

## GEPON OLT PX20+/PX20++/PX20+++

### Optical Transceiver

#### Product Features

- Compatible IEEE 802.3ah 1000BASE-PX20/PX20+/PX20++/PX20+++ GEPON application
- Applied to EPON OLT for a Single Fiber Bi-directional EPON System
- SFP, Single SC connector, Digital Diagnostic Interface Compliant with SFF-8472
- Burst Digital Receiving Signal Strength Indication (RSSI)
- Single 3.3V power supply
- Operation case temperature -40~85°C for industrial and 0~70 °C for commercial
- RoHS compliance, and Class 1 laser safety

#### Operating Conditions

Parameter	Unit	Min.	Typical	Max.
Power Supply	V	3.135	3.3	3.465
Operating Case Temp for C-temp	°C	0		70
Operating Case Temp for I-temp	°C	-40		85
Operating Relative Humidity	%	5		85
Data Rate (TX/RX)	Gbit/s		1.25	

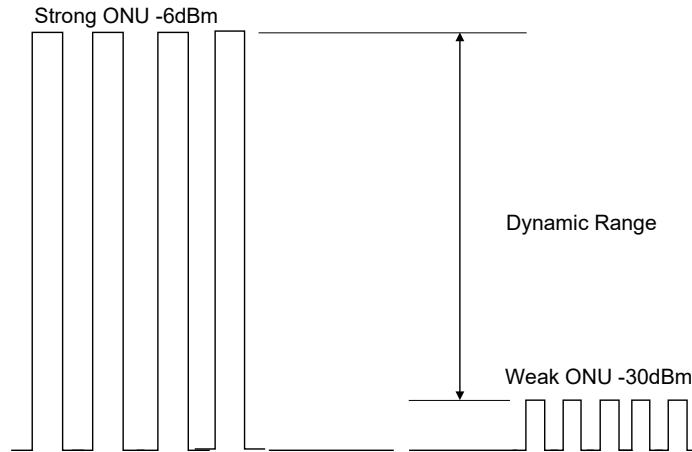
**Optical Characteristics**

All performance is specified at whole working temperature and conditions

Parameter	Unit	Min.	Typ.	Max.
TX Central Wavelength	nm	1480		1500
Spectral Width (-20dB)	nm			1
SMSR	dB	30		
Mean Launched Power (PX20+)	dBm	2		7
Mean Launched Power (PX20++)	dBm	5		8
Mean Launched Power (PX20+++)	dBm	7		10
Mean Launched Power (TX Off)	dBm			-39
Extinction Ratio <sup>Note1</sup>	dB	9		
Transmitter and dispersion Penalty (20km G.652)	dB			2.3
TX Optical Eye Mask	Compliant With IEEE Std 802.3ah™-2004			
Receive Wavelength	nm	1260		1360
Sensitivity (PX20+) <sup>Note2</sup>	dBm			-30
Sensitivity (PX20++) <sup>Note2</sup>	dBm			-33
Sensitivity (PX20+++) <sup>Note2</sup>	dBm			-33
Overload	dBm	-6		
Receiver Threshold Settling Time	ns			250
RX Dynamic Range <sup>Note3</sup>	dBm	-30		-6
LOS De-assert (PX20+)	dBm			-31
LOS Assert (PX20+)	dBm	-45		
LOS De-assert (PX20++)	dBm			-34
LOS Assert (PX20++)	dBm	-45		
LOS De-assert (PX20+++)	dBm			-34
LOS Assert (PX20+++)	dBm	-45		
SD Hysteresis	dB	0.5		6
Receiver Reflectance	dB			-12

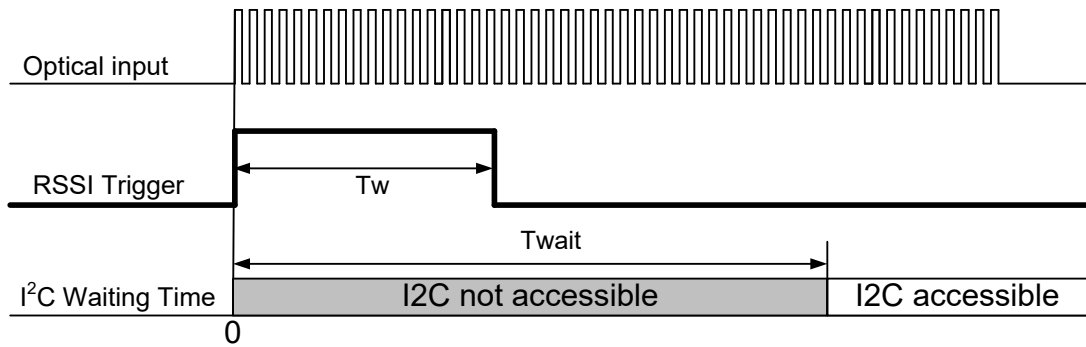
Note:

1. Measured with PRBS 2<sup>7</sup>-1 test pattern @1.25Gbps, Low Pass Filter is on.
2. Measured with a PRBS 2<sup>7</sup>-1 test pattern @1.25Gbps and ER=10dB, BER =10<sup>-12</sup>
3. RX Dynamic Range Definition



**Electrical Characteristics**

Parameter	Unit	Min.	Typical	Max.
Power Supply Current	mA			300
Data Input Differential Swing	mV	200		1600
Data Differential Impedance	$\Omega$	90	100	110
TTL Input -Low	V	0		0.8
TTL Input -High	V	2.0		Vcc
TTL Output -Low	V	0		0.4
TTL Output -High	V	2.4		Vcc
Data Output Differential Swing	mV	400		1600
Los Assert Time	ns			500
Los Deassert Time	ns			500

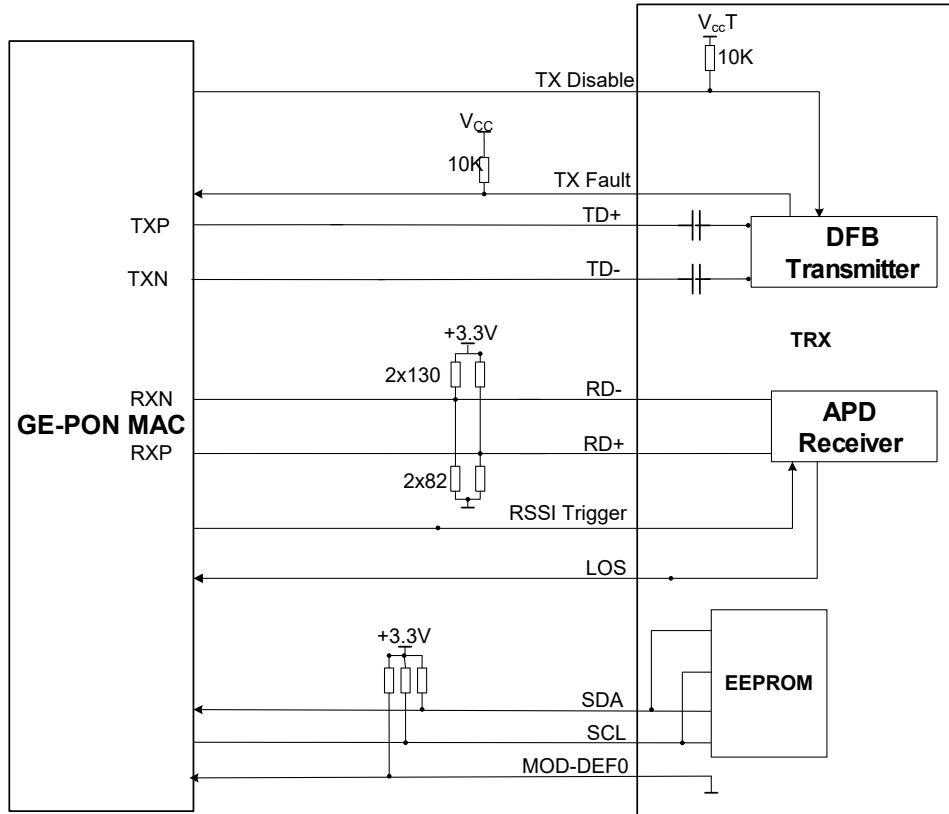
**RSSI Trigger Time Sequence**


Item	Symbol	Min	Max	unit
Trigger width	$T_w$	1	1.25	us
I <sup>2</sup> C Waiting Time	$T_{wait}$		500	us

**Pin Definition**

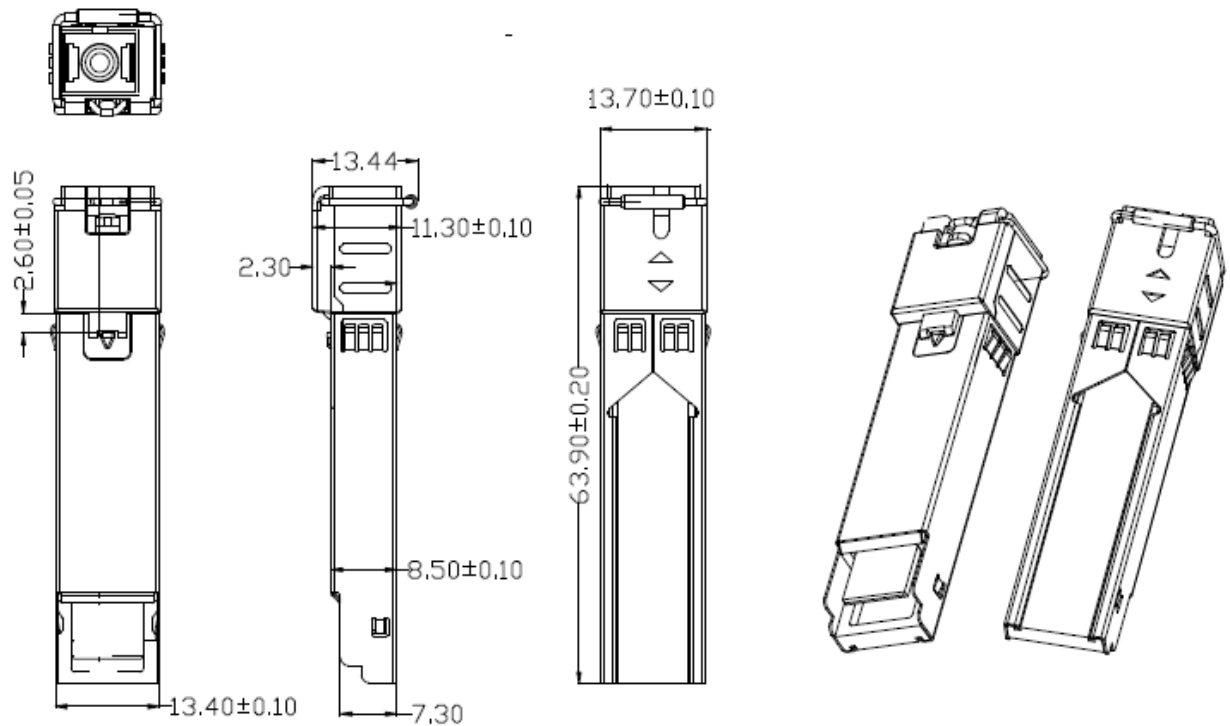
Pin No.	Name	Level/Logic	Function	Description
1	GNDT	NA	Ground	Transmitter Ground
2	TX_Fault	LVTTTL	TX Fault	TX Fault Alarm, TX Fault State: High; TX Normal State: Low
3	TX_Dis	LVTTTL	Transmitter Enable/Disable	Active High
4	MOD-DEF2	LVTTTL	SDA	I2C clock
5	MOD-DEF1	LVTTTL	SCL	I2C data
6	MOD-DEF0	MOD-DEF0		Module Definition 0, Grounding in SFP
7	RSSI_Trig	LVTTTL	RSSI Trigger	Active High for Sampling
8	LOS	LVTTTL	Receiver Signal Detection	Loss of Signal. Asserted when light is off
9	GNDR	NA	Ground	Receiver Ground
10	GNDR	NA	Ground	Receiver Ground
11	GNDR	NA	Ground	Receiver Ground
12	RD-	LVPECL	Rx Data-	RX data NOT output, DC coupled output
13	RD+	LVPECL	Rx Data+	RX data output, DC coupled output
14	GNDR	GNDR	Ground	Receiver Ground
15	V <sub>cc</sub> R	NA	Receiver Power Supply	Rx Power
16	V <sub>cc</sub> T	NA	Transmitter Power Supply	Tx Power
17	GNDT	GNDT	Ground	Transmitter Ground
18	TD+	LVPECL	Tx Data+	TX data input, internally AC coupled with 100ohm terminated
19	TD-	LVPECL	Tx Data-	TX data NOT input, internally AC coupled with 100ohm terminated
20	GNDT	NA	Ground	Transmitter Ground

**Recommended Interface Circuit**



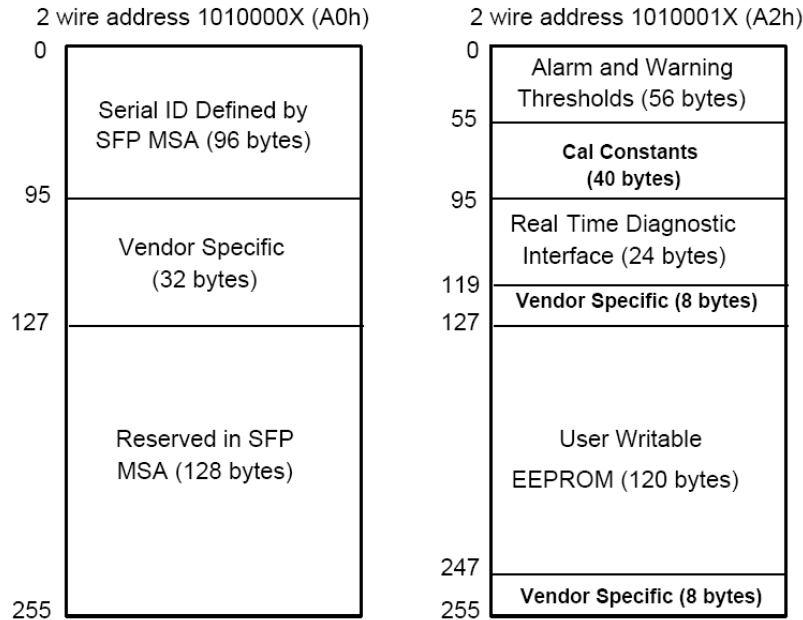
**Mechanical Diagram**

For detail mechanical information, please refer to the related document of SFP MSA



### EEPROM Memory Map

The digital diagnostic memory map specific data field define as following. For detail EEPROM information, please refer to the related document of SFF 8472 Rev 12.0.



### ESD

The SFP+ module and host SFI contacts (High Speed Contacts) shall withstand 1kV electrostatic discharge based on Human Body Model and all host contacts with exception of the SFI contacts (High Speed Contacts) shall withstand 2kV electrostatic discharge based on Human Body Model. The SFP+ module shall meet ESD requirements given in EN61000-4-2, criterion B test specification such that units are subjected to 15kV air discharges during operation and 8kV direct contact discharges to the case per section 2.9 in SFF-8431 REV4.1. However, normal ESD precautions are still required during the handling of this module. This transceiver is shipped in ESD protective packaging. It should be removed from the packaging and handled only in an ESD protected environment.

### Laser Safety

This is a Class 1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

**Ordering Information**

Ordering P/Ns	Description
D24355-SSHD	EPON OLT PX20+ Diplexer, 20km, Tx 1490nm 1.25G, Rx 1310nm 1.25G, SFP form-factor, SC/UPC receptacle connector, Industrial Temperature
D34355-SSHD	EPON OLT PX20++ Diplexer, 30km, Tx 1490nm 1.25G, Rx 1310nm 1.25G, SFP form-factor, SC/UPC receptacle connector, Industrial temperature
D44355-SSCD	EPON OLT PX20++ Enhanced Diplexer, 30km, Tx 1490nm 1.25G, Rx 1310nm 1.25G, SFP form-factor, SC/UPC receptacle connector, Commercial temperature

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