

LPANAA38-M(L)xxC

QSFP+ to 4LC Full Duplex Active Optical Cable

PRODUCT FEATURES

- 4 channels 850nm VCSEL and PIN
- Electrical interface compliant to SFF-8436
- Support 40Gb/s data rate
- Hot Pluggable QSFP form factor
- Four double LC connector receptacle
- Built-in digital diagnostic functions
- 3.3V power supply voltage
- UL certification cables (optional)
- RoHS-6 Compliant
- Case operating temperature Commercial: 0°C to +70°C



APPLICATIONS

- 4x10G Ethernet

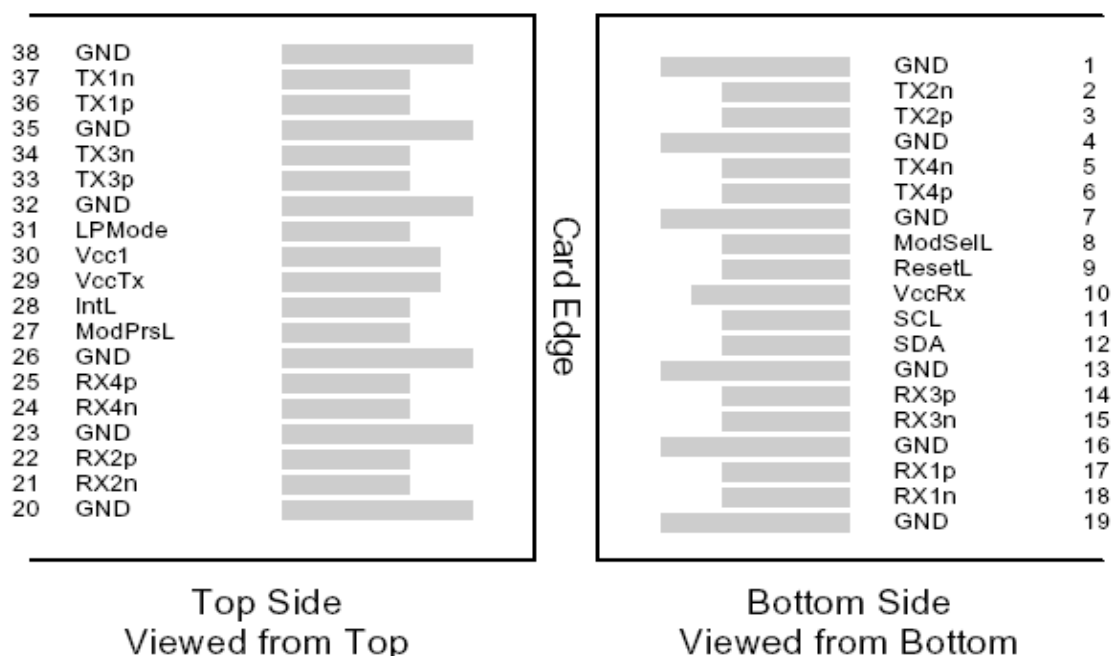
Compliance

- QSFP+ SFF-8436
- QSFP+ MSA
- RoHS

Ordering information

Package	Product part NO.	Distance	Temperature Range
QSFP+ to 4LC	LPANAA38-M01C	1-metercable	Commercial: 0~70℃
QSFP+ to 4LC	LPANAA38-M03C	3-metercable	Commercial: 0~70℃
QSFP+ to 4LC	LPANAA38-M05C	5-metercable	Commercial: 0~70℃
QSFP+ to 4LC	LPANAA38-M06C	6-metercable	Commercial: 0~70℃
QSFP+ to 4LC	LPANAA38-M10C	10-metercable	Commercial: 0~70℃
QSFP+ to 4LC	LPANAA38-M15C	15-metercable	Commercial: 0~70℃
QSFP+ to 4LC	LPANAA38-M20C	20-metercable	Commercial: 0~70℃
QSFP+ to 4LC	LPANAA38-M25C	25-metercable	Commercial: 0~70℃
QSFP+ to 4LC	LPANAA38-M30C	30-metercable	Commercial: 0~70℃
QSFP+ to 4LC	LPANAA38-M50C	50-metercable	Commercial: 0~70℃
QSFP+ to 4LC	LPANAA38-S10C	100-metercable	Commercial: 0~70℃
*For availability of additional cable lengths, please contact Oubochao.			

I. Pin Descriptions



QSFP MSA-compliant 38-pinconnector

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.

II. Absolute Maximum Ratings

Parameter	Symbol	Min	Type	Max	Unit	Ref.
Supply Voltage	Vcc	-0.5		3.6	V	
Storage Temperature	T _S	-5		75	°C	
Case Operating Temperature	T _{OP}	0		70	°C	
Relative Humidity	RH	5		85	%	1
Damage Threshold	DT	3			dBm	

Notes:

1. Non-condensing.

III. Recommended Operating Conditions

Parameter	Symbol	Min	Type	Max	Unit
Case Operating Temperature	T_{op}	0		70	°C
Supply Voltage	VCC	3.15	3.3	3.45	V
Differential data input voltage per lane	Vdin	200		1200	mV
Signaling rate per lane	Dr	2.5	10.3125		Gbit/s
Differential Termination Resistance	Zin	80	100	120	Ω
Module power	P			1.5	W

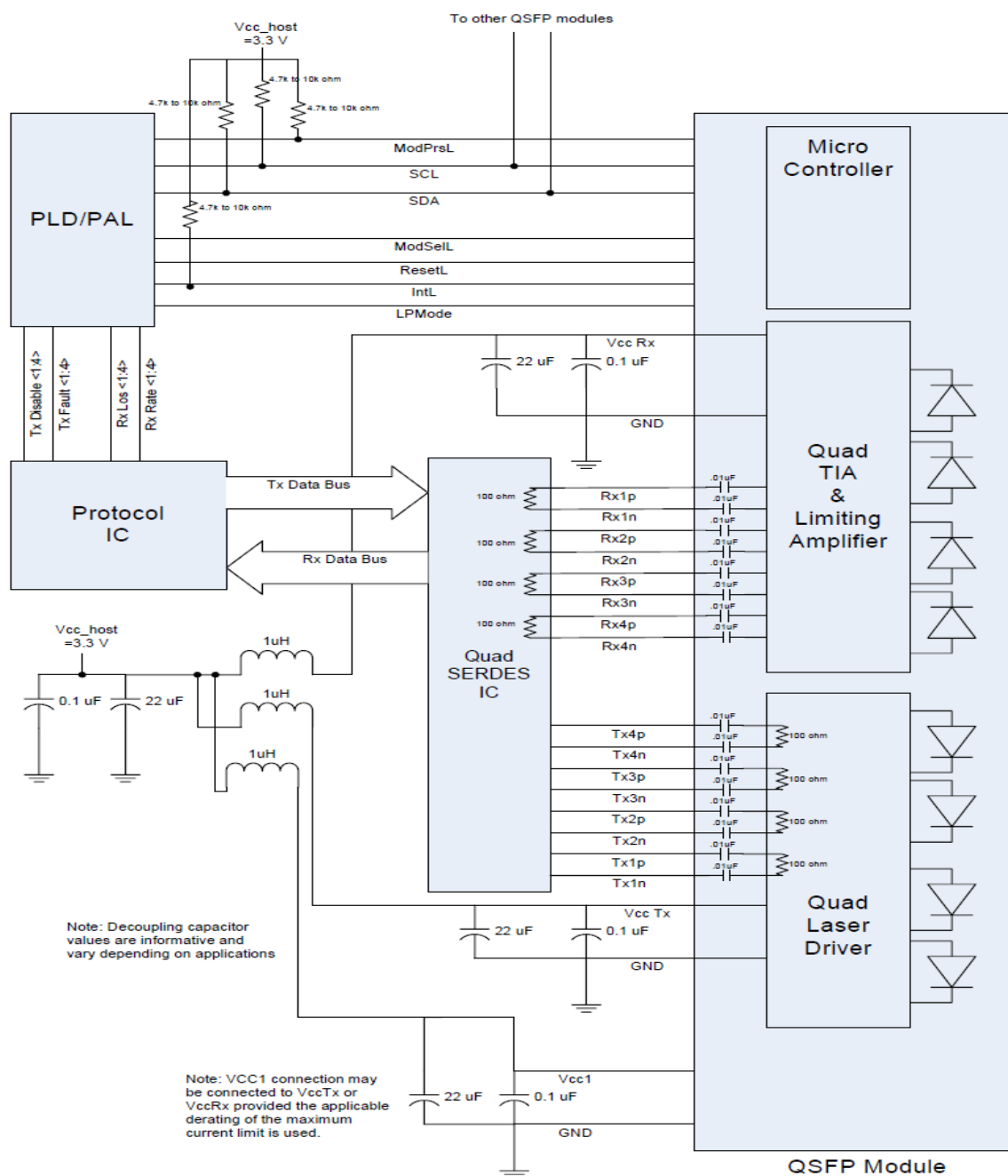
IV. Optical Characteristics

Parameter	Symbol	Min	Type	Max	Unit
Transmitter					
Center wavelength	λ_c	840	850	860	nm
RMS Spectral Width	Pm			0.6	nm
Average Launch Power per Lane	P _{AVG}	-6.0		+2.4	dBm
Optical Extinction Ratio	ER	3			dB
Average Launch power Tx_off	Poff			-30	dBm
Receiver					
Center wavelength	λ_c	840	850	860	nm
Sensitivity@BER=E-12	P _{sen}			-10.2	dBm
Optical Return Loss Tolerance	RL			12	dB
LOS De-Assert	LOS _D			-15	dBm
LOS Assert	LOS _A	-30			dBm
LOS Hysteresis	LOS _H	0.5			dB

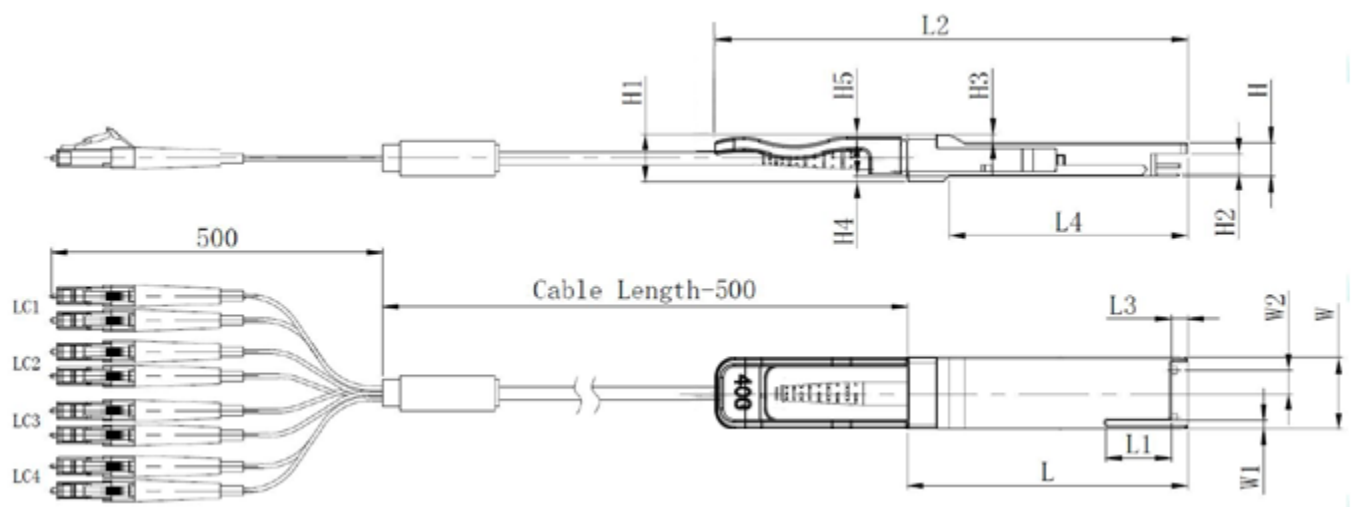
V. Memory Map and Control Registers

Compatible with SFF-8436.

VI. Recommended Interface Circuit



VII. Mechanical Specifications



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	-

Cable Length Tolerant

Cable Length (Unit: m)	Tolerant (Unit: cm)
<1.0	+5/-0
1.0~4.5	+15/-0
5.0~14.5	+30/-0
≥15.0	+2%/-0
LC cable	+5/-0

Appendix A. Document Revision

Version	Initiated	Reviewed	Revision	Release Date
A0	Lynn	Luke	New Release	2019-7-31