

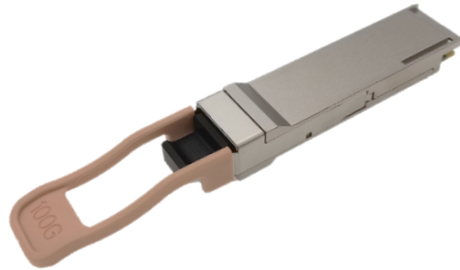
LPBQMM85-S30C

QSFP28 100Gb/s SR4 300m DDM

PRODUCT FEATURES

- Supports 103.1Gb/s aggregate bit rate
- 4x25Gb/s electrical interface
- Maximum link length of 300m on OM4 Multimode Fiber (MMF)
- Hot-pluggable QSFP28 footprint
- Single MPO 12 receptacle
- Low power Consumption
- RoHS-6 compliant and lead-free
- +3.3V single power supply
- Support Digital Diagnostic Monitor interface
- Case operating temperature

Commercial: 0°C to +70°C



APPLICATIONS

- 100GBASE-SR4 100G Ethernet

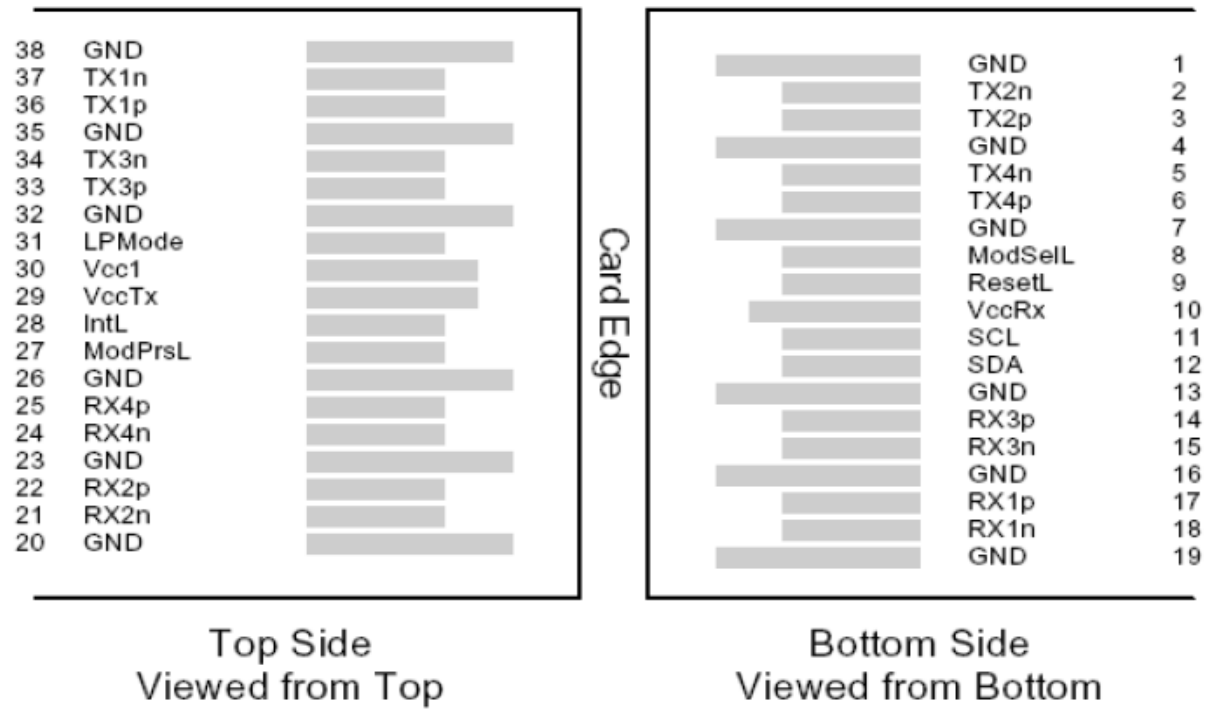
Compliance

- QSFP28 MSA.
- IEEE802.3bm
- SFF-8636
- RoHS

Ordering information

Part NO.	Bit Rate (Gbps)	Laser (nm)	Distance(m)	Media	DDMI	Connector	Temp (℃)
LPBQMM-S30C	25.78125	850	300 (OM4)	multi-mode fiber	YES	MPO 1X12	0~70

I. Pin Diagram



QSFP28-compliant 38-pin connector (per SFF-8679)

II. Pin Descriptions

Pin	Symbol	Name/Description	Ref.
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	ModSe1L	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

Note:

1. Circuit ground is internally isolated from chassis ground.

III. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Storage Temperature	T _S	-40		85	°C	
Storage Ambient Humidity	H _A	0		85	%	
Maximum Supply Voltage	V _{CC}	-0.5		3.6	V	
Receiver Damage Threshold		+3.4			dBm	
Lead Soldering Temperature/Time	T _{SOLD}			260/10	°C/sec	1
Lead Soldering Temperature/Time	T _{SOLD}			360/10	°C/sec	2

Note:

1. Suitable for wave soldering.
2. Only for soldering by iron.

IV. General Product Characteristics

Data Rate Specifications	Symbol	Min.	Typ.	Max.	Unit	Ref.
Bit Rate(all wavelength combined)	BR			103.1	Gb/s	1
Bit Error Ratio(pre-FEC)	BER			10 ⁻⁵		2
Maximum Supported Distances						
Fiber Type						
Link distance on OM3 MMF	d			70	meters	3
Link distance on OM4 MMF	d			300	meters	3

Notes:

1. Supports 100GBASE-SR4 per IEEE 802.3bm.
2. Tested with a PRBS 2³¹-1 test pattern.
3. Requires FEC on the host to support maximum distance, per 100GBASE-SR4.

V. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Transmitter(per lane)						
Average Output Power per lane	P _{OUT}	-6		2.4	dBm	
Extinction Ratio	ER	2			dB	
Center Wavelength	λ _C	840		860	nm	
RMS Spectral Width	σ			0.6	nm	
Transmitter OFF Output Power	P _{Off}			-30	dBm	

Transmitter eye mask definition {X1,X2,X3,Y1,Y2,Y3}		{0.3,0.38,0.45,0.35,0.41,0.5}		1
Receiver(per lane)				
Input Optical Wavelength	λ_{IN}	840	860	nm
Rx Sensitivity(OMA) per lane @BER=5E-5	R_{SENS}		-10.3	dBm
Input Saturation Power (Overload)	P_{SAT}	+2.4		dBm
Receiver Reflectance	R_{fl}		-12	dBm
Loss of Signal Assert	P_A	-30		dBm
Loss of Signal De-assert	P_D		-12	dBm
LOS Hysteresis	$P_D - P_A$	0.5		dB

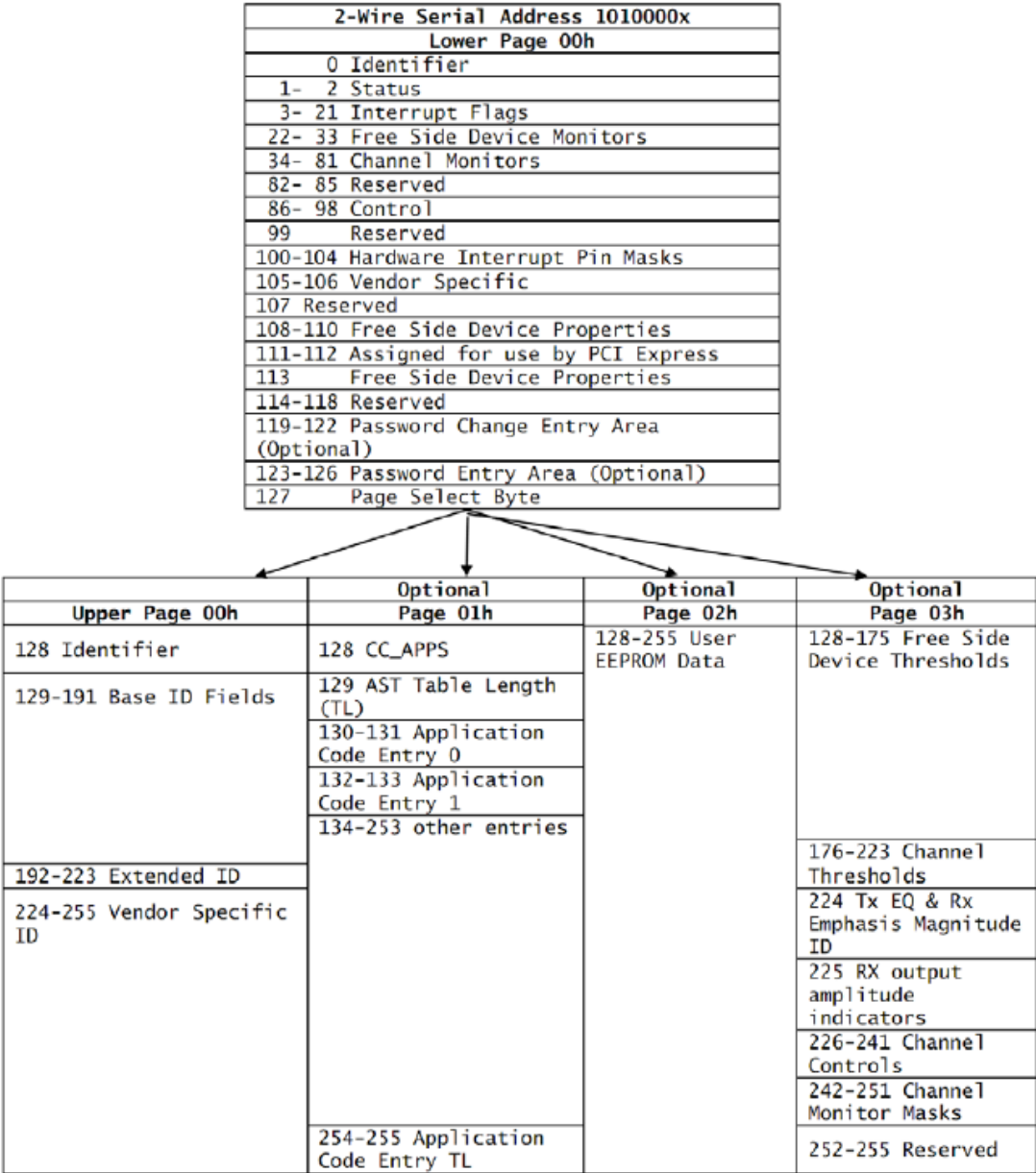
Note:

1. Hit Ratio 1.5×10^{-3} hit/sample.
2. Measured with PRBS $2^{31}-1$ test pattern 25.78125Gbps.

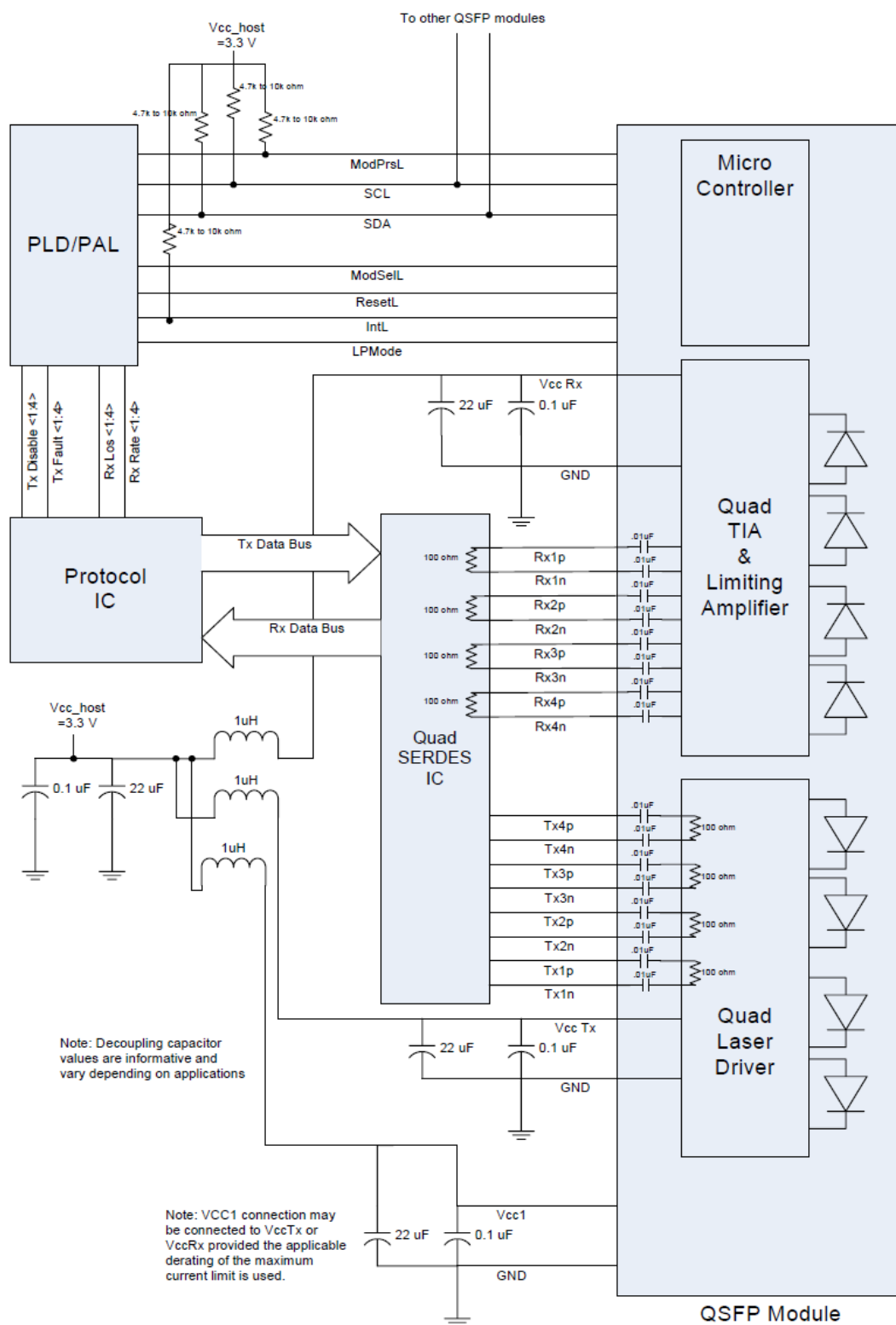
VI. Electrical Interface Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Supply Voltage	$V_{CC1},$ $V_{CCTX},$ V_{CCRX}	3.15		3.45	V	
Supply Current	I_{CC}			750	mA	
Transmitter(per Lane)						
Input different impedance	R_{in}	90	100	110	Ω	
Single ended input voltage tolerance	V_{inT}	-0.3		4.0	V	
Single ended data input swing	$V_{in,pp}$	200		1000	mV	
Receiver (per Lane)						
Output different impedance	R_{out}	90	100	110	Ω	
Single ended data output swing	$V_{out,pp}$	200		1000	mV	
Single-ended output voltage	V_{outR}	-0.3		4.0	V	

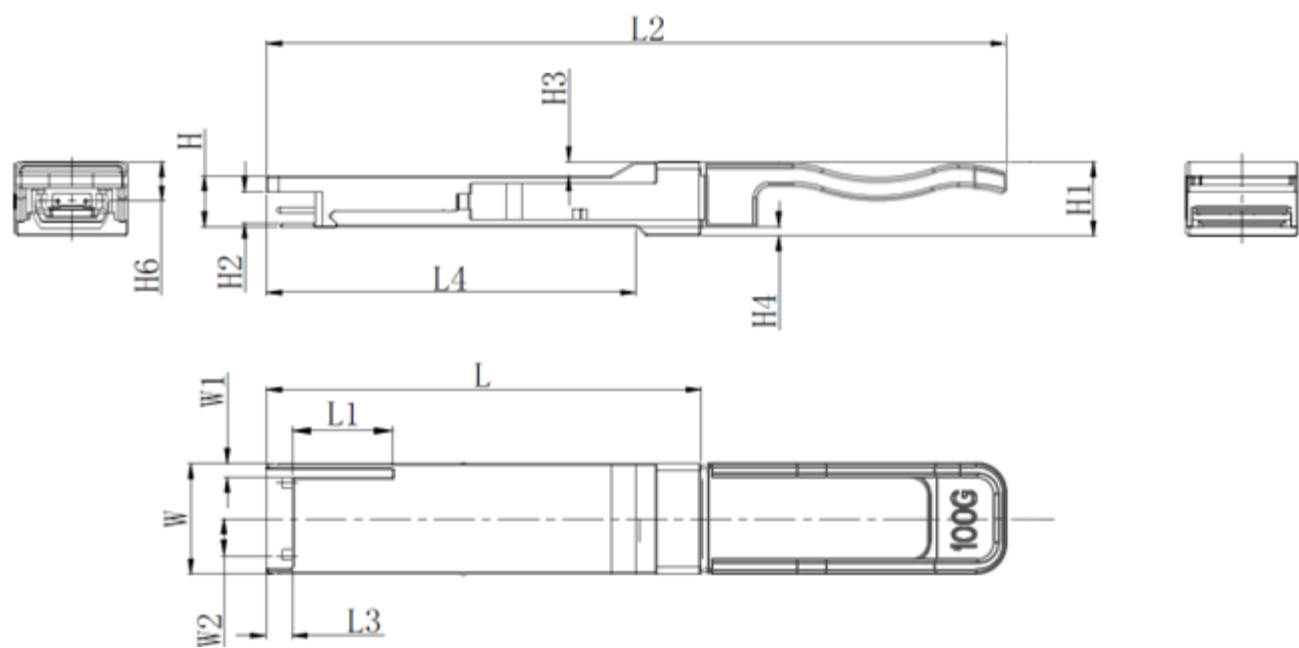
VII. Digital Diagnostic Functions



VIII.Recommended Interface Circuit



IX. Mechanical Specifications (Unit: mm)



Unit mm

	L	L1	L2	L3	L4	W	W1	W2	H	H1	H2	H3	H4	H5	H6
Max	72.2	-	-	4.35	61.4	18.45	-	6.2	8.6	12.4	5.35	2.5	1.6	2	-
TYPE	72	-	121	4.2	61.2	18.35	-	-	8.5	12.2	5.2	2.3	1.5	1.8	6.55
Min	68.8	16.5	-	4.05	61	18.25	2.2	5.8	8.4	12	5.05	2.1	1.3	1.6	-