

Optical Module

WS-PEE222L-xD (1.25Gb/s 1310nm 20km SFP)



■ Performance Characteristics

- ◆ Hot-pluggable
- ◆ 1.25Gbps operation
- ◆ +3.3V single power supply
- ◆ High-performance and cost-effective
- ◆ 1310nm FP and PIN photodetector for 20km transmission
- ◆ Compliant with SFP MSA and SFF-8472 with duplex LC receptacle
- ◆ Digital Diagnostic Monitoring
- ◆ Compatible with SONET OC-24
- ◆ Operating case temperature: 0 to +70°C -40 to +85°C
- ◆ RoHS compliant (lead free)

■ Applications

- ◆ Gigabit Ethernet
- ◆ Gigabit Fiber Channel
- ◆ Switch to Switch interface
- ◆ Switched backplane applications

■ Description

The SFP transceivers are high performance, cost effective modules supporting 1.25Gbps and 20km transmission distance with SMF.

The transceiver consists of three sections: a 1310nm FP transmitter, a PIN photodiode integrated with a trans-impedance preamplifier (TIA). All modules satisfy class I laser safety requirements.

The transceivers are compatible with SFP Multi-Source Agreement (MSA) and SFF-8472. For further information, please refer to SFP MSA.

■ Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit
Power Supply Voltage	Vcc	-0.5		4	V
Storage Temperature Range	Ts	-40		85	°C
Relative Humidity - Storage	RHS	0		95	%
Relative Humidity - Operating	RHO	0		85	%

■ Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Case Operating Temperature Range	Tc	0	-	70	°C
		-40	-	85	
Power Supply Voltage	Vcc	3.14	3.3	3.47	V
Supply Current	Icc	-	-	300	mA
Data Rate	BR	-	1.25	-	Gbps

■ Electrical Characteristics

Transmitter Electrical Characteristics					
Parameter	Symbol	Min	Typ	Max	Unit
Differential Input Voltage Swing	VIN	400	-	2000	mV
Tx Differential Input Impedence	ZIN	-	100	-	Ω
Transmitter Disable Voltage	VDIS	2.0	-	VCC+0.3	V
Transmitter Enable Voltage	VEN	0	-	0.8	V
TFAULT Logic High	VTFH	2.4	-	VCC	V
TFAULT Logic Low	VTFL	VEE	-	VEE+0.4	V
Receiver Electrical Characteristics					
Parameter	Symbol	Min	Typ	Max	Unit
Differential output Voltage Swing	VOUT	400	-	1000	mV
Rx Differential Output Impedence	ZOUT	-	100	-	Ω
LOS Assert Voltage	VLOSA	2.4	-	VCC	V
LOS De-assert Voltage	VLOSD	VEE	-	VEE+0.4	V

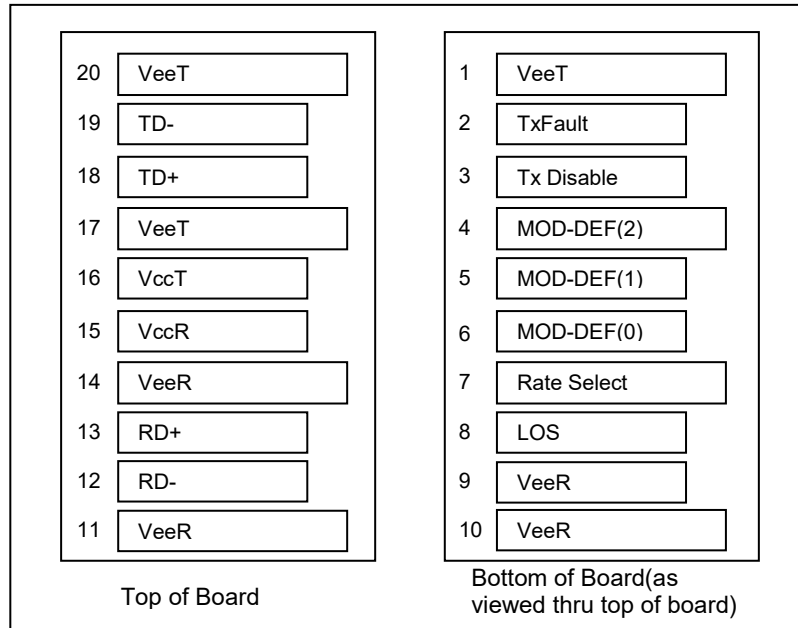
■ Optical Characteristics

Transmitter Characteristics						
Parameter	Symbol	Min	Typ	Max	Unit	Notes
Laser Type		FP				
Data Rate	-	-	1.25	-	Gb/s	
Center Wavelength Range	λ	1260	1310	1360	nm	
RMS Spectral Width	$\Delta\lambda$	-	-	4	nm	
Average Launch power of OFF transmitter	POFF	-	-	-45	dBm	
Launch Optical Power	Pout	-8	-	-2	dBm	1
Extinction Ratio	ER	9	-	-	dB	
Receiver Characteristics						
Receiver Type		PIN				
Data Rate	-	-	1.25	-	Gb/s	
Operating Central Wavelength	λ	1260	-	1610	nm	
Receiver Sensitivity	Sen	-	-	-22	dBm	2
Receiver Overload	PSAT	-3	-	-	dBm	
LOS Assert	LOSA	-40	-	-	dBm	
LOS De-Assert	LOSD	-	-	-22	dBm	
LOS Hysteresis	LOSH	0.5	3	5	dB	
Notes						
1. Average power figures are informative only, specified in IEEE802.3z						
2. Measured with 27-1 PRBS@1.25Gbps,BER<10-12						

■ General Specifications

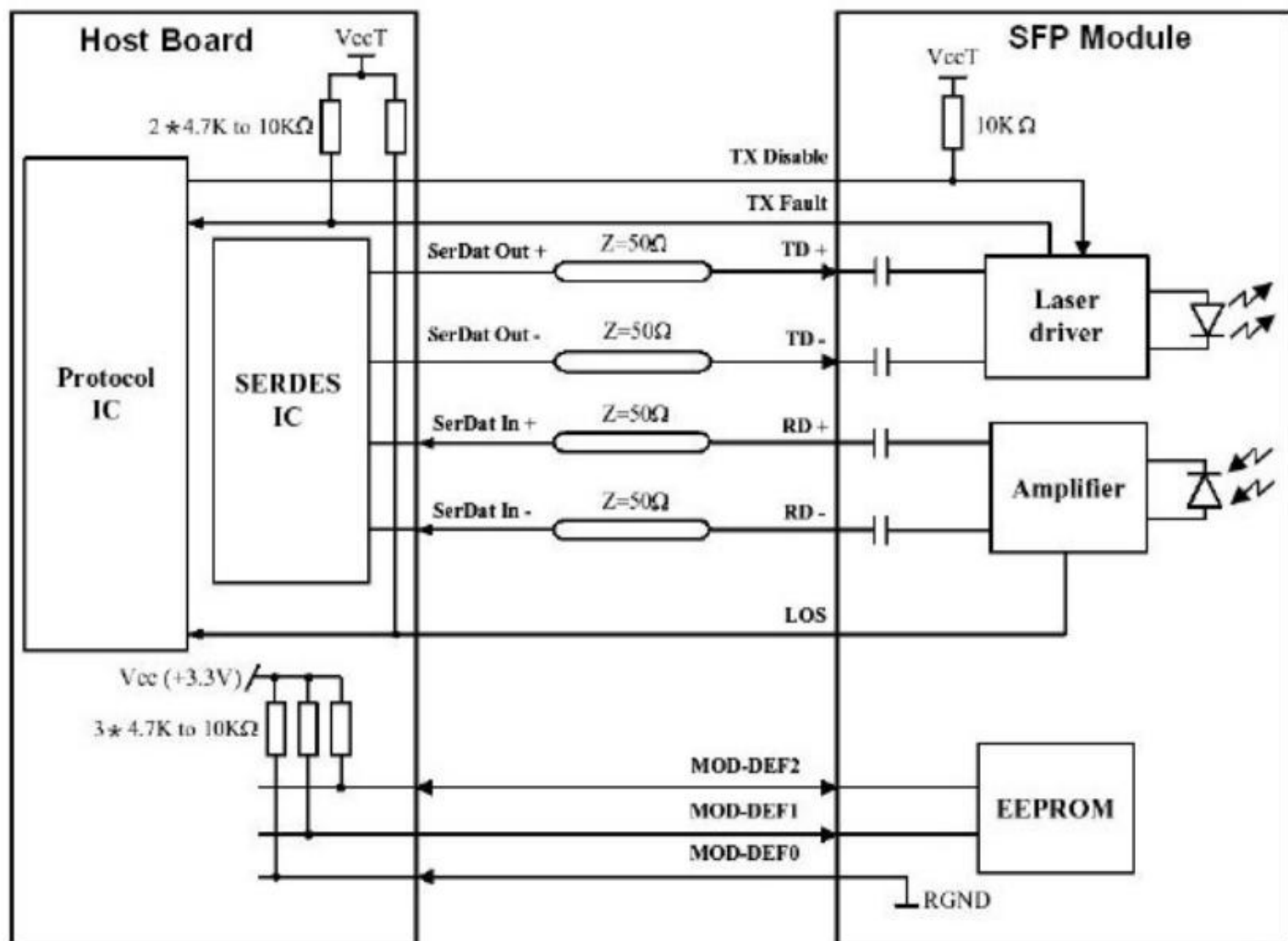
Parameter	Symbol	Min	Typ	Max	Unit	Notes
Bit Rate	BR	-	1.25	-	Gb/s	
Bit Error Ratio	BER	-	-	10-12		

Pin Definitions

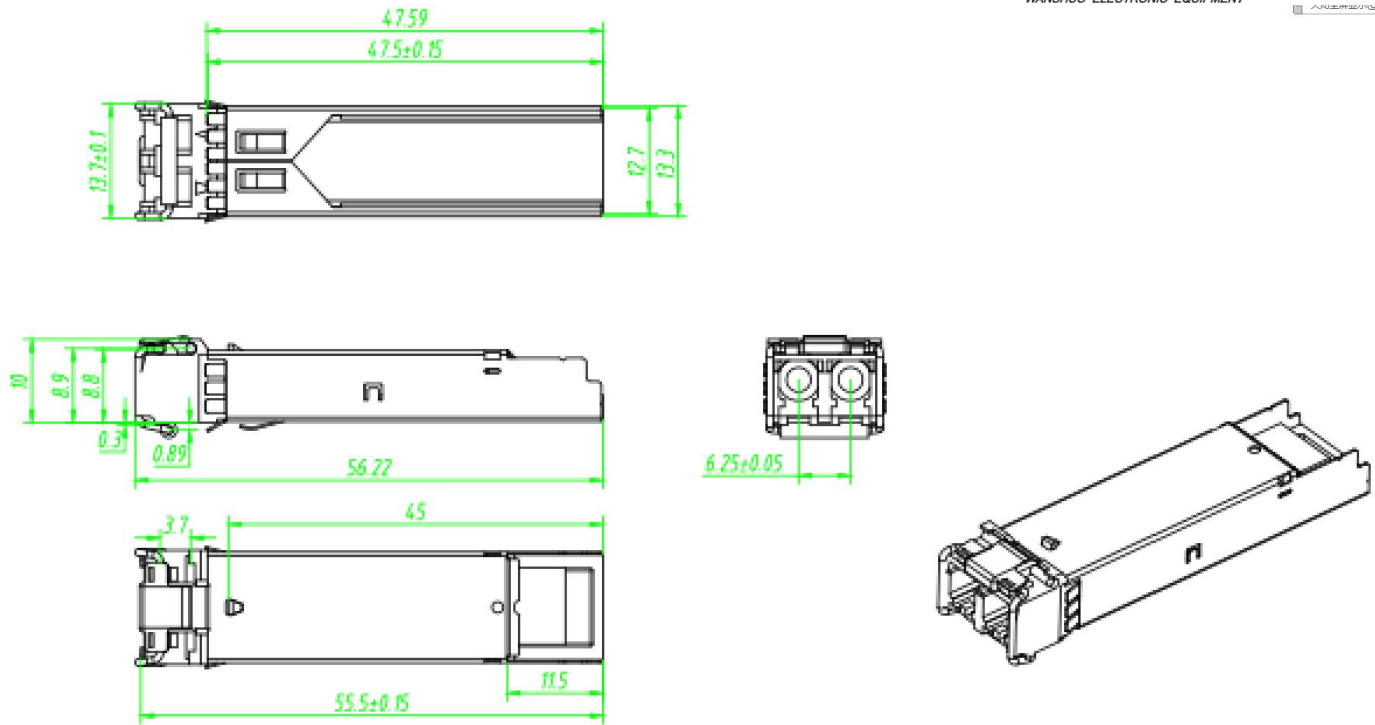


PIN Assignment			
PIN	Symbol	Description	Notes
1	V _{EET}	Transmitter Ground	
2	Tx_FAULT	Transmitter Fault	1
3	Tx_DIS	Transmit Disable	1
4	MOD_DEF 2	Serial Data	1
5	MOD_DEF 1	Clock Signal	1
6	MOD_DEF 0	Interface Digital Ground	
7	Rate Select	Not Connected	
8	Rx_LOS	Receiver Loss of Signal	1
9	V _{EER}	Receiver Ground	
10	V _{EER}	Receiver Ground	
11	V _{EER}	Receiver Ground	
12	RD-	Rx_Data Output (Inverted)	
13	RD+	Rx_Data Output (Non Inverted)	
14	V _{EER}	Receiver Ground	
15	V _{CCR}	Receiver DC Power	
16	V _{CCT}	Transmitter DC Power	
17	V _{EET}	Transmitter Ground	
18	TD+	Tx_Data Input (Non Inverted)	
19	TD-	Tx_Data Input (Inverted)	
20	V _{EET}	Transmitter Ground	
Notes			
1. The uncommitted Tx_Fault, Rx_LOS, MOD_DEF 1 and MOD_DEF 2 LVTTTL monitor and control pins each require a pull up resistor of 4.7k to 10k Ohms on the host board.			

■ Recommended Interface Circuit



■ Mechanical Dimensions



■ Ordering information

Part Number	Product Description
WS-PEE222L-SD	SFP, 1.25Gbps, 1310nm, SM, 20km, 0°C~+70°C, With DDM
WS-PEE222L-ID	SFP, 1.25Gbps, 1310nm, SM, 20km, -40°C~+85°C, With DDM

■ Package Dimension



Carton (400pcs) 10.5kg



SHANDONG WANSHUO OPTOELECTRONICEQUIPMENT CO.,LTD

Add: 7th Floor, Block C, Torch Venture Plaza, No. 111 Liuquan Road, Gaoxin District, Zibo City,
Shandong Province, China

Tel: 0533-35999570533-3599953

E-mail: admin@wanshuo.net

Post Code: 255086

Fax: 0533-35999955

Web: www.wanshuo.net