



EPON OLT SFP Transceiver

Product Features

- SC BIDI SFP Single Mode Transceiver
- Compliant with SFP MSA and SFF-8472
- Hot-pluggabl
- Single +3.3 Power Supply
- Complies with Telcordia (Bellcore) GR-468-CORE
- 1490nm Continuous Mode Transmitter and 1310nm Burst Mode APD-TIA Receiver
- Typical data rate 1.25 Gbps, Maximal reach 20km
- Comply with China Telecom EPON equipment technical requirement V2.1 1000BASE-PX20+

Product Applications

- GEAPON OLT For P2MP Application

General

The AS60-PE43204-CPSS transceiver with supports data rate of typical 1.25 Gbps for GEAPON OLT application up to 20km transmission distance, it's designed meeting with China Telecom EPON equipment technical requirement V2.1 1000BASE-PX20+ specifications. SCreceptacle is for optical interface.

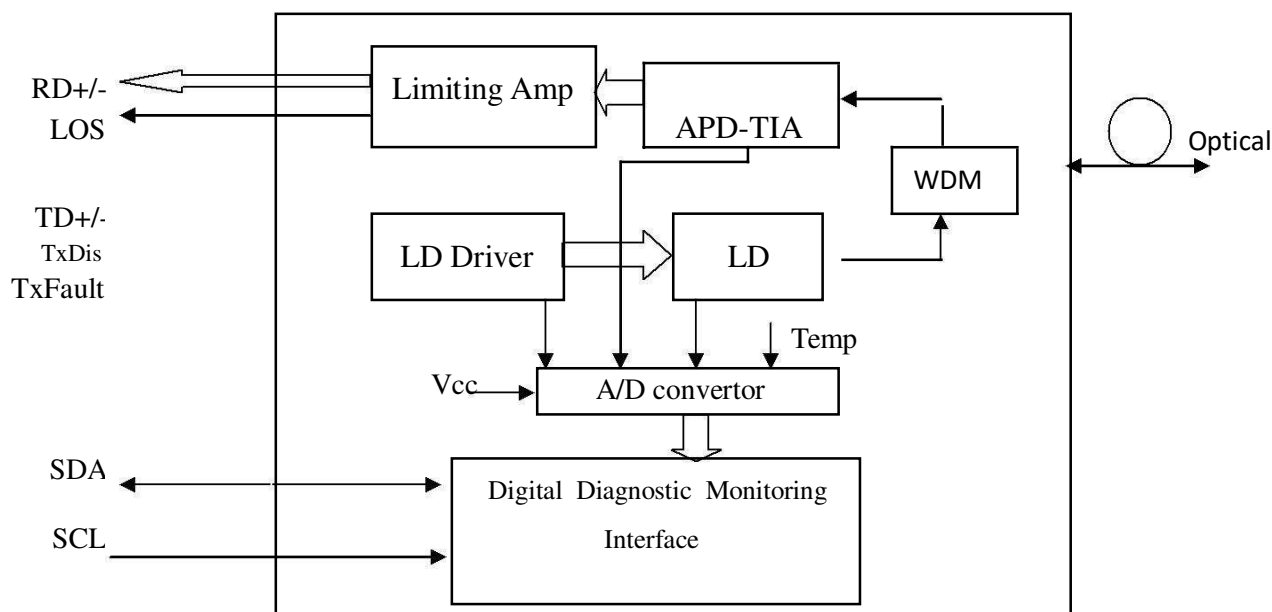


Fig 1 Transceiver Block Diagram



The module provides digital diagnostic information of its operating conditions and status, including transmitting power, laser bias, receiver input optical power, module temperature, and supply voltage. Calibration and alarm/warning threshold data are written and stored in internal memory (EEPROM). The memory map is compatible with SFF-8472, as shown in Fig. 2. The diagnostic data are raw A/D values and must be converted to real world units using calibration constants stored in EEPROM locations 56 – 95 in A2h.

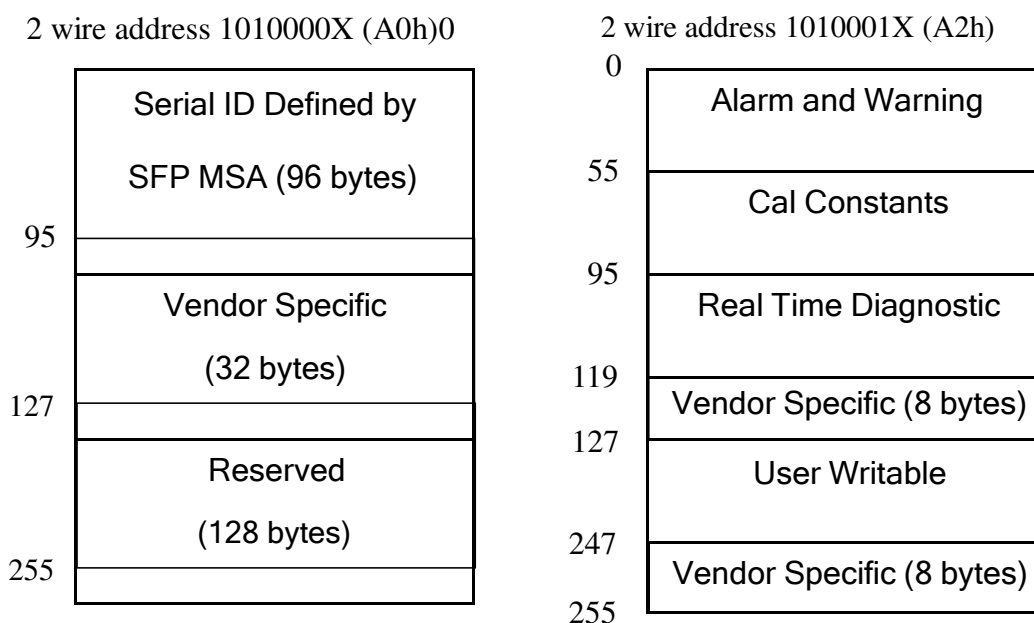


Fig 2 EEPROM Information

Performance Specifications

| Absolute Maximum Ratings | | | | | | |
|----------------------------------|---------|-------|---------|-------|------|------|
| Parameter | Symbol | Min. | Max. | Unit | Note | |
| Storage Temperature | Tst | -40 | +85 | °C | | |
| Operating Case Temperature | Tc | 0 | 70 | °C | | |
| Input Voltage | - | GND | Vcc | V | | |
| Power Supply Voltage | Vcc-Vee | -0.5 | +3.6 | V | | |
| Recommended Operating Conditions | | | | | | |
| Parameter | Symbol | Min. | Typical | Max. | Unit | Note |
| Power Supply Voltage | Vcc | 3.135 | 3.3 | 3.465 | V | |
| Operating Case Temperature | Tc | 0 | - | 70 | °C | |
| Data Rate | DR | - | 1.25 | - | Gbps | |
| Total Supply Current | - | - | - | 400 | mA | |
| Damage Threshold For Receiver | - | - | - | 4 | dBm | |

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| Optical Specification | | | | | | |
|---|----------------------------------|------|------|----------|------|------|
| Transmitter | | | | | | |
| Parameter | Symbol | Min. | Typ. | Max. | Unit | Note |
| Optical Central Wavelength | λ | 1480 | 1490 | 1500 | nm | - |
| Spectral Width (-20dB) | $\Delta\lambda$ | - | - | 1 | nm | - |
| Side Mode Suppression Ratio | SMSR | 30 | - | - | dB | - |
| Average Optical Output Power | P_o | +3.5 | +5 | +7 | dBm | |
| | | +5 | +7 | +8 | | |
| Extinction Ratio | E_r | 9 | - | - | dB | - |
| Rise/Fall Time | T_r/T_f | - | - | 260 | ps | - |
| Transmitter Total Jitter | J_{p-p} | - | - | 344 | ps | |
| Transmitter Reflectance | RFL | - | - | -12 | dB | |
| Average Launched Power of Off Transmitter | P_{off} | - | - | -39 | dBm | - |
| Differential Input Voltage | V_{IN-DIF} | 300 | - | 1600 | mV | - |
| Tx Disable Input Voltage-Low | V_{IL} | 0 | - | 0.8 | V | - |
| Tx Disable Input Voltage-High | V_{IH} | 2.0 | - | V_{CC} | V | - |
| Output Eye | Compliant with IEEE 802.3ah-2004 | | | | | |
| Receiver | | | | | | |
| Parameter | Symbol | Min. | Typ. | Max. | Unit | Note |
| Operate Wavelength | - | 1280 | 1310 | 1340 | nm | - |
| Sensitivity | P_r | - | - | -30 | dBm | 1 |
| Saturation | P_s | -6 | - | - | dBm | 1 |
| LOS assert Level | - | -45 | - | - | dBm | - |
| LOS De-Assert Level | - | - | - | -30 | dBm | - |
| LOS Hysteresis | - | 0.5 | - | 5 | dB | - |
| Receiver Optical Reflectance | - | - | - | -12 | dB | - |
| Data Output Low | V_{ol} | -2 | - | -1.58 | V | - |



EEPROM Information

Alarm and Warning Thresholds (Serial ID A2H)

| Parameter(Unit) | C Temp (°C) | Voltage (V) | Bias (mA) | TX Power (dBm) | RX Power (dBm) |
|-----------------|-------------|-------------|-----------|----------------|----------------|
| High Alarm | 100 | 3.6 | 90 | +8 | -6 |
| Low Alarm | -10 | 3 | 0 | +5 | -30 |
| High Warning | 95 | 3.5 | 70 | +7.5 | -7 |
| Low Warning | 0 | 3.1 | 0 | +6 | -29 |

Digital Diagnostic Monitor Accuracy

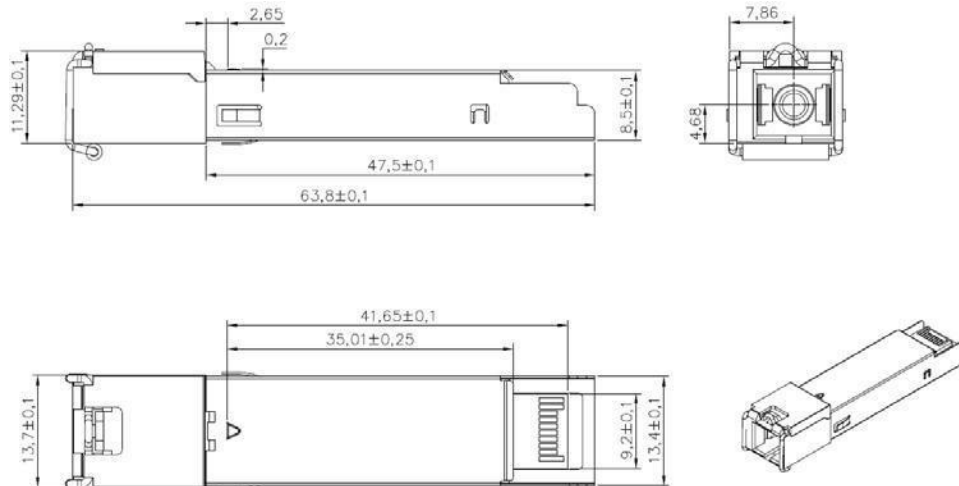
| Parameter | Unit | Accuracy | Range | Calibration |
|----------------------|------|----------|--|-------------------|
| Tx Optical Power | dB | ± 3 | Po: -Pomin~Pomax dBm, Recommended operation conditions | External/Internal |
| Rx Optical Power | dB | ± 3 | Pi: Ps~Pr dBm, Recommended operation conditions | External/Internal |
| Bias Current | % | ± 10 | Id: 1-100mA, Recommended operating conditions | External/Internal |
| Power Supply Voltage | % | ± 3 | Recommended operating conditions | External/Internal |
| Internal Temperature | °C | ± 3 | Recommended operating conditions | External/Internal |



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Package Diagram



Ordering information:

| Ordering P/Ns | Description |
|-----------------|---|
| NS-GSFP-PX20++ | EPON OLT PX20++, 20km, TX 1490nm 1.244Gbps, RX 1310nm 1.244Gbps, minimum optical output power 5db, SFP form-factor, SC/UPC Receptacle connector, 0~70°C |
| NS-GSFP-PX20+++ | EPON OLT PX20+++ , 20km, TX 1490nm 1.244Gbps, RX 1310nm 1.244Gbps, minimum optical output power 7db, SFP form-factor, SC/UPC Receptacle connector, 0~70°C |