TSSSS-85H-XXXC Active Optical Cables

Multi-Mode 50G BASE SFP56 SR Active Optical Cable, With Diagnostic Monitoring

Features

- Hot-pluggable SFP56 form-factor connectors
- 850nm VCSEL laser and PIN photo-detector
- Internal CDR circuits on both receiver and transmitter channels
- Compliant with SFP56 MSA and IEEE 802.3cd 50GBASE-SR
- Data rate up to 53.125Gbps
- 3.3V power supply voltage
- Power consumption < 3W
- Case operation temperature range ： 0°C to 70°C
- RoHS compliant (lead free)

Applications

- 50GBASE SR Ethernet

Product Description

T&S SFP56 Active Optical Cables are direct-attach fiber assemblies with SFP56 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 SFP56 for 50 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

These values represent the damage threshold of the module. Stress in excess of any of the individual Absolute Maximum Ratings can cause immediate catastrophic damage to the module even if all other parameters are within Recommended Operating Conditions.

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	%

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Recommended Operating Conditions

Recommended Operating Environment specifies parameters for which the electrical and optical characteristics hold unless otherwise noted.

Parameter	Symbol	Min	Typical	Max	Unit
Supply Voltage	VCC	3.15	3.3	3.45	V
Operating Case Temperature	Tca	0	-	70	°C
Data Rate	DR	-	53.125	-	Gbps
Fiber Bend Radius	Rb	3	-	-	cm

Notes:

1. Supply current is shared between VCCTX and VCCRX.
2. In-rush is defined as current level above steady state current requirements.

Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit
Input differential impedance	Rin	-	100	-	Ω
Differential Data Input Swing	Vin	300	-	1100	mV
Transmit Disable Voltage	VD	2.0	-	VCC+0.3	V
Transmit Enable Voltage	Ven	Vee	-	Vee+0.8	V

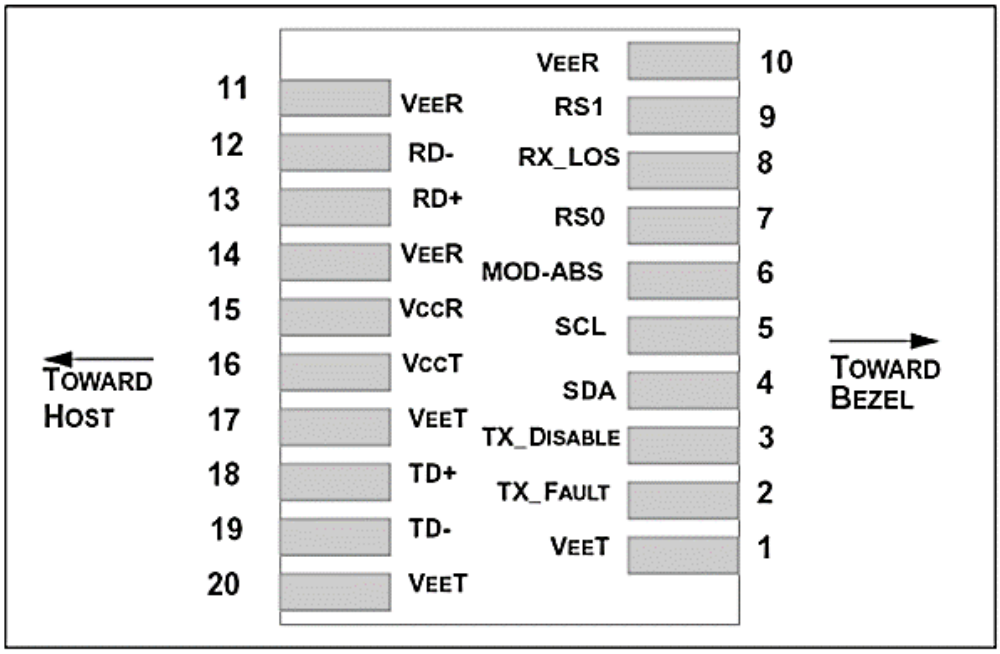
Receiver Specifications

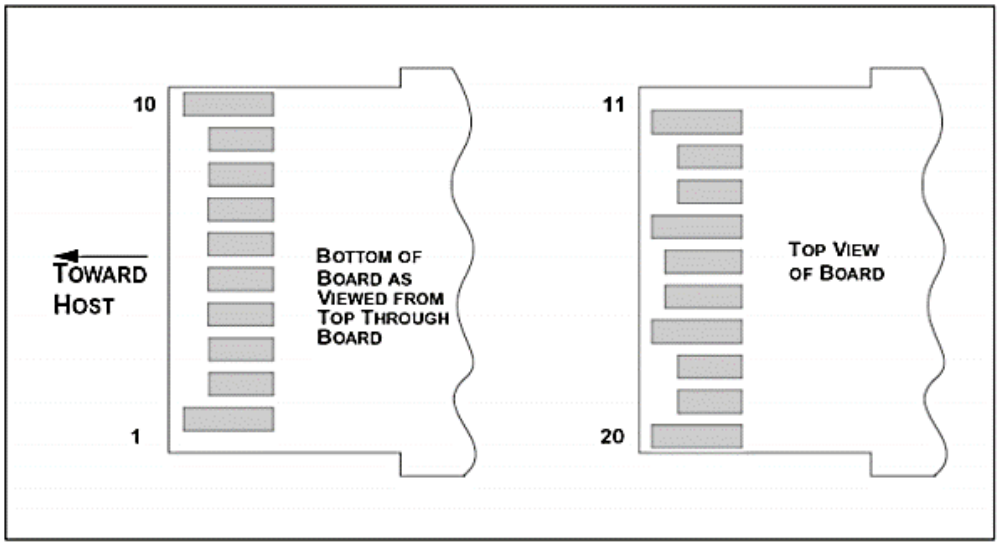
Parameter	Symbol	Min	Typical	Max	Unit
Differential Data Output Swing	Vout	300	-	900	mV
Bit Error Rate	BER	-	-	2.4E-4	-
Output Differential Impedance	Rout	-	100	-	Ω
Loss of Signal –Asserted	-	2.0	-	VCC+0.3	V
Loss of Signal –Negated	-	Vee	-	Vee+0.8	V

Notes:

1. BER=2.4E-4; PRBS31Q@26.5625GBd. Pre-FEC

Transceiver Electrical Pad Layout





Pin Definition

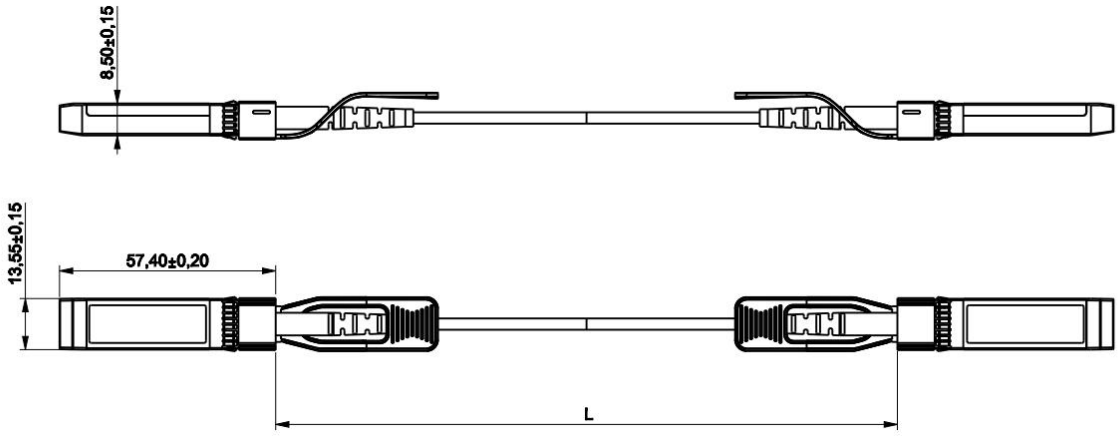
Pin	Symbol	Name/Description
1	VEET [1]	Transmitter Ground
2	Tx_FAULT [2]	Transmitter Fault
3	Tx_DIS [3]	Transmitter Disable. Laser output disabled on high or open
4	SDA [2]	2-wire Serial Interface Data Line
5	SCL [2]	2-wire Serial Interface Clock Line
6	MOD_ABS [4]	Module Absent. Grounded within the 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
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 3.15Vand 3.45V.
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 SFP+ module. The host may pull this contact up to VCC _Host with a resistor in the range 4.7 kΩ to10 kΩ.Mod_ABS is asserted “High” when the SFP+ 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.

Mechanical



Length tolerance table:

L	Tolerance (mm)
L≦1 M	+70/-0
1 M<L<7 M	+100/-0
L≧7 M	+2%L/-0

Ordering Information

Part Number	Product Description
TSSSS-85H-XXXC	50G SFP56 Active Optical Cables 0°C ~ +70°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

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