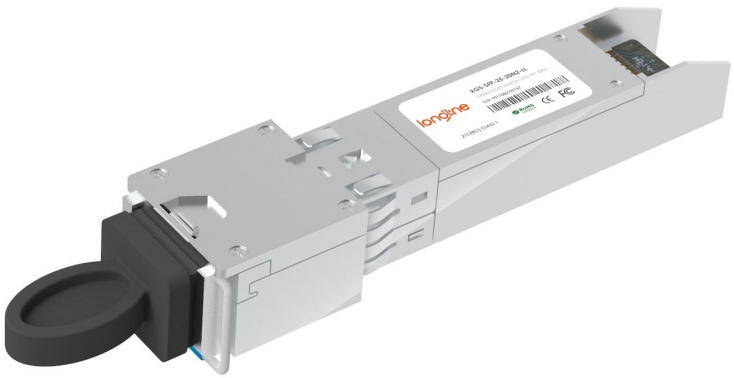
XGSPON ONU SFP+ 1270nmTX/1577nmRX 20km DDM Transceiver

XGS-SFP-25-20N2-LL



Application

- symmetric 10Gigabit capable passive optical network (XGS-PON) system.

Features

- Integrated Single fiber bi-directional optical subassembly
- Symmetric 9.953Gb/s upstream and downstream bit rate
- SFP+ metallic package, SC/UPC connector
- +3.3V single power supply
- Low power consumption
- - 40 to 85℃ operating case temperature
- Burst enable :H-active
- Class 1 Laser eye safety
- Excellent EMI and EMC characteristics
- Compliant with RoHS&WEEE

Description

The XGSPON ONU Transceiver is designed for 10G XGSPON transmission. The module incorporates 10Gb/s 1270nm burst-mode transmitter and 10Gb/s 1577nm continuous-mode receiver. An integrated WDM coupler can separate 1577nm input light and 1270nm output light. The metallic package guarantees excellent EMI and EMC characteristics, which totally comply with international relevant standards.

Product Specifications

I. Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	Ts	oC	-40	+85
Relative Humidity	RH	%	5	95
Power Supply Voltage	Vcc	V	0	+4
Receiver Damage Threshold		dBm	-5	

II. Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Supply Voltage	Tc	℃	-40		85
Supply Voltage Noise Tolerance	Vcc	V	3.135	3.3	3.465

III. Optical Characteristics

Parameter	Symbol	Unit	Min	Typ	Max
Electrical Characteristics					
Power Consumption		W			1.5
LVPECL Single Ended Data Input Swing		mV	100		800
CML Single Ended Data Output Swing		mV	300		500
Differential Data input impedance		Ω		100	
Signal Level(LVTTL)	VOH	V	2.4		Vcc
	VOL	V	0		0.8
Optical transmitter Characteristics					
Data Rate		Mbps		9.953	
Center Wavelength Range	lc	nm	1260		1280
Spectral Width(@-20dB)	Dl	nm			1
Side Mode Suppression Ratio	SMSR	dB	30		
Launch Optical Power	P_o	dBm	+4.0		+9.0
Off level light		dBm			-45
Burst turn on/off time	Ton/Toff	bit			128
TXSD delay time[1]		ns			1000
Extinction Ratio[2]	EX	dB	6		

Transmitter Dispersion Penalty[3]	TDP	dB			1.5
Transmitter tolerance to reflected optical power		dB	-15		
Total jitter	TJ	UI			0.35
Eye Diagram		Compliant with ITU-T G.9807.1			
Optical receiver Characteristics					
Data Rate		Gbps		9.953	
Center Wavelength Range	λc	nm	1575		1580
Receiver Sensitivity[3]	S	dBm			-28
WDM filter isolation		dB	35		
Overload Input Optical Power	Pin	dBm	-8		
LOS **Optical Dessert**		dBm			-29
LOS **Optical Assert**		dBm	-44		
LOS Hysteresis		dB	0.5		6

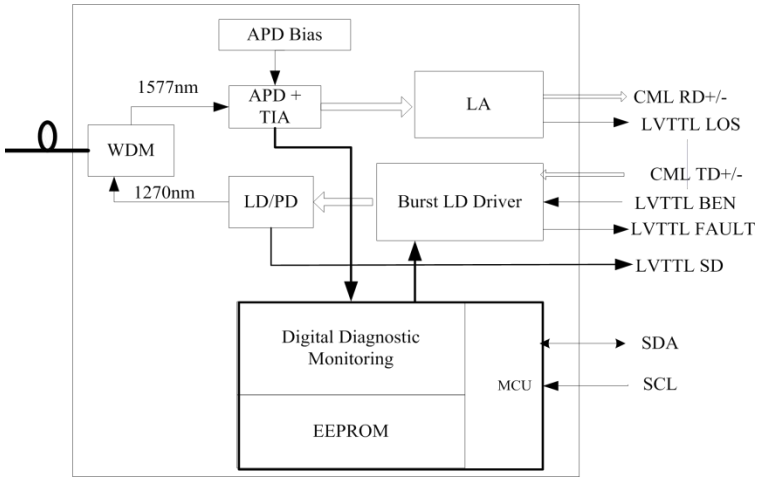
Note:

1. Measured with PRBS 2^{23}-1 test pattern @9.953Gbps.

2.Transmit on 20km G.657 SMF.

3.Measured with PRBS 2^{23}-1 test pattern @9.953Gbps with Tx on ER=8.2dB, BER=10^{-3}

IV. Principle diagram



V. Optic Ports Definition

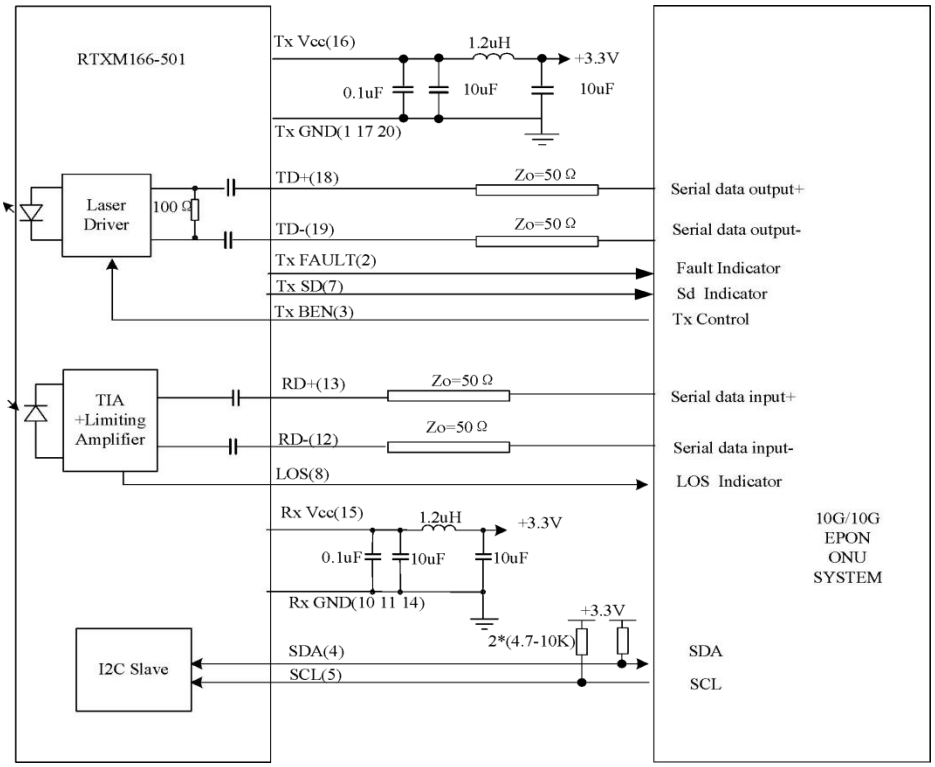
Single SC/UPC receptacle optical interface

VI. Electric Ports Definition

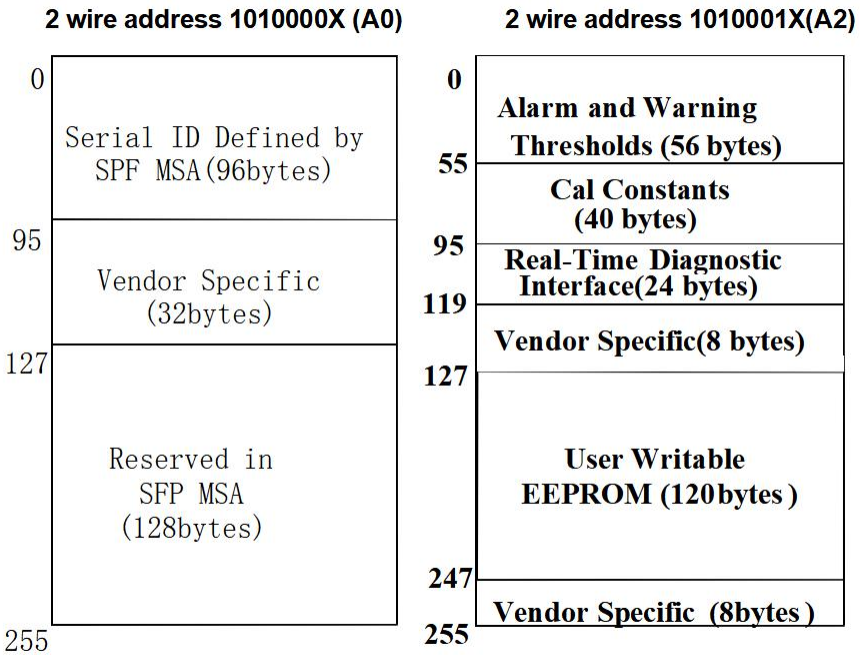
Parameter	Description
GND_T	Transmitter ground
TX_FAULT	LVTTL Transmitter fault indication output, internally pulled up to VccR. High: indicates transmitter fault(When Laser bias current, Laser PD current or Laser forward voltage exceed the thresholds) Low : indicates normal operation.
TX_BEN	LVTTL Transmitter burst enable input, internally pulled up to VccR. Low :Tx ON. High: Tx OFF
SDA	I²C Serial Data, NO PU/PD internally Need be pulled up on the Host board
SCL	I²C Serial Clock, NO PU/PD internally Need be pulled up on the Host board
MOS_ABS	Internally connected GND
TX-SD	LVTTL TX Signal Detect output, internally pulled up to VccR High : indicates transmitteroptical ON Low :indicates transmitter optical OFF

RX_ LOS	LVTTL RX LOS Of Signal output, internally pulled up to VccR High: indicates the received optical power is below the worst-case receiver sensitivity Low : indicates normal operation
NC	No Connected internally. No definition
GND_R	Receiver ground
GND_R	Receiver ground
RD-(10G)	CML data output-(AC coupled internally)
RD+(10G)	CML data output+(AC coupled internally)
GND_R	Receiver ground
VCC_R	Receiver power supply
VCC_T	Transmitter power supply
GND_T	Transmitter ground
TD+(2G)	LVPECL Data input+(AC coupled and internal terminated)
TD-(2G)	LVPECL Data input-(AC coupled and internal terminated)
GND_T	Transmitter ground

VII. Typical Application Circuit

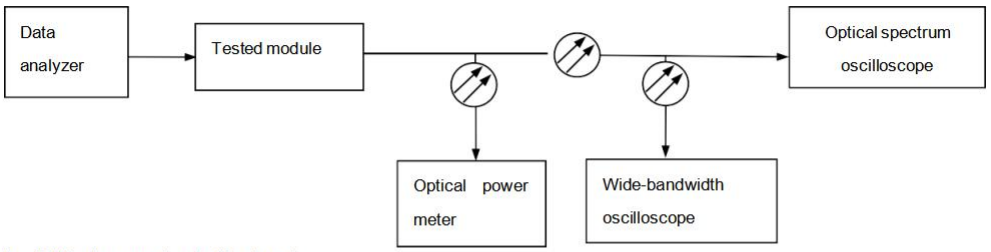


VIII. Digital Diagnostic Memory Map

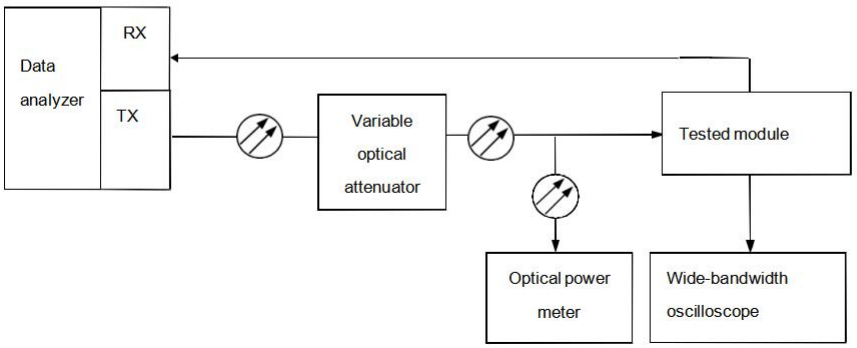


IX. Test Requirement

a. TX characteristic test



b. RX characteristic test



X. Package Outline