TSBX8-NCCNC9C Optical Transceiver

800G OSFP DR8 Transceiver, With Diagnostic Monitoring

Features

- Hot-pluggable OSFP form factor
- Silicon photonics integrated solution
- Data Rate 106.25Gb/s PAM4 per lane
- 8x106Gbps PAM4 transmitter and PAM4 receiver
- Maximum link length of 500m on single mode fiber
- Digital diagnostics functions are available via the I2C interface
- Single 3.3V Power Supply and Power Dissipation < 16.5W
- Dual MTP-12 APC connector
- Operating Case Temperature: 0°C~+70°C
- RoHS compliant

Applications

- 800G Ethernet
- 2x400G Ethernet
- IB NDR

Production Description

The TSBX8-NCCNC9C is an 8-Channel, Pluggable, Fiber-Optic OSFP for 800Gbps Ethernet Applications. It is a high performance module for data communication and interconnect applications which operate at 106.25Gbps per lane up to 500m on single mode fiber. The optical interface uses Dual MPO-12 APC receptacles.

This module is designed to operate over multimode fiber systems using a nominal wavelength of 850nm. The electrical interface uses a 60 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

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Relative Humidity	RH	0	85	%

Recommended Operating Environment

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

Parameter	Symbol	Min.	Typical	Max	Unit
Power Supply Voltage	VCC	3.15	3.30	3.45	V
Operating Case Temperature	TCa	0	-	70	°C

Electrical Characteristics

The following electrical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
Data Rate per lane	DR	-	106.25	-	Gbps	-
Transmitter						
Common mode voltage tolerance	-	15	-	-	mV	-
Input differential impedance	Rin	-	100	-	Ω	-
Differential Input Voltage swing	Vin	300	-	900	mV	-
Tx Fault	VoL	-0.3	-	0.4	V	At 0.7mA
Receiver						
Differential Output Swing	Vout	300	-	900	mV	-
Output differential impedance	Rout	-	100	-	Ω	-

Optical Characteristics

The following optical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
Transmitter						
Center Wavelength	λ	1304.5	1310	1317.5	nm	-
Side-mode Suppression ratio	SMSR	30	-	-	dB	
Average Optical Power	Po	-2.9	-	4	dBm	1
Extinction Ratio	ER	3.5	-	-	dBm	-
Outer Optical Modulation Amplitude (OMAouter), each lane	OMA	-0.8	-	4.2	dB	-
Transmitter and Dispersion Eye Closure	TDECQ	-	-	3.4	dB	-
Optical Return Loss Tolerance	ORL	-	-	21.4	dB	-
Receiver						
Center Wavelength	λ	1304.5	1310	1317.5	nm	-

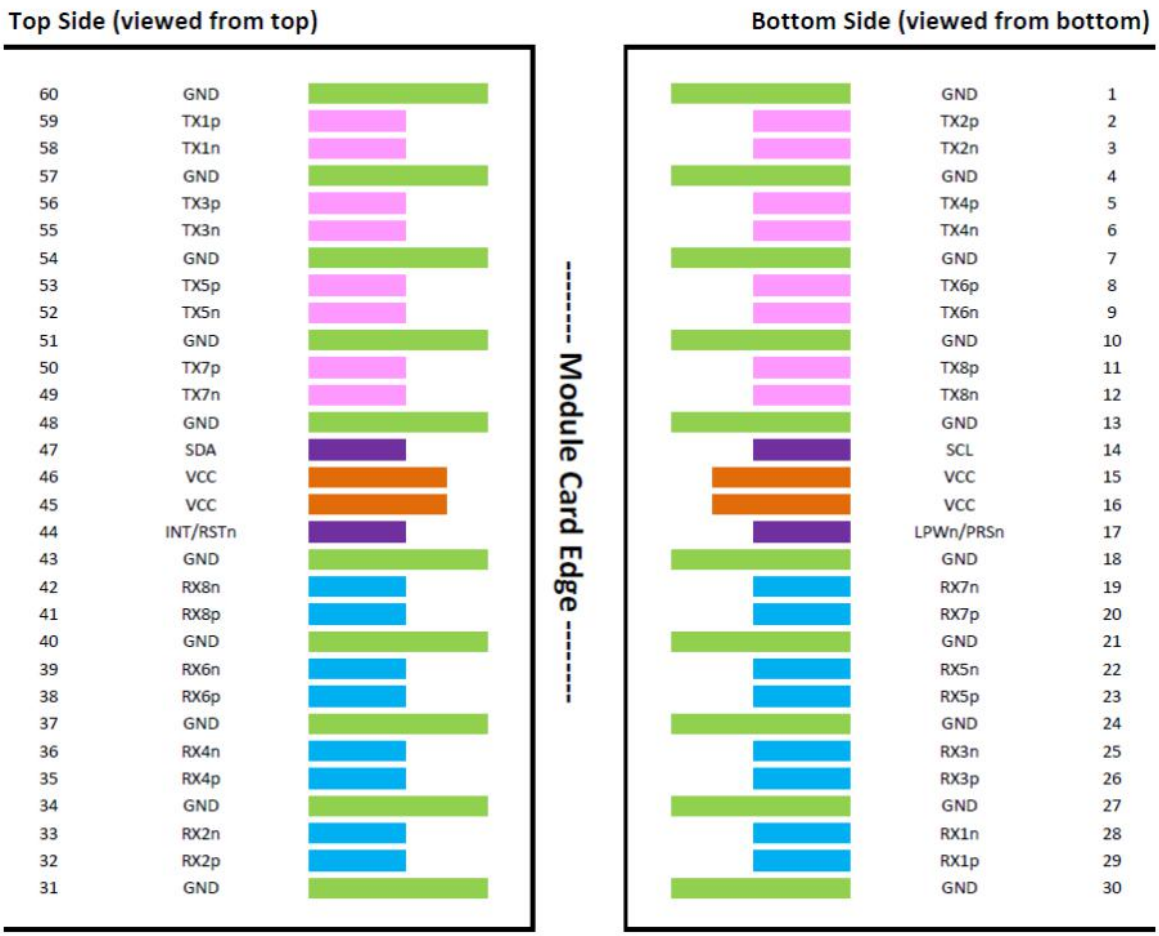
Average Receive power ,each lane	-	-5.9	-	4	dBm	-
Receive power (OMAouter), each lane	-	-	-	4.2	dBm	-

Note:

[1] The optical power is launched into SMF

[2] BER=2.4E-4; PRBS31Q@106.25GBd.

OSFP Transceiver Electrical Pad Layout



Pin Definition

Pin	Symbol	Name/Description
1	GND	Ground
2	TX2p	Transmitter Data Non-Inverted
3	TX2n	Transmitter Data Inverted
4	GND	Ground
5	Tx4p	Transmitter Data Non-Inverted
6	TX4n	Transmitter Data Inverted
7	GND	Ground
8	TX6p	Transmitter Data Non-Inverted
9	TX6n	Transmitter Data Inverted
10	GND	Ground
11	TX8p	Transmitter Data Non-Inverted
12	TX8n	Transmitter Data Inverted
13	GND	Ground
14	SCL	2-wire Serial interface clock
15	VCC	+3.3V Power
16	VCC	+3.3V Power
17	LPWn/PRSn	Low-Power Mode / Module Present
18	GND	Ground
19	RX7n	Receiver Data Inverted
20	RX7p	Receiver Data Non-Inverted
21	GND	Ground
22	RX5n	Receiver Data Inverted
23	RX5p	Receiver Data Non-Inverted
24	GND	Ground
25	RX3n	Receiver Data Inverted
26	RX3p	Receiver Data Non-Inverted
27	GND	Ground
28	RX1n	Receiver Data Inverted
29	RX1p	Receiver Data Non-Inverted
30	GND	Ground
31	GND	Ground
32	RX2p	Receiver Data Non-Inverted
33	RX2n	Receiver Data Inverted
34	GND	Ground
35	RX4p	Receiver Data Non-Inverted
36	RX4n	Receiver Data Inverted
37	GND	Ground
38	RX6p	Receiver Data Non-Inverted
39	RX6n	Receiver Data Inverted
40	GND	Ground
41	RX8p	Receiver Data Non-Inverted

42	RX8n	Receiver Data Inverted
43	GND	Ground
44	INT/RSTn	Module Interrupt / Module Reset
45	VCC	+3.3V Power
46	VCC	+3.3V Power
47	SDA	2-wire Serial interface data
48	GND	Ground
49	TX7n	Transmitter Data Inverted
50	TX7p	Transmitter Data Non-Inverted
51	GND	Ground
52	TX5n	Transmitter Data Inverted
53	TX5p	Transmitter Data Non-Inverted
54	GND	Ground
55	TX3n	Transmitter Data Inverted
56	TX3p	Transmitter Data Non-Inverted
57	GND	Ground
58	TX1n	Transmitter Data Inverted
59	TX1p	Transmitter Data Non-Inverted
60	GND	Ground

Ordering Information

Part Number	Product Description
TSBT8-NCCNC9C	800G OSFP DR8 Optical Transceiver with Dual MPO-12 APC receptacles, 500m on single mode fiber 0°C ~ +70°C

Important Notice

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