is an open collector/drain output, which should be pulled up with a 4.7K-10KΩ resistor on the host board. Pull up voltage between 2.0V and VccT/R+0.3V. When high, output indicates a laser fault of some kind. Low indicates normal operation. In the low state, the output will be pulled to < 0.8V.
2. TX\_Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7-10 KΩ resistor.
3. SDA and SCL should be pulled up with a 4.7K- 10KΩ resistor on the host board.
4. LOS (Loss of Signal) is an open collector/drain output, which should be pulled up with a 4.7K - 10KΩ resistor. Pull up voltage between 2.0V and VccT/R+0.3V. When high, this output indicates the received optical power is below the worst-case receiver sensitivity (as defined by the standard in use). Low indicates normal operation. In the low state, the output will be pulled to < 0.8V
5. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
6. RD-/+: These are the differential receiver outputs. They are AC coupled 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board.
7. TD-/+: These are the differential transmitter inputs. They are AC-coupled, differential lines with 100Ω differential termination inside the module. The AC coupling is done inside the module and is thus not required on the host board.

## 7-MECHANICAL SPECIFICATION



### Notes:

The label style is only an example and depends on the actual situation,