

# XGS-PON OLT XFP 20km Optical Transceiver GNTX-27299-XSCD

## Features

- Hot-pluggable XFP form factor
- Compliant with ITU-T XGS-PON and G.987.2
- 1577nm continuous-mode transmitter with EML laser
- 1270nm burst-mode receiver with APD-TIA
- Data rate up to 9.953Gbps
- Reach up to 20km over single SMF bi-directional data links
- Single SC receptacle
- 2-wire interface for integrated digital diagnostic monitoring
- Digital receiving signal strength indication (RSSI)
- Operating case temperature range 0°C to 70°C
- 3.3V and 5V power supply voltage
- RoHS compliant (lead free)

## Applications

- XGS-PON downstream

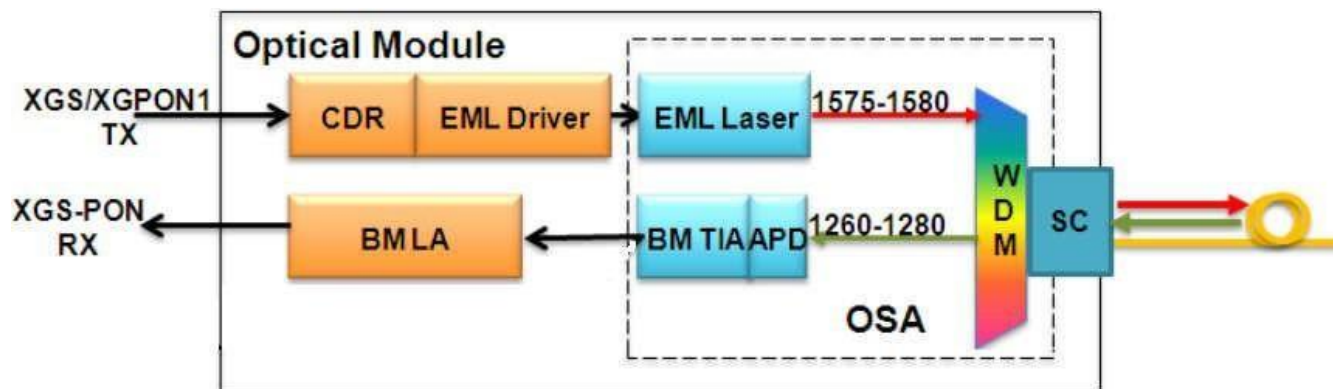


Figure 1. Module Block Diagram

## Operating Condition

Parameter	Unit	Min.	Typical	Max.
Storage Temperature	°C	-40		85
Operating Case Temp for C-temp	°C	0		70
Operating Relative Humidity	%	5		85
Power Supply Voltage (3V)	V	3.15	3.3	3.45
Supply Current (3V)	mA			1000
Power Supply Voltage (5V)	V	4.75	5	5.25
Supply Current(5V)	mA			300
Bit Rate for Tx 1577nm	Gbps	9.953		
Bit Rate for Rx 1270nm	Gbps	9.953		

## Characteristics

All performance is specified at whole working temperature and conditions

Parameter	Unit	Min.	Typical	Max.
<b>1577nm 10Gbps Transmitter</b>				
TX Central Wavelength	nm	1575	1577	1580
Spectral Width (-20dB)	nm			1
SMSR	dB	30		
Mean Launched Power	dBm	2		5
Mean Launched Power (TX Off)	dBm			-39
Extinction Ratio	dB	8.2		
Optical Return Loss Tolerance	dB	-15		
Transmitter and dispersion Penalty	dB			1
Transmitter Mask (PRBS2 <sup>31</sup> -1 @9.953G)	Compliant With ITU-T G.9807.1			
<b>1270nm 9.953G Receiver</b>				
Receive Wavelength	nm	1260	1270	1280
Sensitivity (PRBS2 <sup>31</sup> -1 @9.953G, ER=8.2, BER < 10 <sup>-3</sup> )	dBm			-28.5
Overload	dBm	-8		
Dynamic Range	dBm	-28		-6
Settling time	ns			800
SD Assert Level	dBm			-29
SD De-assert Level	dBm	-45		
SD Hysteresis	dB	0.5		6
<b>Electrical Interface Characteristics</b>				

Data Input Swing Differential/TX	mV	120		820
Data Output Swing Differential/RX	mV	340		850
Data Differential Impedance	$\Omega$	90	100	110
LVTTTL Output High	V	2.4		V <sub>cc</sub>
LVTTTL Output Low	V	0		0.4
LVTTTL Input High	V	2.0		V <sub>cc</sub> +0.3
LVTTTL Input Low	V	0		0.8
<b>Timing Characteristics</b>				
RSSI Trigger Delay (T <sub>td</sub> )	ns	300		
RSSI Trigger Pulse Width (T <sub>w</sub> )	ns		500	
ONU Package Length (T <sub>onu</sub> )	ns		1500	
Internal I <sup>2</sup> C Delay (T <sub>i2c</sub> )	us			500

### Timing Sequence for RSSI

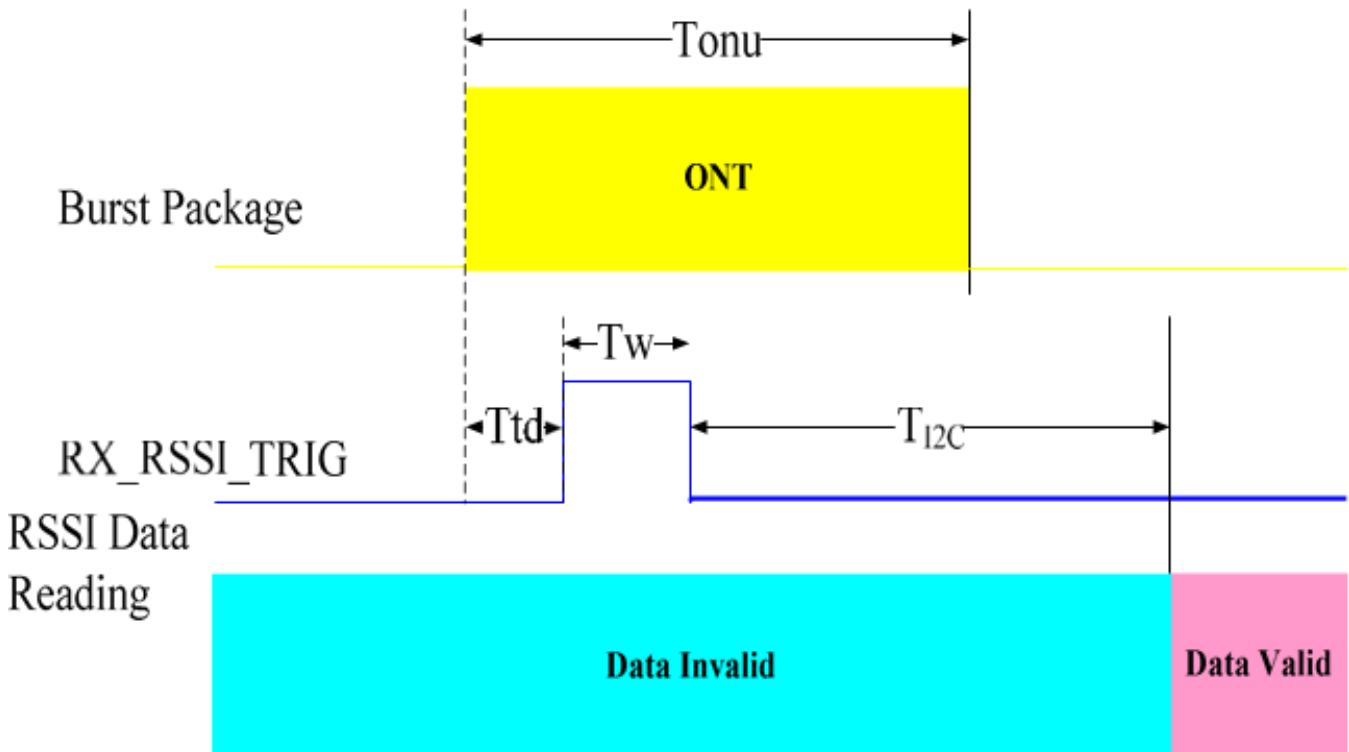
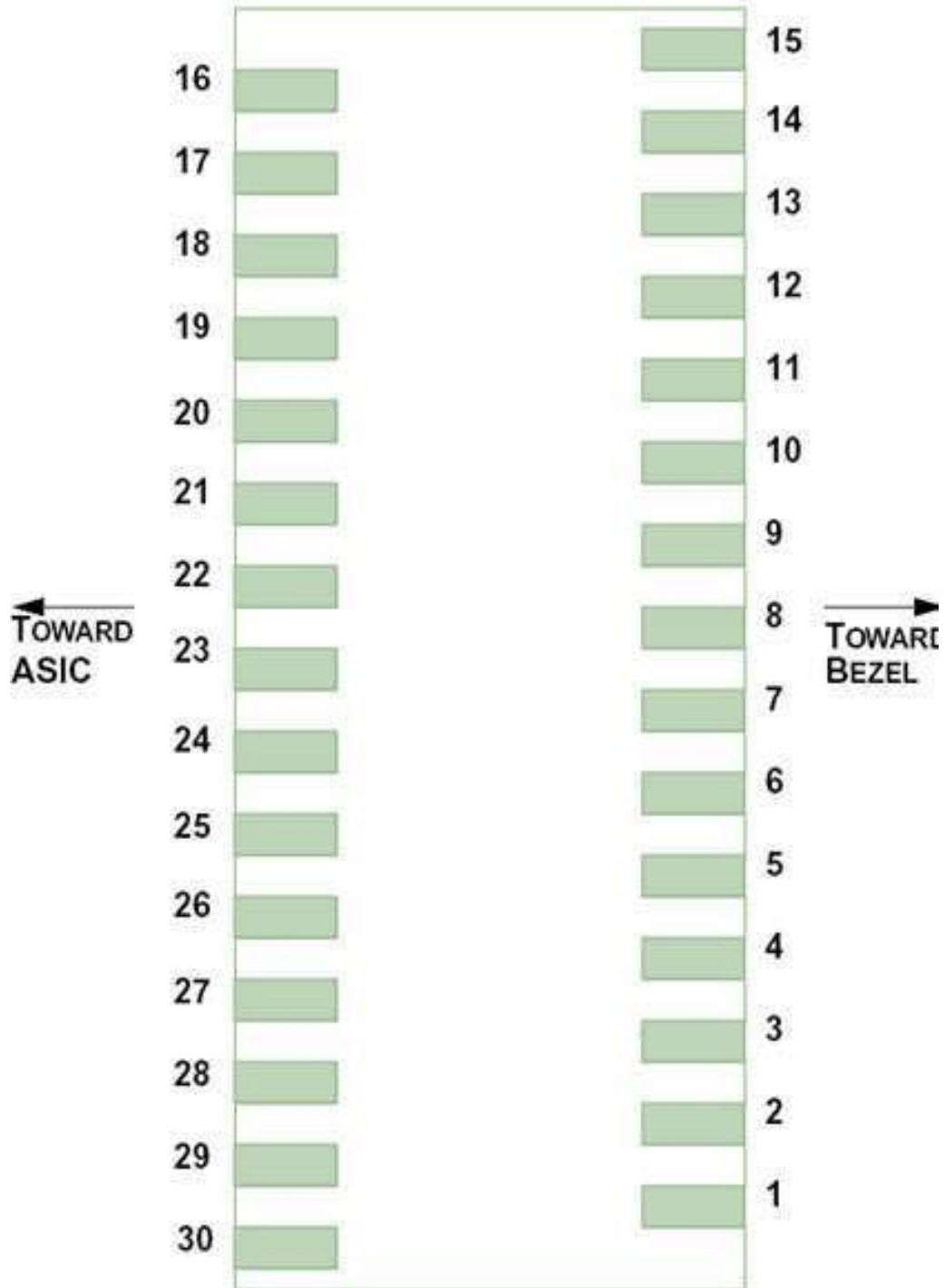


Figure 2. Timing Sequence for RSSI

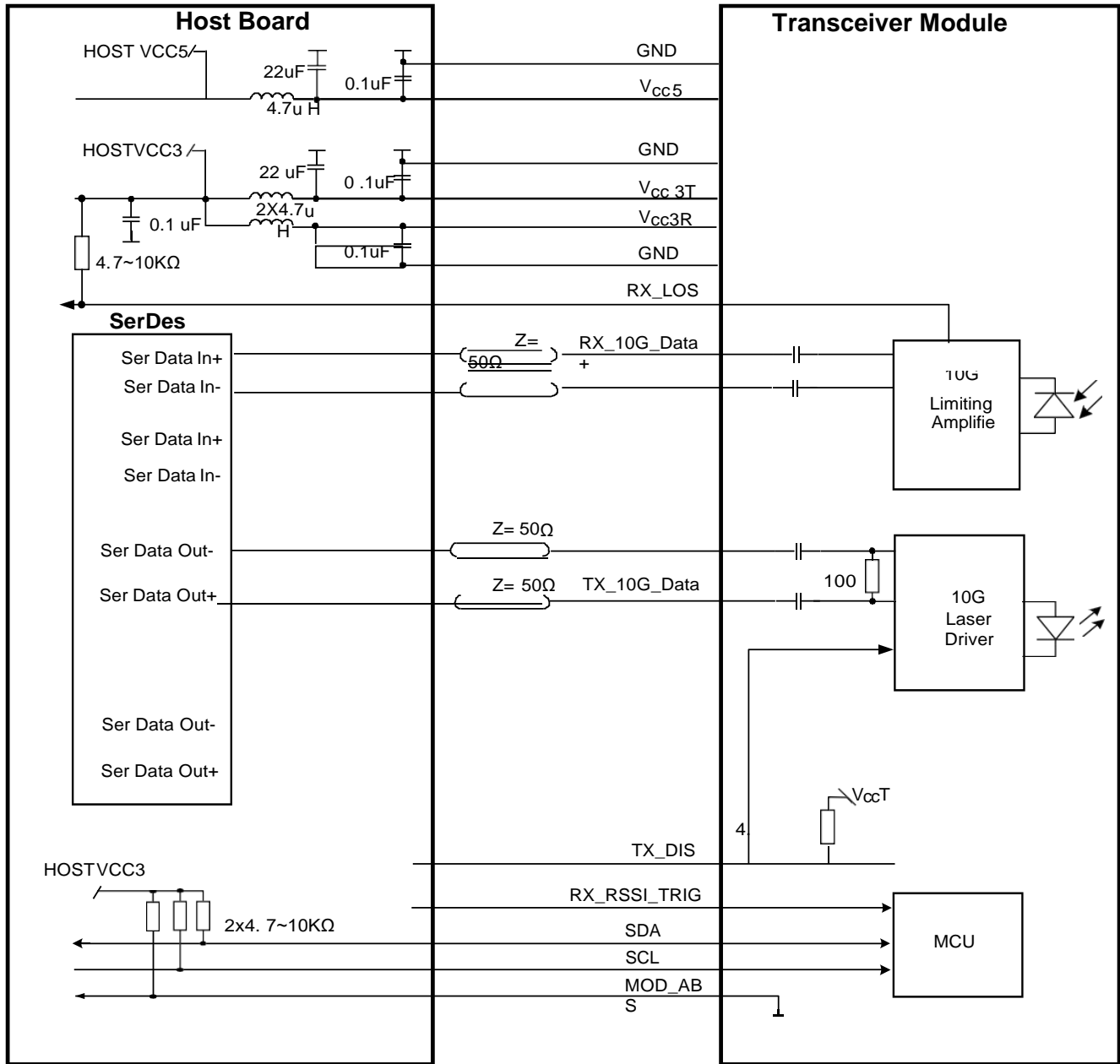
**PIN Definition**

Pin No.	Symbol	Level / Logic	Description
1	GND		Module Ground
2	TX_Fault	LVTTTL-O	Transmitter Fault Indication
3	NC		Reserved. Not used
4	NC		Reserved. Not used
5	TX_DIS	LVTTTL-I	Transmitter Disable; Active High Disable Transmitter Output
6	VCC5		+5V Power Supply
7	GND		Module Ground
8	VCC3		+3.3V Power Supply
9	VCC3		+3.3V Power Supply
10	SCL	LVTTTL-I	2-Wire Serial Interface Clock
11	SDA	LVTTTL-I/O	2-Wire Serial Interface Data Line
12	Mod_Abs	LVTTTL-O	Indicates Module is not present. Grounded in the Module
13	Reserved (RX_RST)	CML-O	Reserved for Receiver burst Reset. not used.
14	RX_SD	LVTTTL-O	Receiver Signal Detected Indication
15	NC		Reserved. Not used
16	GND		Module Ground
17	RX_10G_Data-	CML-O	Receiver Inverted Data Output for 10G
18	RX_10G_Data+	CML-O	Receiver Non-Inverted Data Output for 10G
19	GND		Module Ground
20	NC		Reserved. Not used
21	RX_RSSI_TRIG		Refer to "Timing Sequence for RSSI"
22	NC		NC
23	GND		Module Ground
24	Reserved (RX_2G_Data+)	LVPECL-O	Reserved for Receiver Non-Inverted Data Output for 2.488G. not used.
25	Reserved (RX_2G_Data-)	LVPECL-O	Reserved for Receiver Inverted Data Output for 2.488G. not used.
26	GND		Module Ground
27	GND		Module Ground
28	TX_10G_Data-	CML-I	Transmitter Inverted Data Input
29	TX_10G_Data+	CML-I	Transmitter Non-Inverted Data Input

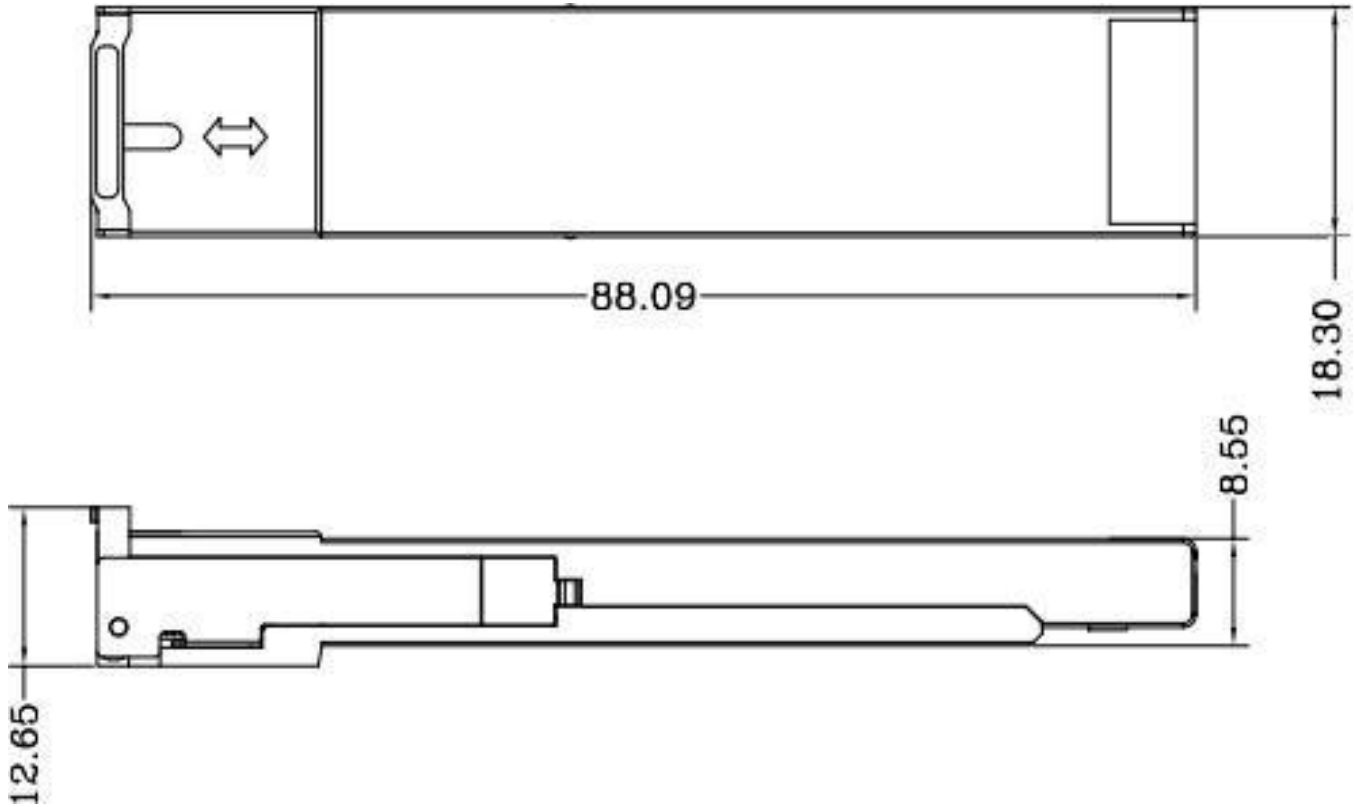
30	GND		Module Ground
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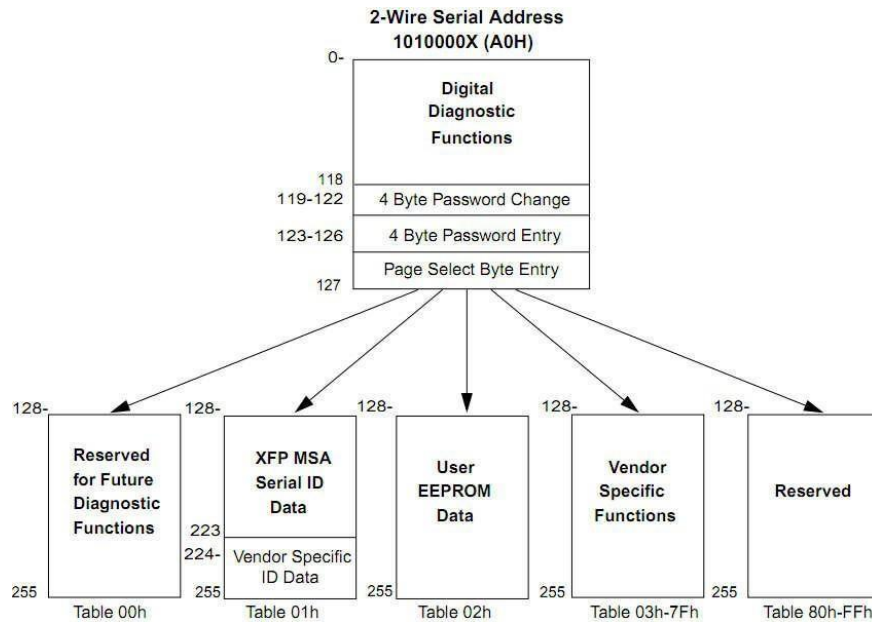
## Typical Interface Circuit



## Mechanical Diagram



## EEPROM Memory Map



## Ordering Information

Product Number	Description
GNTX-27299-XSCD	XGSPON OLT XFP, 20km, TX 1577nm, RX 1270nm, BiDi SC/UPC, 0°C to 70°C

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## Revision History

Version	Date	Description
V0	Aug-1-2016	New release
V1	Apr-27-2017	Update the overload from -9dBm into -8dBm