XGS/XG PON SFP+

■ Overview

To extend the 10GPON deployment in existing access network for business and residential subscribers, XGS /XG PON ONT SFP+ provides the standard SFP+ package, which can easily replace the Ethernet SFP+ module existing in Ethernet gateway, switch, router or backhaul equipment etc.

Equipped with ITU-T G.9807 compliant GPON interface, It incorporates interoperability, key customers' specific requirements and cost-efficiency. By integrating XGS/XG PON MAC and standard compliant OMCI stack, Which provides all XGS/XG PON functionality and full range FCAPS management features including supervision, monitoring and maintenance

■ Service

It is delivered with one SFP+ (Small Form-factor Pluggable) based 10G Base-X Gigabit Ethernet data interface with advanced data features such as VLAN tag manipulation, classification, and filtering

■ Specification

Dimensions
- 77 mm x 15.6 mm x 13.3 mm (L x W x D)

Power Supply
- Full speed power Consumption at room temp.: < 2.1W

Working Environment
- case operating temperature: -40~+85 °C
- Humidity: 5 ~ 95% relative humidity, non-condensed

Safety & EMI
- CE compliant
- FCC/UL compliant

Installation
- SFP+ interface

GPON Interface
- Compliant with ITU-T G.9807 GPON standards
- SFF type laser, SC/APC or SC/UPC connector

- 10G bps or 2.5G Burst Mode Upstream Transmitter
- 10G bps Downstream Receiver
- Compliant with ITU-T G.9807 Class N1
  - ✓ APD receiver and DFB transmitter
  - ✓ 4~+9dBm launch power
  - ✓ -29 dBm sensitivity BER ≤1×10^-3
  - ✓ -8dBm overload
  - ✓ 20km distance
- Wavelengths:
  - ✓ US 1260nm to 1280nm, DS 1575nm to 1580nm
- Laser compliant with FCC 47 CFR Part 15, Class B, and FDA 21 CFR 1040.10 and 1040.11

GPON QoS
- Multiple T-CONTs per device
- Multiple GEM Ports per device
- Flexible mapping between GEM Ports and T-CONT

- Activation with automatic discovered SN and password in conformance with ITU-T G.984.3
- AES-128 Decryption with key generation and switching
- FEC (Forward Error Correction)
- DBA reporting by piggyback reports in the DBRu (mode 0)
- 802.1p mapper service profile on U/S
- Mapping of GEM Ports into a T-CONT with priority queues based scheduling
- Support Multicast GEM port and incident broadcast GEM port.

Ethernet Interface

- SFP+ based XFI interface 10GE/5GE/2.5GE/1GE compatible
- Hardware priority queues on the downstream direction in support of CoS
- 802.1D bridging

- Virtual switch based on 802.1q VLAN
- VLAN tagging/detagging
- VLAN stacking (Q-in-Q) and VLAN Translation
- IP ToS/DSCP to 802.1p mapping
- Class of Service based on VLAN-ID, 802.1p bit, ToS/DSCP
- Marking/remarking of 802.1p
- Broadcast/Multicast rate limiting

OAM

- Standard compliant OMCI (the embedded operations channel) interface as defined by ITU-T G.988
- Alarming and AVC report, performance monitoring
- Remotely software image download over OMCI, as well as activation and rebooting
- Hold two software sets with software image integrity checking and automatic rollback

Pin Description

Pin Number		Active
1	VEET	
2	TX_FAULT	High
3	TX_DISABLE	High
4	SDA	
5	SCL	
6	MOD_ABS	
7	Dying Gasp	Up to host pin definition, By default Low active
8	RX_LOS	High
9	Remote Reset for host	Up to host pin definition
10	VEET	
11	VEER	
12	RD-	
13	RD+	
14	VEER	
15	VCCR	
16	VCCT	
17	VEET	
18	TD+	
19	TD-	
20	VEET	

Ratings

Absolute Ratings				
Parameter	**Min**	**Max**	**Units**	**Note**
Storage Ambient Temp.	-40	+85	°C	Irreversible damage may be caused when exceeding max ratings
Relative Humidity-Storage	-	95	%	
Relative Humidity-Operating	-	85	%	
Module Supply Voltage	-	3.6	V	
Receiver LOSS OF SIGNAL Logic State	-	Vcc+0.4	V	LVTTL
Transmit TX_DIS Logic State	-	Vcc+0.4	V	LVTTL

Recommended Operating Conditions

Parameter	Min	Typ	Max	Units	Note
Case Operating Temp.	-40	25	85	$^{\circ}$C	
Module Supply Voltage	3.135	3.3	3.465	V	

Transmitter Electrical Characteristics

Parameter	Min	Typ	Max	Units	Note
Tx_DIS= HIGH (Transmitter OFF / DISABLED)	2	-	Vcc+0.4	V	
Tx_DIS = LOW (Transmitter ON / ENABLED)	0	-	0.8	V	
Tx_Fault = HIGH (Transmitter fault)	Vcc-0.2	-	Vcc+0.4	V	
Tx_Fault = LOW (Transmitter normal)	0	-	0.4	V	

Receiver Electrical Characteristics

Parameter	Min	Typ	Max	Units	Note
Rx_LOS = HIGH (Receiver OFF)	Vcc-0.2	-	Vcc+0.4	V	
Rx_LOS = LOW (Receiver ON)	0	-	0.4	V	

Transmitter Optical Characteristics

Parameter	Min	Typ	Max	Units	Notes
Laser		DFB (Burst)			
Average power	4	-	9	dBm	
Optical Wavelength	1260	1270	1280	nm	
Side Mode Suppression Mode	30	-	-	dB	
Extinction Ratio	6	-	-	dB	

Receiver Optical Characteristics

Parameter	Min	Typ	Max	Units	Notes
Type		APD+TIA			
Optical Wavelength	1575	1577	1580	nm	
Sensitivity	-28.5	-	-	dBm	BER≤10^-3
Overload	-	-	-8	dB	

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DDM information (SFF-8472 compliant)

A2 (HEX) address table for Alarms, Warnings and Measured values													
Parameter	**Alarm Threshold**				**Warning Threshold**				**Measured Values**		**Alarm Bit Address (Position)**		**Warning Bit Address (Position)**	
	High Value		Low Value		High Value		Low Value							
	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	High	Low	High	Low
Temp(1/256°C)	00	01	02	03	04	05	06	07	96	97	112(7)	112(6)	116(7)	116(6)
Vcc(100µV)	08	09	10	11	12	13	14	15	98	99	112(5)	112(4)	116(5)	116(4)
Tx Bias(2µA)	16	17	18	19	20	21	22	23	100	101	112(3)	112(2)	116(3)	116(2)
Tx Power(0.1µW)	24	25	26	27	28	29	30	31	102	103	112(1)	112(0)	116(1)	116(0)
Rx Power(0.1µW)	32	33	34	35	36	37	38	39	104	105	113(7)	113(6)	117(7)	117(6)

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Enclosure