

# SGT00P10DR0A – SFP Copper

## Copper / 100m / 10/100/1000BASE-T / SERDES

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

SGT00P10DR0A 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 systems with SERDES interface RoHS6 compliant. SGT00P10DR00 also supports 10/100/1000BASE-T operation in host systems 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
- Operating temperature range 0°C to 70°C
- Low power dissipation (1.15W max)
- Access to Physical Layer IC via Two-Wire Serial Bus



(non-binding illustration)

### 3. Applications

- 10/100/1000BASE-T LAN
- Switch to Switch Interface
- Router/Server Interface

#### 4. Technical parameters

##### 4.1. Recommended Operating Conditions

| Parameter                  | Min  | Typ | Max  | Unit | Notes          |
|----------------------------|------|-----|------|------|----------------|
| Storage temperature        | -40  |     | 85   | °C   |                |
| Operating Case Temperature | 0    |     | 70   | °C   |                |
| Relative Humidity          | 5    |     | 85   | %    | Non-Condensing |
| Power Supply Voltage       | 3.15 | 3.3 | 3.45 | V    |                |
| Power Supply Current       |      | 300 | 350  | mA   |                |

##### 4.2. General Specifications

| Parameter             | Min | Typ | Max  | Unit | 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<sup>-12</sup>

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

| Parameter                     | Min | Typ | Max  | Unit | Notes |
|-------------------------------|-----|-----|------|------|-------|
| TD+, TD- Input voltage Swing  | 250 |     | 1200 | mV   | 4     |
| RD+, RD- Output voltage Swing | 350 |     | 800  | mV   | 4     |
| Rise/Fall Time                |     | 175 |      | ps   | 3     |
| Tx Input Impedance            |     | 50  |      | Ω    | 4     |
| Rx Output Impedance           |     | 50  |      | Ω    | 4     |

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

##### 4.4. High-speed Electrical Interface, Cable to SFP

| Parameter              | Min | Typ | Max | Unit | Notes |
|------------------------|-----|-----|-----|------|-------|
| Transmission Frequency |     | 125 |     | MHz  | 5     |
| Tx Input Impedance     |     | 100 |     | Ω    | 6     |
| Rx Output Impedance    |     | 100 |     | Ω    | 6     |

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

#### 5. Transceiver Electrical Pad Layout

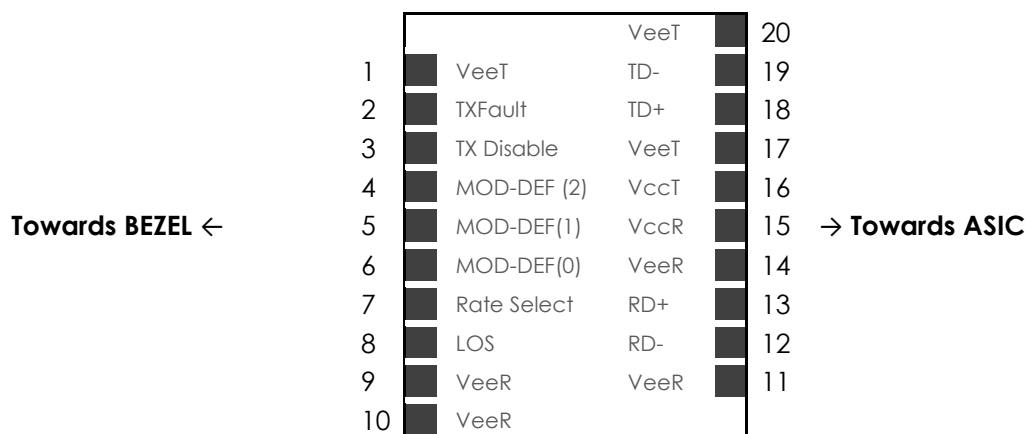


Figure 2. Transceiver Electrical Pad Layout

## 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 | Not Used                      |
| 8          | LOS         | Not Used                      |
| 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]

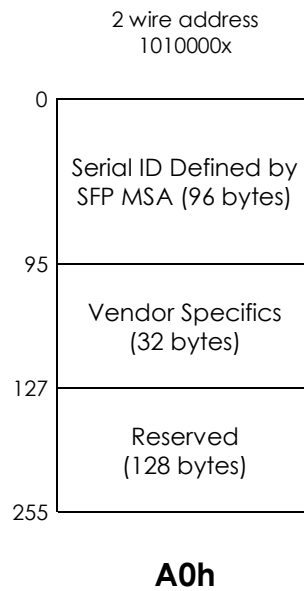


Figure 3. EEPROM of a SFP Copper

## 8. Ordering information

| Part Number         | Description  |
|---------------------|--|
| <b>SGT00P10DR0A</b> | SFP copper, 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              |
|----------|---------------------------|---------------------------------|
| <b>A</b> | Skylane Product committee | Initial release                 |
| <b>B</b> | Cédric D.                 | Text update<br>Pin table update |

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For questions on this product please contact:  
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Beyond  
Quality

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