

SGT00P10DR0I – SFP Copper Transceiver

Copper / 100m / 10/100/1000Base-T SGMII

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.



1. Overview

SGT00P10DR0I is a high performance transceiver module for Fast Ethernet or Gigabit Ethernet data links over a category 5 UTP cable. The maximum reach is 100m. The transceiver supports 10/100/1000Base-T operation in host system and specified switch with SGMII interface.

This transceiver module is compliant 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

- SFP Multi-Source Agreement compliant [SFF-8074]
- Hot pluggable SFP footprint
- Serial ID functionality supported according to [SFF-8074]
- RJ45 Connector
- 100m, point-to-point transmission on category 5 UTP cabling
- 10/100/1000Base-T operation in host systems with SGMII Operation
- Auto negotiation support
- 1000Base-X auto-neg support
- RX LOS implemented
- temperature range 0°C to 70°C
- Low power dissipation (1.5W max)
- Auto detect MDI/MDI-X



Figure 1. SFP Copper
(non-binding illustration)

3. Applications

- Fast Ethernet
- Gigabit Ethernet
- Intrabuilding
- Datahall

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		95	%	
Power Supply Voltage	3.1	3.3	3.5	V	
Power Supply Current		300	350	mA	

4.2. General Specifications

Parameter	Min	Typ	Max	Units	Notes
Data Rate	10		1000	Mbps	1
Transmission Distance			100	m	2

- 1. 10/100/1000 BASE-T operation requires an SGMII interface with no clocks in the host system. With a SERDES interface only, the module will operate at 1000BASE-T
- 2. On Category 5 UTP cable, BER≤10⁻¹⁰

4.3. High-speed Electrical Interface, Host SFP

Parameter	Min	Typ	Max	Units	Notes
TD+, TD- Input voltage Swing	250		1200	mV	3
RD+, RD- Output voltage Swing	250		800	mV	3
Rise/Fall Time		175		Ps	2
Tx Input Impedance		100		Ohm	2
Rx Output Impedance		100		Ohm	2

- 3. 20% to 80% value
- 4. Single ended

4.4. High-speed Electrical Interface, cable to SFP

Parameter	Min	Typ	Max	Units	Notes
Transmission Frequency				MHz	4
Tx Input Impedance		50		Ohm	5
Rx Output Impedance		50		Ohm	5

- 5. 4D-PAM-5 encoding per IEEE802.3: 2002
- 6. Differential for frequencies ranging from 1MHz to 125MHz

5. Transceiver Electrical Pad Layout

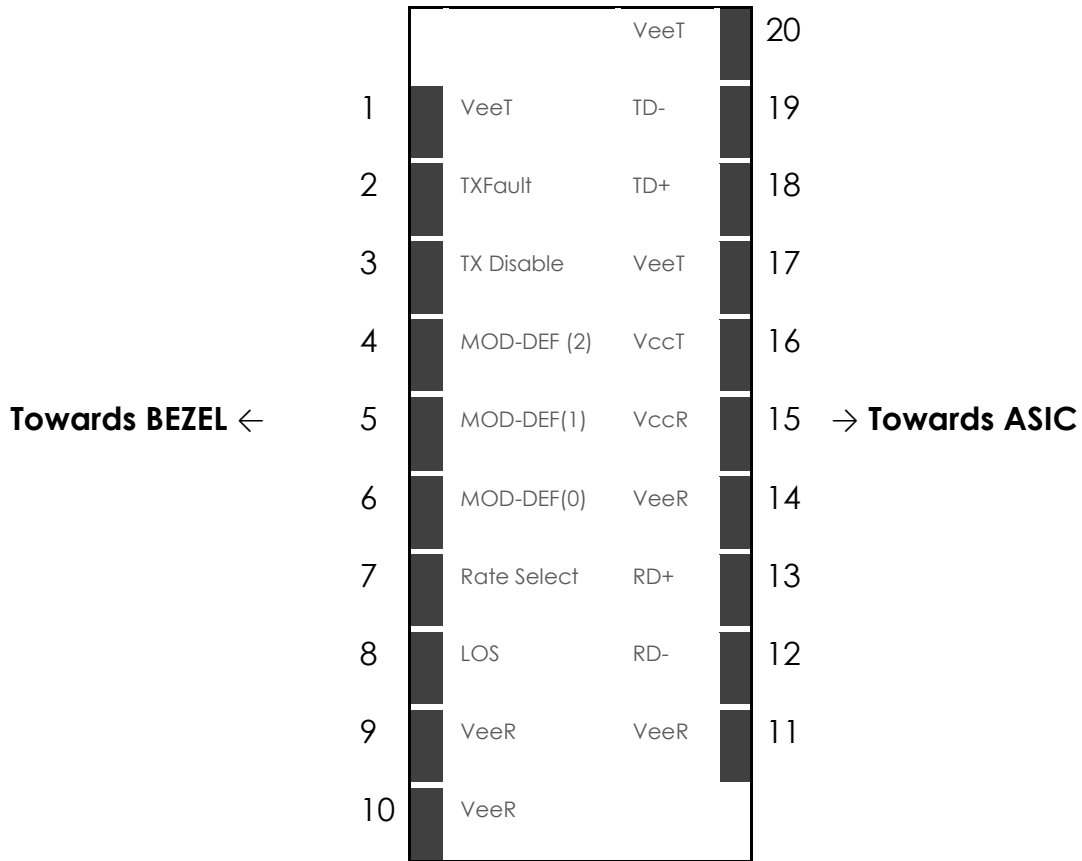


Figure 2. Transceiver Electrical Pad Layout

6. Pin Functions Definitions

Pin Number	Name	Function
1	VeeT	Transmitter Ground
2	TX Fault	Not Used
3	TX_Disable	Transmitter Disable
4	MOD-DEF2	2-Wire Serial Interface Data
5	MOD-DEF1	2-Wire Serial Interface Clock
6	MOD-DEF0	Grounded in Module
7	Rate Select	
8	LOS	RX_LOS
9	VeeR	Receiver Ground
10	VeeR	Receiver Ground

11	VeeR	Receiver Ground
12	RD-	Inverted Received Data Out
13	RD+	Received Data Out
14	VeeR	Receiver Ground
15	VccR	Receiver Power
16	VccT	Transmitter Power
17	VeeT	Transmitter Ground
18	TD+	Transmit Data In
19	TD-	Inverted Transmit Data In
20	VeeT	Transmitter Ground

7. EEPROM

MSA compliant [SFF-8074]

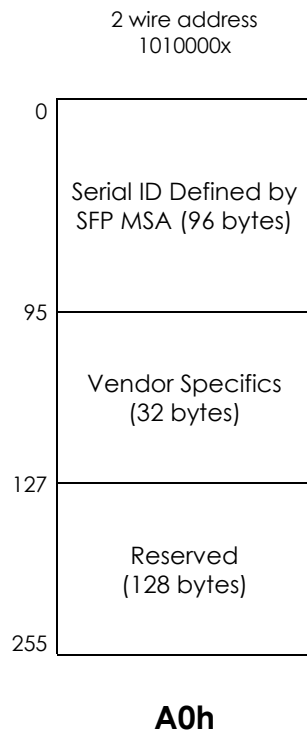


Figure 3. EEPROM of a SFP Copper

8. Ordering information

Part Number	Description
SGT00P10DR0I	SFP copper SGMII, RJ45 connector, protocols: 10/100/1000Base-T, nominal reach 100m on Cat 5 UTP cabling, 0°C to 70°C

9. Revision History

Revision	Author	Update description
A	Cédric D.	Initial release
B	Cédric D.	Features update

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:
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Beyond
Quality

Reliable
Alliance

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Smartly