

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

XG-SFP-25-20N2-LL



Application

- Asymmetric 10-Gigabit capable passive optical network(XG-PON) system

Features

- Integrated Single fiber bi-directional optical subassembly
- Asymmetric 2.48832Gb/s upstream and 9.95328Gb/s downstream bit rate
- SFP+ metallic package, SC/UPC connector
- +3.3V single power supply
- Low power consumption
- - 40 to 85°C operating case temperature
- Burst enable :H-active
- Class 1 Laser eye safety
- Excellent EMI and EMC characteristics
- Compliant with RoHS&WEEE

Description

The XG-PON1 ONU Transceiver is designed for XG-PON1 transmission. The module incorporates 2.48832Gb/s 1270nm burst-mode transmitter and 9.95328Gb/s 1577nm continuous-mode receiver. An integrated WDM coupler can separate 1270nm input light and 1577nm 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	T _s	°C	-40	+85
Relative Humidity	RH	%	5	95
Power Supply Voltage	V _{cc}	V	0	+4
Receiver Damage Threshold		dBm	-5	

II. Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Supply Voltage	T _c	°C	-40		85
Supply Voltage Noise Tolerance	V _{cc}	V	3.135	3.3	3.465

III. Optical Characteristics

Parameter	Symbol	Unit	Min	Typ	Max
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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		2.48832	
Center Wavelength Range	lc	nm	1260		1280
Spectral Width(@-20dB)	DI	nm			1
Launch Optical Power	Po	dBm	+2		+7
Off level light		dBm			-45
Burst turn on/off time	Ton/Toff	bit			32
Extinction Ratio ¹	EX	dB	8.2		
Eye Diagram	Compliant with ITU-T G.987.2				
Transmitter dispersion penalty ²	TDP	dB			0.5

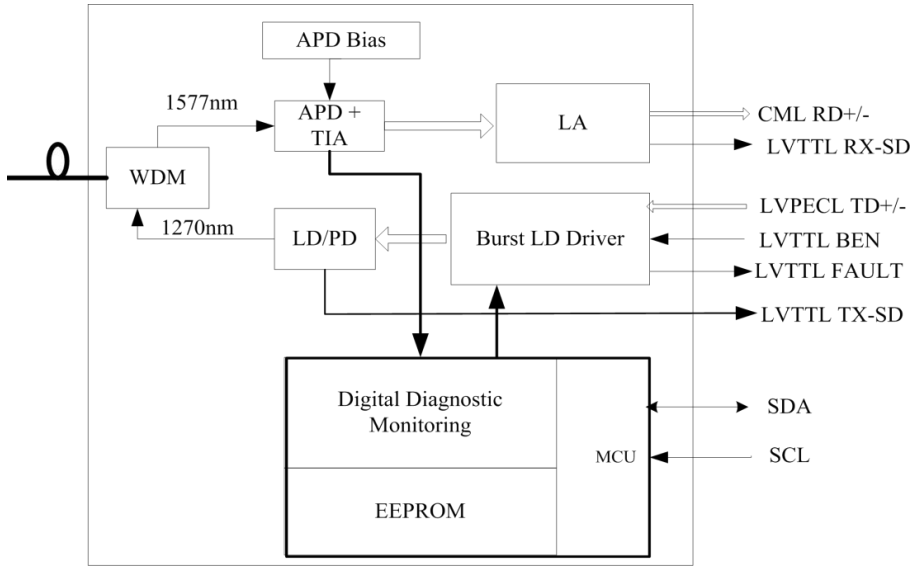
Optical receiver Characteristics

Data Rate		Mbps	9953.28		
Center Wavelength Range	λ_c	nm	1575		1580
Receiver Sensitivity³	S	dBm	-28.0		
Overload Input Optical Power	Pin	dBm	-8.0		
LOS	Optical Desert	dB	-29		
	Optical Assert		-44		
LOS Hysteresis		dB	0.5		6

Note:

1. Measured with PRBS 2²³-1 test pattern @2.48832Gbps.
2. Transmit on 20km SMF.
3. Measured with PRBS 2²³-1 test pattern @9.95328Gbps with Tx on ER=8.2dB, BER=10⁻³

IV. Principle diagram



V. Optic Ports Definition

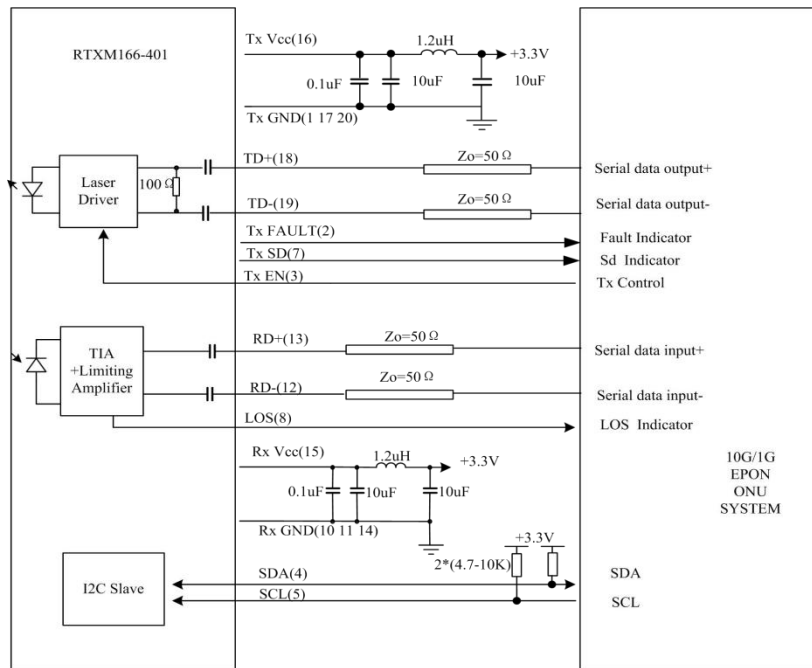
Single SC/UPC receptacle optical interface

VI. Electric Ports Definition

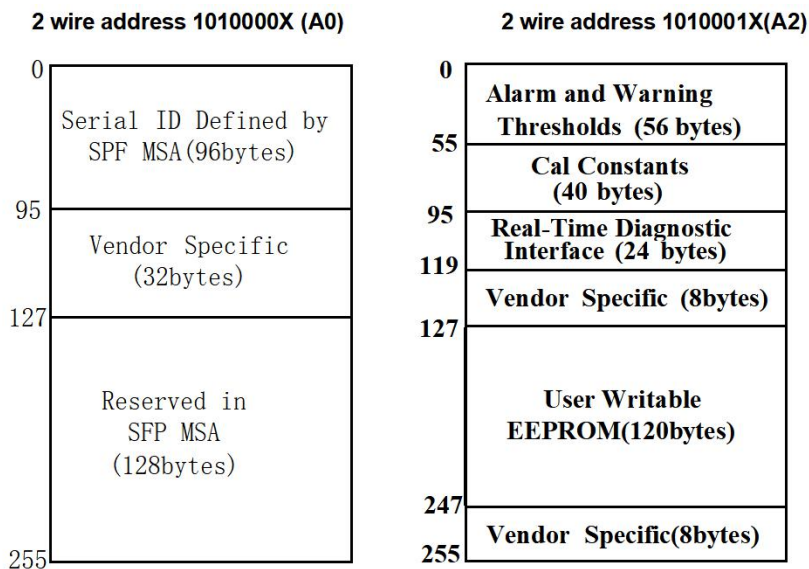
Parameter	Description
GND_T	Transmitter ground
TX_FAULT	LVTTTL Signal detect output, internally pull up
TX_BRST	LVTTTL ransmitter burst mode control, "L": Tx ON
SDA	I ² C Serial Data (LVTTTL)
SCL	I ² C Serial Clock (LVTTTL)
MOS_ABS	Internally connected GND
TX-SD	LVTTTL Signal detect output, internally pull up

RX_LOS	LVTTTL Signal detect output, internally pull up
NC	Not Connected
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

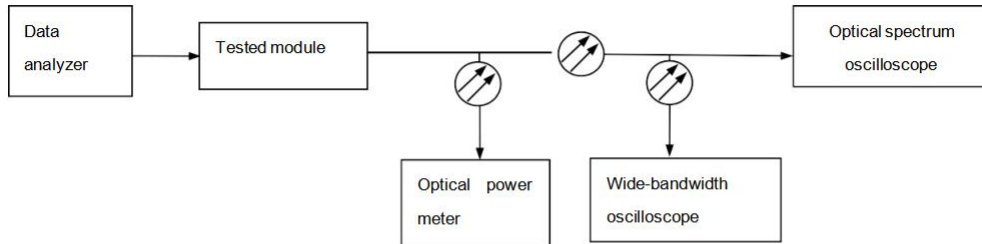


VIII. Digital Diagnostic Memory Map

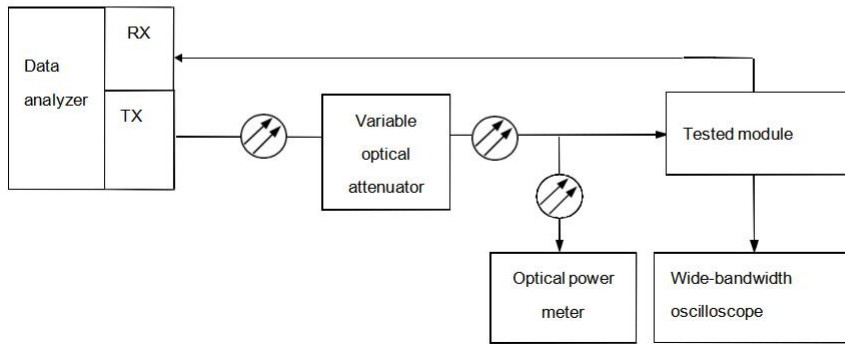


IX. Test Requirement

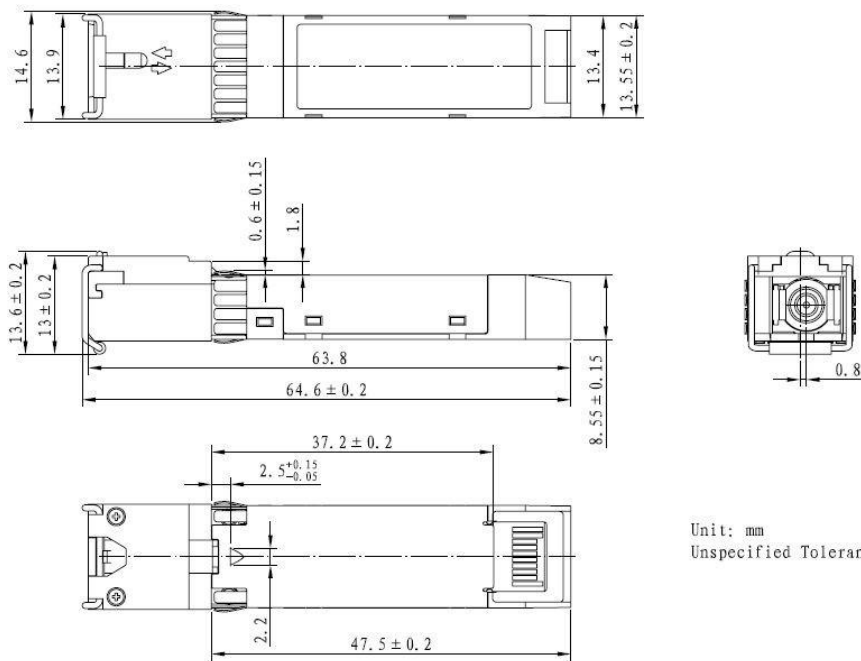
a. TX characteristic test



b. RX characteristic test



X. Package Outline



Unit: mm
 Unspecified Tolerance: $\pm 0.1\text{mm}$