LS-SC2510-20CN2

XGSPON ONU SFP+ Class N2 Transceiver, DOM SC,
9.953G nm 1270TX/ 9.953G 1577nm RX ,SMF 20km Reach

Product Features

- Integrated Single fiber bi-directional optical subassembly
- Symmetric 9.95328Gb/s upstream and downstream bit rate
- SFP+ metallic package, SC/UPC connector
- +3.3V single power supply
- Low power consumption
- Burst enable :H-active
- Class 1 Laser eye safety
- Excellent EMI and EMC characteristics
- Compliant with RoHS&WEEE
- Operating case temperature:
  Standard: 0 to +70°C
  Industrial: -40 to +85°C

Applications

- Asymmetric 10-Gigabit capable passive optical network(XG-PON) system

Description

This product is designed for XGSPON transmission. The module incorporates 10Gb/s 1270nm burst-mode transmitter and 10Gb/s 1577nm continuous-mode receiver. An integrated WDM coupler can separate 1577nm input light and 1270nm output light. The metallic package guarantees excellent EMI and EMC characteristics, which totally comply with international relevant standards.

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Case Temperature	Tc	0		70	°C	Standard
		-40		85		Industrial
Storage Temperature	Ts	-40		85	°C	
Operating Relative Humidity	Ho	5		85	%	
Storage Relative Humidity	Hs	5		95	%	
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	

Optical Characteristics

Parameter	Min	Typical	Max	Unit	Notes
Transmitter					
Data Rate		9.953		Gbps	
Center Wavelength Range	1260		1280	nm	
Spectral Width(@-20dB)			1	nm	
Side Mode Suppression Ratio	30			dB	
Launch Optical Power	+4.0		+9.0	dBm	
Off level light			-45	dBm	
Burst turn on/off time			128	bit	
TXSD delay time			1000	ns	1
Extinction Ratio	6			dB	2
Transmitter Dispersion Penalty			1.5	dB	3
Transmitter tolerance to reflected optical power	-15			dB	
Eye Diagram	Compliant with ITU-T G.987.1				
Receiver					
Data Rate		9.953		Gbps	
Center Wavelength Range	1575		1580	nm	
Receiver Sensitivity			-28.0	dBm	3
WDM filter isolation	35			dB	
Overload Input Optical Power	-8.0			dBm	
LOS Optical Dessert			-29	dB	
LOS Optical Assert	-44			dB	
LOS Hysteresis	0.5		6	dB	

Note:
1..Measured with PRBS 223-1 test pattern @9.953Gbps.
2.Transmit on 20km SMF.
3.Measured with PRBS 223-1 test pattern @9.953Gbps with Tx on ER=8.2dB, BER= 10-3

Electrical Characteristics

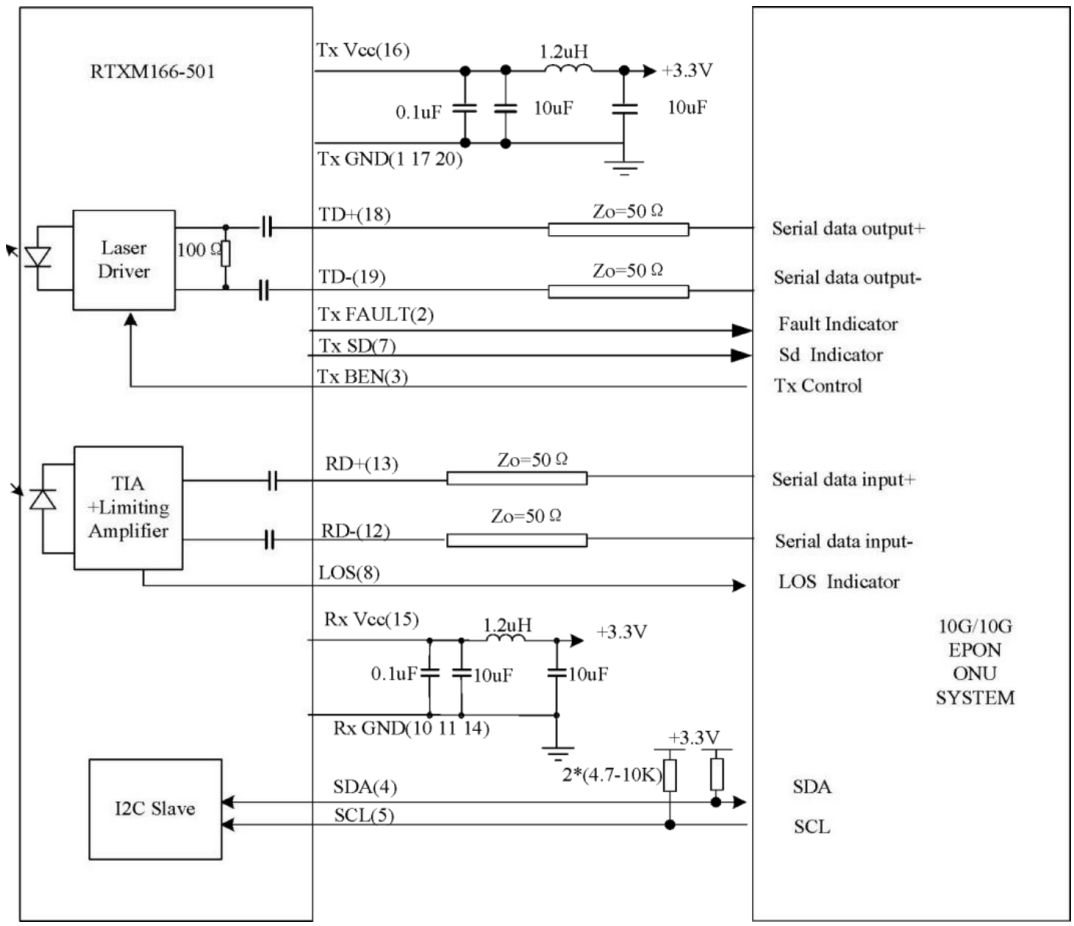
Parameter	Min	Typical	Max	Unit	Notes
Power Consumption			1.5	W	
LVPECL Single Ended Data Input Swing	100		800	mV	
CML Single Ended Data Output Swing	300		500	mV	
Differential Data input impedance		100		Ω	
Signal Level(LVTTL)	2.4		Vcc	V	
	0		0.8	V	

Pin definition

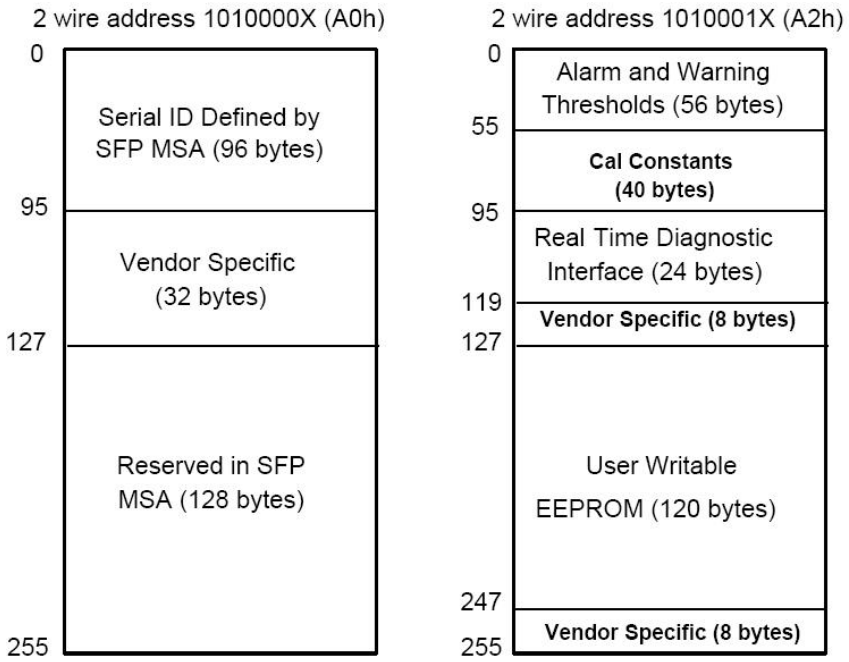
Pin No	Symbol	Description	Note
1	GND_T	Transmitter ground	
2	TX_FAULT	LVTTL Signal detect output internally pull up	
3	TX_BRST	LVTTL ransmitter burst mode control, "L": Tx ON	
4	SDA	I2C SerialData（LVTTL）	
5	SCL	I2C SerialClock（LVTTL）	
6	MOS_ABS	Internally connected GND	
7	TX-SD	LVTTL Signal detect output, internally pull up	
8	RX_ LOS	LVTTL Signal detect output, internally pull up	
9	NC	Not Connected	
10	GND_R	Receiver ground	
11	GND_R	Receiver ground	
12	RD-	CML data output-(AC coupled internally)	
13	RD+	CML data output+(AC coupled internally)	
14	GND_R	Receiver ground	
15	VCC_R	Receiver power supply	
16	VCC_T	Transmitter power supply	
17	GND_T	Transmitter ground	

18	TD+	LVPECL Data input+(AC coupled and internal terminated)	
19	TD-	LVPECL Data input-(AC coupled and internal terminated)	
20	GND_T	Transmitter ground	

TypicalApplication circuit



EEPROM Memory Map



EEPROM Serial ID Memory Contents

The optical transceiver contains an EEPROM. It provides access to sophisticated identification information that describes the transceiver's capabilities, standard interfaces, manufacturer, and other information. When the serial protocol is activated, the host generates the serial clock signal (SCL, Mod Def 1). The positive edge clocks data into those segments of the EEPROM that are not writing protected within the SFP transceiver. The negative edge clocks data from the SFP transceiver. The serial data signal (SDA, Mod Def 2) is bi-directional for serial data transfer. The host uses SDA in conjunction with SCL to mark the start and end of serial protocol activation. The memories are organized as a series of 8-bit data words that can be addressed individually or sequentially.

The Module provides diagnostic information about the present operating conditions. The transceiver generates this diagnostic data by digitization of internal analog signals. Calibration and alarm/warning threshold data is written during device manufacture. Received power monitoring, transmitted power monitoring, bias current monitoring, supply voltage monitoring and temperature monitoring all are implemented. The diagnostic data are raw A/D values and must be converted to real world units using calibration constants stored in EEPROM locations 56 – 95 at wire serial bus address A2h.

Package Outline

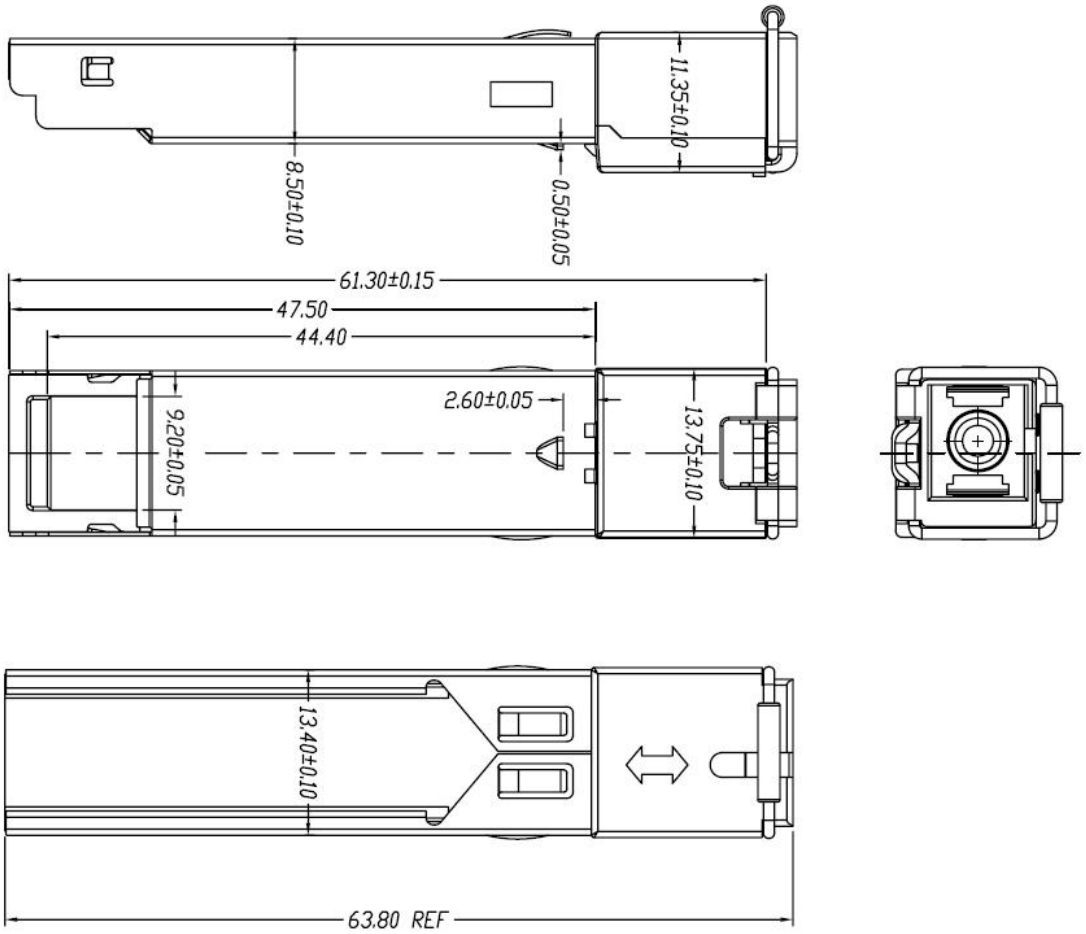


Figure 1. Package Outline

Ordering information

Part Number	Product Description
LS-SC2510-20CN2	XGSPON ONU SFP+, SC/UPC, 1270Tx/ 1577Rx, 9.953Gbps, SMF 20km, 0°C~+70°C, Class N2
LS-SC2510-20IN2	XGSPON ONU SFP+, SC/UPC, 1270Tx/ 1577Rx, 9.953Gbps, SMF 20km, -40°C~+85°C, Class N2