

## **GEPON SFP ONU Optical Transceiver**

### **Product Features**

- Support IEEE802.3-ah PX20+ 20km application
- Single fiber bi-directional data links with symmetric 1.25Gbps Tx and 1.25Gbps Rx
- 1310nm burst-mode transmitter with FP laser
- 1490nm continuous-mode receiver with PIN-TIA
- 2-wire interface for integrated digital diagnostic Monitoring
- Transmitter state indication (TX\_SD)
- SFP package with SC/UPC receptacle optical interface
- Single +3.3V power supply
- Operation case temperature -40~85°C for industrial
- RoHS compliance, and Class 1 laser safety

### **Operating Condition**

<b>Parameter</b>	<b>Unit</b>	<b>Min.</b>	<b>Typical</b>	<b>Max.</b>
Storage Temperature	°C	-40		85
Operating Case Temp for I-temp	°C	-40		85
Power Supply Voltage	V	3.135	3.3	3.465
Supply Current	mA		200	350
Bit Rate(TX/RX)	Gbps		1.25	

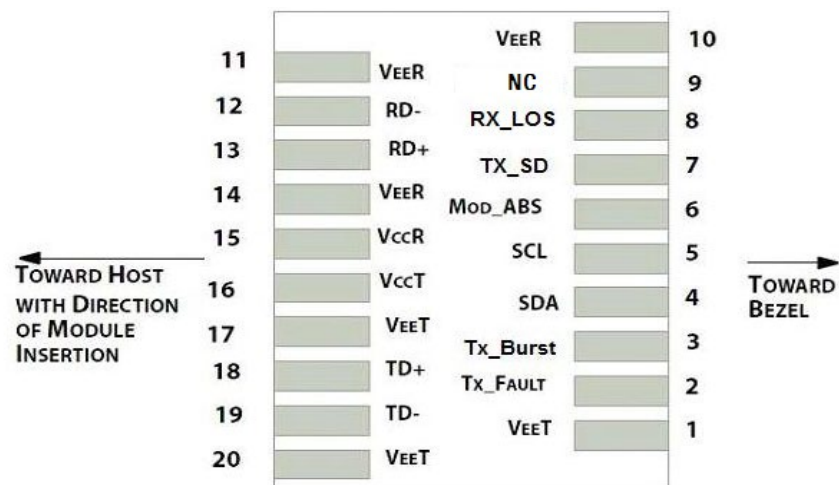
**Characteristics**

All performance is specified at whole working temperature and conditions

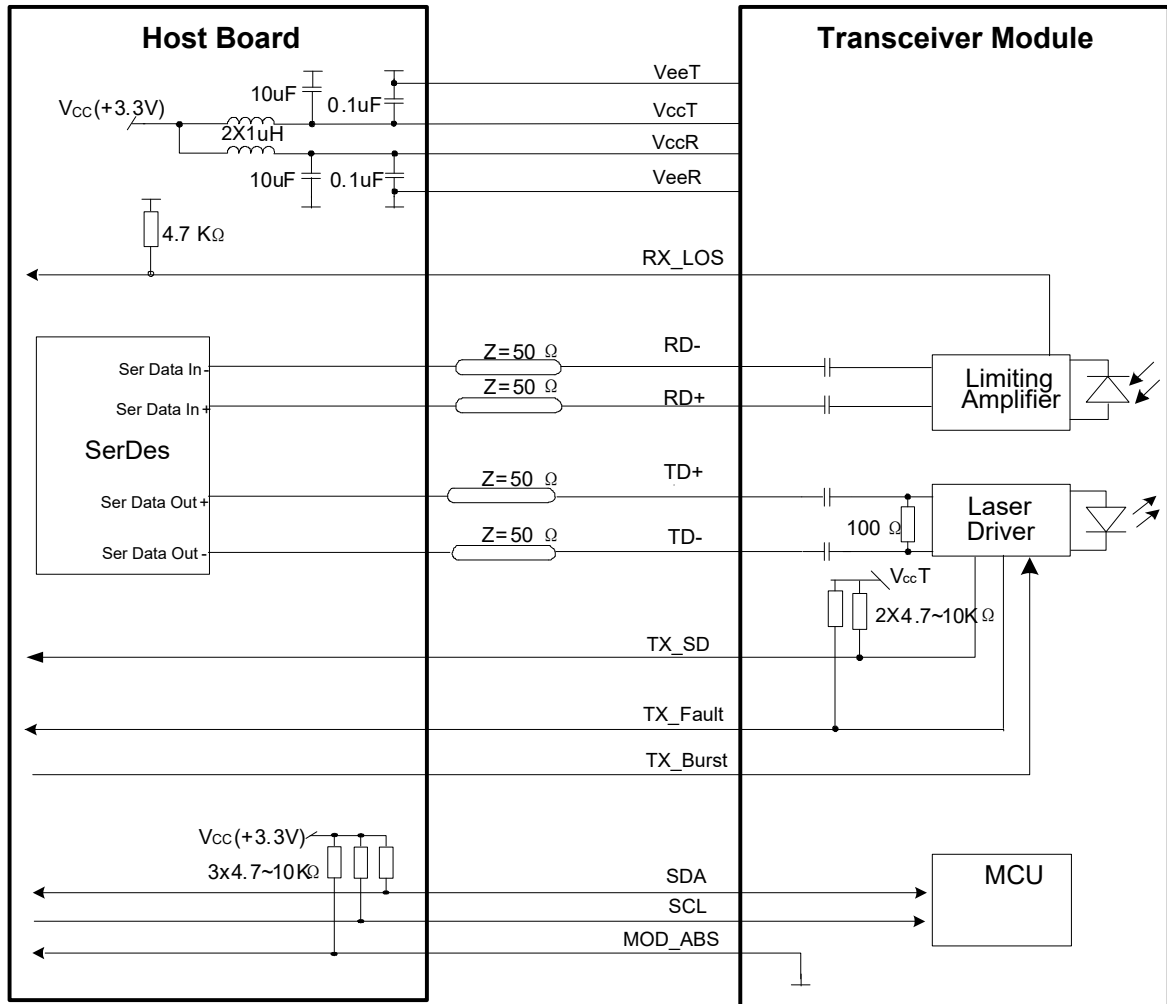
Parameter	Unit	Min.	Typical	Max.
<b>Transmitter</b>				
TX Central Wavelength	nm	1260	1310	1360
Spectral Width (RMS)	nm			2.8
Mean Launched Power	dBm	0		4
Mean Launched Power (TX Off)	dBm			-45
Extinction Ratio	dB	9		
Optical Return Loss Tolerance	dB	-15		
Transmitter and dispersion Penalty	dB			2
Transmitter Mask(PRBS2 <sup>7</sup> -1@1.25G)	Compliant with IEEE Std 802.3 ah			
<b>Receiver</b>				
Receive Wavelength	nm	1480	1490	1500
Sensitivity (PRBS2 <sup>7</sup> -1@1.25G,ER=9,BER<10 <sup>-12</sup> )	dBm			-27
Overload (PRBS2 <sup>7</sup> -1@1.25G,ER=9,BER<10 <sup>-12</sup> )	dBm	-3		
Loss of signal De-assert Level	dBm			-28
Loss of signal assert Level	dBm	-39		
LOS Hysteresis	dB	0.5		6
WDM Filter isolation to 1550nm	dB	38		
WDM Filter isolation to 1650nm	dB	35		
<b>Electrical Interface Characteristics</b>				
Data Input Swing Differential/TX	mV	200	-	2000
Data Output Swing Differential/RX	mV	400		1600
Data Differential Impedance	Ω	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>				
Turn On Time at Burst mode (T <sub>ON</sub> )	ns			30
Turn Off Time at Burst mode (T <sub>OFF</sub> )	ns			30
TX-SD Assert Time (T <sub>TXSD_ON</sub> )	ns			100
TX-SD De-assert Time (T <sub>TXSD_OFF</sub> )	ns			100
LOS Assert Time (T <sub>LOSA</sub> )	us			100
LOS De-assert Time (T <sub>LOSD</sub> )	us			100

**PIN Definition**

Pin No.	Symbol	Level / Logic	Description
1	VeeT		Module Transmitter Ground
2	Tx_Fault	LVTTTL-O	Module Transmitter Fault
3	Tx_Burst	LVTTTL-I	Transmitter Burst Control, D23455-SSCA active low for transmitter on D23455-SSCB active high for transmitter on
4	SDA	LVTTTL-I	2-Wire Serial Interface Data Line
5	SCL	LVTTTL-I/O	2-Wire Serial Interface Clock
6	MOD_ABS	LVTTTL-O	Module Absent, connected to ground in the module
7	TX_SD	LVTTTL-O	Tx Signal Detect, active high when transmitter on
8	RX_LOS	LVTTTL-O	Loss of Receiver Signal Indication
9	NC		
10	VeeR		Module Receiver Ground
11	VeeR		Module Receiver Ground
12	RD-	CML-O	Receiver Inverted Data Output
13	RD+	CML-O	Receiver Non-Inverted Data Output
14	VeeR		Module Receiver Ground
15	VccR		Module Receiver 3.3V Supply
16	VccT		Module Transmitter 3.3V Supply
17	VeeT		Module Transmitter Ground
18	TD+	LVPECL-I	Transmitter Non-Inverted Data Input
19	TD-	LVPECL-I	Transmitter Inverted Data Input
20	VeeT		Module Transmitter Ground

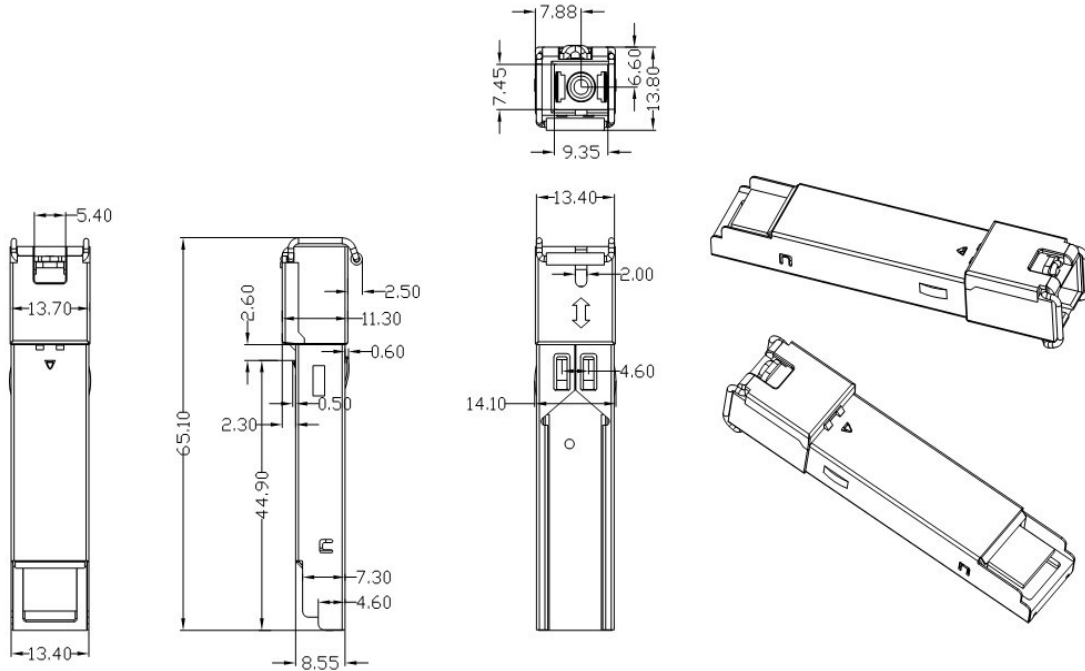


**Typical Interface Circuit**



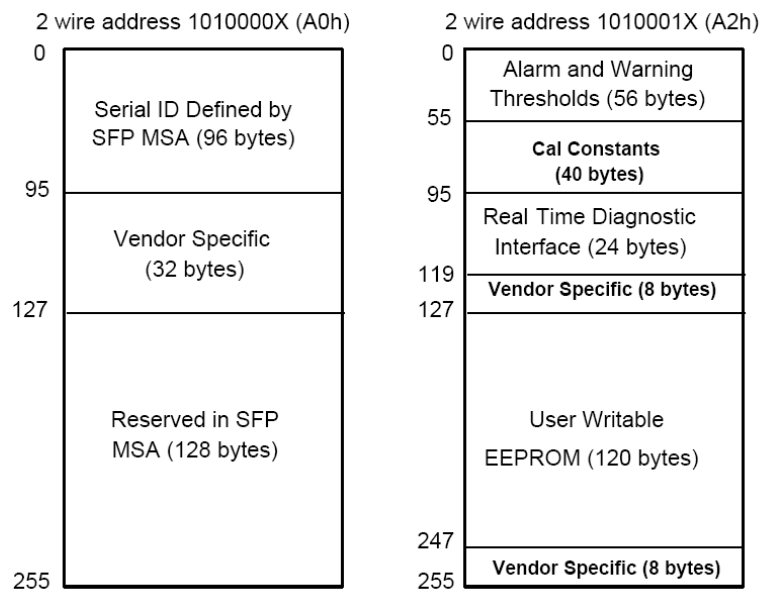
**Mechanical Diagram**

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
D23455-SSHA	GEAPON SFP ONU, PX20+,1.25Gbps Tx 1310nm, 1.25Gbps Rx 1490nm, TX_Burst signal low active transmitter on, SFP form-factor, SC/UPC receptacle connector, -40~85°C Industrial temperature

## Contact Us

### International Sales

Email: [Sales@broadex-tech.co.uk](mailto:Sales@broadex-tech.co.uk)

Tel: +44-1506-426021

Mobile: +44-7968-854124

### China Sales

Tel: +86-573-82585881

Email: [Sales@broadex-tech.com](mailto:Sales@broadex-tech.com)

**Copyright © 2020 Broadex Technologies. All rights reserved**