



SPQ25C30PR5D000

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

Product Description

This MSA Compliant SFP+ transceiver provides 10GBase-PON throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1270nmTx/1577nmRx via an ASC 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. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

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

Features:

- EPON ONU in MSA SFP Footprint
- Optional CTC OAM Support, or DPoETM Support
- Compliance with IEEE802.3ah
- Single fiber Bi-Directional SC Receptacle
- Compatibility with EPON OLTs and CPE Equipment
- Built-in Digital Diagnostics Functions



Applications:

- EPON ONU
- Access and Enterprise

For your product safety, please read the following information carefully before any manipulation of the transceiver:



ESD

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



LASER SAFETY

This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	V _{cc}	0		3.6	V	
Storage Ambient Temperature	T _{stg}	-40		85	°C	
Operating Case Temperature	T _c	-40	25	85	°C	
Relative Humidity Storage	RH _{stg}	0		95	%	
Relative Humidity Operating	RH _{op}	0		85	%	
Control Function Logic Levels						
Receiver Loss of Signal Logic State	Rx_LOS	0		V _{cc} +0.5	V	LVTTL
Transmit Disable Logic State	Tx_Disable	0		V _{cc} +0.5	V	LVTTL

Notes:

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	V _{cc}	3.135	3.30	3.465	V	
Power Supply Current	I _{cc}			900	mA	
Transmitter						
Tx_Data Differential Input Voltage	VIH-VIL	50		1200	mV	
Tx_Disable = High (Transmitter Off/Disabled)	VIH	2.0		V _{cc} +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	$\Delta\lambda$			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. $BER \leq 10^{-3}$, PRBS $2^{31}-1$, and ER=6dB.

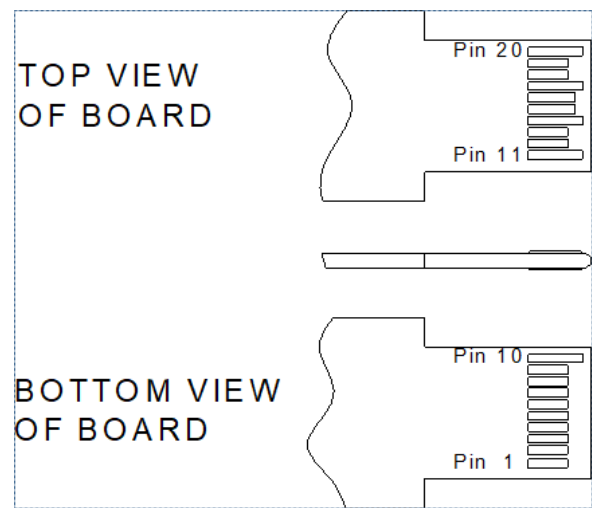
Pin Descriptions

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.	

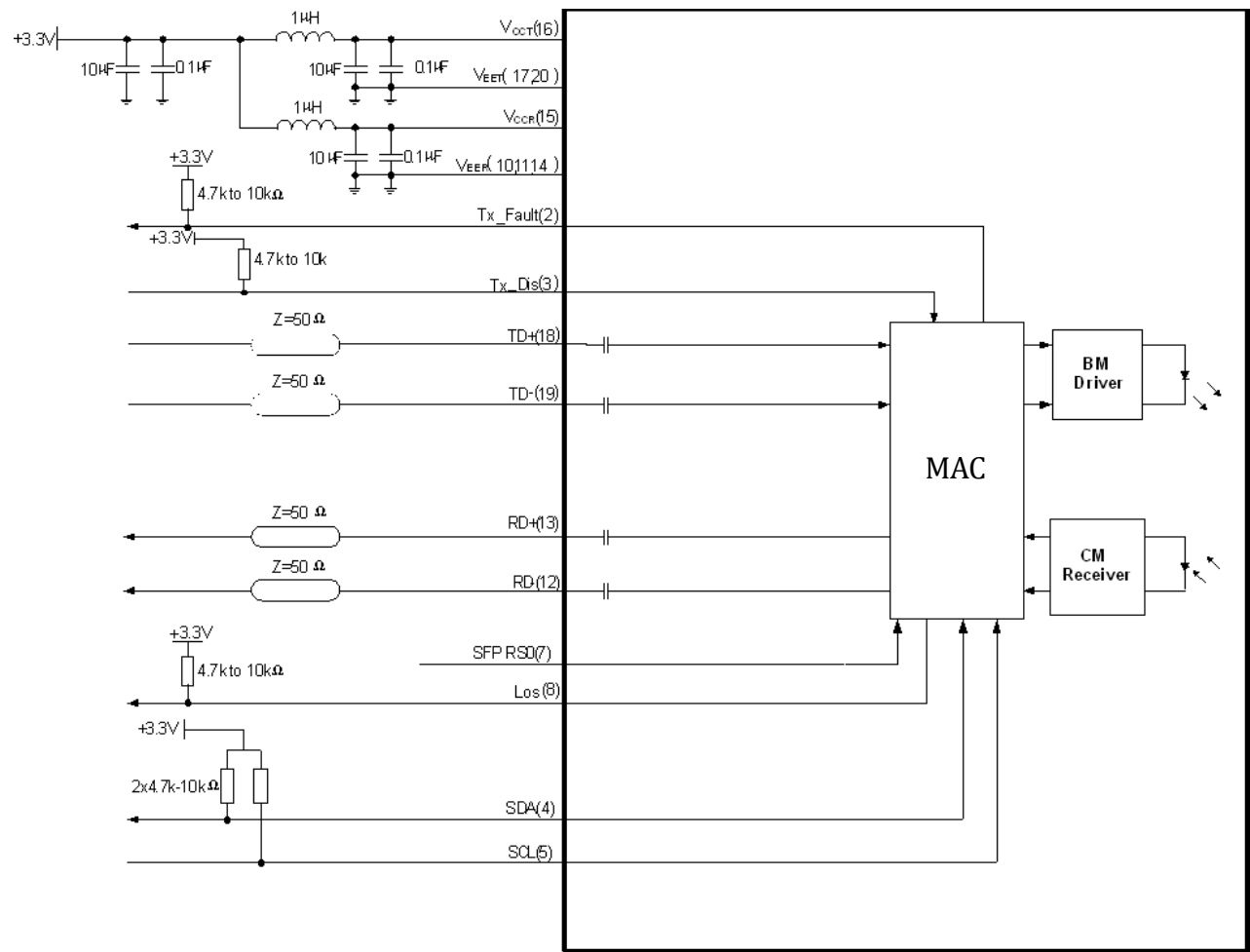
Notes:

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.

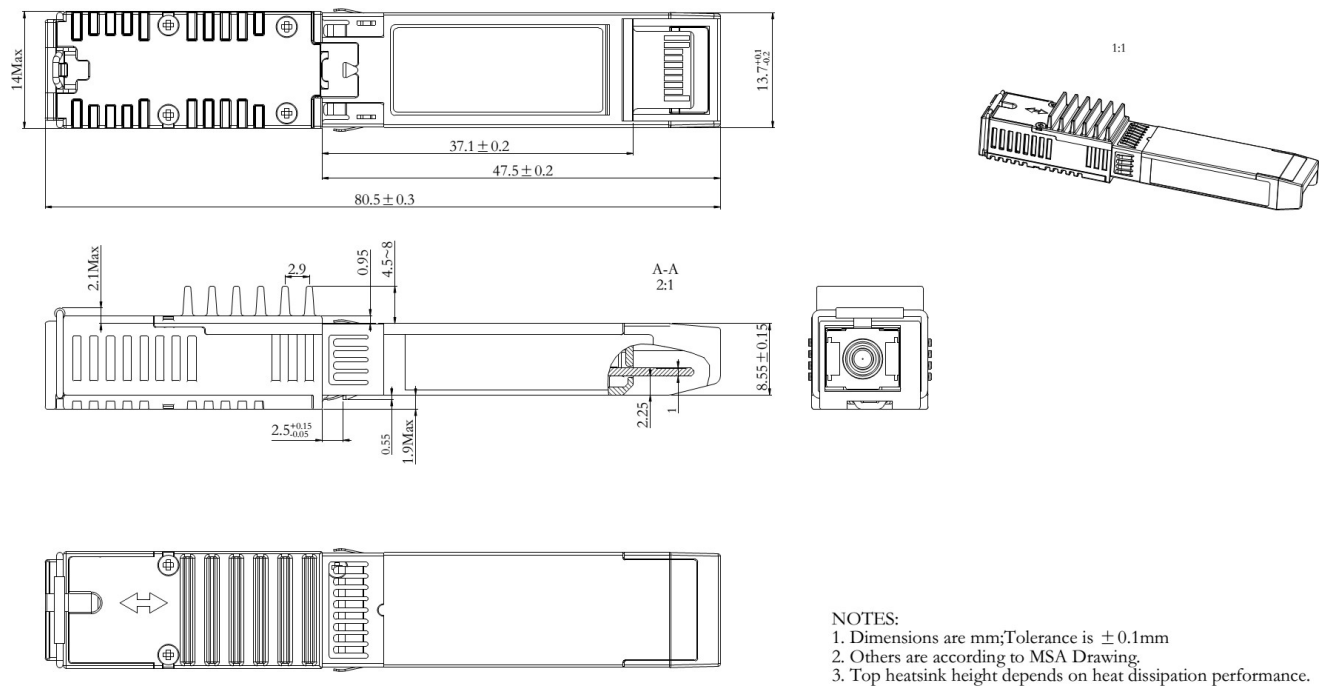
Pin Assignment



Electrical Interface



Mechanical Specifications



EEPROM Information

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

2 wire address 1010000X (A0h)	2 wire address 1010001X (A2h)
0	0
Serial ID Defined by SFP MSA (96 bytes)	Alarm and Warning Thresholds (56 bytes)
95	55
Vendor Specific (32 bytes)	Cal Constants (40 bytes)
127	95
Reserved, SFF8079 (128 bytes)	Real Time Diagnostic Interface (24 bytes)
255	119
	127
	Vendor Specific (8 bytes)
	User Writable EEPROM (120 bytes)
	247
	255
	Vendor Specific (8 bytes)

About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box.

