

## **ES-T7-R**

### **10GBase-T Copper SFP+ 100M Transceiver**

#### **Product Features**

- Up to 10Gb/s bi-directional data links
- Hot-pluggable SFP+ footprint
- Fully metallic enclosure for low EMI
- Low power dissipation
- Compact RJ-45 connector assembly
- Access to physical layer IC via 2-wire serial bus
- Supports Links up to 100m using Cat 6a/7 Cable
- RoHS Compliant
- Operating case temperature: 0°C to 70°C

#### **Applications**

- 10 Gigabit Ethernet over Cat 6a/7 cable

## Description

ETU-LINK's ES-T7-R Copper Enhanced Small Form Pluggable (SFP+) transceivers are high performance, cost effective module compliant with the 10G Ethernet and 10GBASE-T standards as specified in IEEE 802.3az, which supporting 10Gbps data- rate up to 100 meters reach over unshielded twisted-pair category 6a/7 cables. The module provides standard serial ID information compliant with SFP+ MSA, which can be accessed with address of A0h via the 2wire serial EEPROM protocol.

## Ordering information

| Part Number | Tx_DIS | Link Indicator on Rx_LOS Pin | Temp.  |
|-------------|--------|------------------------------|--------|
| ES-T7-R     | Yes    | Yes                          | 0~70°C |

## +3.3V Volt Electrical Power Interface

The ES-T7-R has an input voltage range of +3.3V +/- 5%.

**Table 1. +3.3V Volt electrical power interface**

| +3.3V volt Electrical Power Interface |        |      |     |      |       |                                                                                      |
|---------------------------------------|--------|------|-----|------|-------|--------------------------------------------------------------------------------------|
| Parameter                             | Symbol | Min  | Typ | Max  | Units | Notes/Conditions                                                                     |
| Supply Current                        | Is     |      |     | 750  | mA    | 2.5W max power over full range of voltage and temperature.<br>See caution note below |
| Input Voltage                         | Vcc    | 3.13 | 3.3 | 3.47 | V     | Referenced to GND                                                                    |
| Maximum Voltage                       | Vmax   |      |     | 3.8  | V     |                                                                                      |
| Surge Current                         | Isurge |      |     | 30   | mA    | Hot plug above steady state current.                                                 |

## General Specifications

**Table 2. General specifications**

| General      |        |     |      |     |        |                               |
|--------------|--------|-----|------|-----|--------|-------------------------------|
| Parameter    | Symbol | Min | Typ  | Max | Units  | Notes/Conditions              |
| Data Rate    | BR     |     | 10.3 |     | Gb/sec | IEEE 802.3 compatible.        |
| Cable Length | L      |     |      | 100 | m      | Category 6a/7 UTP. BER <10-12 |

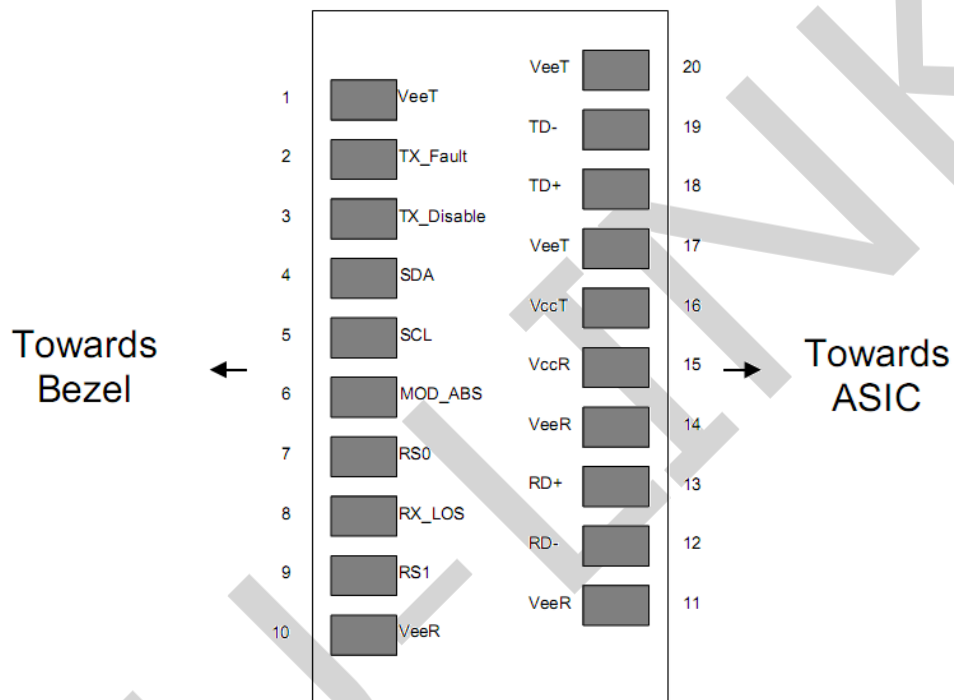
## Environmental Specifications

**Table 3. Environmental specifications**

| Environmental Specifications |
|------------------------------|
|------------------------------|

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

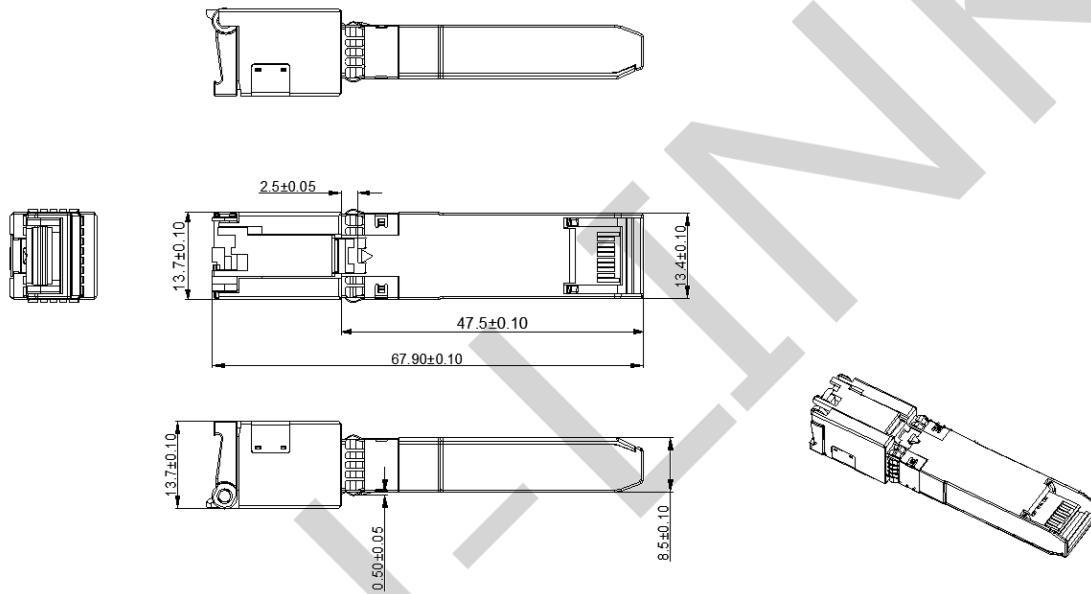
## Pin Descriptions



| Pin | Signal Name      | Description                               | Plug Seq. | Notes         |
|-----|------------------|-------------------------------------------|-----------|---------------|
| 1   | V <sub>EET</sub> | Transmitter Ground                        | 1         |               |
| 2   | TX FAULT         | Transmitter Fault Indication              | 3         | Not supported |
| 3   | TX DISABLE       | Transmitter Disable                       | 3         |               |
| 4   | SDA              | SDA Serial Data Signal                    | 3         |               |
| 5   | SCL              | SCL Serial Clock Signal                   | 3         |               |
| 6   | MOD_ABS          | Module Absent. Grounded within the module | 3         |               |
| 7   | RS0              | Not Connected                             | 3         |               |
| 8   | LOS              | Loss of Signal                            | 3         |               |
| 9   | RS1              | Not Connected                             | 3         |               |
| 10  | V <sub>EER</sub> | Receiver ground                           | 1         |               |
| 11  | V <sub>EER</sub> | Receiver ground                           | 1         |               |
| 12  | RD-              | Inv. Received Data Out                    | 3         |               |
| 13  | RD+              | Received Data Out                         | 3         |               |
| 14  | V <sub>EER</sub> | Receiver ground                           | 1         |               |

|    |                  |                          |   |  |
|----|------------------|--------------------------|---|--|
| 15 | V <sub>CCR</sub> | Receiver Power Supply    | 2 |  |
| 16 | V <sub>CCT</sub> | Transmitter Power Supply | 2 |  |
| 17 | V <sub>EET</sub> | Transmitter Ground       | 1 |  |
| 18 | TD+              | Transmit Data In         | 3 |  |
| 19 | TD-              | Inv. Transmit Data In    | 3 |  |
| 20 | V <sub>EET</sub> | Transmitter Ground       | 1 |  |

## Mechanical Specifications



## Revision History

| Version No. | Date            | Description           |
|-------------|-----------------|-----------------------|
| 1.0         | August 29, 2018 | Preliminary datasheet |
| 2.0         | July 26, 2024   | Format change         |

Company: ETU-Link Technology Co., LTD

Production base: Right side of 3rd floor, No. 102 building, Longguan expressway, Dalang street, Longhua District, Shenzhen city, Guangdong Province, China 518109

R&D base: Floor 4, Building 4, Nanshan Yungu Phase LI, Taoyuan Community, Xili Street, Nanshan District, Shenzhen

Tel: +86-755 2328 4603

Addresses and phone number also have been listed at [www.etulinktechnology.com](http://www.etulinktechnology.com).

Please e-mail us at [sales@etulinktechnology.com](mailto:sales@etulinktechnology.com) or call us for assistance.