

## ES-T5-RI

### 10GBase-T 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 30m using Cat 6a/7 Cable
- RoHS Compliant
- Operating case temperature: -40°C to 85°C

#### APPLICATIONS

- 10 Gigabit Ethernet over Cat 6a/7 cable

## DESCRIPTIONS

The ETU-Link's TS-T5-RICopper 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 30 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	Speed mode	TX Disable With PHY	Link Indicator on RX_LOS Pin	Temp
ES-T5-RI	10Gb/s	Yes	No	-40°C ~ +85°C

## +3.3V Volt Electrical Power Interface

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

+3.3V volt Electrical Power Interface						
Parameter	Symbol	Min	Typ	Max	Units	Notes/Conditions
Supply Current	Is			600	mA	2W 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			4	V	
Surge Current	Isurge			30	mA	Hot plug above steady state current.

## General Specifications

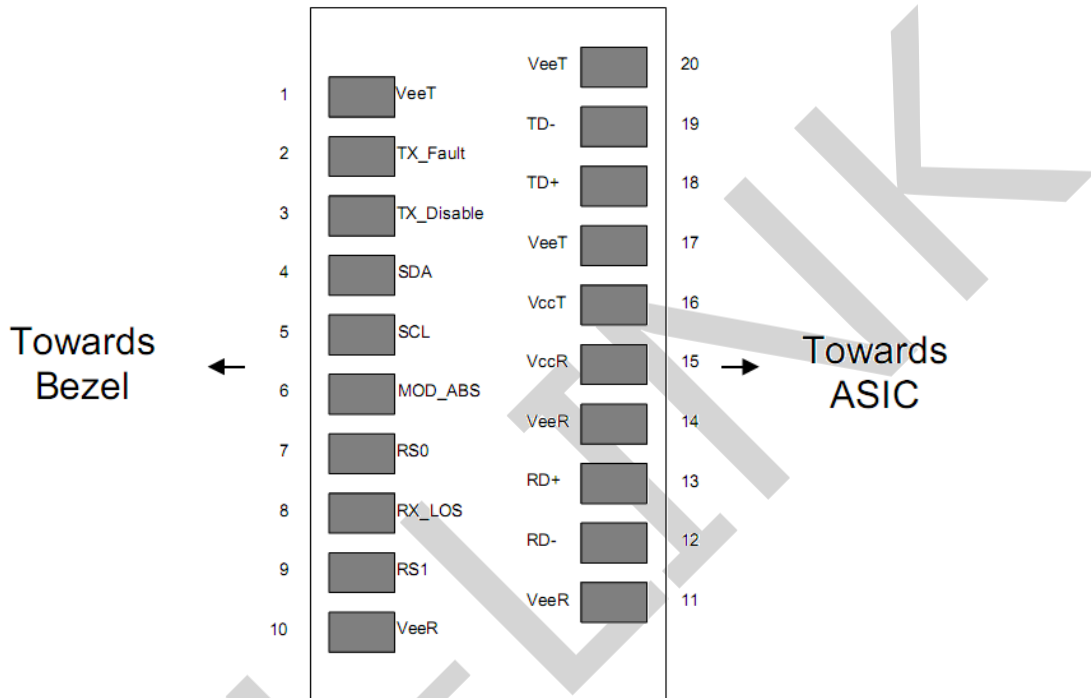
General						
Parameter	Symbol	Min	Typ	Max	Units	Notes/Conditions
Data Rate	BR		10.3		Gb/sec	IEEE 802.3 compatible.
Cable Length	L			30	m	Category 6a/7 UTP. BER <10 <sup>-12</sup>

## Environmental Specifications

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

## Pin Diagram

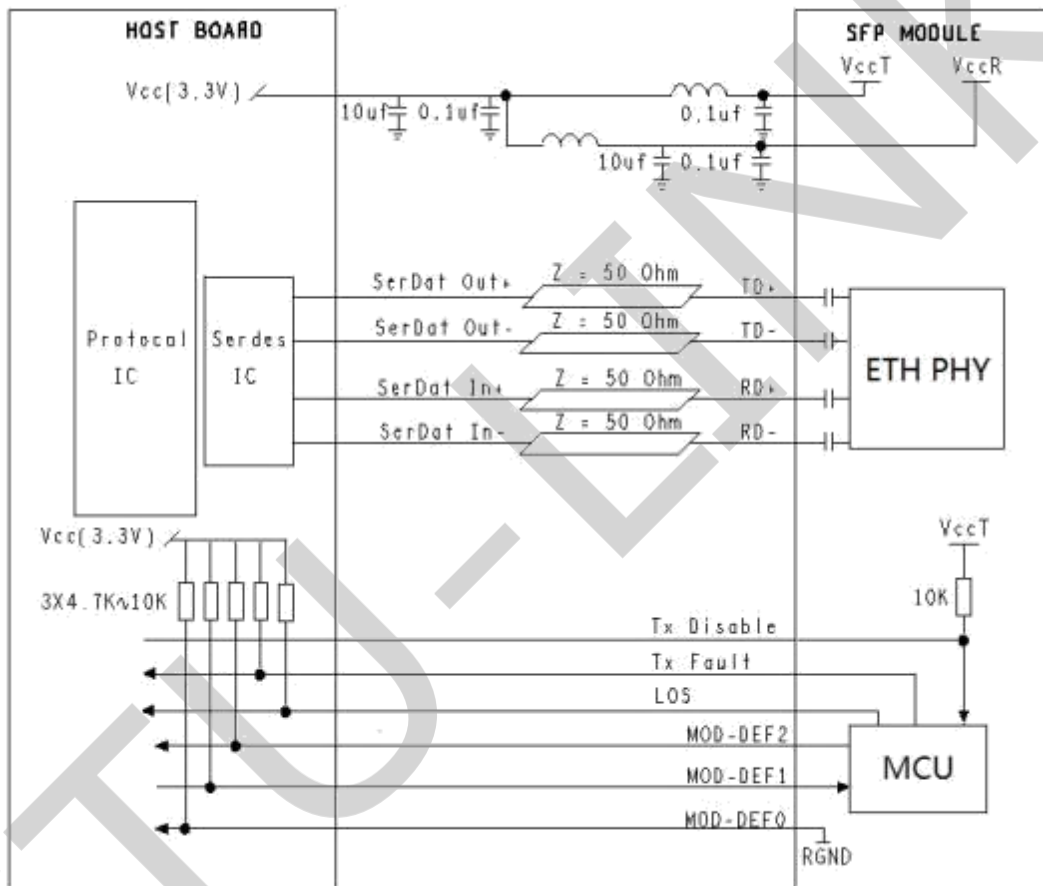


## Pin Definitions

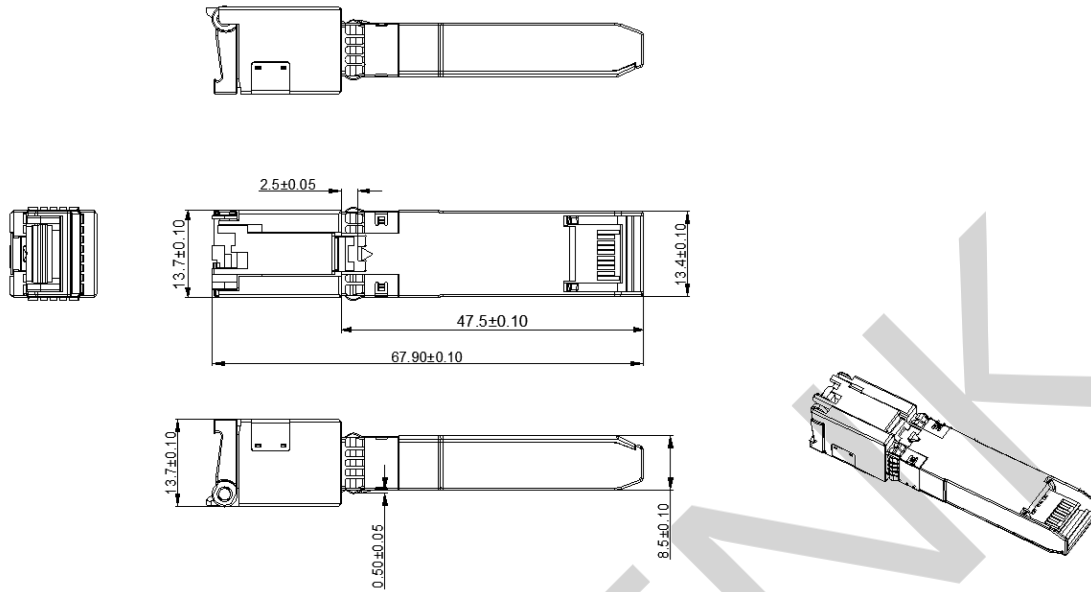
Pin	Signal Name	Description	Plug Seq.	Notes
1	VEET	Transmitter Ground	1	
2	TX FAULT	Transmitter Fault Indication	3	Not supported
3	TX DISABLE	Transmitter Disable	3	
4	SDA	SDA Serial Data Signal	3	
5	SCL	SCL Serial Clock Signal	3	
6	MOD_ABS	Module Absent. Grounded within the module	3	
7	RS0	Not Connected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

16	V <sub>CC</sub> T	Transmitter Power Supply	2	
17	V <sub>EE</sub> T	Transmitter Ground	1	
18	TD+	Transmit Data In	3	
19	TD-	Inv. Transmit Data In	3	
20	V <sub>EE</sub> T	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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