

# TS-Q8-851H-01DC

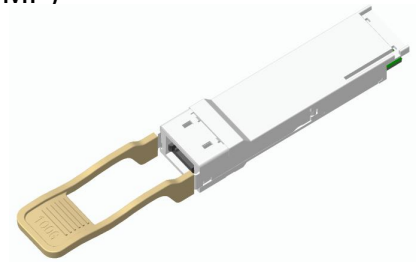
## 100G QSFP28 100m SR4 Transceivers

### FEATURES

- Compliant with QSFP+ MSA Specification
- Wide Operating Temperature(0°C~70°C)
- 4x25Gbps & 4x28.05Gbps 850nm VCSEL-based Transmitter
- Maximum Link Length of 100m via OM4 Multimode Fiber(MMF)

### APPLICATIONS

- Data Center Backbone
- Fibre Channel (FC)
- 100GBASE-SR4 100G Ethernet



### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Conditions	Min.	Max.	Unit
Storage Temperature	T <sub>Storage</sub>		-40	+85	°C
Relative Humidity	RH		0	+85	%

### RECOMMENDED OPERATING CONDITIONS (Ta, unless noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Case Temperature	T <sub>c</sub>		0		70	°C
Power Supply Voltage	V <sub>CC</sub>		3.135	3.3	3.465	V
Signaling Rate each Channel1				25.78125		Gbps
Signaling Rate each Channel2				28.05		Gbps
Supply Noise Rejection			---	---	100	mV
Receiver Differential Data Output			---	100		Ohm
Operating Distance	D	@ OM3 MMF	---	---	70	m
		@ OM4 MMF			100	m

### ELECTRICAL CHARACTERISTICS (Ta, unless noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Power Consumption					3.5	W
Supply Current	I <sub>CC</sub>				1050	mA

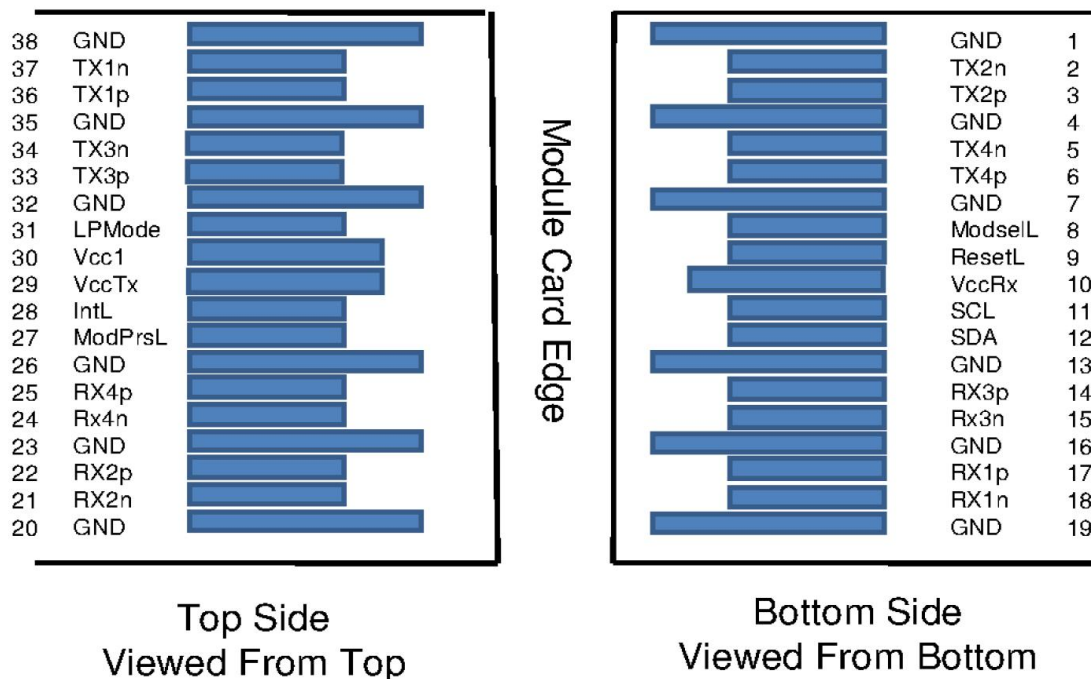
## TRANSMITTER CHARACTERISTICS (T=25°C, unless noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Signaling rate, each lane (range)	GBb			25.78125&28.05		GBb
Center Wavelength	$\lambda$		840	850	860	nm
RMS Spectral Width	SW				0.6	nm
Average launch power, each lane	Pf		-8.4		2.4	dBm
Optical Modulation Amplitude (OMA), each lane	TxOMA		-6.4		3	dBm
Average launch power of OFF transmitter, each lane					-30	dBm
Extinction ratio	ER		3			dB
Optical return loss tolerance					12	dB

## RECEIVER CHARACTERISTICS (Ta, unless noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Signaling rate, each lane (range)	GBb			25.78125&28.05		GBb
Center Wavelength	$\lambda$		840		860	nm
Damage threshold			3.4			dBm
Average power at receiver input, each lane			-10		2.4	dBm
Receive power, each lane (OMA)					3	dBm
Receiver sensitivity (OMA)	S <sub>OMA</sub>	BER@5e-5			-7.2	dBm
Receiver reflectance					-12	dB
LOS Assert	LOS <sub>A</sub>		-30			dBm
LOS De-Assert	LOS <sub>D</sub>				-10.5	dBm
LOS Hysteresis			0.5			dB

## PIN ASSIGNMENT

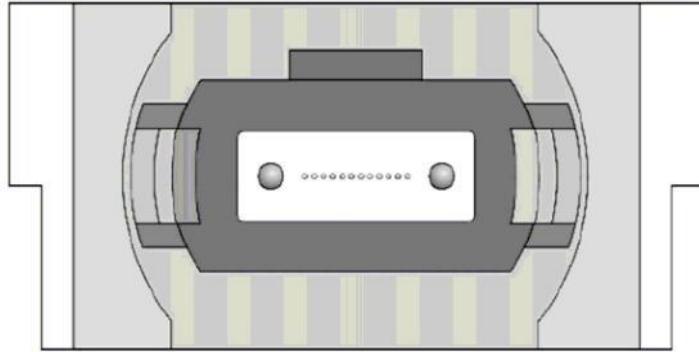


## PIN DESCRIPTION

PIN	Logic	Symbol	Name/Description	Note
1		GND	Ground	
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data output	
4		GND	Ground	
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	
7		GND	Ground	
8	LVTTL-I	ModSelL	Module Select	
9	LVTTL-I	ResetL	Module Reset	
10		VccRx	+ 3.3V Power Supply Receiver	
11	LVCMOS-I/O	SCL	2-Wire Serial Interface Clock	
12	LVCMOS-I/O	SDA	2-Wire Serial Interface Data	
13		GND	Ground	
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CML-O	Rx3n	Receiver Inverted Data Output	
16		GND	Ground	
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	
20		GND	Ground	
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	
24	CML-O	Rx4n	Receiver Inverted Data Output	
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	
27	LVTTL-O	ModPrsL	Module Present	
28	LVTTL-O	IntL	Interrupt	
29		VccTx	+3.3 V Power Supply transmitter	
30		Vcc1	+3.3 V Power Supply	
31	LVTTL-I	LPMODE	Low Power Mode	
32		GND	Ground	
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Output	
35		GND	Ground	
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Output	
38		GND	Ground	

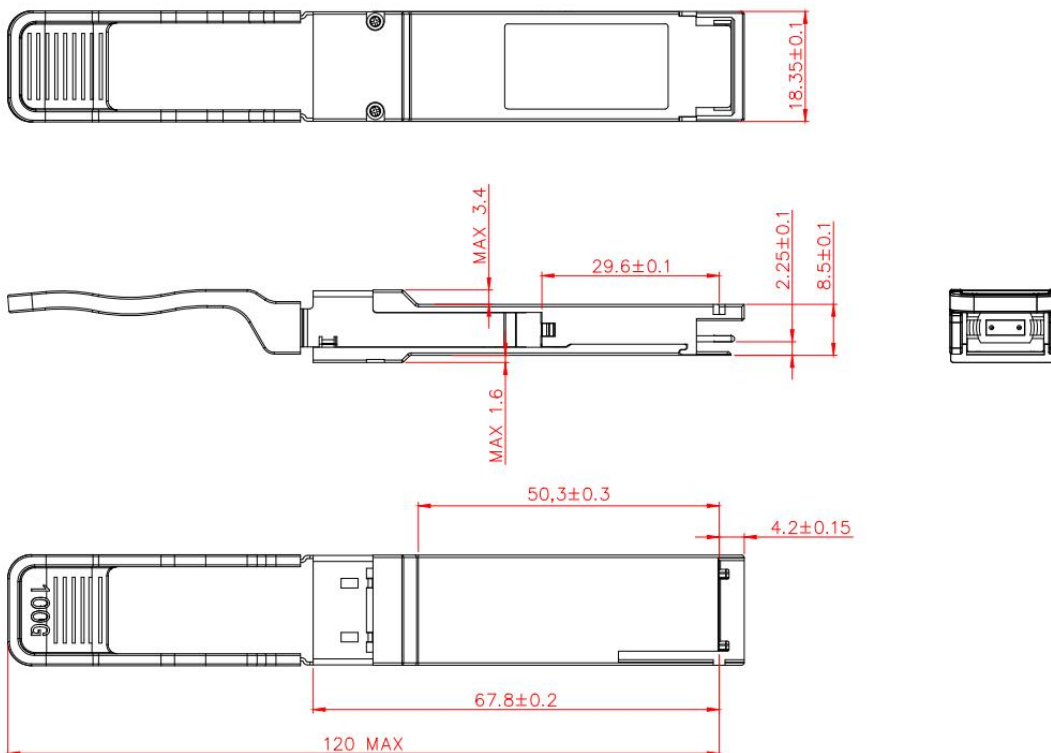
## Optical Interface Lanes and Assignment

The optical interface port is a male MPO connector. The four fiber positions on the left as shown in the below Figure, with the key up, are used for the optical transmit signals (Channel 1 through 4). The fiber positions on the right are used for the optical receive signals (Channel 4 through 1). The central four fibers are physically present.



Transmit Channels: 1 2 3 4  
 Unused positions: x x x x  
 Receive Channels: 4 3 2 1

## OUTLINE DIMENSIONS



## Digital Diagnostic Monitor Accuracy

The following characteristics are defined over recommended operating conditions

Parameter	Accuracy	Unit
Internally measured transceiver temperature	+/-3	deg.C
Internally measured transceiver supply voltage	+/-3	%
Measured Tx bias current	+/-10	%
Measured Tx output power	+/-3	dB

Measured Rx received average optical power	+/-3	dB
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