

## COL-SFP-10GE-T 10GBASE-T Copper SFP+ Transceiver

### 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: 0°C to70°C

### Applications

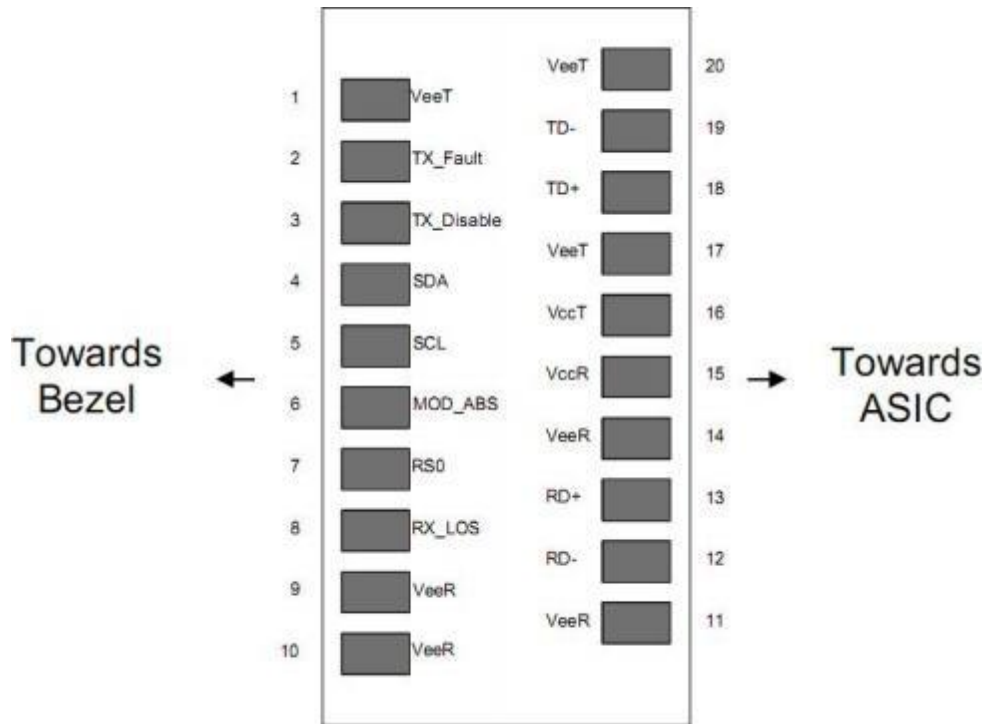
- 10 Gigabit Ethernet over Cat 6a/7 cable

### Description

COL-SFP-10GE-T 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 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. The physical IC can also be accessed via 2wire serial bus at address A0h.

## 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	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	

### +3.3V Volt Electrical Power Interface

The C O L - SFP-10GE-T 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	I <sub>s</sub>		700	750	mA	2.5W max power over full range of voltage and temperature. See caution note below
Input Voltage	V <sub>cc</sub>	3.13	3.3	3.47	V	Referenced to GND
Maximum Voltage	V <sub>max</sub>			4	V	
Surge Current	I <sub>surge</sub>			30	mA	Hot plug above steady state current. See caution note below

### 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			30	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	T <sub>op</sub>	0		70	°C	Case temperature
Storage Temperature	T <sub>sto</sub>	-40		85	°C	Ambient temperature

## Regulatory Compliance

COPTOLINK SFP+ transceiver is designed to be Class I Laser safety compliant and is certified per the following standards:

Feature	Agency	Standard	Certificate / Comments
Laser Safety	FDA	CDRH 21 CFR 1040 and Laser Notice No. 50	1120292-000
Product Safety	UL	UL and CUL EN60950-2:2007	E347511
Environmental protection	SGS	RoHS Directive 2002/95/EC	GZ1001008918/CHEM
EMC	WALTEK	EN 55022:2006+A1:2007 EN 55024:1998+A1+A2:2003	WT10093759-D-E-E

## Ordering information

Part number	Speed mode	MAC interface	TX Disable function	Link Indicator on RX_LOS Pin	Temp
COL-SFP-10GE-T	10Gbps	XFI	YES	YES	0~70°C

## References

1. "Specifications for Enhanced Small Form Factor Pluggable Module SFP+", SFF-8431, Rev 4.1, July 6, 2009.
2. "Improved Pluggable Formfactor", SFF-8432, Rev 4.2, Apr 18, 2007
3. IEEE802.3ae – 2002
4. "Diagnostic Monitoring Interface for Optical Transceivers" SFF-8472, Rev 10.3, Dec 1, 2007

## Important Notice

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