

# 10G SFP+ Active Optical Cables

TSPA-85192-xxxC

## Features

- Electrical interface compliant to SFF-8431
- 850nm VCSEL laser and PIN photo-detector
- Maximum link length of 150m on OM2 MMF and 300m on OM3 MMF
- Hot Pluggable
- Built-in digital diagnostic functions
- Operating case temperature 0°C to 70°C
- RoHS compliant



## Applications

- 10G Ethernet
- Data Centers
- Infiniband transmission

## Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage Temperature	T <sub>s</sub>	-20	85	° C
Relative Humidity	RH	0	85	%
Case Operating Temperature	T <sub>Case</sub>	0	70	° C
Supply Voltage	V <sub>CC</sub>	-0.5	3.6	V

## Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Case Operating Temperature	T <sub>Case</sub>	0	-	70	° C
Supply Voltage	V <sub>CC</sub>	3.13	3.3	3.47	V
Supply Current	I <sub>CC</sub>	0	-	150	mA
Data Rate	DR	-	10.3125	-	Gbit/s

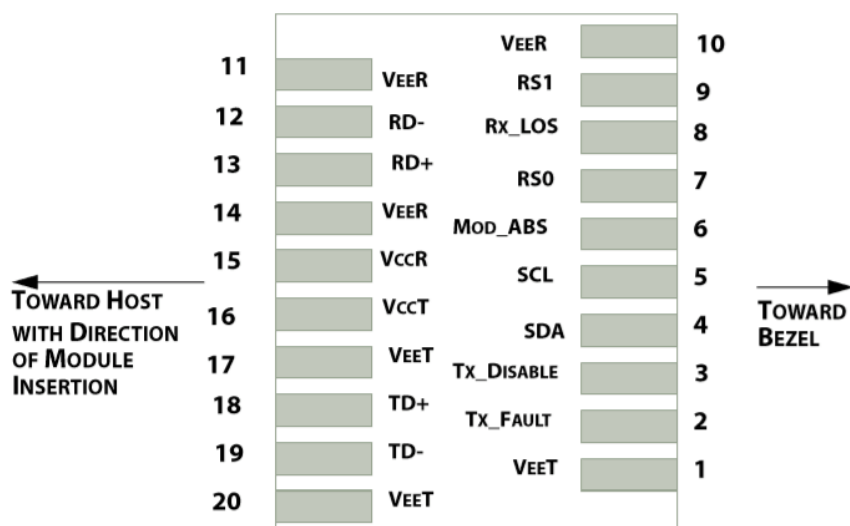
### Transmitter Specification

Parameter	Symbol	Min	Typical	Max	Unit
Input differential impedance	Z <sub>in</sub>	90	100	110	Ohm
Differential Data Input Swing	V <sub>in</sub>	200	-	1600	mVp-p
Transmit Enable Voltage	V <sub>EN</sub>	-	-	0.8	V
Transmit Disable Voltage	V <sub>D</sub>	2.0	-	-	V
Average launch power	P <sub>AVG</sub>	-6.5	-1	-	dBm
Extinction Ratio	ER	3.0	-	-	dB

### Receiver Specification

Parameter	Symbol	Min	Typical	Max	Unit
Differential Data Output Swing	V <sub>out</sub>	370	-	1600	mVp-p
Bit Error Rate	BER	-	-	10 <sup>-12</sup>	-
Receiver Overload	P <sub>inmax</sub>	2.5	-	-	dBm
Output Differential Impedance	Z <sub>out</sub>	90	100	110	Ohm
LOS Fault	V <sub>OH</sub>	2.4	-	-	V
LOS Normal	V <sub>OL</sub>	-	-	0.4	V

### Pin Descriptions



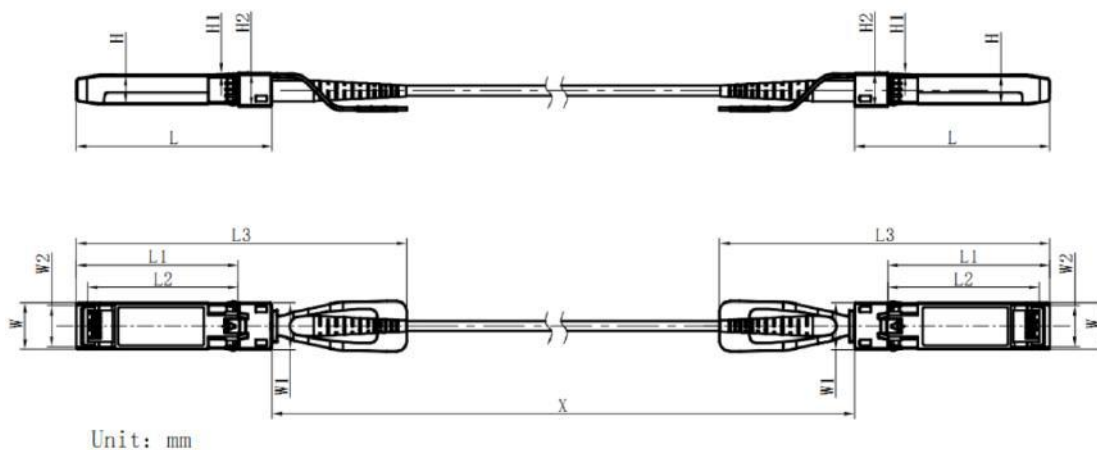
### Pin Definitions

PIN	Symbol	Name/Description
1	VeeT	Transmitter Signal Ground
2	TX_FAULT	Transmitter Fault (LVTTL-O) – Not used. Grounded inside the module
3	TX_DISABLE	Transmitter Disable (LVTTL-I) – High or open disables the transmitter

Information and specifications are subject to change without notice.  
Please visit [www.china-tscom.com](http://www.china-tscom.com) for more information.

4	SDA	Two Wire Serial Interface Data Line (LVCMOS – I/O) (same as MOD-DEF2 in INF-8074)
5	SCL	Two Wire Serial Interface Clock Line (LVCMOS – I/O) (same as MOD-DEF1 in INF-8074)
6	MOD_ABS	Module Absent (Output), connected to VeeT or VeeR in the module
7	RS0	Rate Select 0 - Not used, Presents high input impedance.
8	RX_LOS	Receiver Loss of Signal (LVTTL-O)
9	RS1	Rate Select 1 - Not used, Presents high input impedance.
10	VeeR	Receiver Signal Ground
11	VeeR	Receiver Signal Ground
12	RD-	Receiver Data Out Inverted (CML-O)
13	RD+	Receiver Data Out (CML-O)
14	VeeR	Receiver Signal Ground
15	VccR	Receiver Power + 3.3 V
16	VccT	Transmitter Power + 3.3 V
17	VeeT	Transmitter Signal Ground
18	TD+	Transmitter Data In (CML-I)
19	TD-	Transmitter Data In Inverted (CML-I)
20	VeeT	Transmitter Signal Ground

### Mechanical Specifications



	L	L1	L2	L3	W	W1	W2	H	H1	H2
MAX	57.75	48.0	44.65	102.5	13.75	14.0	12.25	8.65	0.55	10.4
Typical	57.55	47.8	44.45	101.5	13.65	13.9	12.15	8.55	0.5	10.2
MIN	57.35	47.6	44.25	100.5	13.55	13.8	12.05	8.45	0.45	10.0

## Order Information

### Part Number

#### **TSPA-85192-xxxC**

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xxx = denotes the AOC length with unit meter. For example, 001 denote 1m, 002 denote 2m ... 099 denote 99m.