TSSP-8525G-SR Optical Transceiver

850nm SFP28 Multi-mode Transceiver, With Diagnostic Monitoring

Duplex SFP28 100mTransceiver

Features

- Data Rate up to 25.78 Gb/s
- 850nm VCSEL laser and PIN photo-detector
- Maximum link length of 70m on OM3 MMF and 100m on OM4 MMF
- Digital diagnostics functions are available via the I2C interface
- Single 3.3V Power Supply and Power Dissipation < 1.5W
- Operating Case Temperature: Standard: 0℃ ~+70℃

  Industrial: -40℃ ~+85℃
- RoHS6 compliant (lead free)

Applications

- 25GE SR and 10GE SR Lite
- 100G SR4 fan out to 4x25GE SR
- eCPRI

Description

The TSSP-8525G-SR is a Single-Channel, Pluggable, Fiber-Optic SFP28 for 25.78Gbps SR Applications. It is a high performance module for short-range data communication and interconnect applications which operate at 25.78Gbps up to 70m using OM3 fiber and 100m using OM4 with KR-FEC.
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. The optical interface uses duplex LC receptacle.

Absolute Maximum Ratings

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

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Relative Humidity	RH	0	85	%

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Power Supply Voltage	VCC	3.15	3.30	3.45	V
Supply current	Icc	-	-	435	mA
Operating Case Temperature (Standard)	TCa	0	-	70	°C
Operating Case Temperature (Industrial)	TCa	-40	-	85	°C

Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
Data Rate	DR	-	25.78125	-	Gbps	-
Power Consumption	-	-	-	1500	mW	-
Transmitter						
Single Ended Output Voltage Tolerance	-	-0.3	-	4.0	V	-
Common mode voltage tolerance	-	15	-	-	mV	-
Input differential impedance	Rin	-	100	-	Ω	-
Differential Input Voltage swing	Vin	300	-	1100	mV	-
Tx Fault	VoL	-0.3		0.4	V	At 0.7mA
Receiver						
Single Ended Output Voltage Tolerance	-	-0.3	-	4.0	V	-
Differential Output Swing	Vout	500	-	800	mV	-
Output differential impedance	Rout	-	100	-	Ω	-

Optical Characteristics

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
Transmitter						
Center Wavelength	λ	820	850	880	nm	-
RMS spectral width	Pm	-	-	0.6	nm	1
Average Optical Power	Po	-8.4	-	2.4	dBm	2

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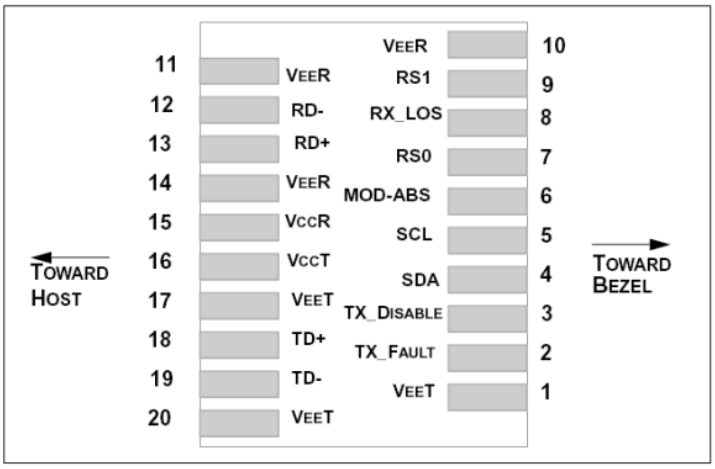
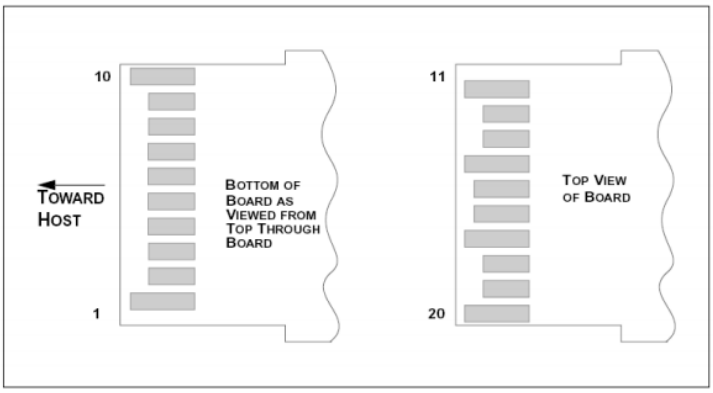
Extinction Ratio	ER	2.0	-	-	dBm	3
Optical Modulation Amplitude	OMA	-6.4	-	3	dB	-
Optical Return Loss Tolerance	ORL	-	-	12	dB	-
Receiver						
Center Wavelength	λ	820		880	nm	-
Receiver Sensitivity@25.78Gb/s	Psens1	-	-	-5.2	dBm	3
Receiver Sensitivity@10.3Gb/s	Psens2	-	-	-10.1	dBm	-
Receiver Overload	Pmax	2.4	-	-	dBm	-
LOS Asserted	Lsa	-30	-	-	dBm	-
LOS De-Asserted	Lda	-	-	-13	dBm	-
LOS Hysteresis	Lh	0.5	-	-	dB	-

Note:

1. Trade-offs are available between spectral width, center wavelength and minimum OMA.
2. The optical power is launched into MMF.
3. Measured with a PRBS 2^{31-1} test pattern @25.78125Gbps; BER=$5x10^{-5}$

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 3.6V.

[3] Tx_Disable is an input contact with a 4.7 kΩ to 10 kΩ pullup to VCC T 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.

Ordering Information

Part Number	Product Description
TSSP-8525G-SRC	25.78125Gbps SFP28 70m on OM3 MMF and 100m on OM4
TSSP-8525G-SRT	25.78125Gbps SFP28 70m on OM3 MMF and 100m on OM4

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References

1. SFP28 MSA
2. Directive 2011/65/EU of the European Parliament and of the Council, “on the restriction of the use of certain hazardous substances in electrical and electronic equipment,” July 1, 2011.

Important Notice

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