

XGSONU-SFP-B-N1-I

XGSPON ONU 20km SFP+ 1270nm-TX/1577nm-RX | 9.953G-TX/9.953G-RX SC/UPC I-Temp

1. Product overview

Hot-pluggable, single-fiber bidirectional SFP+ ONU for 10-Gigabit-capable passive optical networks. A 1270 nm DML DFB laser and 1577 nm APD support symmetric 9.953 Gb/s PON transmission over 20 km of single-mode fiber. The module provides a CML-compatible data interface and digital diagnostic monitoring.

2. Key features

•SC/UPC receptacle; single +3.3 V power supply •Industrial operating case temperature -40 to +85°C •Digital diagnostics; low EMI and ESD protection; RoHS-10 •Burst transmitter control; TX state indication; receiver loss-of-signal indication

3. Applications

10-Gigabit-capable passive optical networks (XGS-PON ONU).

4. Technical data

Parameter	Specification
Package / connector	SFP+ / SC/UPC
Link distance / PON rate	20 km SMF / TX and RX 9.953 Gb/s
Absolute supply / storage / humidity	0-3.6 V / -40 to +85°C / 5-95%
TX impedance, min/typ/max	90 / 100 / 110 ohm
TX input / RX output differential swing	200-1600 mV / 300-850 mV; AC-coupled
Burst disable / enable levels	2.0 V to Vcc / 0-0.8 V
TX fault low / high	0-0.4 V / 2.4 V to Vcc
RX SD low / high	0-0.4 V / 2.4 V to Vcc

Typical interface: 2 x 4.7 µH supply inductors; 22 µF and 0.1 µF capacitors; 4.7-10 kohm pull-ups (RX_LOS, 2 x TX_SD/TX_FAULT, 3 x SDA/SCL/MOD_ABS); 50 ohm single-ended signal lines and 100 ohm TX termination. Mechanical callouts (source drawing): 47.5 ±0.2; 43 ±0.2; 37.1 ±0.3; 2.5 +0.15/-0.05; 2.95 ±0.25 extraction ramp; 0.85 max retention ramp; 2.1 max; 1.4 ±0.5; 0.65 +0.10/-0.25; 2.25 ±0.1; 8.55 ±0.15; 14 max; 13.55 ±0.25; temperature-test area position 26.71 and 7.66. Additional UPC drawing callouts: 14.55 ±0.2; 1 ±0.1.

5. Recommended operating conditions

Parameter	Specification
Supply voltage, min/typ/max	3.15 / 3.3 / 3.45 V
Operating case temperature	-40 to +85°C
Supply current	450 mA max
Maximum input power	+3 dBm

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6. Optical characteristics

Transmitter	Specification	Receiver	Specification
Average launch power	+4 to +9 dBm into 9/125 µm SMF	Wavelength, min/typ/max	1575 / 1577 / 1580 nm
Center wavelength, min/typ/max	1260 / 1270 / 1280 nm	Sensitivity (EOL, over temperature)	-28 dBm max
Extinction ratio	6 dB min	Sensitivity test	PRBS 2 ³¹ -1 @ 9.953 Gb/s; BER ≤ 1 x 10 ⁻³
Spectral width (-20 dB)	1 nm max	Overload	-8 dBm min
SMSR	30 dB min	Overload test	PRBS 2 ³¹ -1 @ 9.953 Gb/s; BER ≤ 1 x 10 ⁻¹⁵
Burst on / off time	30 ns max each	Receiver reflectance	-12 dB max
TX-SD assert / de-assert	350 ns max each	Optical return loss tolerance	-15 dB max
TDP over 20 km SMF	1 dB max	SD Assert / De-assert	-29 dBm max / -45 dBm min
TX reflected-power tolerance	-15 dB min	SD hysteresis	0.5-5 dB
Eye diagram	ITU-T G.9807; PRBS 2 ³¹ -1 @ 9.953 Gb/s		

7. Digital diagnostics and management

Monitor	Range	Accuracy	Resolution (1 LSB)
Temperature	-40 to +85°C	±3°C	1/256°C
Supply voltage	3-3.6 V	±3%	0.1 mV
Bias current	0-131 mA	±10%	4 µA
TX optical power	4-9 dBm	±2 dB	0.2 µW
RX optical power	-29 to -8 dBm	±3 dB	0.1 µW

All monitors use internal calibration. Serial ID A0h (1010000X): bytes 0-95 SFP MSA ID; 96-127 vendor-specific; 128-255 reserved. Diagnostics A2h (1010001X): 0-55 alarm/warning thresholds; 56-95 calibration constants; 96-119 real-time diagnostics; 120-127 vendor-specific; 128-247 user-writable EEPROM; 248-255 vendor-specific. Pin assignment: Ground: 1/17/20 VeeT; 10/11/14 VeeR. 2 TX_Fault (low normal/high fault); 4 SDA; 5 SCL; 6 MOD_ABS (internally grounded); 8 RX_LOS (low signal/high loss); 12/13 RD-/RD+; 18/19 TD+/TD- (AC-coupled). 3 TX_Burst (TTL, low enables TX); 7 TX_SD (asserted when TX on); 9 NC; 15 VccR; 16 VccT (+3.3 V).

8. Safety and regulatory

SFP+ MSA (SFF-8431); SFF-8472; RoHS-10; ITU-T G.9807. FCC 47 CFR Part 15 Class B; FDA 21 CFR 1040.10 and 1040.11. Class I laser; source cites Laser Notice No. 50 (June 24, 2007). Use ESD precautions and avoid direct or indirect laser exposure.

9. Ordering information

GLOBALfiber part number	Product description
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