

XGS-PON/GPON Combo OLT Optical Transceiver

Product Features

- Compliant with ITU-T G.9807.1, ITU-T G.987.2 and G.984.2 application
- XGS-PON 1577nm 9.953G continuous-mode transmitter with EML laser, 1270nm 9.953G&2.488G burst-mode receiver with APD-TIA (with RESET), with GPON 1490nm 2.488G continuous-mode transmitter with DFB laser, 1310nm 1.244G burst-mode receiver with APD-TIA(with RESET)
- 2-wire interface for integrated digital diagnostic monitoring
- Digital receiving signal strength indication (RSSI)
- SFP+ MSA package with SC/UPC receptacle optical interface
- +3.3V power supply
- Operating case temperature 0~70°C
- RoHS compliance

Operating Condition

Parameter	Unit	Min.	Typical	Max.	Notes
Storage Temperature	°C	-40		85	
Operating Case Temp	°C	0		70	
Storage Humidity	%	5		90	
Operating Relative Humidity	%	5		85	
Power Supply Voltage	V	3.135	3.3	3.465	
Power Supply Consumption	W			3	
Bit Rate for Tx 1577nm	Gbps		9.953		
Bit Rate for Rx 1270nm	Gbps	2.488	9.953		
Bit Rate for Tx 1490nm	Gbps		2.488		
Bit Rate for Rx 1310nm	Gbps		1.244		

Characteristics

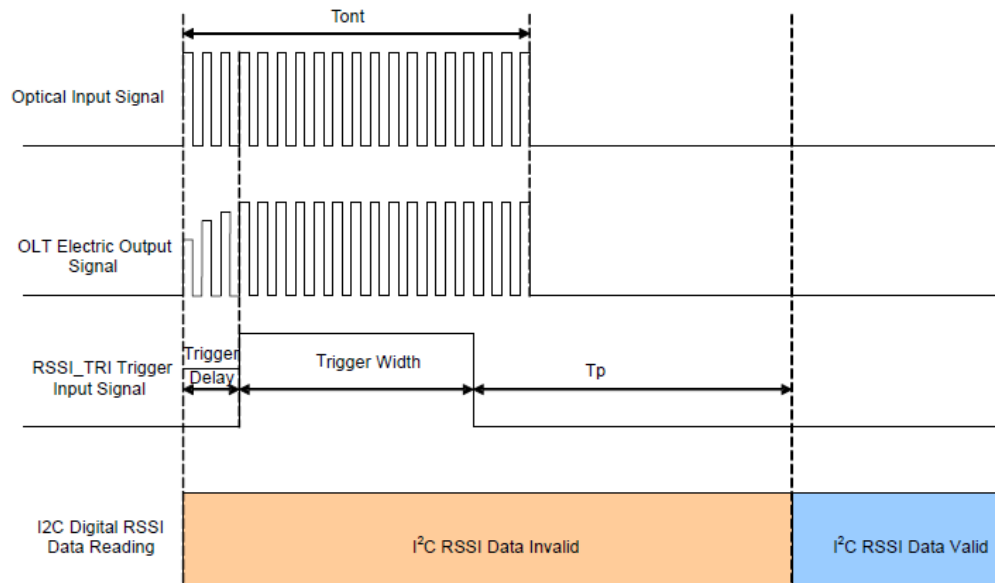
All performance is specified at whole working temperature and conditions

Parameter	Unit	Min.	Typical	Max.	Notes
XGS-PON 1577nm 9.953G Transmitter					
TX Central Wavelength	nm	1575	1577	1580	
Spectral Width (-20dB)	nm			1	
Side Mode Suppression Ratio	dB	30			



XGS-PON/GPON Combo SFP+ 20km N2/C+

Mean Launched Power	dBm	4		7	
Mean Launched Power (TX Off)	dBm			-39	
Extinction Ratio	dB	8.2			
Transmitter Mask	Compliant With ITU-TG.9807.1				
XGS-PON 1270nm 9.953G Receiver					
Receive Wavelength	nm	1260	1270	1280	
Sensitivity (PRBS2 ³¹ -1@9.953G, ER=8.2, BER<10 ⁻³)	dBm			-29	
Overload	dBm	-8			
SD Assert Level	dBm			-30	
SD De-assert Level	dBm	-43			
SD Hysteresis	dB	0.5			
GPON 1490nm 2.488G Transmitter					
TX Central Wavelength	nm	1480	1490	1500	
Spectral Width (-20dB)	nm			1	
Side Mode Suppression Ratio	dB	30			
Mean Launched Power	dBm	3		7	
Mean Launched Power (TX Off)	dBm			-39	
Extinction Ratio	dB	8.2			
Transmitter Mask	Compliant WithITU-TG.984.2				
GPON 1310nm 1.244G Receiver					
Receive Wavelength	nm	1290	1310	1330	
Sensitivity (PRBS2 ²³ -1@1.244G, ER=10, BER<10 ⁻¹⁰)	dBm			-30	
Sensitivity (PRBS2 ²³ -1@1.244G, ER=10, BER<10 ⁻⁴)	dBm			-32	
Overload	dBm	-12			
SD Assert Level	dBm			-33	
SD De-assert Level	dBm	-43			
SD Hysteresis	dB	0.5			
Electrical Interface Characteristics					
XGS-PON Data Input Swing Differential	mV	120		800	
XGS-PON Data Output Swing Differential	mV	400		800	
GPON Data Input Swing Differential	mV	200		1600	
GPON Data Output Swing Differential	mV	1100		2000	
Data Differential Impedance	Ω	90	100	110	
LVTTL Output High	V	2.4		Vcc	
LVTTL Output Low	V	0		0.4	
LVTTL Input High	V	2.0		Vcc+0.3	
LVTTL Input Low	V	0		0.8	

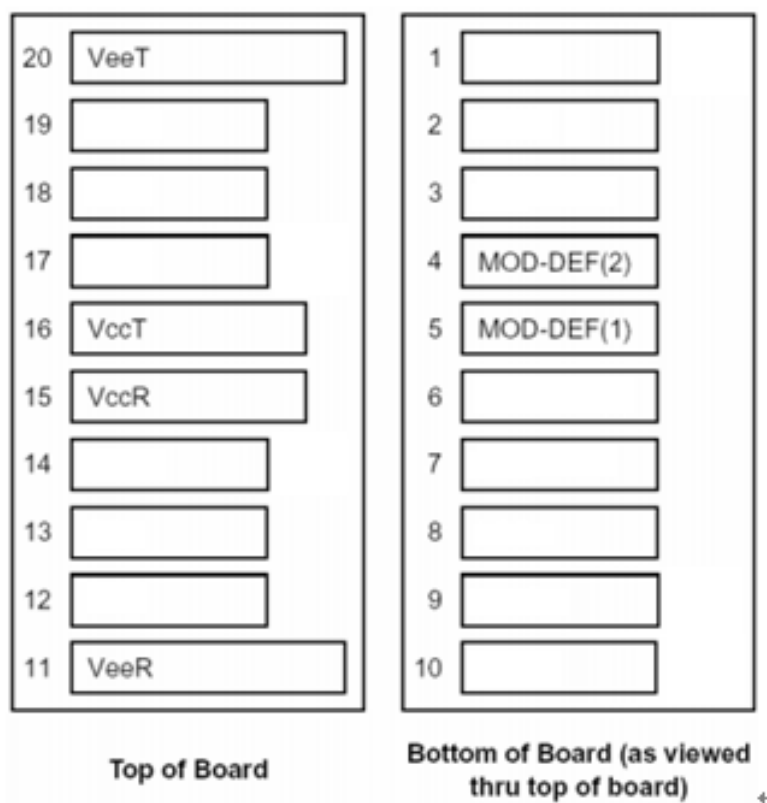
RSSI Timing


Parameter	Unit	Min.	Typical	Max.	Notes
RSSI Timing Characteristics					
ONU Package Length (T_{ont})	us	1	1.2	1.7	
RSSI Trigger Delay (T_{td})	ns	100	300	400	
RSSI Trigger Pulse Width (T_w)	ns	600	800	1000	
Internal I ² C Delay (T_p)	us			500	
RSSI Input Power Range (P_{mon})	dBm	Sensitivity		Overload	

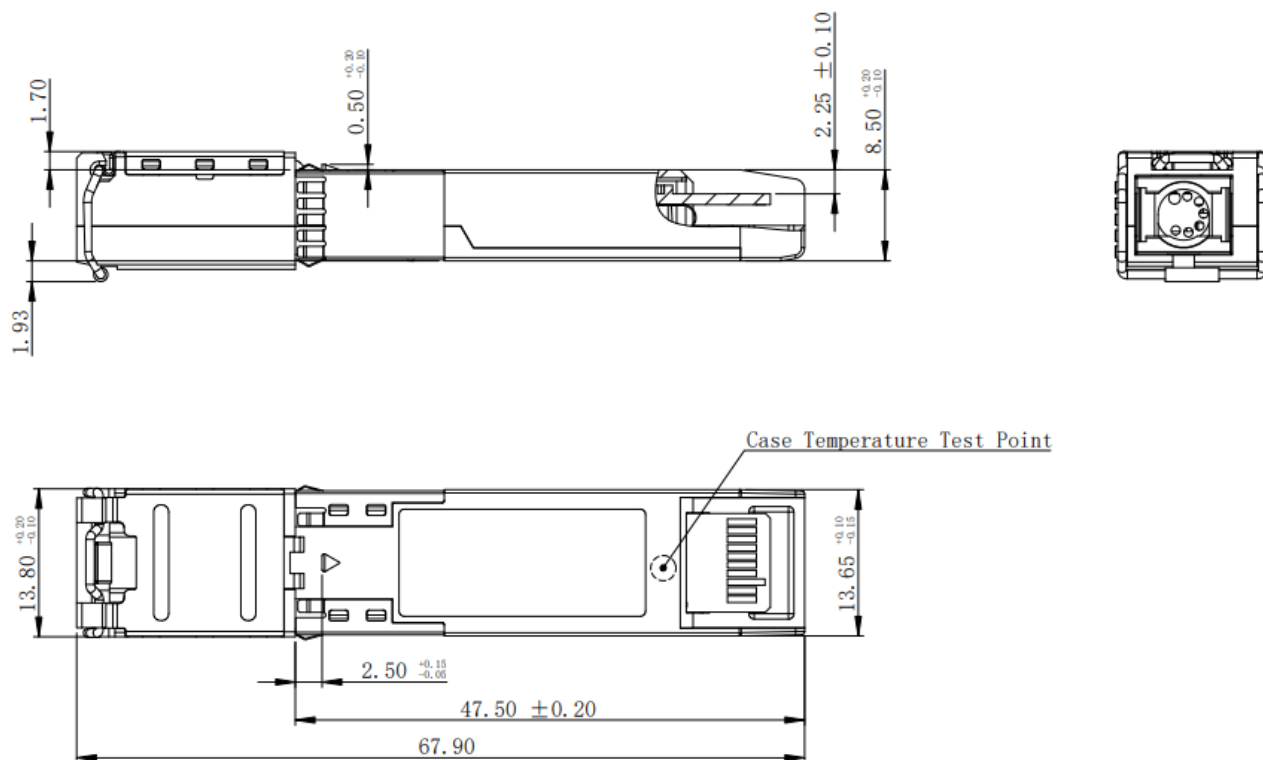
PIN Definition

Pin No.	Symbol	Level / Logic	Description	Notes
1	GPON_TD+	CML-I	GPON OLT Transmitter Non-Inverted Data Input, 2.488Gbps, AC-coupled	
2	GPON_TD-	CML-I	GPON OLT Transmitter Inverted Data Input, 2.488Gbps, AC-coupled	
3	GND		Module Ground	
4	SDA	LVTTL-I/O	2-Wire Serial Interface Data Line	
5	SCL	LVTTL-I	2-Wire Serial Interface Clock	
6	GPON_RD-	LVPECL-O	GPON Receiver Inverted Data Output, 1.244Gbps, DC-coupled.	
7	Reset/Rateselect	LVTTL-I	When act as the Rateselect PIN, for selecting 9.953Gbps , this signal is in standard LVTTL level, that is, Low level < 0.4V and high level > 2V, but for selecting 2.488Gbps	

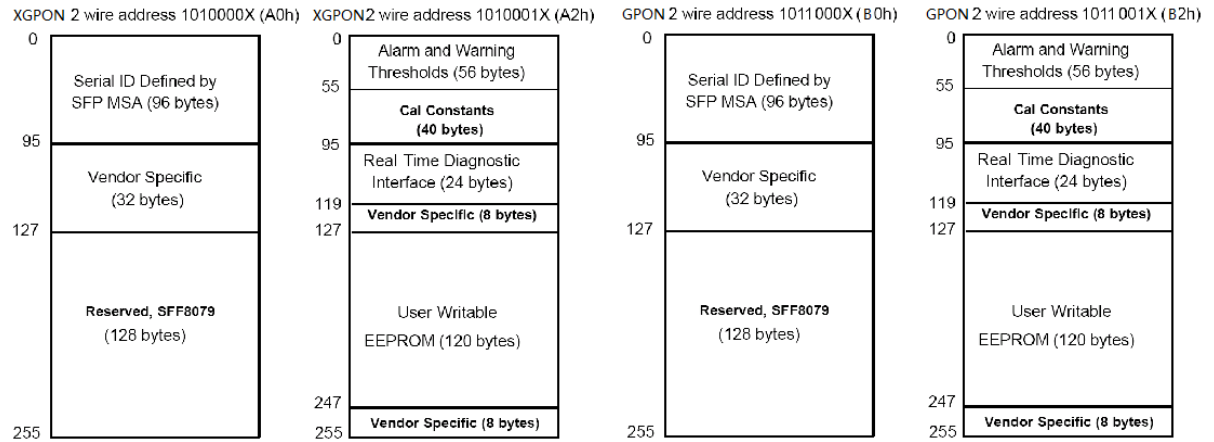
			, this signal is in not standard LVTTTL level, that is, Low level >0.9V and < 1.9V, and high level > 2V.	
8	XGS-PON_RxSD	LVTTTL-O	XGS-PON Receiver Signal Detected Indicator	
9	RSSITrig/TxDis	LVTTTL-I	According to the relative control register, to act as RSSITrig or TxDis input PIN. When acting as RSSITrig, active high to trigger the RSSI sampling. When acting as TxDis, active high to turn off transmitter laser output.	
10	GPON_RD+	LVPECL-O	GPON Receiver Non-Inverted Data Output, 1.244Gbps, DC-coupled.	
11	GND		Module Ground	
12	XGS-PON_RD-	CML-O	XGS-PON Receiver Inverted Data Output, 9.953Gbps, DC-coupled	
13	XGS-PON_RD+	CML-O	XGS-PON Receiver Non-Inverted Data Output, 9.953Gbps, DC-coupled	
14	GPON_RxSD	LVTTTL-O	GPON Receiver Signal Detected Indicator	
15	V _{CC3_RX}		+3.3V Tx Power Supply	
16	V _{CC3_TX}		+3.3V Rx Power Supply	
17	GPON_RST	LVTTTL-I	GPON Receiver Reset, high active	
18	XGS-PON_TD+	CML-I	XGS-PON Transmitter Non-Inverted Data Input, 9.95Gbps, AC-coupled	
19	XGS-PON_TD-	CML-I	XGS-PON Transmitter Inverted Data Input, 9.95Gbps, AC-coupled	
20	GND		Module Ground	



Mechanical Diagram



EEPROM Memory Map



DDMI Range and LSB Definition

Parameter	Accuracy	NOTES
Temperature	+/-3°C	1LSB=1/256°C
Vcc Voltage	+/-3%	1LSB=0.1mV
TX Bias Current	+/-10%	1LSB=4uA
TX Power	+/-3dB	1LSB=0.2uW
RX Power	+/-3dB	1LSB=0.1uW

Ordering Information

Ordering P/Ns	Description
XGS-PON/GPON Combo SFP+ 20km N2/C+	GPON-XGSPON Combo OLT, compatible with GPON OLT C+ and XGS-PON OLT N2, TX 1490nm 2.488Gbps, Burst RX 1310nm 1.244Gbps, TX 1577nm 9.95Gbps, Burst RX 1270nm 9.95Gbps, SFP+ form-factor, BIDI SC/UPC Receptacle, 0~70°C Commercial Temperature

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