



## GPON STICK SFP Transceiver

OP-MGPU4634S2SD-20

### Product Feature

- Simplex SC/APC Connector, Integrated Diplexer Transceiver
- SFP MSA, digital diagnostics SFF-8472 Compliant
- Compliant to FSAN G.984.2 Specifications
- 1244 Mbps Tx, 2488 Mbps Rx Asymmetric Data Rate
- Operating case temperature: -40~85° 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
- 28 dB link budget; Class B+, 20 km reach
- Compliant to IEC-60825 Class 1 laser diode
- RoHS compliant



### Application

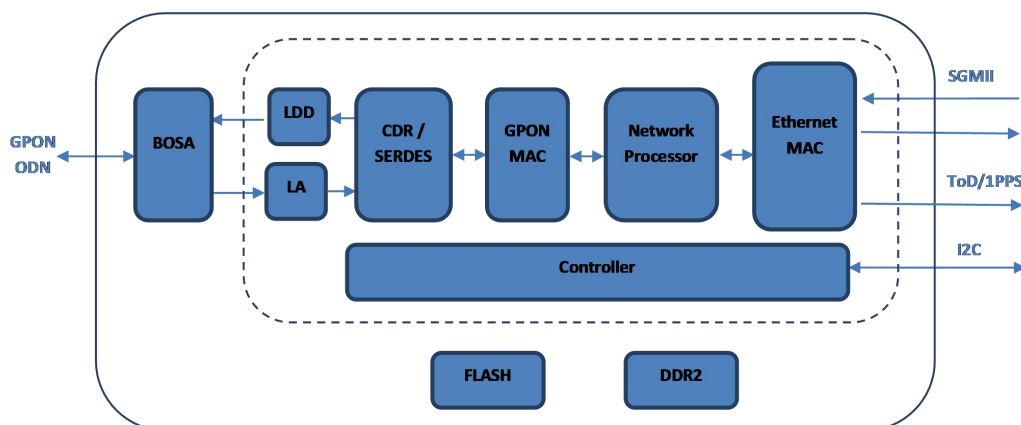
- Providing Pluggable GPON ONU
- Interface for Ethernet Switches
- Wireless Backhaul Equipment
- Ethernet Demarcations, Routers
- Other Customer Premises Equipment

## 1. Product Description

GPON SFP with MAC is a G.984.2 (GPON) Optical Network Terminal (ONT) with Small Form-factor Pluggable (SFP) packaging. This product 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, it provides an asymmetric 1.244Gbps upstream / 2.488 Gbps downstream GPON uplink to the CPE without requiring separate power supply.

This product supports a sophisticated ONT management system, including alarms, provisioning, DHCP and IGMP functions for a stand-alone IPTV solution at the ONT.

This product supports Time of Day and 1PPS interface, 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 solution vastly decreases the installation costs of deploying fiber access in MDUs and enables service providers to improve their revenue streams while decreasing OPEX.



## 3. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Storage Temperature	TS	-40	-	+85	°C	
Supply Voltage	VCC_Rx	-0.3	-	+4.2	V	
	VCC_Tx	-0.3	-	VCC_Rx+	V	

## 4. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	TC	-40	-	85	°C	
Operating Voltage	VCC	3.14	3.30	3.46	V	
Total Tx and Rx Supply Current	ICC	-	600	-	mA	
Power Dissipation	PD	-	2	-	W	
Bit Rate(Tx)	BR	-	1244.16	-	Mbps	
Bit Rate(Rx)	BR	-	2488.32	-	Mbps	
Transmission Distance	TD	-	-	20	km	

## 5. Optical Characteristics

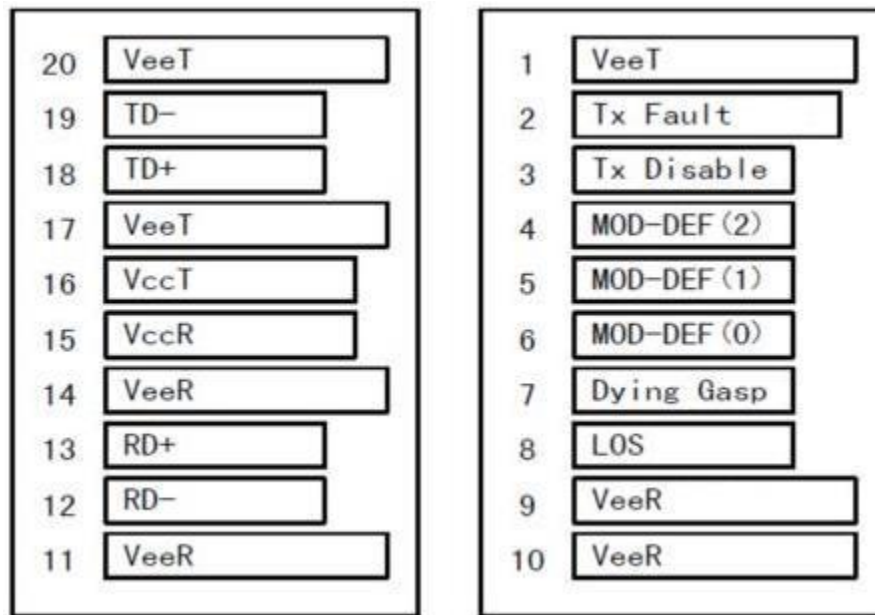
Transmitter						
Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Center Wavelength Range	$\lambda_C$	1290	1310	1330	nm	
Average Output Power	P <sub>OUT</sub>	0.5	-	5	dBm	
Average Output Power (Laser Off)	P <sub>OUT-OF</sub> F	-	-	-40	dBm	
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Spectral Width (-20dB)	$\lambda_{20}$	-	-	1	nm	
Extinction Ratio	ER	10	-	-	dB	1
Optical Rise and Fall Time(20%-80%)	TR/TF	-	-	250	ps	
Jitter Generation	JG	-	-	0.2	UI	2
Transmitter Output Eye	Compliant with G.984.2 Figure 3					
Receiver						
Center Wavelength Range	$\lambda_C$	1480	1490	1500	nm	
Overload		-8	-	-	dBm	
Sensitivity	Sen	-28	-	-	dBm	3
Signal Detect Assertion Level	SDA	-	-	-29	dBm	
Signal Detect De-Assertion Level	SDD	-45	-	-	dBm	
Hysteresis	PSDA-SD	0.5	-	6	dB	
1310nm Tx to 1490nm Rx Crosstalk		-	-	-47	dB	
1555nm Rx to 1490nm Isolation		30	-	-	dB	
(1550-1560nm) Ext to 1490 Rx		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	

## 6. Electrical Characteristics

Transmitter						
Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Differential Data Input Voltage	VIN,P-P	300	-	1000	mVpp	4
Input Differential Impedance	ZIN	-	100	-	Ω	5
Tx Burst Enable Time	TBURST_	-	-	12.8	ns	6
Tx Burst Disable Time	TBURST_	-	-	12.8	ns	6
Tx Disable Assert Time	TDIS_A	-	-	10	μs	
Tx Disable De-assert Time	TDIS_D	-	-	1	ms	
Receiver						
Differential Output Voltage		300	-	1200	mV	7
Signal Detect Output HIGH Voltage	VSD_High	2.4	-	-	V	8
Signal Detect Output LOW Voltage	VSD_Low	0	-	0.8	V	9
Data Output Rise and Fall Time	TR/TF	-	160	-	ps	

## 7. Pin Descriptions

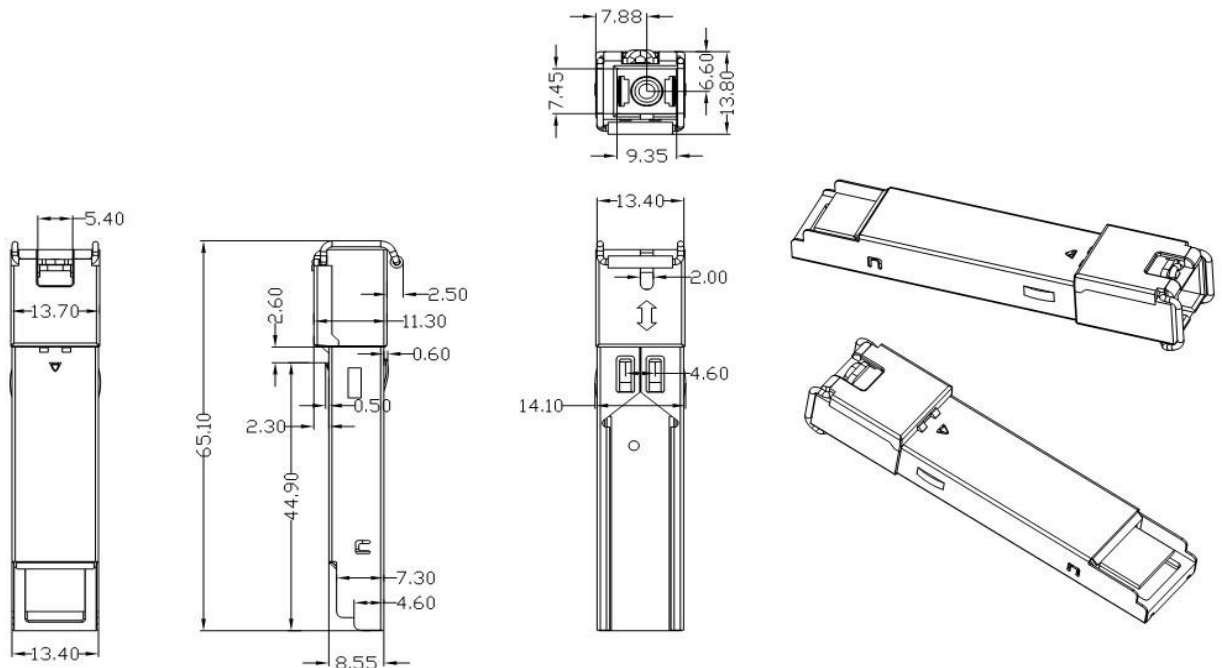


Pin	Symbol	Logic	Name/Description	Note
1	VeeT	NA	Module Transmitter Ground	
2	Tx Fault	LVTTL-O	Transmitter fault indication	1
3	TX_DISAB	LVTTL-I	Transmitter Shut-off	
4	SDA	LVTTL-I/O	2-Wire Serial Interface Data Line (MOD-DEF2)	2
5	SCL	LVTTL-I	2-Wire Serial Interface Clock (MOD-DEF1)	2
6	MOD_ABS	NA	Module Absent, connected to VeeT or VeeR in the	
7	DYING	LVTTL-I	Dying Gasp message indicator	3
8	LOS	LVTTL-O	Loss of Signal	
9	VeeR	NA	Module Receiver Ground	4
10	VeeR	NA	Module Receiver Ground	
11	VeeR	NA	Module Receiver Ground	
12	RXD-	CML-O	Receiver Inverted Data Output	
13	RXD+	CML-O	Receiver Non-Inverted Data Output	
14	VeeR	NA	Module Receiver Ground	
15	VCCR	NA	Module Receiver 3.3V Supply	
16	VCCT	NA	Module Transmitter 3.3V Supply	
17	VeeT	NA	Module Transmitter Ground	
18	TXD+	CML-I	Transmitter Non-Inverted Data Input, CML, 100ohm	
19	TXD-	CML-I	Transmitter Inverted Data Input, CML, 100ohm	
20	VeeT	NA	Module Transmitter Ground	

Note

- 1.This PIN default solution is TX Fault based on SFP MSA and can also support ToD if customer require.
- 2.This PIN is an open collector/drain output pin and shall be pulled up with 4.7K-10K ohms to a Host\_Vcc on the host board.
- 3.PIN7 can support Dying Gasp function. Dying Gasp function is managed by software. If software turn off the dying gasp function,no influence to the module if logical “0” or “1”. If software turn on the function, no influence to the module if logical “1”; if logical "0", the module will report dying gasp to OLT and the module will repeating restart.
- 4.This PIN default solution is VeeR based on SFP MSA and can also support 1PPS if customer require.

## 8.Mechanical Diagram



## 10. LABEL

OPTOSTAR offers label OEM design and print.  
Label barcode supports code128 and 2D barcode  
SIZE:

## Ordering Information

Part No.	Data Rate	DDM	Wave	Fiber Type	Dist.	Temp.	Optical Interface
OP-MGPU4634S2SD-20	TX:1.25Gbps RX:2.5Gbps	yes	1310nm	SMF	20km	-40~85℃	Simplex SC

## VERSION UPDATE:

VERSION NO.	DATE	UPDATED INFORMATION
V20140927	20140927	1. NEW PUBLISHED

## NOTICE:

OPTOSTAR reserves the right to make changes to this product in this specification without notice, in order to improve product performance.

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