GPON ONT module

The GPON module allows any RouterBOARD device to be used for Fiber to Home installations without any special modems or software. A plug and play solution means you simply plug it into your device, and no special configuration is needed. It is supported by all our SFP products, with any RouterOS version - all configuration will be done on the ISP side.

This module is a G.984.5 Optical Network Terminal (ONT) with Small Form-factor Pluggable (SFP) packaging. The module integrates a bi-directional optical transceiver function and GPON MAC function. By being plugged into the customer premise equipment (CPE) with standard SFP port directly, the GPON provides an asymmetric 1.244Gbps upstream 2.488 Gbps downstream GPON uplink to the CPE without requiring separate power supply.

It supports a sophisticated ONT management system, including alarms, provisioning, DHCP and IGMP functions for a stand-alone IPTV solution at the ONT, Time of Day and 1PPS interface. The GPON ONU module can be managed from the OLT over the GPON using G.988 OMCI.

It fits seamlessly into existing communications equipment, providing service providers with a smooth upgrade to GPON. The GPON solution vastly decreases the installation costs of deploying fiber access in MDUs and enables service providers to improve their revenue streams while decreasing OPEX.

Specifications

- Simplex SC Connector, Integrated Diplexer Transceiver
- SFP MSA, digital diagnostics SFF-8472 Compliant
- Compliant to FSAN G.984.5 Specifications
- 1244 Mbps Tx, 2488 Mbps Rx Asymmetric Data Rate
- Operating case temperature: 0~70°C
- Subscriber location identifier (SLID)
- PON Link Status notification
- Dying Gasp notification
- Supports Time of Day and 1PPS interface
- Response the TX power shut-down command from OLT when OLT detect anomaly
- TC Layer GEM encapsulation mode
- OMCI support per ITU-T G.988
- 32 dB link budget; Class C+, 20 km reach
- Compliant to IEC-60825 Class 1 laser diode
- RoHS compliant
- Internal Calibration

Specifications

Regulatory compliance

Feature	Standard	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	Class 1 (>500V for data pins, >2000V for other pins)
Electrostatic Discharge (ESD) to the Duplex SC Receptacle	IEC 61000-4-2	Compatible with standards
Electromagnetic Interference (EMI)	FCC Part 15 Class B EN55022 Class B (CISPR 22B) VCCI Class B	Compatible with standards
Immunity	IEC 61000-4-3	Compatible with standards
Laser Eye Safety	FDA 21CFR 1040.10 and 1040.11 EN60950, EN (IEC) 60825-1,2	Compatible with Class I laser product.
RoHS	2011/65/EC	Compatible with standards

Recommended operating conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Tc	0	-	70	°C
Operating Voltage	Vcc	3.14	3.3	3.46	V
Total Tx and Rx Supply Current	Icc	-	600	-	mA
Power Dissipation	P_D	-	2	-	W
Bit Rate(Tx)	BR	-	1244.16	-	Mbps
Bit Rate(Rx)	BR	-	2488.32	-	Mbps
Transmission Distance	TD	-	-	20,000	m

Absolute maximum ratings

Parameter	Symbol	Min	Typical	Max	Unit
Storage Temperature	Ts	-40	-	+85	°C
Supply Voltage	Vcc_Rx	-0.3	-	+4.2	V
	Vcc_Tx	-0.3	-	Vcc_Rx+1	V
Operating Relative Humidity	RH	5	-	95	%

Specifications

Optical characteristics

Transmitter					
Parameter	**Symbol**	**Min**	**Typical**	**Max**	**Unit**
Center Wavelength Range	λ_C	1290	1310	1330	nm
Average Output Power	P_{0UT}	0.5	-	5	dBm
Average Output Power (Laser Off)	$P_{0UT-OFF}$	-	-	-40	dBm
Side Mode Suppression Ratio	SMSR	30	-	-	dB
Spectral Width (-20dB)	λ_{20}	-	-	1	nm
Extinction Ratio	ER	10	-	-	dB
Optical Rise and Fall Time(20%-80%)	T_R/T_F	-	-	250	ps
Jitter Generation	JG	-	-	0.2	UI
Transmitter Output Eye	Compliant with G.984.2 Figure 3				
Receiver					
Center Wavelength Range	λ_C	1480	1490	1500	nm
Overload	-	-8	-	-	dBm
Sensitivity	Sen	-28	-	-	dBm
Signal Detect Assertion Level	SDA	-	-	-29	dBm
Signal Detect De-Assertion Level	SDD	-45	-	-	dBm
Hysteresis	$P_{SDA-SDD}$	0.5	-	-	dB
1310nm Tx to 1490nm Rx Crosstalk	-	-	-	-47	dB
1555nm Rx to 1490nm Isolation	-	30	-	-	dB
(1550-1560nm) Ext to 1490 Rx Isolation	-	34	-	-	dB
Back Reflection @ 1310nm	-	-	-	-12	dB
Back Reflection @ 1490nm	-	-	-	-27	dB
Rx Reflectance	-	-	-	-20	dB
1530nm to 1490nm Rx Isolation	-	7	-	-	dB
1539nm to 1490nm Rx Isolation	-	22	-	-	dB
1625nm to 1490nm Rx Isolation	-	22	-	-	dB

Mechanical Diagram