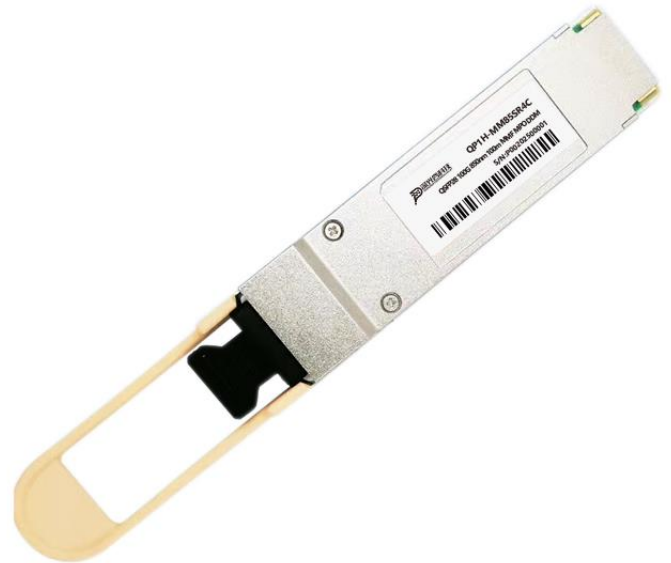


QP1H-MM85SR4C

QSFP28 100Gb/s 850nm 100m Transceiver

PRODUCT FEATURES

- Up to 70m(OM3) and 100m (OM4)
- Compliant with QSFP28 MSA SFF-8636
- Multi rate of up to 25.78125Gbps
- single power supply 3.3V
- Support 100GBASE-SR4 100G Fiber Channel
- Operating case temperature
Commercial: 0 to 70 °C
- RoHS 6 compliant



APPLICATIONS

- 100GBASE-SR4 Ethernet
- InfiniBand QDR, EDR
- Data center interconnection

PRODUCT DESCRIPTION

QP1H-MM85SR4C is QSFP28 module for duplex optical data communications support 25.78 Gb/s per lane data links. It is with the QSFP28 footprint to allow hot plug capability. Digital diagnostic functions are available via an I2C. The transmitter section uses a high performance 850nm VCSEL laser and is a class 1 laser compliant according to International Safety Standard IEC-60825.

Ordering information

Product part Number	Data Rate (Gbps)	Media	Wavelength (nm)	Transmission Distance(m)	Temperature Range (Tcase) (°C)	
QP1H-MM85SR4C	103.125	MMF	850	100	0~70	Commercial

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Supply Voltage	V _{CC3}	-0.5	-	+3.6	V	
Storage Temperature	T _s	-10	-	+85	°C	
Operating Humidity	R _H	+5	-	+85	%	1
Receiver Damage Threshold per Lane	P _{IND}	+3.4	-	-	dBm	

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	T _c	0	-	+70	°C	
Power Supply Voltage	V _{CC}	3.14	3.3	3.47	V	
Power Dissipation	P _d	-	-	2.5	W	
Bit Rate	BR	10.3125	25.78125	-	Gbps	

Optical Characteristics

Parameter	Symbol	Unit	Min	Typ.	Max	Notes
Transmitter						
Bit Rate	BR	Gbps	10.3125	25.78125	-	
Center Wavelength Range	λ_c	nm	830	850	870	
RMS Spectral Width	$\Delta\lambda$	nm	-	-	0.65	
Average Launch power Tx_off	P _{off}	dBm	-	-	-30	
Launch Optical Power	P ₀	dBm	-6.0			1
Extinction Ratio	ER	dB	2	-	-	
Receiver						

Bit Rate	BR	Gbps	10.3125	25.78125	-	
Sensitivity@BER=E-12	BER	dBm	-	-	-5.2	
Sensitivity@BER=5E-5	BER	dBm	-	-	-10.3	
Overload Input Optical Power	P _{IN}	dBm	2.5	-	-	2
Center Wavelength Range	λ_c	nm	820	-	880	
LOS Assert	-	dBm	-30	-	-	
LOS De-Assert	-	dBm	-	-	-12	
LOS Hysteresis	-	dB	0.5	-	-	

Note:

1. Coupled into 50/125 MMF.
2. Measured with PRBS 231-1 test pattern @25.78125Gbps.BER=E-12

Electrical Interface Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Input Logic Level High	V _{IH}	2.5	-	V _{CC} +0.3	V	
Input Logic Level Low	V _{IL}	0	-	0.8	V	
Output Logic Level High	V _{OH}	2.4	-	V _{CC}	V	
Output Logic Level Low	V _{OL}	0	-	0.4	V	
Transmitter						
Differential Data Input Swing	V _{in P-P}	200	-	1600	mV _{PP}	
Input Differential Impedance	Z _{IN}	90	100	110	ohm	
Receiver						
Differential Date Output Swing	V _{out}	200	-	1000	mV	
Output Differential Impedance	Z _D	90	100	110	ohm	

Pin Description

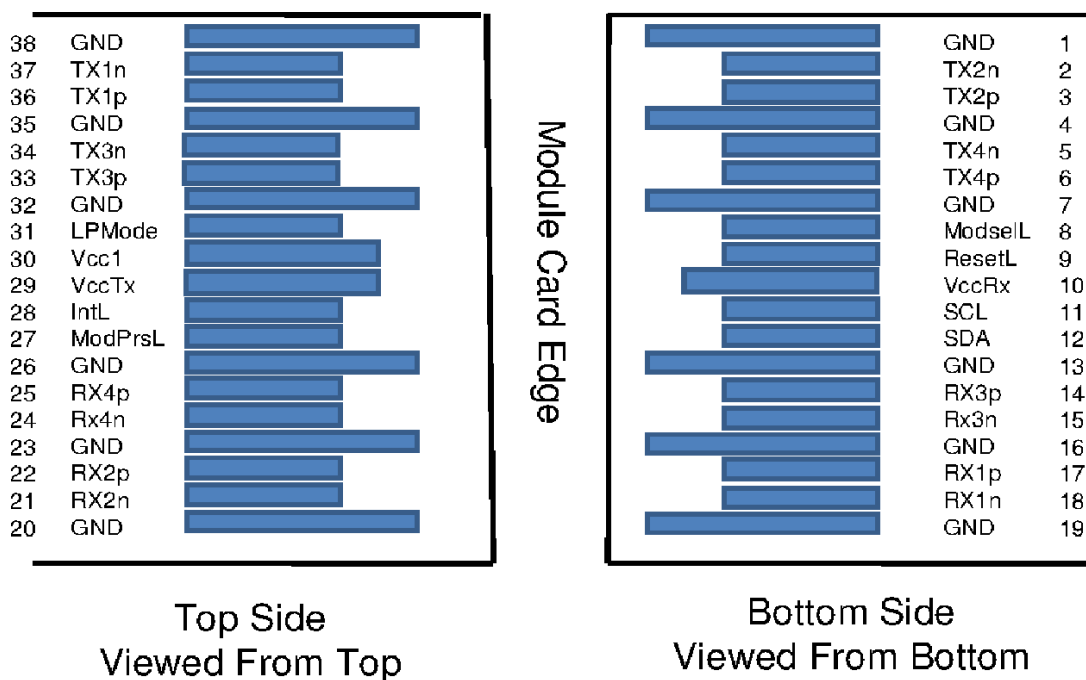
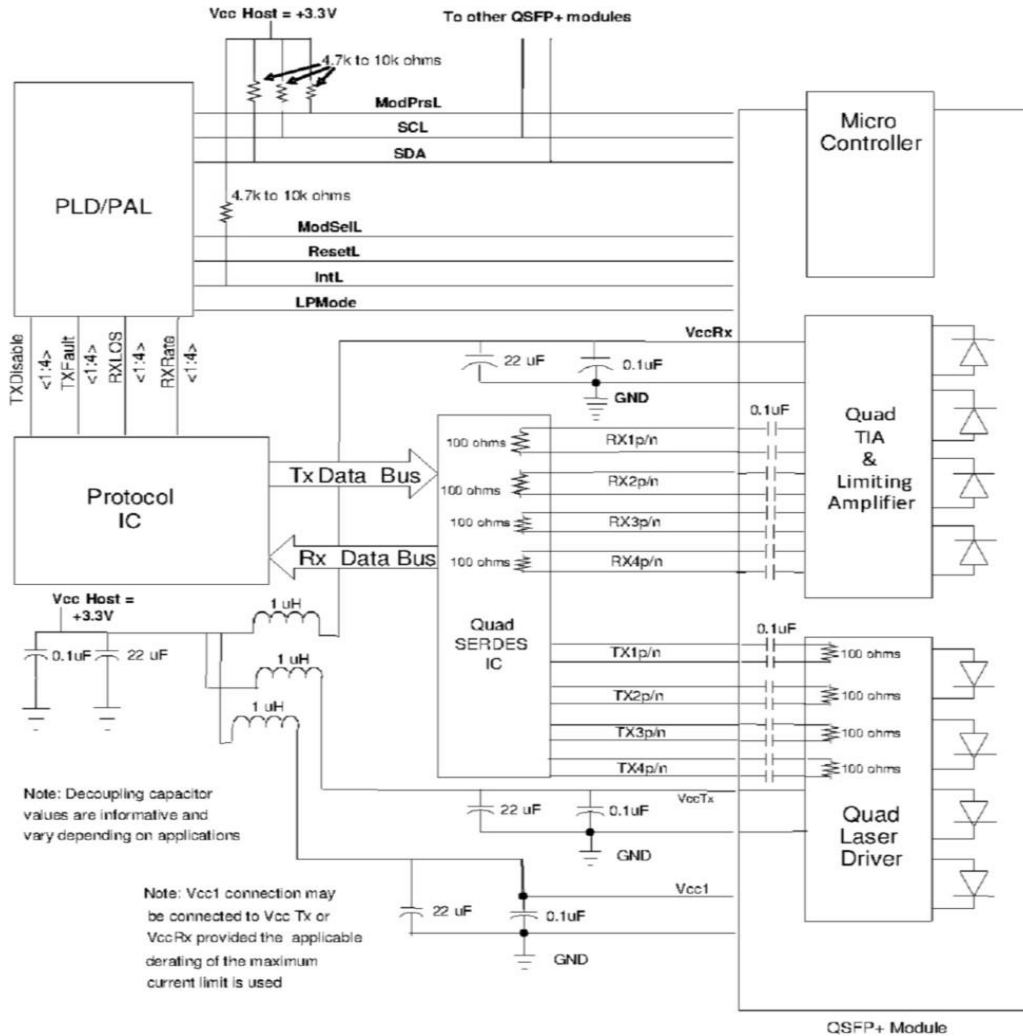


Diagram of Host Board Connector Block Pin Numbers and Name

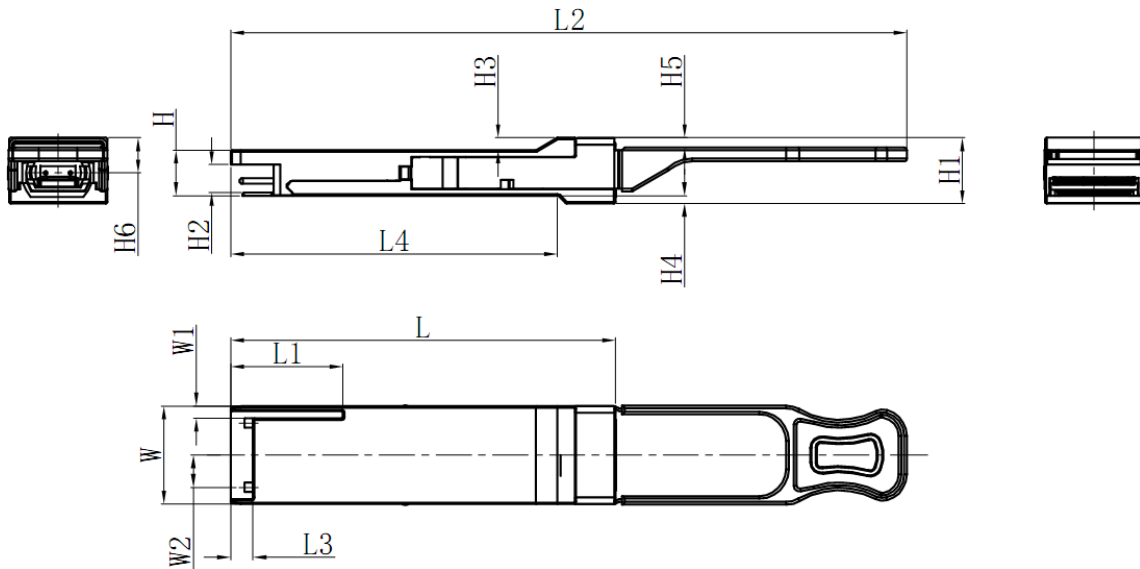
Pin	Symbol	Name/Description	Notes
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	1
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	1
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	

19	GND	Ground	1
20	GND	Ground	1
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	1
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	1
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	Vcc Tx	+3.3V Power supply transmitter	
30	Vcc1	+3.3V Power supply	
31	LPMode	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	1

Recommended Interface Circuit



Machnical Dimensions



Regulatory Compliance

Feature	Reference	Performance
Electrostatic discharge (ESD)	IEC/EN 61000-4-2	Compatible with standards
Electromagnetic Interference (EMI)	FCC Part 15 Class B EN 55022 Class B (CISPR 22A)	Compatible with standards
Laser Eye Safety	IEC/EN 60825-1, 2	Class 1 laser product
Component Recognition	IEC/EN 60950, UL	Compatible with standards
ROHS	2002/95/EC	Compatible with standards
EMC	EN61000-3	Compatible with standards