


## 25G SFP28 Active Optical Cable TSSP-8525G-xxxC

### Features

- Hot-pluggable SFP28 form-factor connectors
- 850nm VCSEL laser and PIN photo-detector
- Internal CDR circuits on both receiver and transmitter channels
- Compliant with SFP28 MSA and IEEE 802.3by 25GBASE-SR
- Data rate up to 25.78Gbps
- 3.3V power supply voltage
- Power consumption < 1W per end
- Case operation temperature range :  
Standard temperature: 0°C to 70°C  
Industrial temperature: -40°C to 85°C
- RoHS compliant (lead free) 



### Applications

- 25GBASE SR Ethernet

### Product Description

T&S SFP28 Active Optical Cables are direct-attach fiber assemblies with SFP28 connectors. They are suitable for very short distances and offer a cost-effective way to connect within racks and across adjacent racks. The module is a Single-Channel, Pluggable, Fiber-Optic SFP28 for 25 Gigabit Ethernet and Infiniband EDR Applications.

This module is designed to operate over multimode fiber systems using a nominal wavelength of 850nm. The electrical interface uses a 20 contact edge type connector.

### Absolute Maximum Rating

Parameters	Symbol	Min.	Max.	Unit
Power Supply Voltage	VCC	-0.5	+3.6	V
Storage Temperature	Tc	-40	+85	°C
Relative Humidity	RH	0	85	%

## Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Supply Voltage	VCC	3.15	3.3	3.45	V
Supply current per end	Icc	-	-	290	mA
Operating Case Temperature (Standard)	Tca	0	-	70	°C
Operating Case Temperature (Industrial)	Tca	-40	-	85	°C
Baud Rate Per Lane	DR	-	25.78125	-	Gbps
Fiber Bend Radius	Rb	3	-	-	cm

### Notes:

1. Supply current is shared between VCCTX and VCCR<sub>X</sub>.
2. In-rush is defined as current level above steady state current requirements.

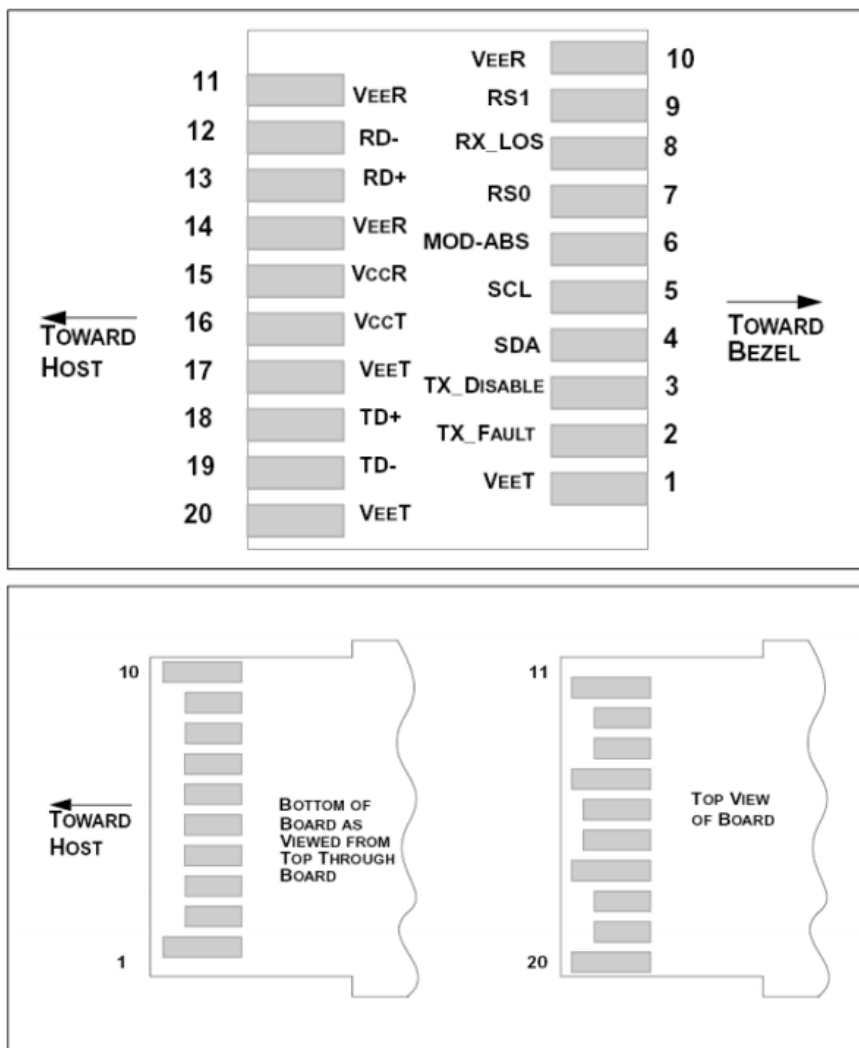
## Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit
Input differential impedance	R <sub>in</sub>	-	100	-	Ω
Differential Data Input Swing	V <sub>in</sub>	300	-	1100	mV
Transmit Disable Voltage	VD	2.0	-	VCC+0.3	V
Transmit Enable Voltage	V <sub>en</sub>	V <sub>ee</sub>	-	V <sub>ee</sub> +0.8	V

## Receiver Specifications

Parameter	Symbol	Min	Typical	Max	Unit
Differential Data Output Swing	V <sub>out</sub>	500	-	800	mV
Bit Error Rate	BER	-	-	10 <sup>-12</sup>	-
Output Differential Impedance	R <sub>out</sub>	-	100	-	Ω
Loss of Signal –Asserted	-	2.0	-	VCC+0.3	V
Loss of Signal –Negated	-	V <sub>ee</sub>	-	V <sub>ee</sub> +0.8	V

### Sfp28 Transceiver Electrical Pad Layout



### Pin Definition

Pin	Symbol	Name/Description
1	VEET [1]	Transmitter Ground
2	Tx_FAULT [2]	Transmitter Fault
3	Tx_DIS [3]	Transmitter Disable. Laser output disabled on high or open
4	SDA [2]	2-wire Serial Interface Data Line
5	SCL [2]	2-wire Serial Interface Clock Line
6	MOD_ABS [4]	Module Absent. Grounded within the module
7	RS0 [5]	Rate Select 0
8	RX_LOS [2]	Loss of Signal indication. Logic 0 indicates normal operation
9	RS1 [5]	Rate Select 1
10	VEER [1]	Receiver Ground
11	VEER [1]	Receiver Ground

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



12	RD-	Receiver Inverted DATA out. AC Coupled
13	RD+	Receiver DATA out. AC Coupled
14	VEER [1]	Receiver Ground
15	VCCR	Receiver Power Supply
16	VCCT	Transmitter Power Supply
17	VEET [1]	Transmitter Ground
18	TD+	Transmitter DATA in. AC Coupled
19	TD-	Transmitter Inverted DATA in. AC Coupled
20	VEET [1]	Transmitter Ground

**Notes:**

[1] Module circuit ground is isolated from module chassis ground within the module.

[2] Should be pulled up with 4.7k – 10k ohms on host board to a voltage between 3.15V and 3.6V.

[3] Tx\_Disable is an input contact with a 4.7 kΩ to 10 kΩ pullup to VccT inside the module.

[4] Mod\_ABS is connected to VeeT or VeeR in the SFP28 module. The host may pull this contact up to VCC\_Host with a resistor in the range 4.7 kΩ to 10 kΩ. Mod\_ABS is asserted “High” when the SFP28 module is physically absent from a host slot.

[5] RS0 and RS1 are module inputs and are pulled low to VeeT with > 30 kΩ resistors in the module.

**Ordering Information**

Part Number	Product Description
TSSP-8525G-XXXC	SFP28 Active Optical Cables 0°C ~ +70°C
TSSP-8525G-XXXT	SFP28 Active Optical Cables -40°C ~ +85°C
XXX :001~070,1~70 Length in meters on OM3 MMF	
XXX :001~100,1~100 Length in meters on OM4 MMF	

**Important Notice**

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by T&S before they become applicable to any particular order or contract. In accordance with the T&S policy of continuous improvement specifications may change without notice.

The publication of information in this data sheet does not imply freedom from patent or other protective rights of T&S or others. Further details are available from any T&S sales representative.