GPON OLT 2.5/1.25G SFP transceiver
Up to 20KM, Tx1490nm/Rx1310nm

GPON OLT SFP C++++

2.5/1.25G SFP GPON OLT transceiver	Tx1490 Rx1310	Up to 20KM	0°C~+70°C
SC/UPC Connector	DDM Function	ESD Protection	Hot Pluggable

Overview

The GPON OLT Transceiver module is designed for Gigabit Ethernet Passive Optical Network (GPON) transmissions over a 20km distance. It incorporates a 1490nm continuous-mode transmitter and a 1310nm burst-mode receiver. The transmitter uses a 1490nm DFB laser and an integrated laser driver that ensures class-1 eye safety, even in the presence of a single fault. The laser driver includes APC and temperature compensation functions to maintain consistent launch optical power and extinction ratio in varying temperature and aging conditions.

The receiver section features an integrated APD and BM-preamplifier. The module provides a receiver burst-power-detect signal and a digitalized burst mode optical power monitoring function. The digital conversion of received ONU optical power is achieved through a Trigger input, activated by a rising edge. The DDM processor initiates a burst optical power conversion, and the digital result is accessible via the DDM interface after a specified Burst Optical Power Conversion Time. The module also incorporates an integrated WDM coupler to differentiate between 1310nm input light and 1490nm output light. Housed in a metallic package, the module guarantees excellent EMI and EMC characteristics, ensuring reliable performance in various environments.

Features

- Single fiber bi-directional data links asymmetric TX 2488Mbps/RX1244Mbps application
- 1490nm continuous-mode DFB laser transmitter and 1310nm burst-mode APD-TIA receiver
- Small Form Factor Pluggable package with SC/UPC Connector
- Reset burst-mode receiver design support more than 15dB dynamic range
- Single +3.3V power supply
- Digital Diagnostic Monitoring interface (DDM)
- Digital burst RSSI function to monitor the input optical power level
- LVPECL compatible data input/output interface
- LVTTL transmitter disable control
- LVTTL transmitter laser fault alarm
- LVTTL receiver Signal Detect (SD) indication
- Low EMI and excellent ESD protection
- Class I laser safety standard IEC-60825 compliant

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Model Information GPON OLT SFP C++++

Model					
Parameter	**Data Rate (TX/RX)**	**PO (dBm)**	**Sens (dBm)**	**Interface**	**Temp**
GPON OLT SFP C++++	2.488Gbps/ 1.244Gbps	+9~+13	≤-33	SC	0℃~+70℃

Transmitter Operating Characteristic Optical, Electrical

Transmitter						
Parameter		**Symbol**	**Min.**	**Typical**	**Max.**	**Unit**
Data Rate		BR	-	2488	-	Mbps
Optical Center Wavelength		λ_C	1480	1490	1500	nm
Optical Spectrum Width (-20dB)		$\Delta\lambda$	-	-	1	nm
Side Mode Suppression Ratio		SMSR	30	-		dB
Power-OFF Transmitter Optical Power			-	-	-39	dBm (Note 1)
Extinction Ratio		ER	8.2	-	-	dB (Note 2)
Tolerance to Transmitter Incident Light			-15	-	-	dB
Transmitter and Dispersion Penalty		TDP	-	-	1	dB
Optical Waveform Diagram		ITU-T G.984.2				
Differential Data Input Swing		Vin	200	-	2400	mVpp
Input Differential Impedance		Zin	90	100	110	Ohm
Tx_Disable	Disable	V_D	2.0	-	VCC	V
	Enable	V_{EN}	GND	-	GND+0.8	V
TX_Fault	Fault	V_F	2.0	-	VCC	V
	Normal	V_{NO}	GND	-	GND+0.4	V

Note:
1. Launched into SMF.
2. PRBS 2^{31}-1+72CID @2.488Gbit/s.

Receiver Operating Characteristic Optical, Electrical

Receiver						
Parameter		**Symbol**	**Min.**	**Typical**	**Max.**	**Unit**
Data Rate		BR	-	1244	-	Mbps
Operating Wavelength		λ_C	1260	1310	1360	nm
Saturation Optical Power		P_{SAT}(C++++)	-15	-	-	dBm (Note 1)
Signal Detect Assert Level		SDA	-	-	-34	dBm (Note 1)
Signal Detect De-Assert Level		SDD	-45	-	-	dBm (Note 1)
Signal Detect Hysteresis			0.5	-	6	dBm
Receiver Reflectance			-	-	-12	dB
Receiver Burst Mode Dynamic Range			15			dB
Differential Date Output Swing		Vout	600	-	1500	mVpp
Output Differential Impedance		Zout	90	100	110	Ohm
Signal Detect de-assert Time		T_{SDD}	-	-	12.8	ns
Signal Detect assert Time		T_{SDA}	-	-	50	ns
Signal Detect Voltage	High	V_{OH}	2.4	-	VCC	V
	Low	V_{OL}	GND	-	GND+04	V

Note:
1. PRBS 2^{23}-1+72CID @1244Mbps BER ≤1×10^{-10}.

Specification

Model	AirLive GPON OLT SFP C++++

Hardware

- **Power Supply Voltage:**
  3.13V~3.47V
  Typical Power Supply Voltage: 3.3V
- **Absolute Maximum Ratings**
  Supply Voltage: Min -0.5V, Max 3.6V
  Rx Total Optical Power: -8dm (Damage Threshold)
  Standard
  MIL-STD-883H Method 3015.8
  IEC61000-4-2: 8kV Contact Discharge 15kV Air Discharge
  Compatible with EN 55024:1998+A1+A2 IEC-61000-4-2, GR-1089-CORE
  FCC Part 15 Class B, EN55022:2006 CISPR 22B :2006, VCCI Class B
  EN 55024:1998+A1+A2, IEC 61000-4-3
  CDRH compliant and Class I laser product.: FDA 21CFR 1040.10 and 1040.11 EN (IEC) 60825-1:2007, EN (IEC) 60825-2:2004+A1
- **Transmitter (Electrical - Optical)**
  Data Rate:
  - 2488Mbps
  Centre Wavelength:
  - Min.:1480nm
  - Typical: 1490nm
  - Max.: 1500nm
  C++++ PO +9~+13dBm
  Receiver -Optical, Electrical
  Data Rate:
  - 1244Mbps
  Center Wavelength:
  - Min. 1260nm
  - Typical 1310nm
  - Max. 1360nm
  Saturation Optical Power:
  - PSAT(C++++) -15dBm
  Digital RSSI Timing Specification
  Guard time: Typical 32bits
  Reset width: Typical 16bits
  Optical Signal During Time: Min 500ns
  RSSI Trigger Delay: Min 30ns, Max 3000ns
  RSSI Trigger width: Min 300ns, Max TONTEN_DUR-TD
  I2C Access Prohibited Time: 500us
  Measurement Accuracy of received burst optical power, range from - 10dBm to -30dBm: Min -3dB, Max +3dB

Environment

- **Operating Case Temperature:** 0°C to +70°C
- **Storage Case Temperature:** -45°C to +85°C
- **Relative Humidity Storage**: 5%~95%, non-condensing

Standard package of SFP

- **Product size:**
  63.60 x 13.40 x 8.50 mm(L*W*H)
- **Package size:**
  TBD cm(L*W*H)
- **Package Weight:**
  N.W: TBD kg; G.W:TBD kg
- **Package content**:
  1 x Module

Standard carton package

- **Quantity:** 10 pcs / 1 Blister
- **Dimensions**
  TBD cm(L*W*H)
- **Weight**
  TBD kg

Ordering Information

- **Model:**
  AirLive GPON OLT SPF C++++
- **Name:**
  GPON OLT Optical Module 2.5G/1.25G 20KM TX1490nm/RX1310nm

AirLive

** Specification will be changed without prior notice*

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