

LPANAA31-M(L)xxC

QSFP+ 40Gb/s Parallel Active Optical Cable DDM

PRODUCT FEATURES

- Multi rate of up to 10.3125Gb/s per channel
- Complies with QSFP+ MSA high-density form factor
- Hot-pluggable
- Four-channel full-duplex active optical cable
- Low power consumption
- RoHS-6 Compliant
- Compliant with SFF-8436
- +3.3V single power supply
- Case operating temperature Commercial: 0°C to +70°C



APPLICATIONS

- Infiniband QDR
- 40G Ethernet
- Other optical links

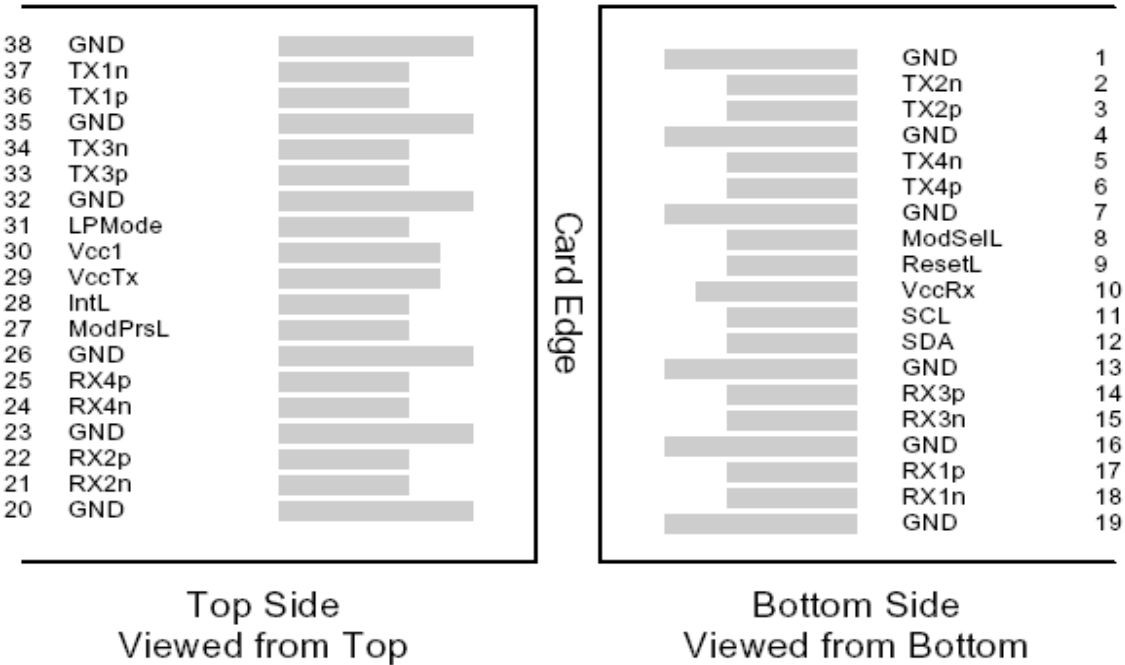
Compliance

- QSFP SFF-8436
- IEEE 802.3ba
- RoHS

Ordering information

Package	Product part NO.	Distance	Temperature Range
QSFP+	LPANAA31-L05C	0.5-metercable	Commercial:0~70℃
QSFP+	LPANAA31-M01C	1-metercable	Commercial:0~70℃
QSFP+	LPANAA31-M03C	3-metercable	Commercial: 0~70℃
QSFP+	LPANAA31-M05C	5-metercable	Commercial: 0~70℃
QSFP+	LPANAA31-M06C	6-metercable	Commercial: 0~70℃
QSFP+	LPANAA31-M10C	10-metercable	Commercial: 0~70℃
QSFP+	LPANAA31-M15C	15-metercable	Commercial: 0~70℃
QSFP+	LPANAA31-M20C	20-metercable	Commercial: 0~70℃
QSFP+	LPANAA31-M25C	25-metercable	Commercial: 0~70℃
QSFP+	LPANAA31-M30C	30-metercable	Commercial: 0~70℃
QSFP+	LPANAA31-M50C	50-metercable	Commercial: 0~70℃
*For availability of additional cable lengths, please contact Oubochao.			

I. Pin Diagram



QSFP MSA-compliant 38-pinconnector

II. Pin Descriptions

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	VccRx	+3.3 V 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	VccTx	+3.3 V Power supply transmitter	
30	Vcc1	+3.3 V 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

Notes:

- 1.Circuit ground is internally isolated from chassis ground.

III. Absolute Maximum Ratings

Parameter	Symbol	Min	Type	Max	Unit	Ref.
Maximum Supply Voltage	V _{CC1} , V _{CCTX} ,	-0.5		3.6	V	
Storage Temperature	T _S	-5		75	°C	1
Case Operating Temperature	T _{OP}	0		70	°C	
Relative Humidity	RH	5		85	%	2

Notes:

- 1.Limited by the fiber cable jacket, not the active ends.
- 2.Non-condensing.

IV. Electrical Characteristics (T_{OP} = 0 to 70°C, V_{CC} = 3.3 ± 5% Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Supply Voltage	V _{CC1} , V _{CCTX} , V _{CCRX}	3.15		3.45	V	
Power Dissipation per QSFP+	P _d			1.5	W	
Transmitter(per Lane)						
Input different impedance	R _{in}	90	100	110	Ω	1
Single ended input voltage tolerance	V _{inT}	-0.3		4.0	V	
Single ended data input swing	V _{in,pp}	200		1000	mV	2
Receiver (per Lane)						
Output different impedance	R _{out}	90	100	110	Ω	1
Single ended data output swing	V _{out,pp}	200		1000	mV	3
Single-ended output voltage	V _{outR}	-0.3		4.0	V	

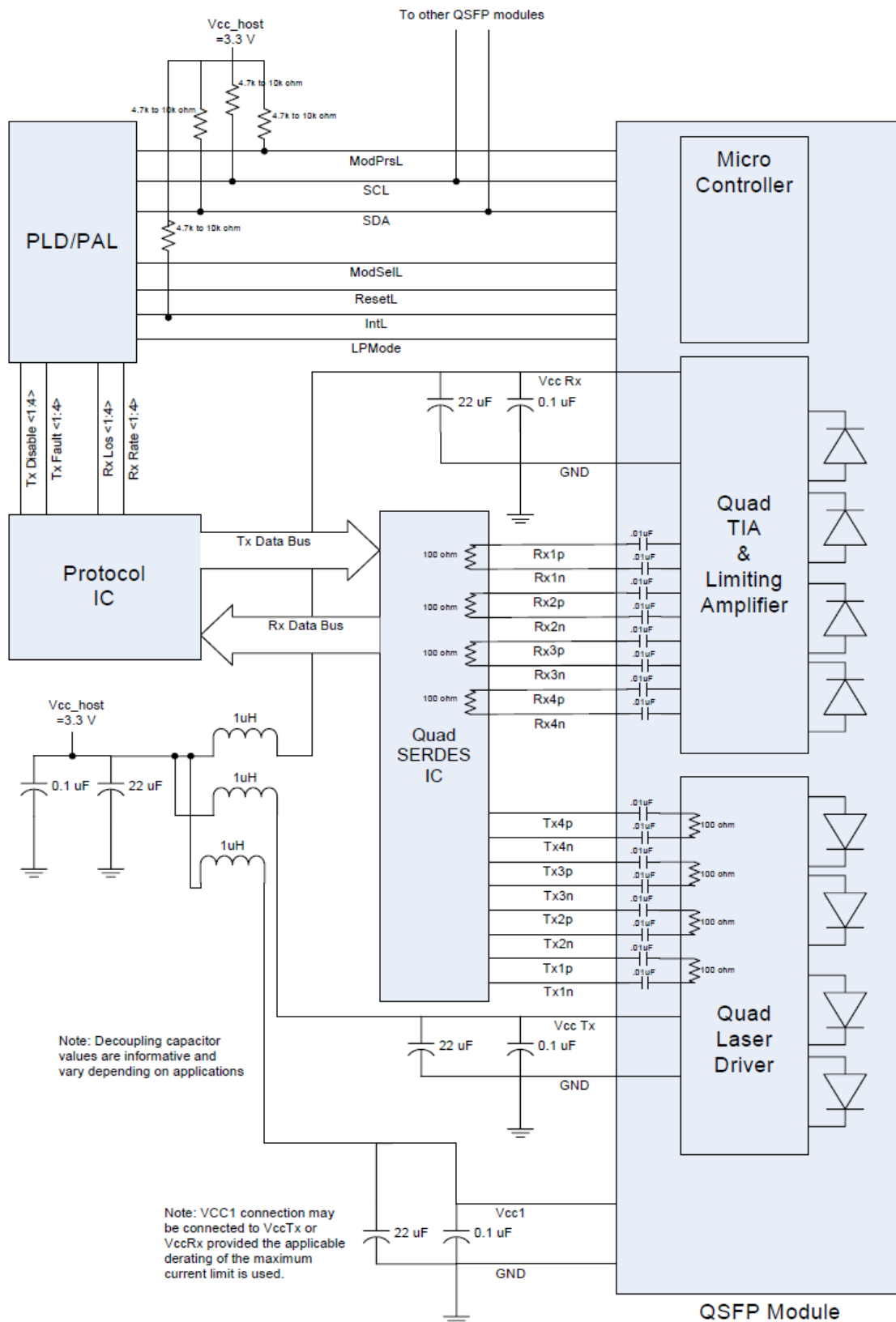
Note :

- 1.Connected directly to TX data input pins. AC coupled thereafter.
2. After internal AC coupling. Self-biasing 100Ω differential input
- 3.Into 100Ω differential termination.

V. Memory Map and Control Registers

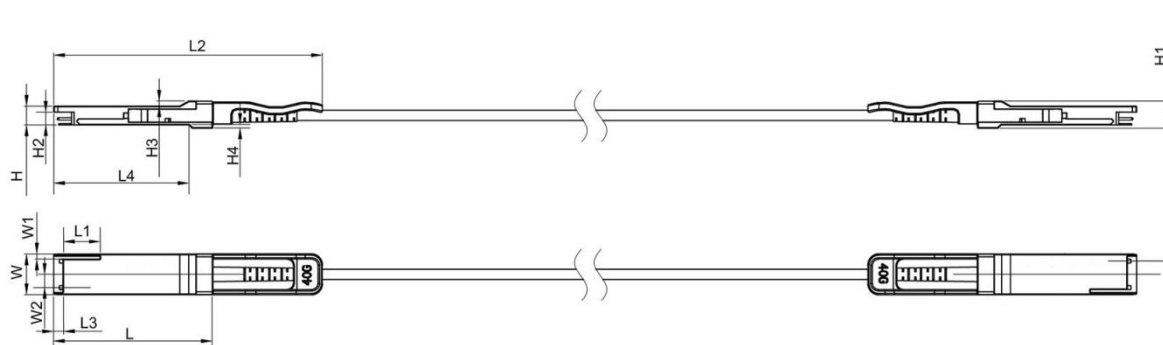
Compatible with SFF-8436.

VI. Recommended Interface Circuit



VII. Mechanical Specification

The Quadwire mechanical specifications are based on QSFP transceiver module specifications, substituting the MPO connectors with a cable connecting both ends.



Unit mm

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

Appendix A. Document Revision

Version	Initiated	Reviewed	Revision	Release Date
A0	Lynn	Luke	New Release	2019-7-31
A1	Lynn	Luke	Update product power consumption	2020-5-17