

XG-PON1 ONU Optical Transceiver SFP+ Module



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.

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
- -0 to 70°C operating case temperature
- Class 1 Laser eye safety
- Excellent EMI and EMC characteristics
- Compliant with RoHS&WEEE

Applications

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

Standards

- SFF 8432
- SFF 8472
- ITU-T G.987.2

Specifications

(tested under recommended operating conditions, unless otherwise noted)

Parameter	Symbol	Unit	Value		
			Min	typical	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	--	2488.32	-
Center Wavelength Range	λ_c	nm	1260	-	1280
Spectral Width(@-20dB)	$\Delta\lambda$	nm	-	-	1
Launch Optical Power	P _o	dBm	+2	-	+7
Off level light		dBm			-45
Burst turn on/off time	T _{on} /T _{off}	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 Sensitivity 3	S	dBm	-	-	-28.0
Overload Input Optical Power	P _{in}	dBm	-8.0		
LOS	Optical Dessert	dB	-	-	-29
	Optical Assert		-44	-	-
LOS Hysteresis		dB	0.5	-	6
Note1. Measured with PRBS 2 ²³ -1 test pattern @2.48832Gbps.					
Note2. Transmit on 20km SMF.					
Note3. Measured with PRBS 2 ²³ -1 test pattern @9.95328Gbps with Tx on, ER=8.2dB, BER=10 ⁻³					

Ordering Information

Part No	Specifications								
	Package	Data rate	Laser	Optical Power	Detector	Sensitivity	Top	Reach	Others
RTXM166-601	SFP+	2.48832G US 9.95328G DS	1270nm DFB-LD	+2~ +7dBm	APD 1577nm	-28.0dBm	-0~70°C	20km	DDM,RoHS

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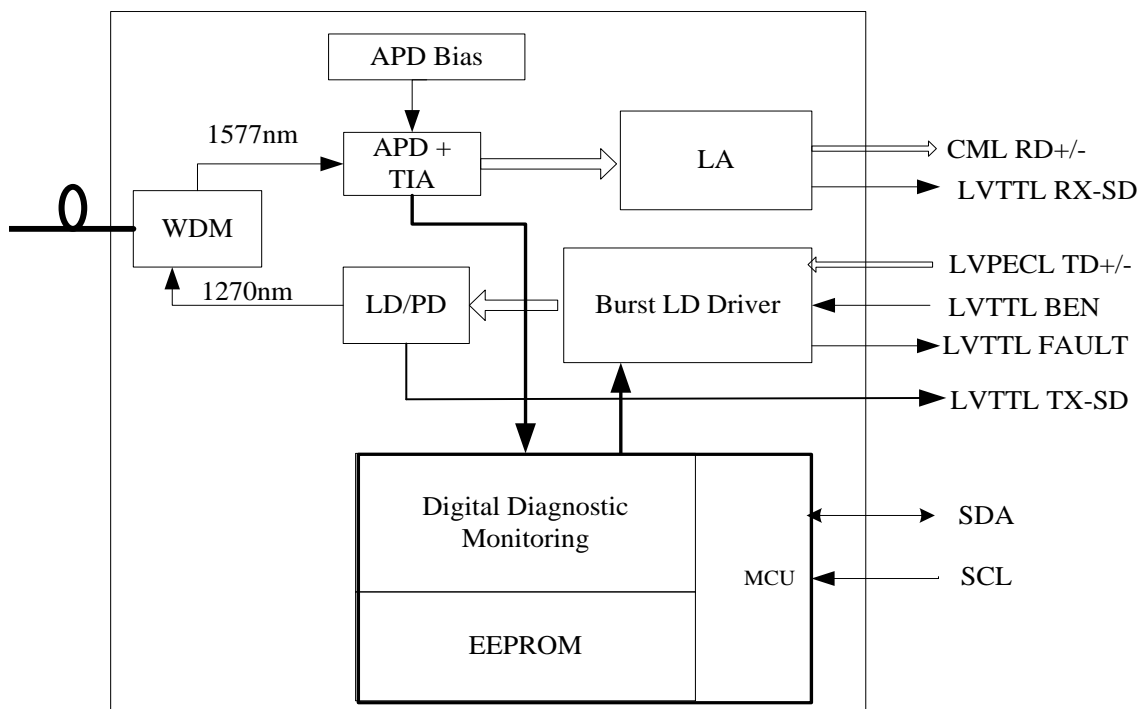
Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	T_s	$^{\circ}\text{C}$	-40	+85
Relative Humidity	RH	%	5	95
Power Supply Voltage	V_{cc}	V	0	+4
Receiver Damage Threshold		dBm	0	-

Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Operating Case Temperature Range	T_c	$^{\circ}\text{C}$	-0	-	70
Power Supply Voltage	V_{cc}	V	3.135	3.3	3.465

Principle diagram

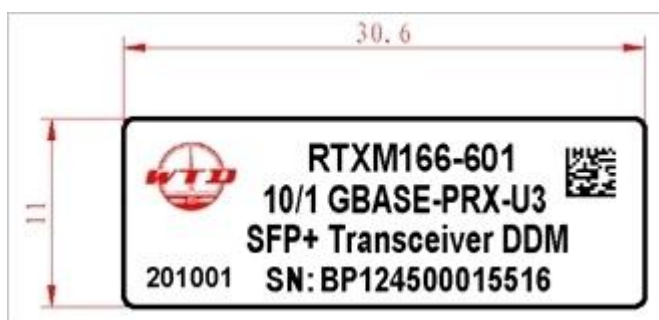
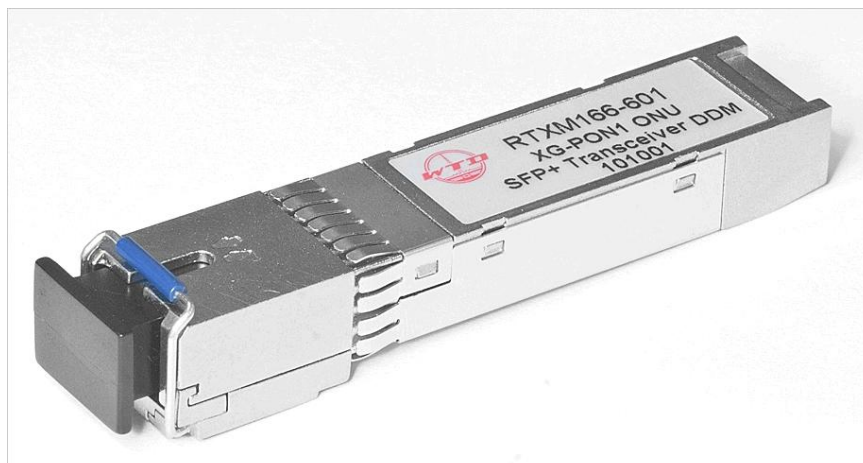


Optic Ports Definition

Single SC receptacle optical interface

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Product appearance and Label



Regulatory Compliance

Feature	Test Method	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	Class 1 (>1.5kV) – Human Body Model
Electrostatic Discharge (ESD) Immunity	IEC61000-4-2	LV4(Air discharge 15kV,Contact discharge 8kV) Performance criterion B
Electromagnetic Interference (EMI)	CISPR22 ITE Class B EN55022 Class B	Compliant with standards
Immunity	IEC61000-4-3 Class 2 EN55024	Typically show no measurable effect from a 3V/m field swept from 80 to 1000MHz applied to the transceiver without a chassis enclosure.
Eye Safety	FDA 21 CFR 1040.10 and 1040.11 UL TUV EN 60825-1	Compliant with Class 1 laser product

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Update Information