SFPP-EPON-MAC-PR30-I-C

MSA and TAA 10G EPON ONU Stick with MAC SFP+ Transceiver (SMF, 1270nmTx/1577nmRx, PR30, ASC, -40 to 85C)

Features:

- Dual Wavelength
- Bidirectional Operation
- 10.3125Gb/s Burst Mode Tx Data Rate
- 10.3125Gb/s CW Mode Rx Data Rate
- Low Power Consumption
- IEEE802.3av Compliant
- ASC Optical Receptacle
- Single 3.3V DC Input Voltage
- Industrial Temperature: -40°C to 85°C
- RoHS compliant and lead-free
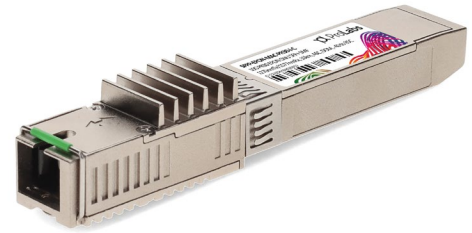
Applications:

- EPON ONU
- Access and Enterprise

Product Description:

This MSA compliant EPON ONU class PR30 SFP+ stick provides 10G throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1270nmTx/1577nmRx via an ASC connector. Our ONU solution comes with a built in MAC bridge. It is capable of withstanding rugged environments and can operate at temperatures between -40 and 85C. This product is in compliance with Multi-Source Agreement (MSA) standards to provide seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows 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.

ProLabs' 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."

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	T$_{stg}$	-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	50		1200	mV	
Tx_Disable = High (Transmitter Off/Disabled)	VIH	2.0		Vcc+0.3	V	LVTTL
Tx_Disable = Low (Transmitter On/Enabled)	VIL	0		0.8	V	LVTTL
Receiver						
Rx_Data Differential Output Voltage	VOH-VOL			1100	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			10.3125		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			10.3125		Gbps	
Optical Center Wavelength	λ	1575	1577	1581	nm	
Receiver Sensitivity	PIN			-28.5	dBm	1
Received Optical Overload	PIN(SAT)	-8			dBm	1

Notes:

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

Pin Descriptions

| Pin	Symbol	Name/Description	Note
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 the 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
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.
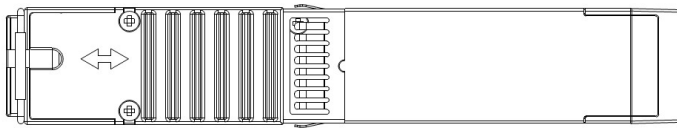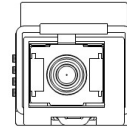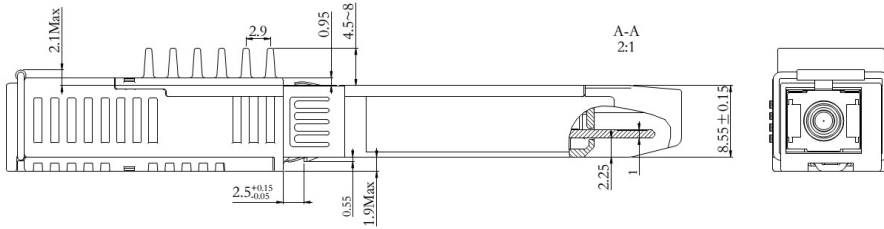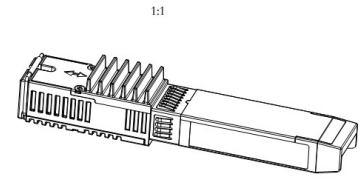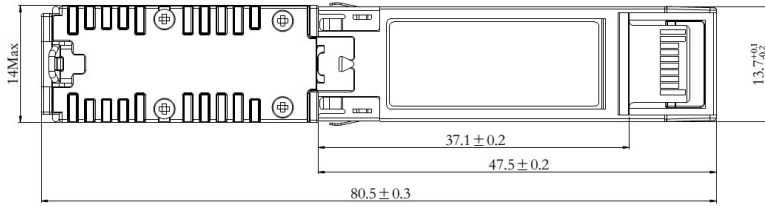
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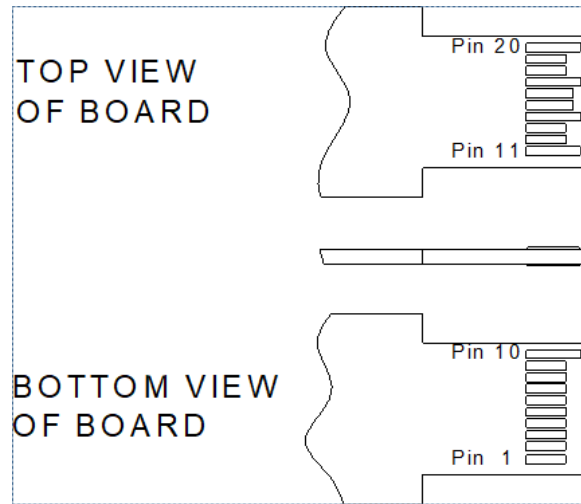
Electrical Interface
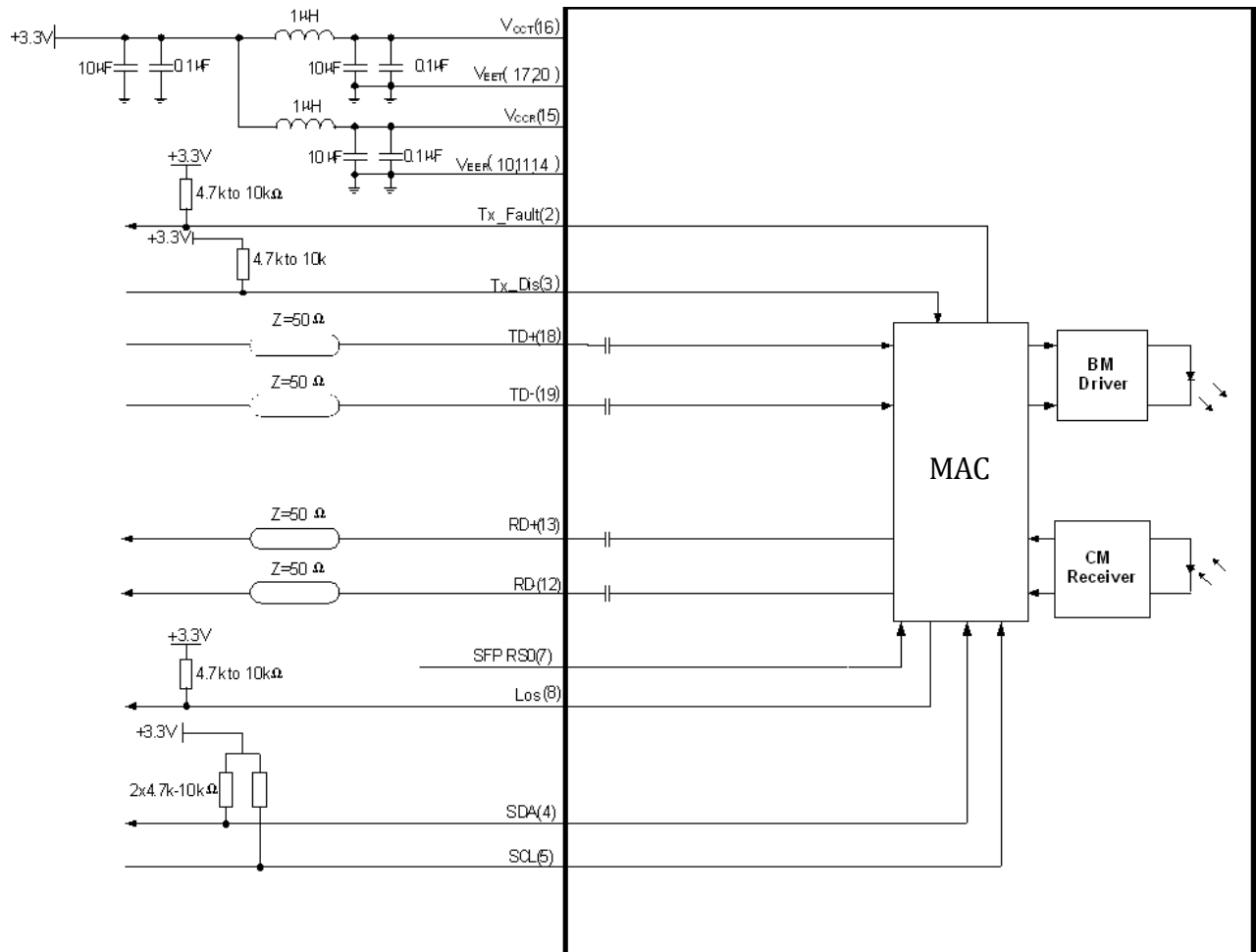
Mechanical Specifications

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:

About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

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