

1.25G SFP TRANSCEIVER



Features:

- Data transfer rate: 1Gbps (up to 1.25Gbps)
- Giga Ethernet support
- Interface: 02 optical fiber
- SDH/STM-1 155Mbps, SONET/OC-3
- SFP MSA package with Simplex LC/UPC connector
- Compliant with IEEE 802.3z 1000 Base standard
- Compliant with ITU -T G.985 Class S
- Digital diagnostic monitor interface compatible with SFF-8472
- SFP plug standard, hot pluggable
- Transmission with 9/125 μ m Single mode fiber
- Single 3.3V Power Supply and LVTTTL Logic
- Support Digital Diagnostic Monitoring - DDM
 - ◆ Transceiver Temperature $\leq \pm 3\%$
 - ◆ Transceiver Supply Voltage $\leq \pm 3\%$
 - ◆ TX bias current $\leq 10\%$
 - ◆ TX Output Power $\leq \pm 3$ dB
 - ◆ RX Received Optical Power $\leq \pm 3$ dB
- Compatible with L2 switches on VNPT's network
- Works with Mero Ethernet devices on VNPT's network.
- Compatible with OLT devices on VNPT's network
- Operating Case Temperature: 0°C ~+70°C
- In conformity to safety code of FCC and CE MARK, ROHS compliant
- Humidity: up to 90%
- Download and Upload speed and packet loss rate: 100Mbps; Packet loss rate=0. test time 30 minutes

Absolute Maximum Ratings

Table 1- Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	Vcc	-0.5	-	+3.6	V	
Storage Temperature	TS	-40	-	85	°C	
Operating Relative Humidity	RH	+5	-	+95	%	

Recommended Operating Conditions

Table 2- Recommended operating conditions

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Operating Case Temperature	TC	0	-	70	°C	
Power Supply Voltage	VCC	3.135	3.3	3.5	V	
Power Supply Current	ICC	-	-	300	mA	
Power Dissipation	PD	-	-	1	W	
Data Rate			155	-	Mbps	

Electrical Characteristics

Table 3- Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Differential Data Input Swing	Vin p-p	200	-	2400	mV	1
Input Differential Impedance	RIN	80	100	120	Ω	
Tx_Disable	Laser Disable	VD	2.0	-	VCC+0.5	V
	Normal Operation	VEN	GND	-	GND+0.8	V
Tx_Fault	Transmitter Fault	VOH	2.0	-	VCC+0.5	V
	Normal Operation	VOL	GND	-	GND+0.8	V
Differential Data Output Swing	Vout p-p	1450	1600	1750	mV	2
Rx_LOS	Los Signal	VOH	2.0	-	VCC+0.5	V
	Normal Operation	VOL	GND	-	GND+0.8	V

Notes:

Internally AC coupled, input termination may be required for CML or LVPECL applications.
Internally AC coupled, CML differential output stage.

Optical Characteristics

Table 4-Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Average Output Power	P _{OUT}	-9	-	-3	dBm	1
		-5	-	+3		
Mean Wavelength	λ	1260	1310	1360	nm	
		1480	1490	1500		
		1540	1550	1600		
Extinction Ratio	ER	9	-	-	dB	
Spectral Width(RMS)	Δλ	-	-	1	nm	
P ₀ ut@TX Disable Asserted	P ₀ UT	-	-	-45	dB	
Rise/Fall Time (20%~80%)	Tr/Tf			260	ps	
Optical Eye Mask	IEEE 802.3ah Compliant					
Receiver						
Receiver Power	Pin	-30	-		dBm	2
				-22		
						5km 20km/40km/80km

Centre Wavelength	λ C	1260	1310	1360	nm		
		1480	1490	1500			
		1530	1550	1600			
Receiver Overload	Rsens,high	-3	-	-	dBm		
Damage Threshold For Receive	Pin, damage	0					
Receiver Reflectance	RX_r	-	-	-12	dB		
LOS De-Assert	LOSD	-	-	-25	dB	5km	
				-35		20km/40km/80km	
LOS Assert	LOSA	-35	-	-	dB	5km	
		-45				20km/40km/80km	
LOS Hysteresis		0.5		-	dB		

Note:
Coupled into 9/125 SMF .
Measured with PRBS 2⁷-1 test pattern @155Mbps.BER≤10⁻¹²

Recommended Interface Circuit

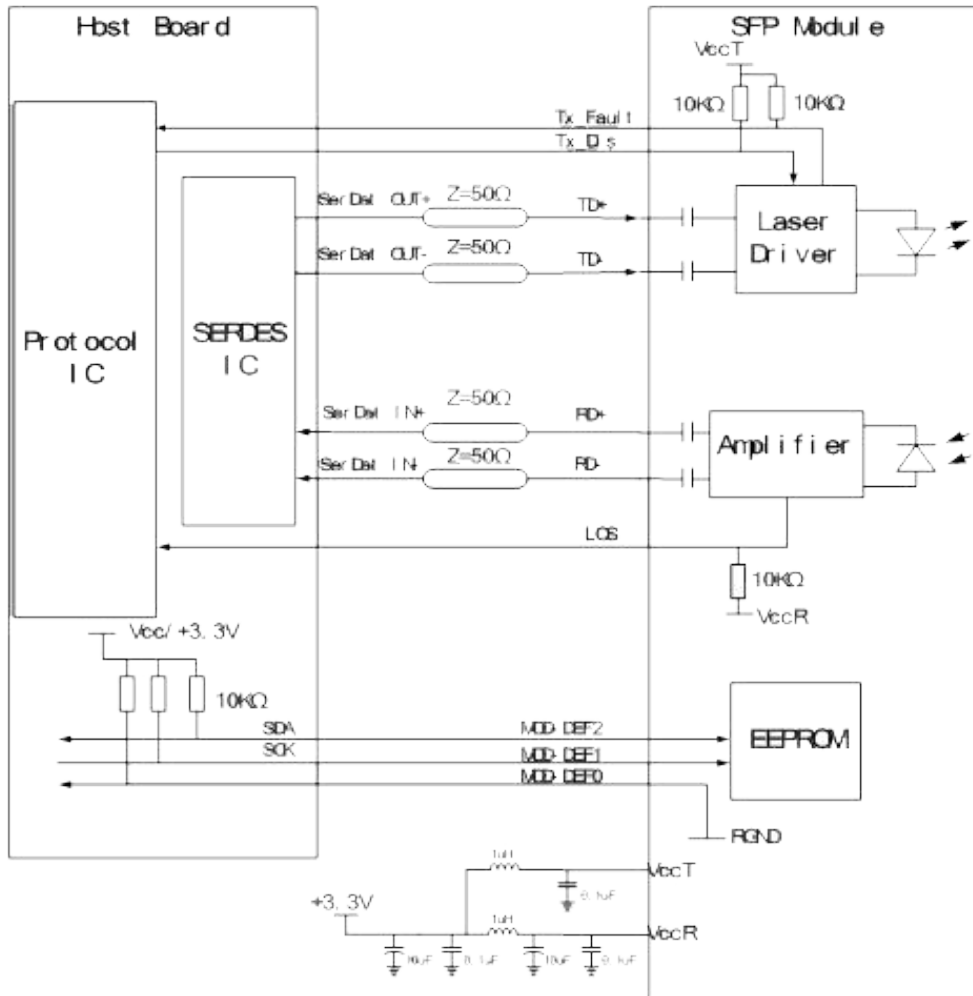


Figure 1, Recommended Interface Circuit

Pin arrangement

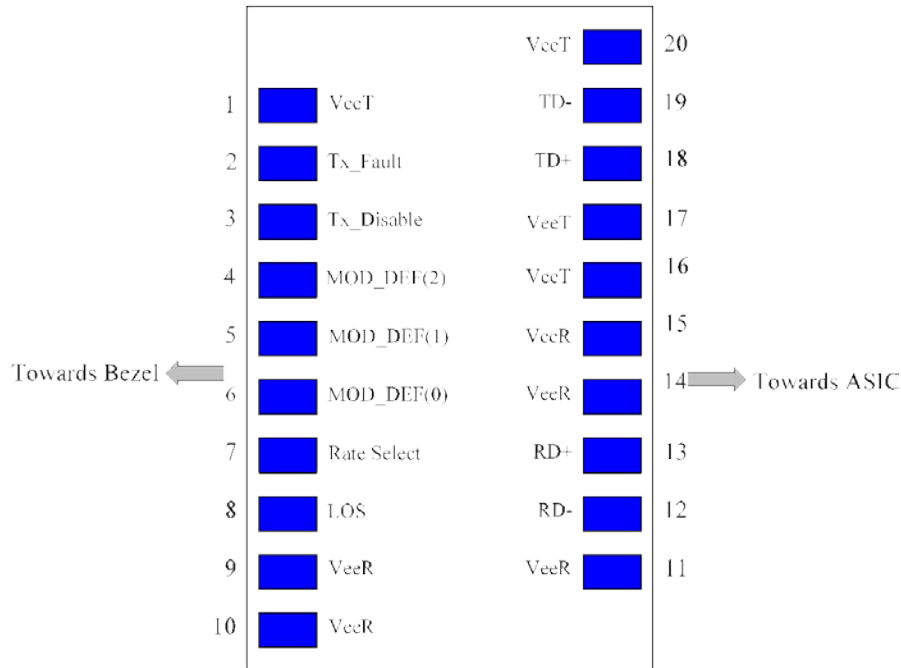


Figure 2, Pin View

Table 5-Pin Function Definitions

Pin	Name	FUNCTION	Plug Seq.	Notes
1	VeeT	Transmitter Ground	1	
2	TX Fault	Transmitter Fault Indication	3	1
3	TX Disable	Transmitter Disable	3	2
4	MOD-DEF2	Module Definition 2	3	3
5	MOD-DEF1	Module Definition 1	3	3
6	MOD-DEF0	Module Definition 0	3	3
7	Rate Select	Not Connect	3	
8	LOS	Loss of Signal	3	4
9	VeeR	Receiver Ground	1	5
10	VeeR	Receiver Ground	1	
11	VeeR	Receiver Ground	1	
12	RD-	Inv. Received Data Out	3	
13	RD+	Received Data Out	3	
14	VeeR	Receiver Ground	1	
15	VccR	Receiver Power	2	3.3V ± 5%,
16	VccT	Transmitter Power	2	3.3V ± 5%,
17	VeeT	Transmitter Ground	1	5
18	TD+	Transmit Data In	3	
19	TD-	Inv. Transmit Data In	3	
20	VeeT	Transmitter Ground	1	

Note:

1. TX Fault is open collector output which should be pulled up externally with a 4.7K ~10KΩ resistor on the host board to voltage between 2.0V and VCC+0.3V. Logic 0 indicates normal

- operation; logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.
- TX Disable input is used to shut down the laser output per the state table below. It is pulled up within the module with a 4.7~ 10K resistor.
 - Low (0- 0.8V): Transmitter on
 - Between (0.8V and 2V): Undefined
 - High (2.0 – VccT): Transmitter Disabled
 - Open: Transmitter Disabled
 - MOD-DEF 0, 1, 2. These are the module definition pins. They should be pulled up with a 4.7~10K resistor on the host board to supply less than VccT+0.3V or VccR+0.3V.
 - MOD-DEF 0 is grounded by the module to indicate that the module is present.
 - MOD-DEF 1 is clock line of two wire serial interface for optional serial ID.
 - MOD-DEF 2 is data line of two wire serial interface for optional serial ID.
 - LOS (Loss of signal) is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor on the host board to a voltage between 2.0V and Vcc+0.3V. Logic 0 indicates normal operation; logic 1 indicates loss of signal. In the low state, the output will be pulled to less than 0.8V.

Table 6- Stability

Operating in special condition environment	Cold temperature. Profile test: - Temperature: 0°C - Duration: 16h (Reference: ETSI EN 300 019-2-3 T 3.2, IEC 60068-2-1)
	High temperature. Profile test: - Temperature: +70°C - Duration: 16h (Reference: ETSI EN 300 019-2-3 T 3.3, IEC 60068-2-2)
	High relative humidity (Damp heat, steady state). Profile test: - Temperature: +30°C, - Relative humidity: 93%RH - Duration: 4 days. (Reference: ETSI EN 300 019-2-3 T 3.3, IEC 60068-2-56)
Working environment	Operating temperature: 0÷70°C Operating humidity: 10÷90% non-condensing (The bidder has to provide test report confirm about environment)

Digital Diagnostic Memory Map

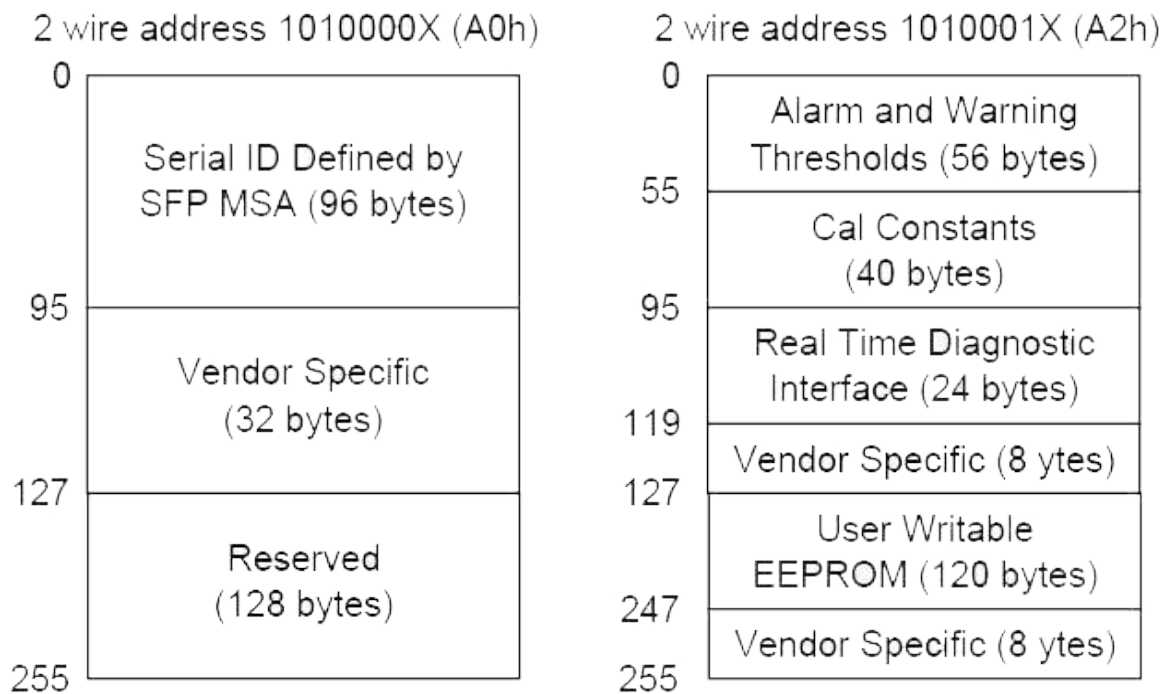


Figure 3, memory map

Mechanical Diagram

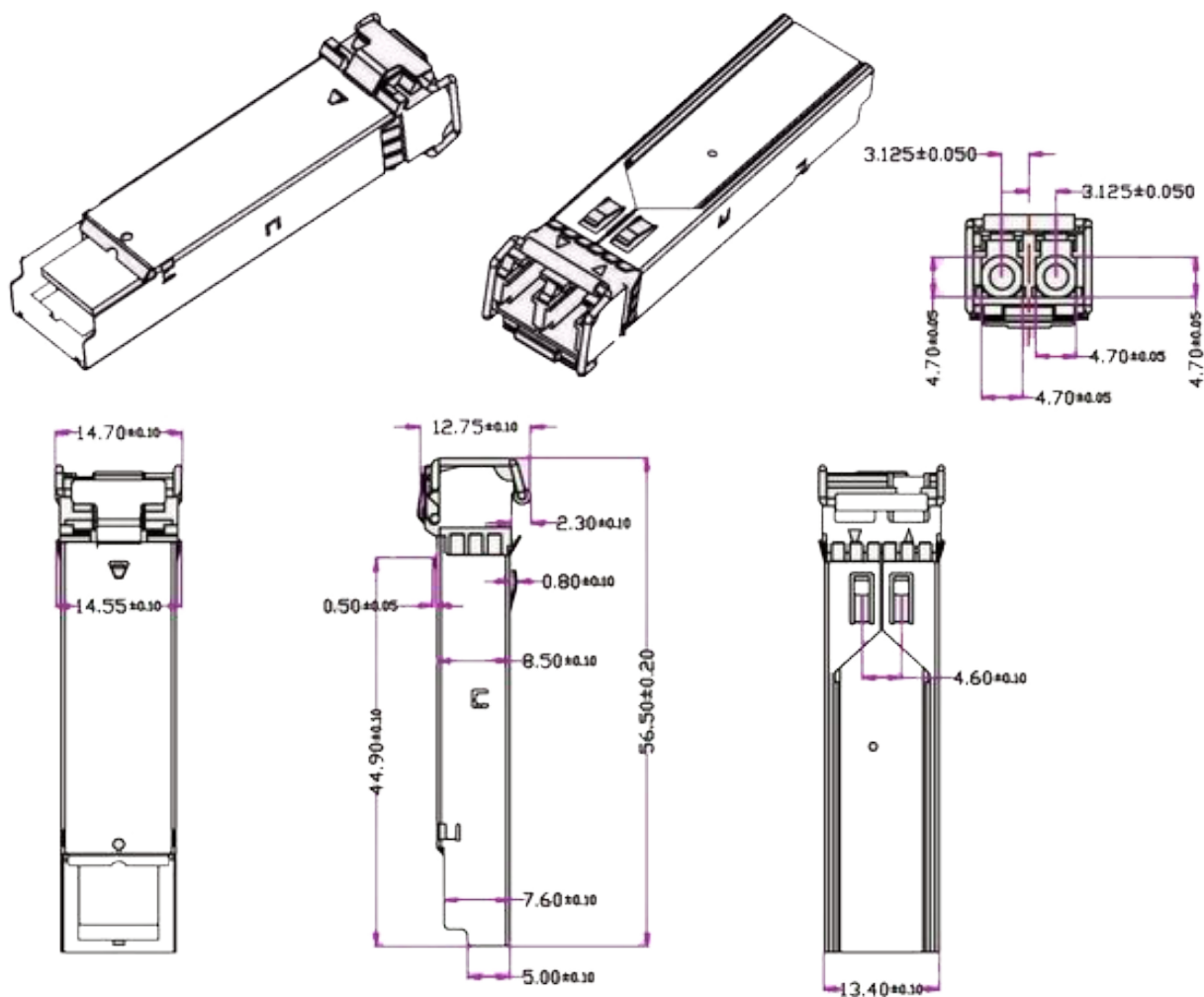


Figure 4, mechanical diagram

Order Information

Table 6-order information

Part Number	Product Description
SFP-SX-2	SFP 850nm,1.25G, 550M, NO DDM ,0°C~70°C
SFP-LH-2	SFP 1310nm,1.25G, 2KM, NO DDM ,0°C~70°C
SFP-LH-220	SFP 1310nm,1.25G, 20KM, NO DDM ,0°C~70°C
SFP-LH-240	SFP 1310nm,1.25G, 40KM, NO DDM ,0°C~70°C
SFP-ZX-240	SFP 1550nm,1.25G, 40KM, NO DDM ,0°C~70°C
SFP-ZX-80	SFP 1550nm,1.25G, 80KM, NO DDM ,0°C~70°C

With DDM:

Part Number	Product Description
SFP-SX-2D	SFP 850nm,1.25G, 550M, DDM ,0°C~70°C
SFP-LH-2D	SFP 1310nm,1.25G, 2KM, DDM ,0°C~70°C
SFP-LH-220D	SFP 1310nm,1.25G, 20KM, DDM ,0°C~70°C
SFP-LH-240D	SFP 1310nm,1.25G, 40KM, DDM ,0°C~70°C
SFP-ZX-240D	SFP 1550nm,1.25G, 40KM, DDM ,0°C~70°C
SFP-ZX-80D	SFP 1550nm,1.25G, 80KM, DDM ,0°C~70°C

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