

GPON OLT 2.5/1.25G SFP transceiver

Up to 20KM, Tx1490nm/Rx1310nm

GPON OLT SFP C+++ / 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
- Digital burst RSSI function to monitor the input optical power level
- LVPECL compatible data input/output interface
- LVTTTL transmitter disable control
- LVTTTL transmitter laser fault alarm
- LVTTTL receiver Signal Detect (SD) indication
- Low EMI and excellent ESD protection
- Class I laser safety standard IEC-60825 compliant

Model Information C+++ and C++++

Model					
Parameter	Data Rate (TX/RX)	PO (dBm)	Sens (dBm)	Interface	Temp
GPON OLT SFP C+++	2.488Gbps/ 1.244Gbps	+6~+10	≤-33	SC	0°C~+70°C
GPON OLT SFP C++++	2.488Gbps/ 1.244Gbps	+9~+13	≤-33	SC	0°C~+70°C

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	
Extinction Ratio	ER	8.2	-	-	dB	
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	V _{in}	200	-	2400	mVpp	
Input Differential Impedance	Z _{in}	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

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	PSAT(C+++)	-15	-	-	dBm	
	PSAT(C++++)	-15	-	-	dBm	
Signal Detect Assert Level	SDA	-	-	-34	dBm	
Signal Detect De-Assert Level	SDD	-45	-	-	dBm	
Signal Detect Hysteresis		0.5	-	6	dBm	
Receiver Reflectance		-	-	-12	dB	
Receiver Burst Mode Dynamic Range		15			dB	
Differential Date Output Swing	V _{out}	600	-	1500	mVpp	
Output Differential Impedance	Z _{out}	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

Model	AirLive GPON OLT SFP C+++/C++++
<p>Hardware</p> <ul style="list-style-type: none"> • Power Supply Voltage: 3.13V~3.47V Typical Power Supply Voltage: 3.3V • Absolute Maximum Ratings Supply Voltage: Min -0.5V, Max 3.6V RxTotal Optical Power: -8dm (Damage Threshold) <p>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 +6~+10dBm C++++ PO +9~+13dBm • Receiver -Optical, Electrical Data Rate: - 1244Mbps Center Wavelength: - Min. 1260nm - Typical 1310nm - Max. 1360nm Saturation Optical Power: - PSAT(C+++) -15dBm - 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 </p>	<p>Environment</p> <ul style="list-style-type: none"> • Operating Temperature: 0°C to +70°C • Storage Temperature: -45°C to +85°C • Storage Relative Humidity: 5%~95%, non-condensing <p>Standard package of SFP</p> <ul style="list-style-type: none"> • Product size: 63.60 x 13.4 x 8.5 mm(L*W*H) • Package size: TBD mm(L*W*H) • Package Weight: N.W: TBD kgs; G.W:TBD KGS • Package content: 1 x Module <p>Standard carton package</p> <ul style="list-style-type: none"> • Quantity: 10 pcs / 1 Blister • Dimensions TBD mm(L*W*H) • Weight TBD kgs <p>Ordering Information</p> <ul style="list-style-type: none"> • Model: AirLive GPON OLT SFP C+++ AirLive GPON OLT SPF C++++ • Name: GPON OLT Optical Module 2.5G/1.25G 20KM TX1490nm/RX1310nm

* Specification will be changed without prior notice

