SFPP-XGS-ONU-MAC-I-AO

MSA and TAA Compliant 9.95Gbs/9.95Gbs XGS PON ONU SFP+ Stick with MAC (SMF, 1270nmTx/1577nmRx, SC, -40 to 85C)

Features

- Dual Wavelength
- 9.95328Gbps Burst Mode Tx Data Rate
- Bidirectional Operation
- ITU-T G.984.3/G.988/G.9807.1/G.987.3 Compliant
- SC Optical Receptacle
- 9.95328Gbps CW Mode Rx Data Rate
- Industrial Temperature -40 to 85 Celsius
- Single 3.3V DC Input Voltage
- RoHS Compliant and lead-Free

Applications

- XGS PON
- Access and Enterprise

Product Description

This MSA Compliant SFP+ transceiver provides XGS-N1/N2 throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1270nmTx/1577nmRx via a SC connector. It is built to MSA standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

AddOn's transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."

TAA COMPLIANT

Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4.
- ESD to the LC Receptacle: compatible with IEC 61000-4-3.
- EMI/EMC: compatible with FCC Part 15 Subpart B Rules, EN55022:2010.
- Laser Eye Safety: compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1, 2.
- RoHS: compliant with EU RoHS 2.0 directive 2015/863/EU**.**

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	0		3.6	V	
Storage Ambient Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	-40	25	85	°C	
Relative Humidity - Storage	RHstg	0		95	%	
Relative Humidity - Operating	RHop	0		85	%	
Control Function Logic Levels						
Receiver Loss of Signal Logic State	Rx_LOS	0		Vcc+0.5	V	LVTTL
Transmit Disable Logic State	Tx_Disable	0		Vcc+0.5	V	LVTTL

Note:

Exceeding the Absolute Maximum Ratings may cause irreversible damage to the device. The device is not intended to be operated under the condition of simultaneous Absolute Maximum Ratings, a condition which may cause irreversible damage to the device.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.135	3.30	3.465	V	
Power Supply Current	Icc			900	mA	
Transmitter						
Tx_Data Differential Input Voltage	VIH-VIL	200		1200	mV	
Tx_Disable = High (Transmitter Off/Disabled)	VIH	2.0		Vcc+0.3	V	
Tx_Disable = Low (Transmitter On/Enabled)	VIL	0		0.8	V	
Receiver						
Rx_Data Differential Output Voltage	VOH-VOL	200		900	mV	
Rx_LOS = High (Receiver Off)	VOH	2.4		3.3	V	LVTTL
Rx_LOS = Low (Receiver On)	VOL	0		0.8	V	LVTTL

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Laser Type			DFB Laser			
Transmitter Signal Rate			9.95328		Gbps	
Average Output Power	POUT	4		9	dBm	
Optical Center Wavelength	λ	1260	1270	1280	nm	
Spectral Width	Δλ			1	nm	
Side-Mode Suppression Mode	SMSR	30			dB	
Extinction Ratio	ER	6			dB	
Receiver						
Receiver Type			CW APD/TIA			
Receiver Signal Rate			9.95328		Gbps	
Optical Center Wavelength	λ	1575	1577	1581	nm	
Receiver Sensitivity	S			-28	dBm	1
Received Optical Overload		-9			dBm	1
Rx_LOS of Signal Assert	LOSA	-44			dBm	
Rx_LOS of Signal De-Assert	LOSD			-29	dBm	
Rx_LOS of Signal Hysteresis	LOSH	0.5		6	dB	

Notes:
1. BER≤10^{-3}, PRBS $2^{31}-1$, and ER=6dB.

Pin Descriptions

Pin	Symbol	Name/Descriptions	Notes
1	1PPS	1PPS Input/Output Pin.	5
2	Tx_Fault	Transmitter Fault. Low = Normal Operation. High = Fault Indication. This pin is pulled-up to the VccT in the module.	1
3	Tx_Disable	Transmit Disable. Low = Normal Operation. High = Disables Module.	1
4	SDA	2-Wire Serial Interface Data. Host Board shall use a pull-up resistor connected to the Host Board 3.3V.	3
5	SCL	2-Wire Serial Interface Clock. Host Board shall use a pull-up resistor connected to the Host Board 3.3V.	3
6	MOD_ABS	Pull down to ground.	2
7	Dying Gasp	Dying Gasp Indication. High = Normal Operation. Low = Power Failure.	4
8	Rx_LOS	Receiver Loss of Signal. Low = Normal Operation. High = Loss of Signal.	2, 3, 5
9	PIN9	Reserved.	
10	GND_R	Receiver Ground.	
11	GND_R	Receiver Ground.	
12	RD-	Rx_Data Output (Inverted). AC coupled inside the module.	
13	RD+	Rx_Data Output (Non-Inverted). AC coupled inside the module.	
14	GND_R	Receiver Ground.	
15	VccR	Receiver DC Power.	3.3V+/-5%
16	VccT	Transmitter DC Power.	3.3V+/-5%
17	GND_T	Transmitter Ground.	
18	TD+	Tx_Data Input (Non-Inverted). AC coupled inside the module.	
19	TD-	Tx_Data Input (Inverted). AC coupled inside the module.	
20	GND_T	Transmitter Ground.	

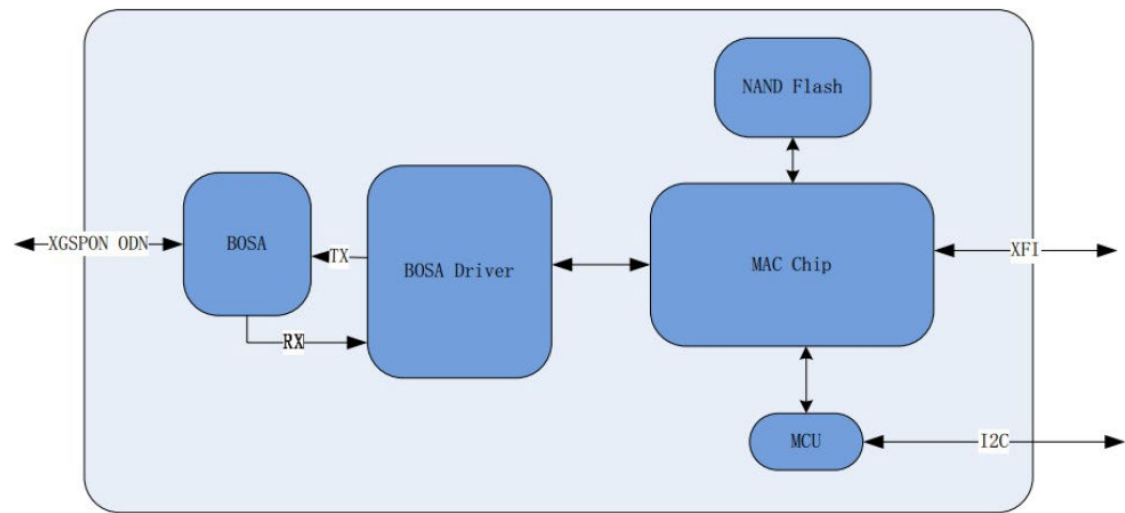**Notes:**

1. 4.7kΩ-10kΩ pull-up resistor within the module VccT.
2. Requires a pull-up resistor of 4.7kΩ-10kΩ on the Host Board.
3. 4.7kΩ-10kΩ pull-up resistor within the module VccR.
4. Voltage Detect Input for Dying Gasp. When the voltage on this pin is low, a dying gasp event is triggered. A 100kΩ resistor is used to pull up to DC Power in the module.
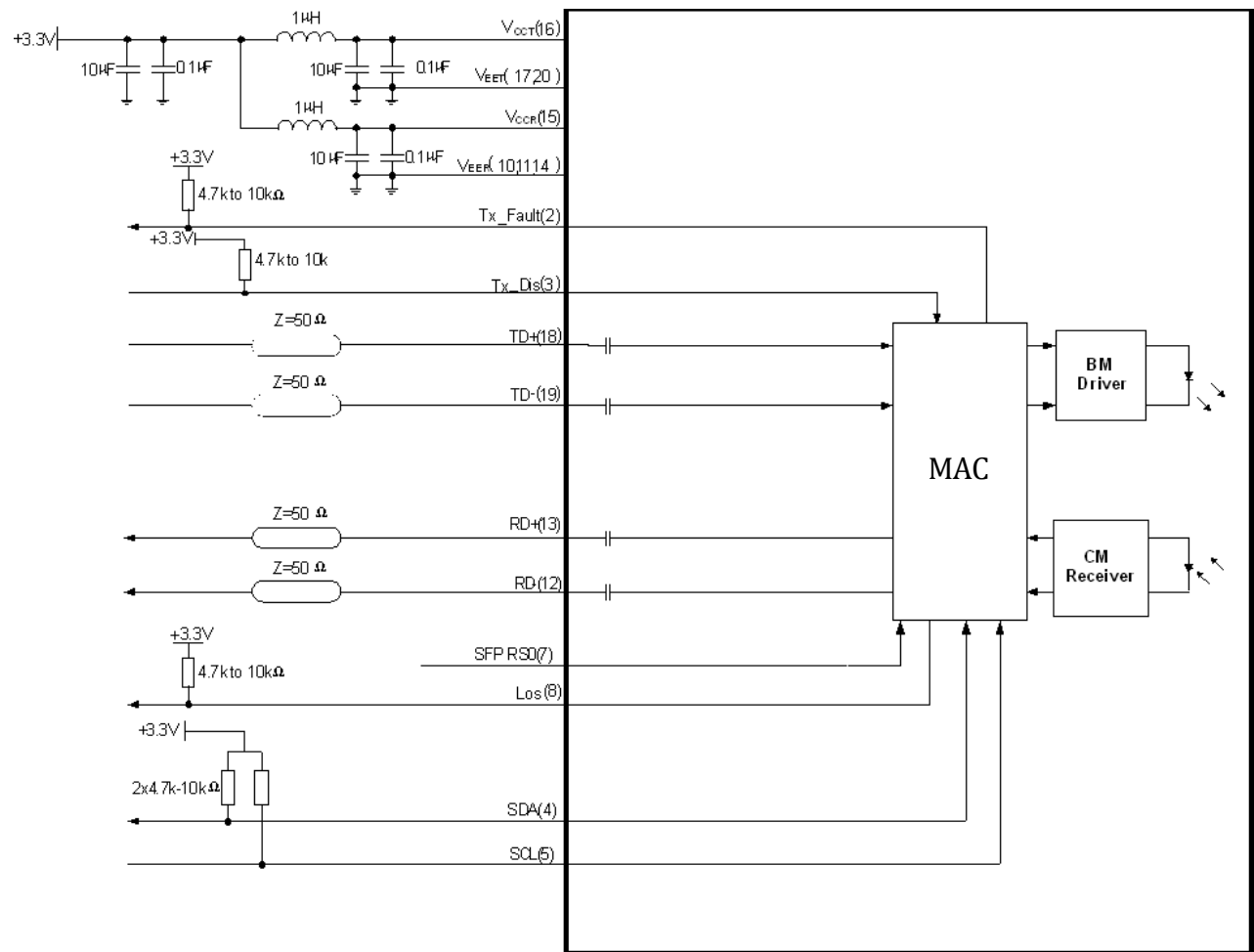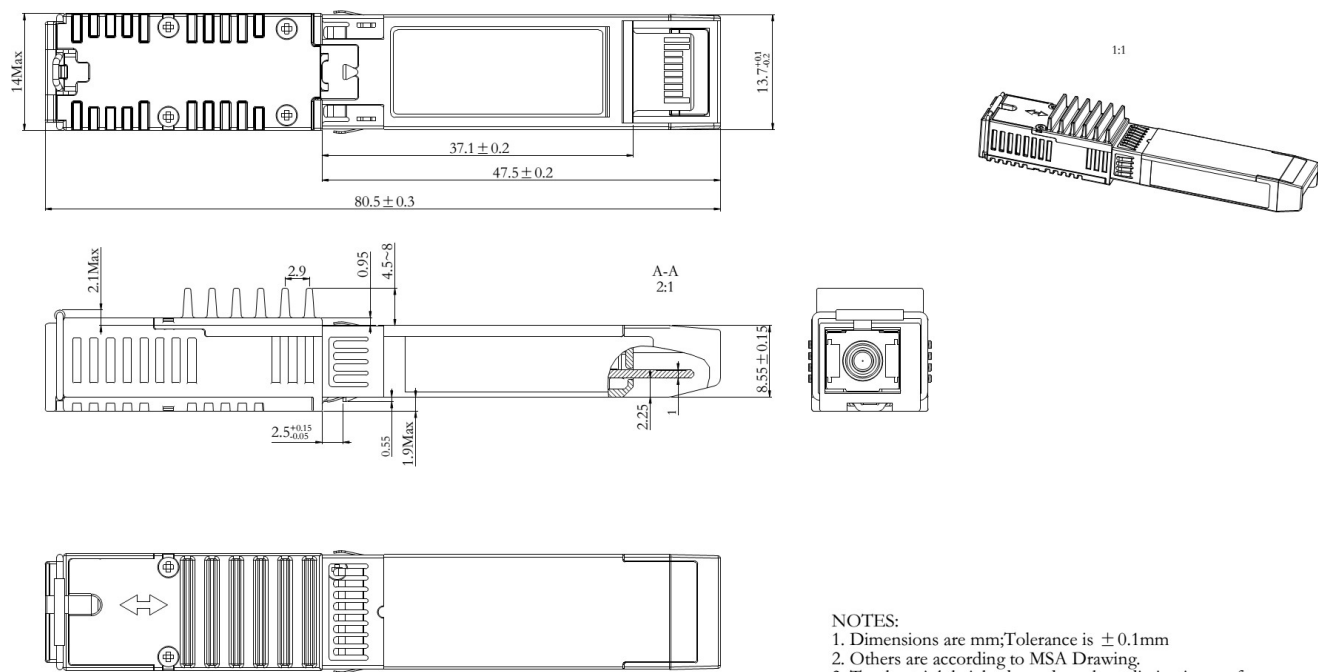5. 1PPS can be defined on PIN1, PIN8, or PIN9 as required.

Pin Assignment

TOP VIEW OF BOARD

Pin 20
Pin 11

BOTTOM VIEW OF BOARD

Pin 10
Pin 1

Block Diagram

XGSPON ODN — BOSA — TX — BOSA Driver — MAC Chip — XFI

RX

NAND Flash

MCU — I2C
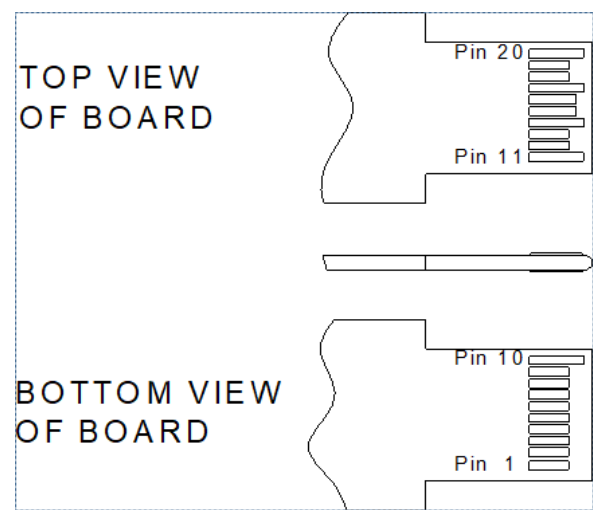
Electrical Interface

Mechanical Specifications

14Max

37.1 ± 0.2
47.5 ± 0.2
80.5 ± 0.3
13.7 +0.1 -0.2

1:1

2.11Max
2.9
0.95
4.5~8
A-A
2:1
8.55 ± 0.15
2.5 +0.15 -0.05
0.55
1.9Max
2.25
1

NOTES:
1. Dimensions are mm;Tolerance is ± 0.1mm
2. Others are according to MSA Drawing.
3. Top heatsink height depends on heat dissipation performance.

EEPROM Information

EEPROM memory map-specific data field description is as below:

2 wire address 1010000X (A0h)

0	Serial ID Defined by SFP MSA (96 bytes)
95	Vendor Specific (32 bytes)
127	Reserved, SFF8079 (128 bytes)
255	

2 wire address 1010001X (A2h)

0	Alarm and Warning Thresholds (56 bytes)
55	Cal Constants (40 bytes)
95	Real Time Diagnostic Interface (24 bytes)
119	Vendor Specific (8 bytes)
127	User Writable EEPROM (120 bytes)
247	Vendor Specific (8 bytes)
255	

About AddOn Networks

In 1999, AddOn Networks entered the market with a single product. Our founders fulfilled a severe shortage for compatible, cost-effective optical transceivers that compete at the same performance levels as leading OEM manufacturers. Adhering to the idea of redefining service and product quality not previously had in the fiber optic networking industry, AddOn invested resources in solution design, production, fulfillment, and global support.

Combining one of the most extensive and stringent testing processes in the industry, an exceptional free tech support center, and a consistent roll-out of innovative technologies, AddOn has continually set industry standards of quality and reliability throughout its history.

Reliability is the cornerstone of any optical fiber network and is in engrained in AddOn's DNA. It has played a key role in nurturing the long-term relationships developed over the years with customers. AddOn remains committed to exceeding industry standards with certifications from ranging from NEBS Level 3 to ISO 9001:2005 with every new development while maintaining the signature reliability of its products.

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