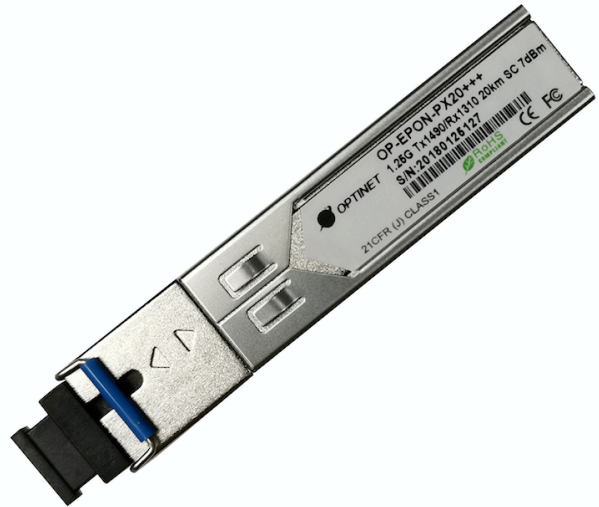


OP-EPON-PX20++ EPON OLT PX20++ SFP Module, 1.25G Tx1490/Rx1310 20km SC

Product Features

- Compatible IEEE 802.3ah 1000BASE-PX20/PX20++ GEAPON application
- Applied to EPON OLT for a Single Fiber Bi-directional EPON System
- Single SC connector, Digital Diagnostic Interface Compliant with SFF-8472
- Burst Digital Receiving Signal Strength Indication (RSSI)
- Operation temperature 0-70°C for Commercial, -10~85°C for Extended, -40~85°C for industrial
- Single 3.3V power supply
- RoHS-6 compliance



Absolute Maximum Ratings

| Parameter | Unit | Min. | Typical | Max. |
|--------------------|------|------|---------|------|
| Power Supply | V | 0 | | 4.2 |
| Storage Ambient | °C | -40 | | 85 |
| Operating Case | °C | 0 | | 70 |
| Operating Relative | % | 5 | | 95 |
| Receiver Damaged | dBm | 0 | | |

Operating Condition

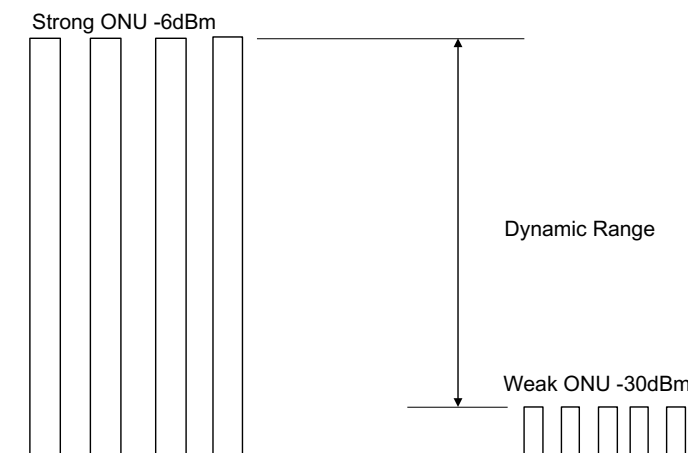
| Parameter | Unit | Min. | Typical | Max. |
|-------------------------|--------|------|---------|------|
| Power Supply | V | 3.1 | 3.3 | 3.5 |
| Operating Case Temp for | °C | -10 | | 70 |
| Operating Case Temp for | °C | -25 | | 85 |
| Operating Case Temp for | °C | -40 | | 85 |
| Operating Relative | % | 5 | | 95 |
| Data Rate(TX/RX) | Gbit/s | | 1.25 | |

Optical Characteristics

| Parameter | Unit | Min. | Typ. | Max. |
|--|---------------------------------------|------|------|------|
| TX Central Wavelength | nm | 1480 | | 1500 |
| Spectral Width (-20dB) | nm | | | 1 |
| SMSR | dB | 30 | | |
| Mean Launched Power | dBm | 5 | | 7 |
| Mean Launched Power (TX) | dBm | | | -39 |
| Extinction Ratio(Note 1) | dB | 9 | | |
| TX Total Jitter | UI | | | 0.43 |
| Rise/Fall Time (20%-80%) | ps | | | 260 |
| RIN ₁₅ OMA | dB/Hz | | | -115 |
| Optical Return Loss | dB | | | -12 |
| 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 (Note 2) | dBm | | | -32 |
| Overload | dBm | -6 | | |
| Receiver Threshold Settling | ns | | | 250 |
| RX Dynamic Range(Note 3) | dBm | -30 | | -6 |
| LOS-Deassert | dBm | | | -34 |
| LOS-Assert | dBm | -45 | | |
| SD Hysteresis | dB | 0.5 | | 6 |
| Receiver Reflectance | dB | | | -12 |

Note:

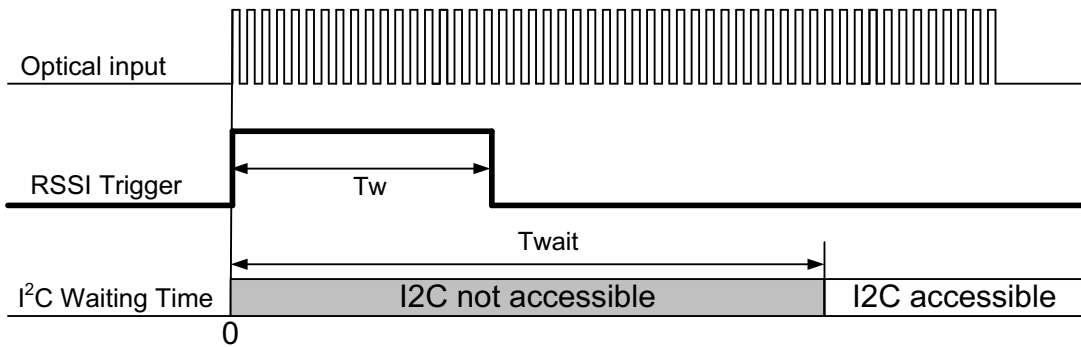
1. Measured with PRBS 2⁷-1 test pattern @1.25Gbps, Low Pass Filter is on.
2. Measured with a PRBS 2⁷-1 test pattern @1.25Gbps and ER=10dB, BER =10⁻¹²
3. RX Dynamic Range Definition



Electrical Characteristics

| Parameter | Unit | Min. | Typical | Max. |
|-----------------------------|----------|------|---------|------|
| Power Supply Current | mA | | | 300 |
| Data Input Differential | mV | 200 | | 1600 |
| Data Differential Impedance | Ω | 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 | 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 ² C Waiting Time | T_{wait} | | 500 | us |

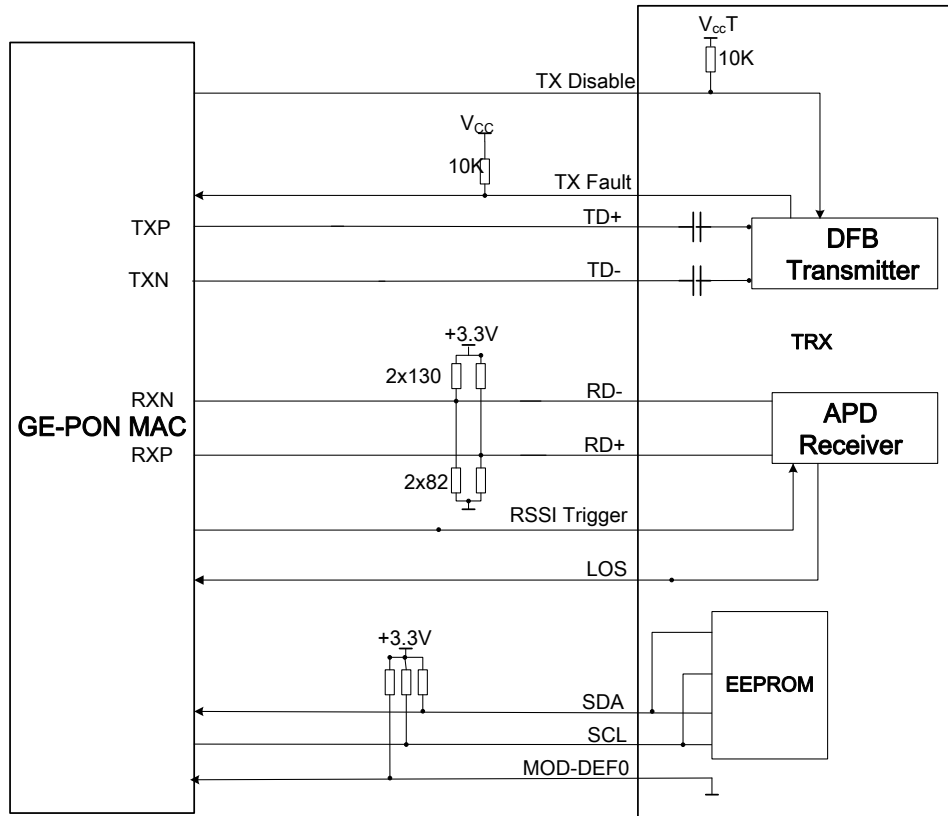
Pin Definition

| Pin No. | Name | Level/Logic | Function | Description |
|---------|----------|-------------|----------------------------|--|
| 1 | GNDT | NA | Ground | Transmitter Ground |
| 2 | TX_Fault | LVTTL | TX Fault | TX Fault Alarm, TX Fault State: High; TX Normal State: Low |
| 3 | TX_Dis | LVTTL | Transmitter Enable/Disable | Active High |
| 4 | MOD-DEF2 | LVTTL | SDA | I2C clock |
| 5 | MOD-DEF1 | LVTTL | SCL | I2C data |
| 6 | MOD-DEF | MOD-DEF | | Module Definition 0, |

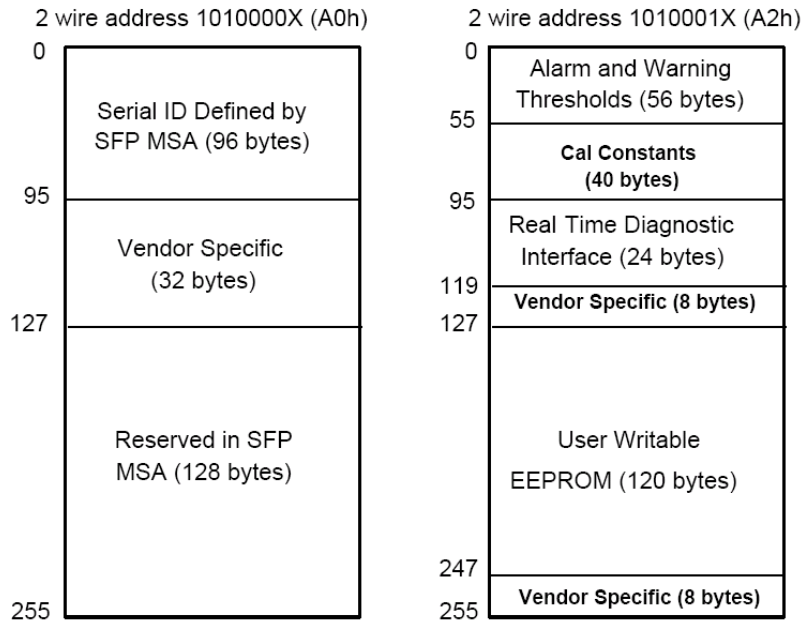


| | | | | |
|----|-------------------|--------|---------------------------|---|
| | F0 | 0 | | Grounding in SFP |
| 7 | RSSI_Trig | LVTTTL | RSSI Trigger | Active High for Sampling |
| 8 | LOS | LVTTTL | Receiver Signal Detection | Loss of Signal. Asserted when light is off |
| 9 | GNDR | NA | Ground | 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 _{cc} R | NA | Receiver Power Supply | Rx Power |
| 16 | V _{cc} 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 |

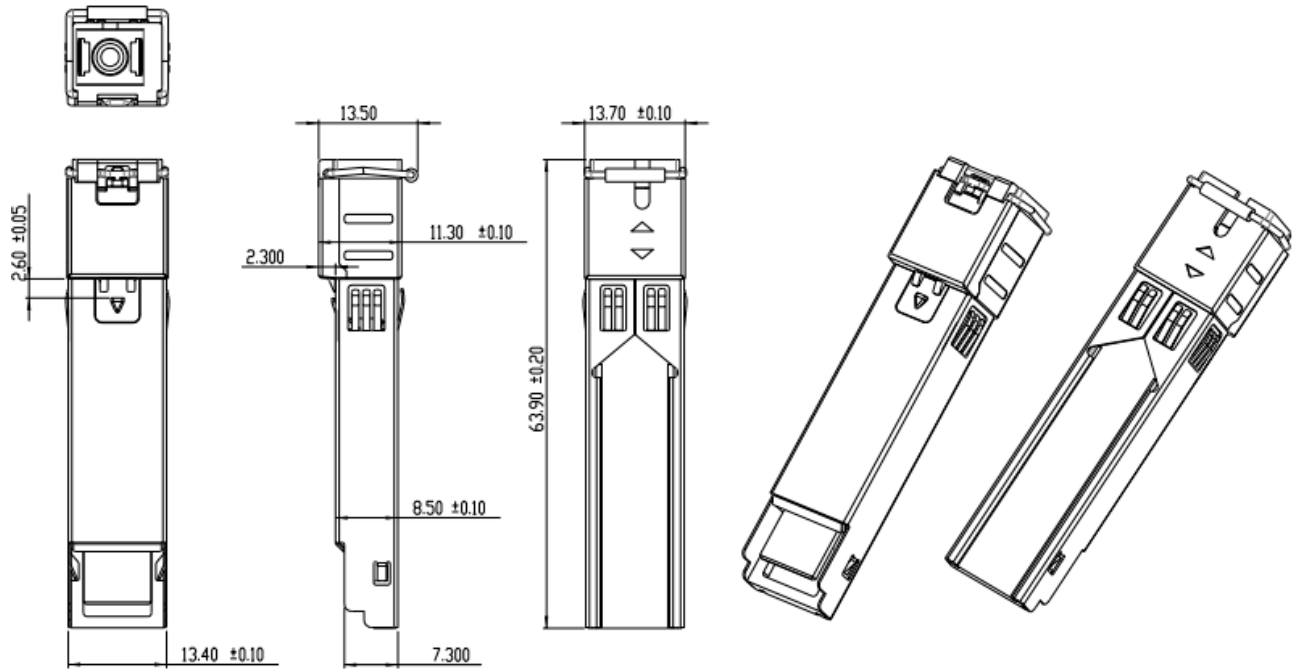
Recommended Interface Circuit



EEPROM Information



Mechanical Diagram



Ordering Information

| P/N | Description |
|-----------------|--|
| OP-EPON-PX20++ | EPON OLT PX20+ SFP, 1.25G Tx1490nm/Rx1310nm 20km, SC/UPC, 0~70°C temperature |
| OP-EPON-PX20++E | EPON OLT PX20+ SFP, 1.25G Tx1490nm/Rx1310nm 20km, SC/UPC, -10~85°C temperature |
| OP-EPON-PX20++I | EPON OLT PX20+ SFP, 1.25G Tx1490nm/Rx1310nm 20km, SC/UPC, -40~85°C temperature |