

# SPT00M301000 – SFP+ Copper Transceiver

Copper / 30m / 10GBase-T

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.

## 1. Overview

SPT00M301000 is a high performance transceiver module for 10× Gigabit Ethernet data links over Category 6a/7 cable. The maximum reach is 30m.

This transceiver module is compatible with the Small Form-factor Pluggable (SFP) Multisource Agreement (MSA) and hot pluggable. Always contact Skylane Optics commercial agents for compatibility with different equipment platforms.

## 2. Features

- Electrical interface specification as per SFF-8431
- Hot pluggable SFP+ footprint
- Management interface specification as per INF-8074i
- Compact RJ45 connector assembly
- Access to Physical Layer IC via 2-wire serial bus
- 30m reach over Cat6a/7 cable
- Operating temperature range 0 to 70°C
- Power dissipation < 3W
- Auto-negotiation function implemented

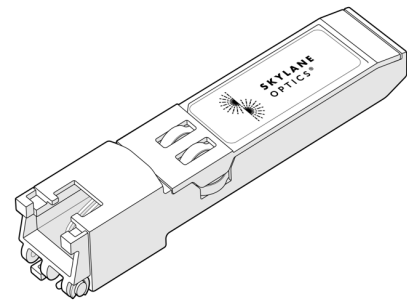


Figure 1. SFP+ Copper  
(non-binding illustration)

## 3. Applications

- 10GBase-T

## 4. Technical Parameters

### 4.1. Recommended Operating Conditions

Parameter	Min	Typ	Max	Units	Notes
Storage temperature	-40		85	°C	
Operating Case Temperature	0		70	°C	
Relative Humidity	5		85	%	Non-Condensing
Power Supply Voltage	3.135	3.3	3.465	V	
Power Supply Current			910	mA	
Power Dissipation			3	W	

### 4.2. Transmitter Optical Specifications

Parameter	Min	Typ	Max	Unit	Notes
Data Rate		10.3125		Gbps	1
Distance			30	m	2

1. IEEE 803-2an
2. Category 6A/7 cable

### 4.3. High-speed Electrical Interface, Host-SFP

Parameter	Min	Typ	Max	Unit	Notes
Differential Input Voltage Swing	190		700	mV <sub>(p-p)</sub>	3
Input Signal Rise/Fall Time	34			ps	5
Differential Input Impedance	80		120	Ω	
Differential Output Voltage Swing	300		850	mV <sub>(p-p)</sub>	4
Output Signal Rise/Fall Time	34			ps	5

3. Internally AC-coupled and terminated to 100Ω differential load
4. Internally AC-coupled. 100Ω differential termination required
5. 20% to 80%

### 4.4. High-speed Electrical Interface, Transmission Line-SFP

Parameter	Min	Typ	Max	Unit	Notes
Differential Output Impedance		100		Ω	
Differential Input Impedance		100		Ω	

## 5. Transceiver Electrical Pad Layout

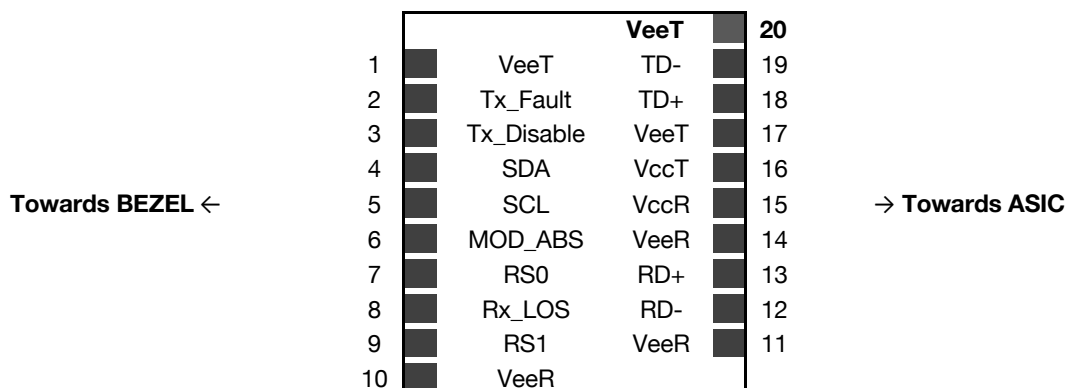


Figure 2. Transceiver Electrical Pad Layout

6. Module Electrical Pin Definition

Pin Number	Name	Function
1	VeeT	Module Transmitter Ground
2	Tx_Fault	Not Used
3	Tx_Disable	Transmitter Disable
4	SDA	2-Wire Serial Interface Data
5	SCL	2-Wire Serial Interface Clock
6	Mod_ABS	Module Absent
7	RS0	Not Used
8	Rx_LOS	Not Used
9	RS1	Not Used
10	VeeR	Module Receiver Ground
11	VeeR	Module Receiver Ground
12	RD-	Receiver Inverted Data Output
13	RD+	Receiver Non-Inverted Data Output
14	VeeR	Module Receiver Ground
15	VccR	Module Receiver 3.3V Supply
16	VccT	Module Transmitter 3.3V Supply
17	VeeT	Module Transmitter Ground
18	TD+	Transmitter Non-Inverted Data Input
19	TD-	Transmitter Inverted Data Input
20	VeeT	Module Transmitter Ground

7. EEPROM

Memory map as per INF-8074i

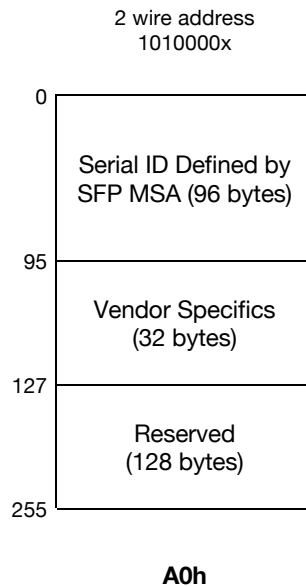


Figure 3. EEPROM of a SFP Copper

## 8. Ordering Information

Part Number	Description
SPT00M301000	SFP copper, RJ45 connector, 10GBase-T, maximum reach 30m on Cat 6a/7 cable, 0°C to 70°C
SPT00M3010G0	SFP copper, RJ45 connector, 10GBase-T, maximum reach 30m on Cat 6a/7 cable, 0°C to 70°C, Specific Hardware

## 9. Document Revision Information

Revision	Description
A	Initial release

Skylane Optics supplies a broad range of optical transceivers. Our engineers work closely with our customers to find the best solutions for every application. We are committed to provide high quality products and services to our customers.

For questions on this product please contact:  
[support@skylaneoptics.com](mailto:support@skylaneoptics.com)

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