

TSSP-8525G-SR Optical Transceiver

850nm SFP28 Multi-mode Transceiver, With Diagnostic Monitoring
Duplex SFP28 100m Transceiver

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°C ~+70°C
Industrial: -40°C ~+85°C
- 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
Relative Humidity	RH	0	85	%

Information and specifications are subject to change without notice.
Please visit www.china-tscom.com for more information

8 Jinxiu Middle Road, Pingshan, Shenzhen, Guangdong, 518118, P. R. China
+86 755 32983688 | info@china-tscom.com | www.china-tscom.com



Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Power Supply Voltage	VCC	3.15	3.30	3.45	V
Supply current	I _{cc}	-	-	435	mA
Operating Case Temperature (Standard)	T _{Ca}	0	-	70	°C
Operating Case Temperature (Industrial)	T _{Ca}	-40	-	85	°C

Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max	Unit
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	R _{in}	-	100	-	Ω
Differential Input Voltage swing	V _{in}	300	-	1100	mV
Tx Fault (At 0.7mA)	VoL	-0.3	-	0.4	V
Receiver					
Single Ended Output Voltage Tolerance	-	-0.3	-	4.0	V
Differential Output Swing	V _{out}	500	-	800	mV
Output differential impedance	R _{out}	-	100	-	Ω

Optical Characteristics

Parameter	Symbol	Min.	Typical	Max	Unit
Transmitter					
Center Wavelength	λ	820	850	880	nm
RMS spectral width ¹	P _m	-	-	0.6	nm
Average Optical Power ²	P _o	-8.4	-	2.4	dBm
Extinction Ratio ³	ER	2.0	-	-	dBm
Optical Modulation Amplitude	OMA	-6.4	-	3	dB
Optical Return Loss Tolerance	ORL	-	-	12	dB
Receiver					
Center Wavelength	λ	820	-	880	nm

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Receiver Sensitivity@25.78Gb/s ³	Psens1	-	-	-5.2	dBm
Receiver Sensitivity@10.3Gb/s	Psens2	-	-	-10.1	dBm
Receiver Overload	Pmax	3	-	-	dBm
LOS Asserted	Lsa	-30	-	-	dBm
LOS De-Asserted	Lda	-	-	-13	dBm
LOS Hysteresis	Lh	0.5	-	-	dB

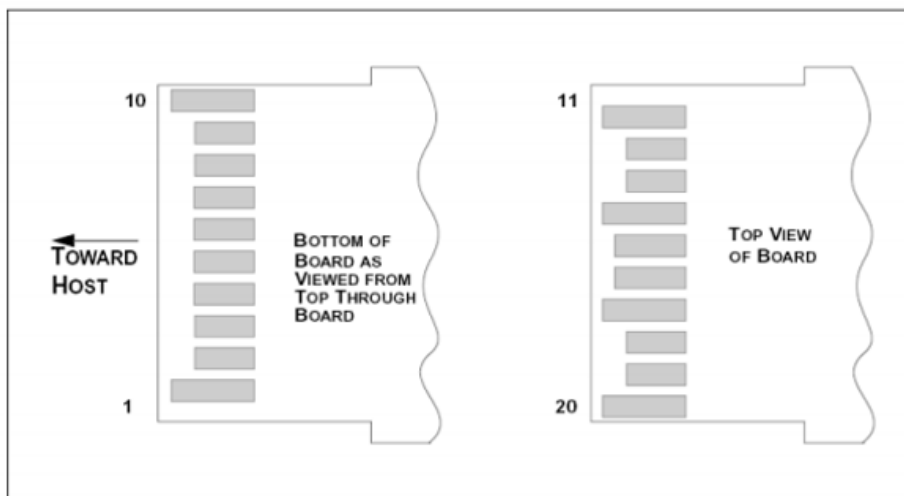
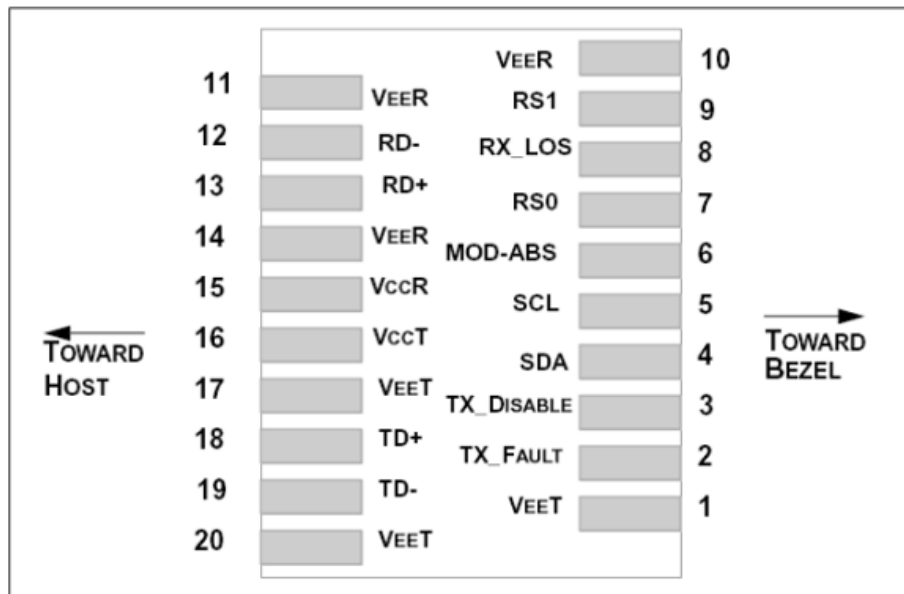
Note:

[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 2³¹⁻¹ 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 3.15V and 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 to 10 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 MMF 0°C ~
TSSP-8525G-SRT	25.78125Gbps SFP28 70m on OM3 MMF and 100m on OM4 MMF -40°C ~

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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