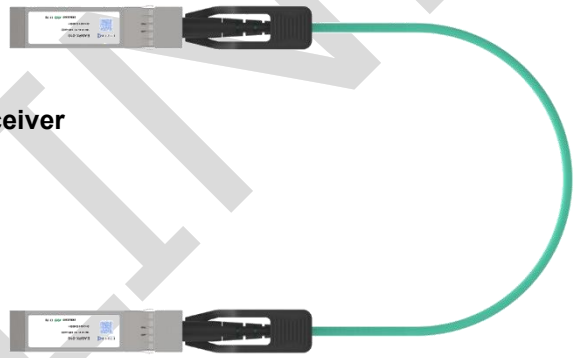
EASPX-xxx-OM3

10G SFP+ to SFP+ Active Optical Cables

PRODUCT FEATURES



- Low power consumption <0.35W per end
- Electrical interface compliant to SFF-8431
- Up to 300m on OM3 MMF
- 850nm VCSEL transmitter, PIN photo-detector receiver
- Operating case temperature 0 °C to +70°C
- 3.3V power supply voltage
- RoHS 6 compliant
- Hot Pluggable SFP+ form factor
- Good EMI performance

APPLICATIONS

- 10 Gigabit Ethernet
- 1x InfiniBand QDR. DDR, SDR
- High-performance computing clusters
- 4G and 8G Fiber Channel Applications
- Servers, switches, storage，host card adapters and datacenter

ETU-LINK

DESCRIPTIONS

The ETU-LINK SFP+ to SFP+ active optic cables are a high performance, low power consumption long reach interconnect solution supporting 10G Ethernet or 1x InfiniBand QDR/DDR/SDR, 4G and 8G Fiber Channel Applications. It is compliant with the QSFP MSA and IEEE P802.3ae. ETU-LINK QSFP28 AOC is one kind of parallel transceiver which provide sin creased port density and total system cost savings.

Ordering Information

Part No.	Description
EASPX-xxx-OM3	10G SFP+ to SFP+ Active Optical Cables OM3 0~300M

Notes:

1. where "x" denotes cable length in meters. Examples are as follows:
2. x = 1 for 1m, xx=10 for 10m, xxx=100 for 100m

Absolute Maximum Ratings

The operation in excess of any absolute maximum ratings might cause permanent damage to this module.

Parameter	Symbol	Min	Max	Unit	Note
Storage Temperature	TST	-20	85	degC	
Relative Humidity(non-condensing)	RH	0	85	%	
Operating Case Temperature	TOPC	0	70	degC	
Supply Voltage	VCC	-0.3	3.6	V	
Input Voltage	Vin	-0.3	Vcc+0.3	V	

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	TOPC	0		70	degC
Power Supply Voltage	VCC	3.13	3.3	3.47	V
Data Rate	DR		10.3	11.3	Gbps
Data Speed Tolerance	ΔDR	-100		+100	ppm

Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit
Differential input impedance	Zin	90	100	110	ohm

Differential Output impedance	Zout	90	100	110	ohm
Differential input voltage amplitude a Amplitude	ΔVin	100		1800	mVp-p
Differential output voltage amplitude	ΔVout	400		800	mVp-p
Input Logic Level High	VIH	2.0		Vcc	V
Input Logic Level Low	VIL	0		0.8	V

Optical and Characteristics

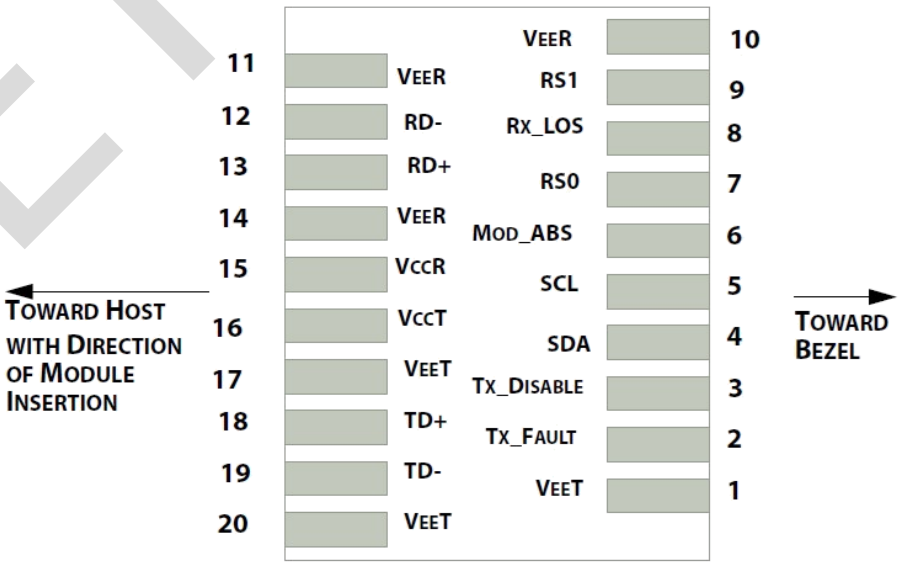
All parameters are specified under the recommended operating conditions with PRBS31 data pattern unless otherwise specified.

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Transmitter						
Output Opt. Pwr	POUT	-6		-1	dBm	1
Optical Wavelength	λ	840	850	860	nm	
Optical Extinction Ratio	ER	3.0			dB	
RIN	RIN			-128	dB/Hz	
Output Eye Mask	Compliant with IEEE 0802.3ae					
Receiver						
Rx Sensitivity	RSENS			-10	dBm	2
Input Saturation Power (Overload)	Psat	-3			dBm	
Wavelength Range	λ_C	770	850	860	nm	
Bit Error Rate	BR	E-12				

Notes:

1. The optical power is launched into SMF.
2. The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level. The receiver does not have to operate correctly at this input power.

Pin Diagram



Pin Definitions

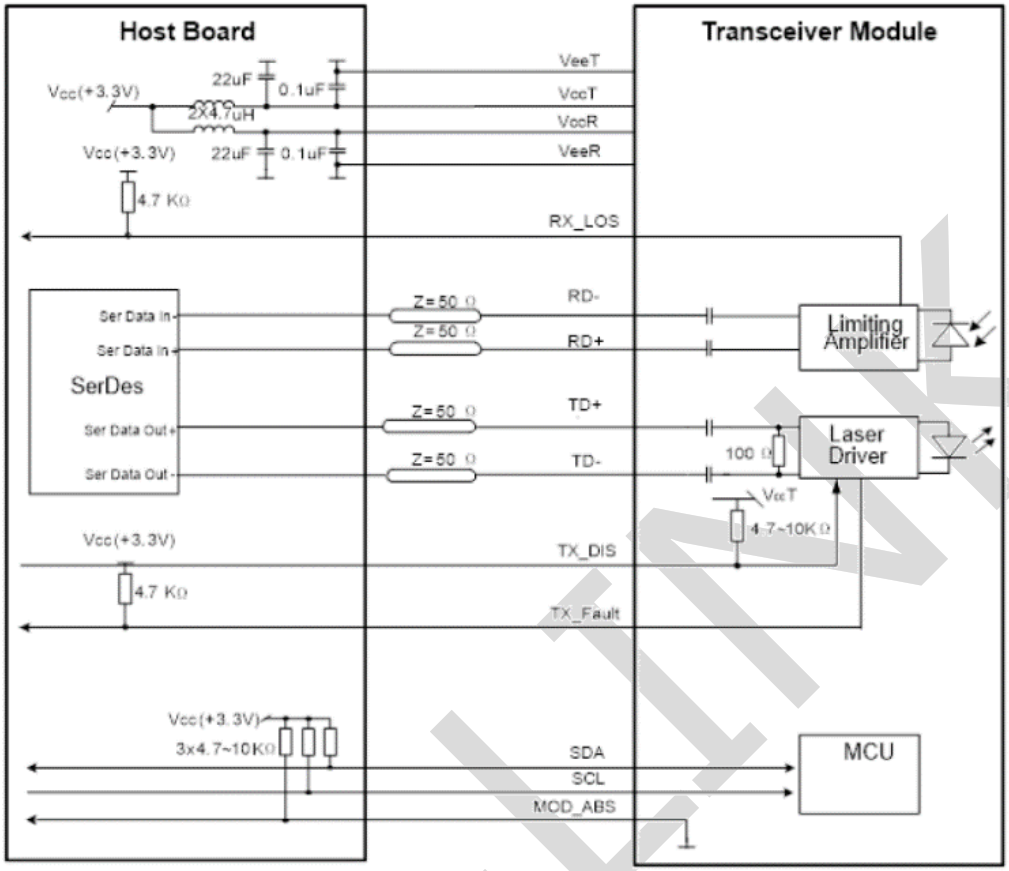
PIN #	Name	Function	Notes
1	VeeT	Module transmitter ground	1
2	Tx Fault	Module transmitter fault	2
3	Tx Disable	Transmitter Disable; Turns off transmitter laser output	3
4	SDL	2 wire serial interface data input/output (SDA)	4
5	SCL	2 wire serial interface clock input (SCL)	4
6	MOD-ABS	Module Absent, connect to VeeR or VeeT in the module	4
7	RS0	Rate select0, optionally control SFP+ receiver. When high, input data rate >4.5Gb/ s; when low, input data rate <=4.5Gb/s	5
8	LOS	Receiver Loss of Signal Indication	6
9	RS1	Rate select0, optionally control SFP+ transmitter. When high, input data rate >4.5Gb/s; when low, input data rate <=4.5Gb/s	1
10	VeeR	Module receiver ground	1
11	VeeR	Module receiver ground	1
12	RD-	Receiver inverted data output	
13	RD+	Receiver non-inverted data output	
14	VeeR	Module receiver ground	1
15	VccR	Module receiver 3.3V supply	
16	VccT	Module transmitter 3.3V supply	
17	VeeT	Module transmitter ground	1
18	TD+	Transmitter inverted data output	
19	TD-	Transmitter non-inverted data output	
20	VeeT	Module transmitter ground	1

Notes:

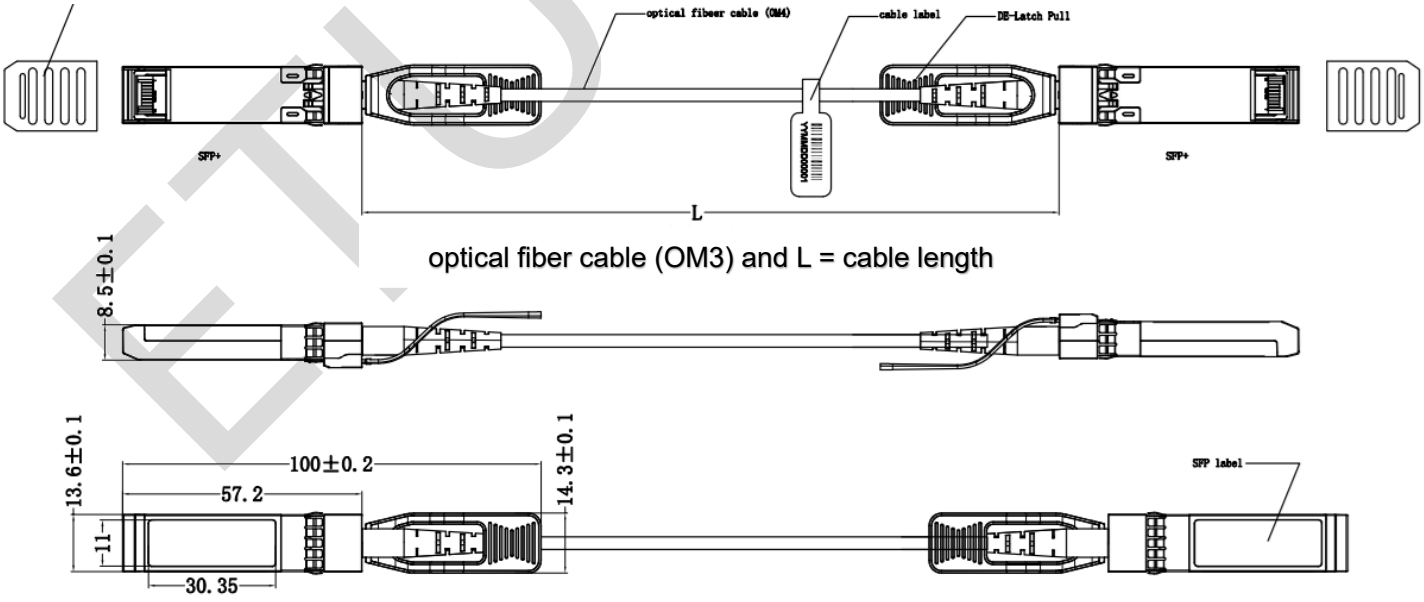
1. Circuit ground is internally isolated from chassis ground
2. Tx FAULT is an open collector/drain output, which should be pulled up with a 4.7k – 10k Ohms resistor on the host board if intended for use. Pull up voltage should be between 2.0V to Vcc + 0.3V.A high output indicates a transmitter fault caused by either the TX bias current or the TX output power exceeding the preset alarm thresholds. A low output indicates normal operation. In the low state, the output is pulled to <0.8V.
3. Laser output disabled on Tx DIS >2.0V or open, enabled on Tx DIS <0.8V.
4. Should be pulled up with 4.7kΩ- 10kΩ host board to a voltage between 2.0V and 3.6V. MOD_ABS pulls line low to indicate module is plugged in.
5. Internally pulled down per SFF-8431 Rev 4.1.
6. LOS is open collector output. It should be pulled up with 4.7kΩ – 10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

ETU-LINK

Recommended Interface Circuit



Mechanical Diagram



optical fiber cable (OM3) and L = cable length

Revision History

Version No.	Date	Description
1.0	February 8, 2016	Preliminary datasheet
2.0	March 11,2021	Product upgrades
2.1	Aug 12,2024	Format change
2.1	Apr 27,2026	Update the structure diagram

Company: ETU-Link Technology Co., LTD
Production base: Right side of 3rd floor, No. 102 building, Longguan expressway, Dalang street, Longhua District, Shenzhen city, GuangDongProvince,China 518109
R&D base: Floor 4, Building 4, Nanshan Yungu Phase LI, Taoyuan Community, XiliStreet,Nanshan District, Shenzhen
Tel: +86-755 2328 4603

Addresses and phone number also have been listed at www.etulinktechnology.com.
Please e-mail us at sales@etulinktechnology.com or call us for assistance.

ETU-LINK