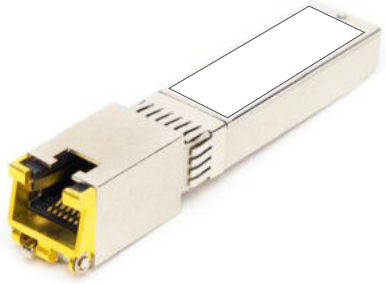
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# SA-SFPP-T10

10GBASE-T Copper SFP+ Transceiver



## FEATURES

- Support 10Gbase-T / 5Gbase-T / 2.5Gbase-T / 1000base-T on line port
- Support 10Gbase-R on host port
- Hot-pluggable SFP footprint
- Compact RJ-45 connector assembly
- RoHS compliant and lead-free
- Single +3.3V power supply
- 10 Gigabit Ethernet over Cat 6a cable
- Ambient Operating temperature: 0°C to +70°C

## DESCRIPTION

SA-SFPP-T10 Copper Small Form Pluggable (SFP) transceivers are based on the SFP Multi Source Agreement (MSA). They are compatible with the 10Gbase-T / 5Gbase-T / 2.5Gbase-T / 1000base-T standards as specified in IEEE Std 802.3. SA-SFPP-T10 uses the SFP's RX_LOS (must be pulled up on host) pin for link indication. If pull up or open SFP's TX_DISABLE pin, PHY IC be reset.

## CABLE LENGTH

| Line Port | Cable | Reach | Host Port |
|---|---|---|---|
| 10Gbase-T | CAT6A F/FTP | 30m | 10GBase-R |
| 5Gbase-T | CAT5E | 50m | 10GBase-R |
| 2.5Gbase-T | CAT5E | 50m | 10GBase-R |
| 1000base-T | CAT5E | 100m | 10GBase-R |
| 100base-Tx | CAT5E | 100m | 10GBase-R |

## +3.3V VOLT ELECTRICAL POWER INTERFACE

SA-SFPP-T10 has an input voltage range of 3.3 V +/- 5%. The 4V maximum voltage is not allowed for continuous operation.

| +3.3 Volt Electrical Power Interface | | | | | | |
|---|---|---|---|---|---|---|
| **Parameter** | **Symbol** | **Min** | **Typ** | **Max** | **unit** | **Notes/Conditions** |
| Supply Current | Is | | 750 | 1000 | mA | |
| Input Voltage | Vcc | 3.13 | 3.3 | 3.47 | V | Referenced to GND |
| Maximum Voltage | Vmax | | | 4 | V | |

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## LOW-SPEED SIGNALS

MOD_DEF(1) (SCL) and MOD_DEF(2) (SDA), are open drain CMOS signals (see section VII, "Serial Communication Protocol"). Both MOD_DEF(1) and MOD_DEF(2) must be pulled up to host_Vcc

| Low-Speed Signals, Electronic Characteristics | | | | | |
|---|---|---|---|---|---|
| **Parameter** | **Symbol** | **Min** | **Max** | **unit** | **Notes/Conditions** |
| SFP Output LOW | VOL | 0 | 0.5 | V | 4.7k to 10k pull-up to host_Vcc, measured at host side of connector |
| SFP Output HIGH | VOH | host_Vcc -0.5 | host_Vcc + 0.3 | V | 4.7k to 10k pull-up to host_Vcc, measured at host side of connector |
| SFP Input LOW | VIL | 0 | 0.8 | V | 4.7k to 10k pull-up to Vcc, measured at SFP side of connector |
| SFP Input HIGH | VIH | 2 | Vcc + 0.3 | V | 4.7k to 10k pull-up to Vcc, measured at SFP side of connector |

## HIGH-SPEED ELECTRICAL INTERFACE

All high-speed signals are AC-coupled internally.

| High-Speed Electrical Interface, Transmission Line-SFP | | | | | | |
|---|---|---|---|---|---|---|
| **Parameter** | **Symbol** | **Min** | **Typ** | **Max** | **unit** | **Notes/Conditions** |
| Line Frequency | fL | | 125 | | MHz | 5-level encoding, per IEEE 802.3 |
| Tx Output Impedance | Zout,TX | | 100 | | Ohm | Differential, for all frequencies between 1MHz and 125MHz |
| Rx Input Impedance | Zin,RX | | 100 | | Ohm | Differential, for all frequencies between 1MHz and 125MHz |

| High-Speed Electrical Interface, Host-SFP | | | | | | |
|---|---|---|---|---|---|---|
| **Parameter** | **Symbol** | **Min** | **Typ** | **Max** | **unit** | **Notes/Conditions** |
| Single ended data input swing | Vinsing | 250 | | 1200 | mV | Single ended |
| Single ended data output swing | Voutsing | 350 | | 800 | mV | Single ended |
| Rise/Fall Time | $T_r$,$T_f$ | | 175 | | psec | 20%-80% |
| Tx Input Impedance | Zin | | 50 | | Ohm | Single ended |
| Rx Output Impedance | Zout | | 50 | | Ohm | Single ended |



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## GENERAL SPECIFICATIONS

| General | | | | | | |
|---|---|---|---|---|---|---|
| **Parameter** | **Symbol** | **Min** | **Typ** | **Max** | **unit** | **Notes/Conditions** |
| Data Rate | BR | 1 | | 10 | Gb/sec | IEEE 802.3 compatible. See Notes 1,2 below |

**Notes:**

1. Clock tolerance is +/- 50 ppm

## ENVIRONMENTAL SPECIFICATIONS

Automatic crossover detection is enabled. External crossover cable is not required

| Environmental Specifications | | | | | | |
|---|---|---|---|---|---|---|
| **Parameter** | **Symbol** | **Min** | **Typ** | **Max** | **unit** | **Notes/Conditions** |
| Operating Temperature | Top | 0 | | 70 | °C | Case temperature |
| Storage Temperature | Tsto | -40 | | 85 | °C | Ambient temperature |



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