

## **ES-T6-R**

### **10GBASE Copper SFP 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 80m using Cat 6a/7 Cable
- RoHS Compliant
- Operating case temperature: 0°C to 70°C

#### **APPLICATIONS**

- 10 Gigabit Ethernet over Cat 6a/7 cable

## DESCRIPTIONS

ETU-LINK's ES-T6-R Copper 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 80 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 Disable function | Link Indicator on RX_LOS Pin | Temp     |
|-------------|---------------------|------------------------------|----------|
| ES-T6-R     | Yes                 | Yes                          | 0°C~70°C |

## +3.3V Volt Electrical Power Interface

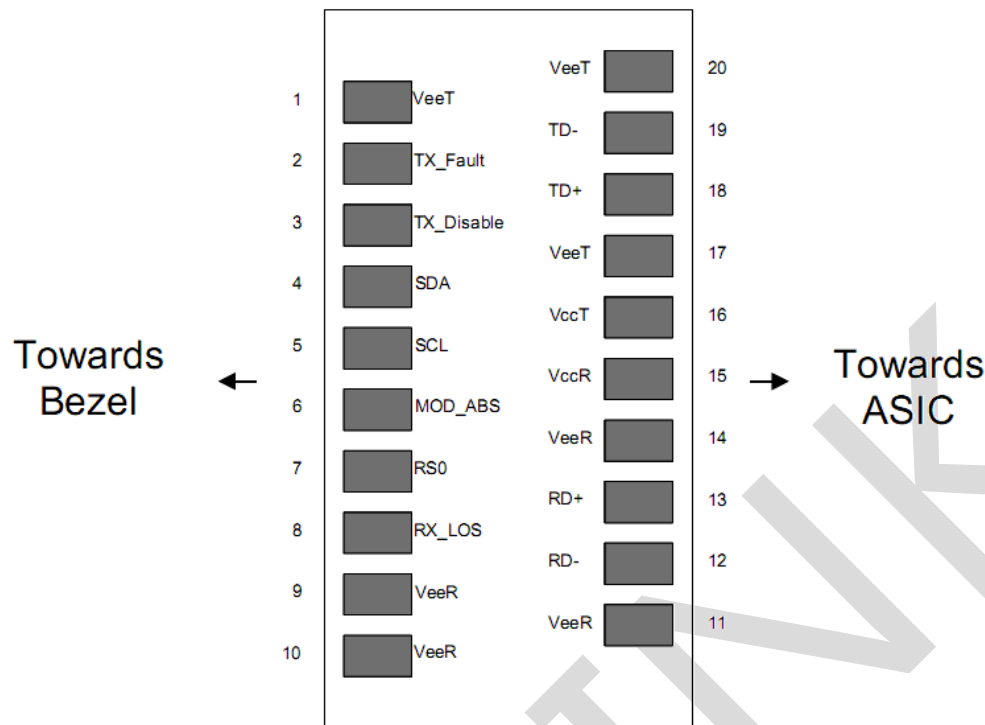
The has an input voltage range of +3.3V +/- 5%.

| Parameter       | Symbol | Min  | Typ | Max  | Units | Notes/Conditions                                                                  |
|-----------------|--------|------|-----|------|-------|-----------------------------------------------------------------------------------|
| Supply Current  | Is     |      |     | 750  | mA    | 2.5W max power over full range of voltage and temperature. See caution note below |
| Input Voltage   | Vcc    | 3.13 | 3.3 | 3.47 | V     | Referenced to GND                                                                 |
| Maximum Voltage | Vmax   |      |     | 3.8  | V     |                                                                                   |

## General specifications

| Parameter    | Symbol | Min | Typical | Max | Unit   | Notes/Conditions                          |
|--------------|--------|-----|---------|-----|--------|-------------------------------------------|
| Data Rate    | BR     |     | 10.3    |     | Gb/sec | IEEE 802.3 compatible.                    |
| Cable Length | L      |     |         | 80  | m      | Category 6a/7 UTP. BER <10 <sup>-12</sup> |

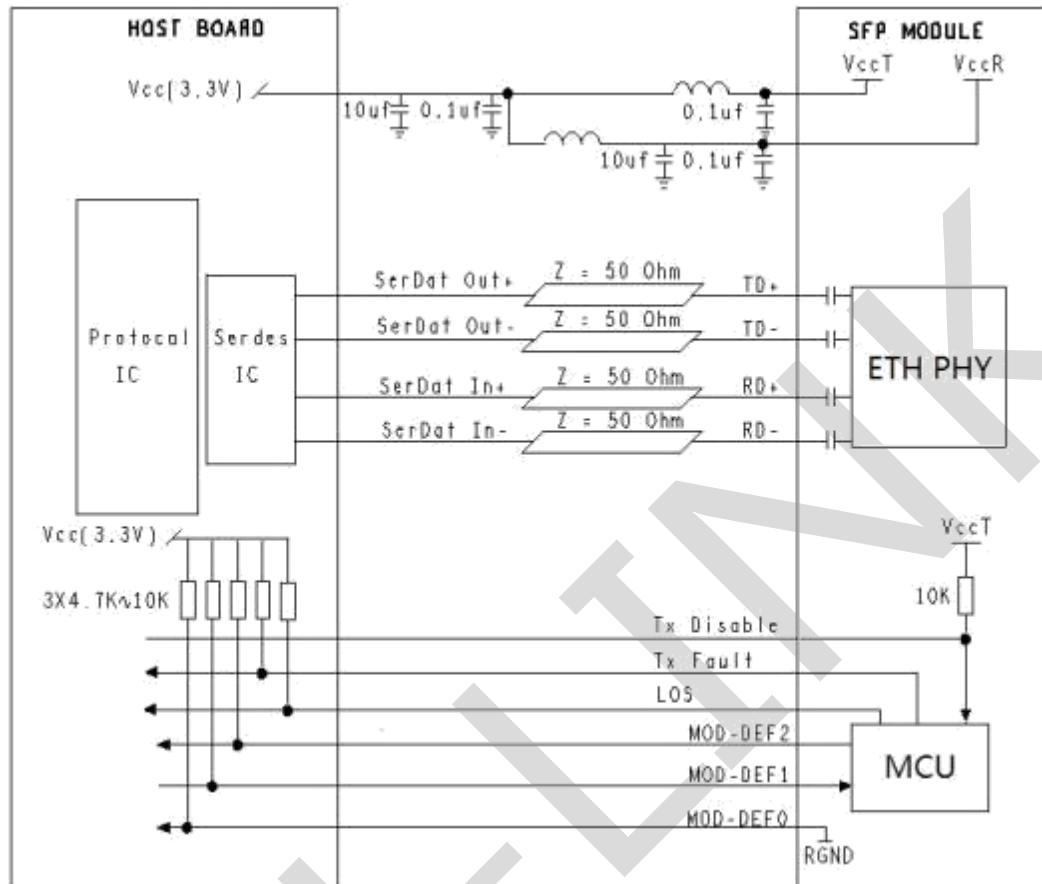
## Pin Definitions



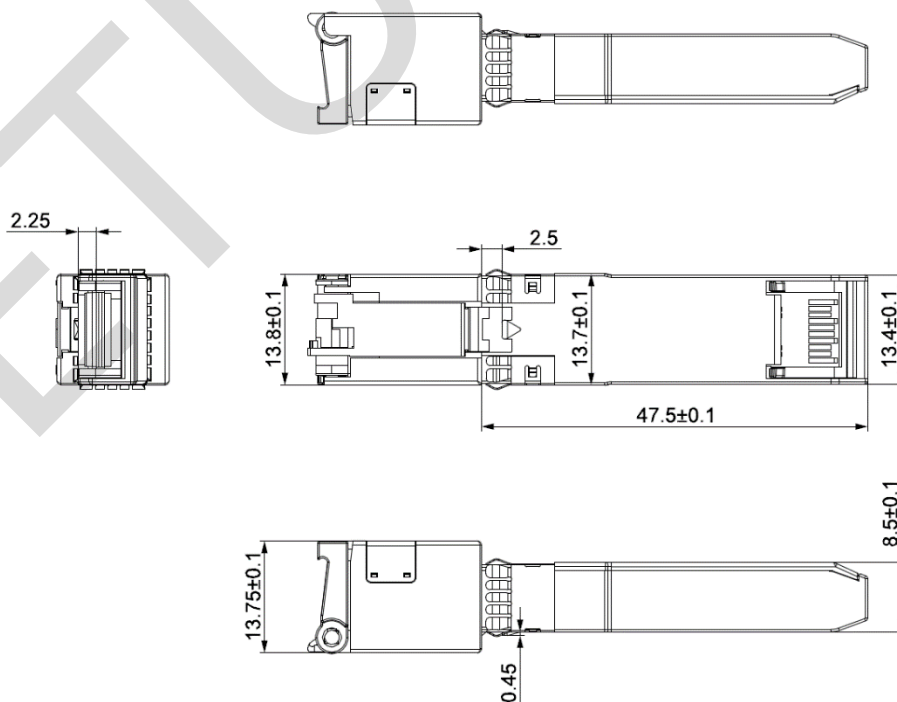
## Pin Definitions

| PIN | NAME             | FUNCTION                                  | 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   | V <sub>EER</sub> | Receiver ground                           | 1    |               |
| 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    |               |

## Recommended Interface Circuit



## Mechanical Diagram



## Revision History

| Version No. | Date         | Description           |
|-------------|--------------|-----------------------|
| 1.0         | Oct,15, 2018 | Preliminary datasheet |
| 2.0         | Aug 11,2024  | Product upgrades      |

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