

LPANMM85-S15C

QSFP+ 40Gb/s SR4 150m DDM

PRODUCT FEATURES

- Multi rate of up to 10.3125Gb/s per channel
- Transmission distance up to 150m OM3
- Hot-pluggable QSFP+ footprint
- Single 1x12 MPO receptacle
- Low power consumption
- Four-channel full-duplex transceiver module
- 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

- 40GBASE-SR4 40G Ethernet
- InfiniBand QDR
- Other optical links

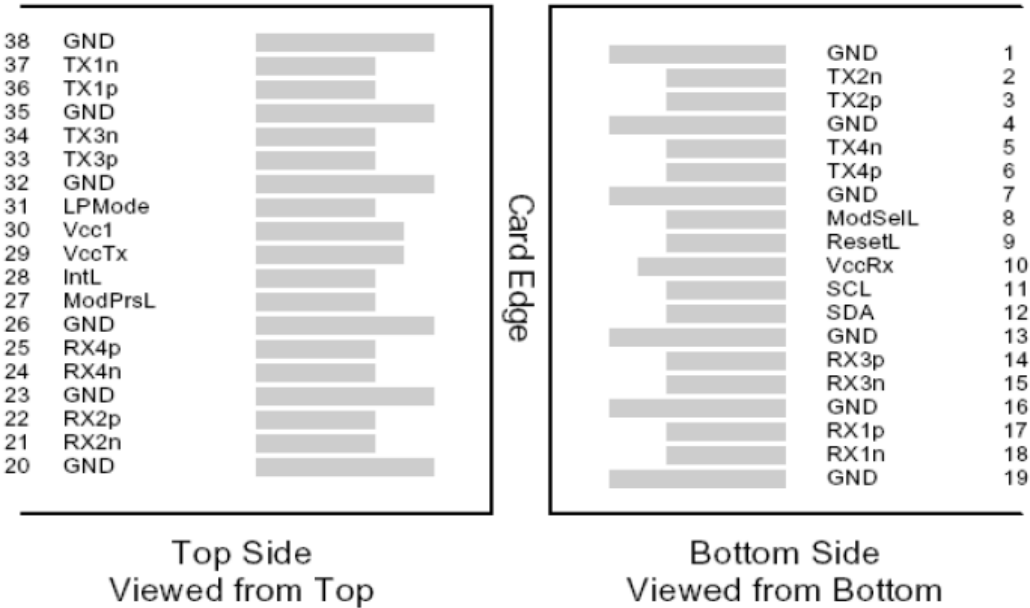
Compliance

- QSFP+ MSA.
- IEEE802.3ba
- SFF-8436
- RoHS

Ordering information

Part NO.	Bit Rate (Gbps)	Laser (nm)	Distance(m)	Media	DDMI	Connector	Temp (℃)
LPANMM85-S15C	40	850	150	multi-mode fiber	YES	MPO 1X12	0~70

I. Pin Diagram



QSFP+ MSA-compliant 38-pin connector

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	
Relative Humidity	H_A	5		85	%	
Maximum Supply Voltage	V_{CC1} , $V_{CC}T_X$, $V_{CC}R_X$	-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. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Transmitter(per Lane)						
Average Output Power	P _{OUT}	-6		2.4	dBm	
Extinction Ratio	ER	3.0			dB	
Center Wavelength	λ _C	840		860	nm	
RMS Spectral Width	σ			0.6	nm	
Transmitter OFF Output Power	P _{Off}			-30	dBm	
Relative Intensity Noise	RIN			-128	dB/Hz	
Transmitter eye mask definition {X1,X2,X3,Y1,Y2,Y3}		0.23,0.34,0.43,0.27,0.35,0.4				
Receiver(per Lane)						
Input Optical Wavelength	λ _{IN}	840		860	nm	
Rx Sensitivity per lane	R _{SENS}			-10.3	dBm	@BER=1E-12
Input Saturation Power (Overload)	P _{SAT}	+2.4			dBm	1
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		6	dB	

Note:

1. Measured with PRBS 2³¹-1 test pattern @10.3125Gbps.BER=1E-12.

V. 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}			350	mA	
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	

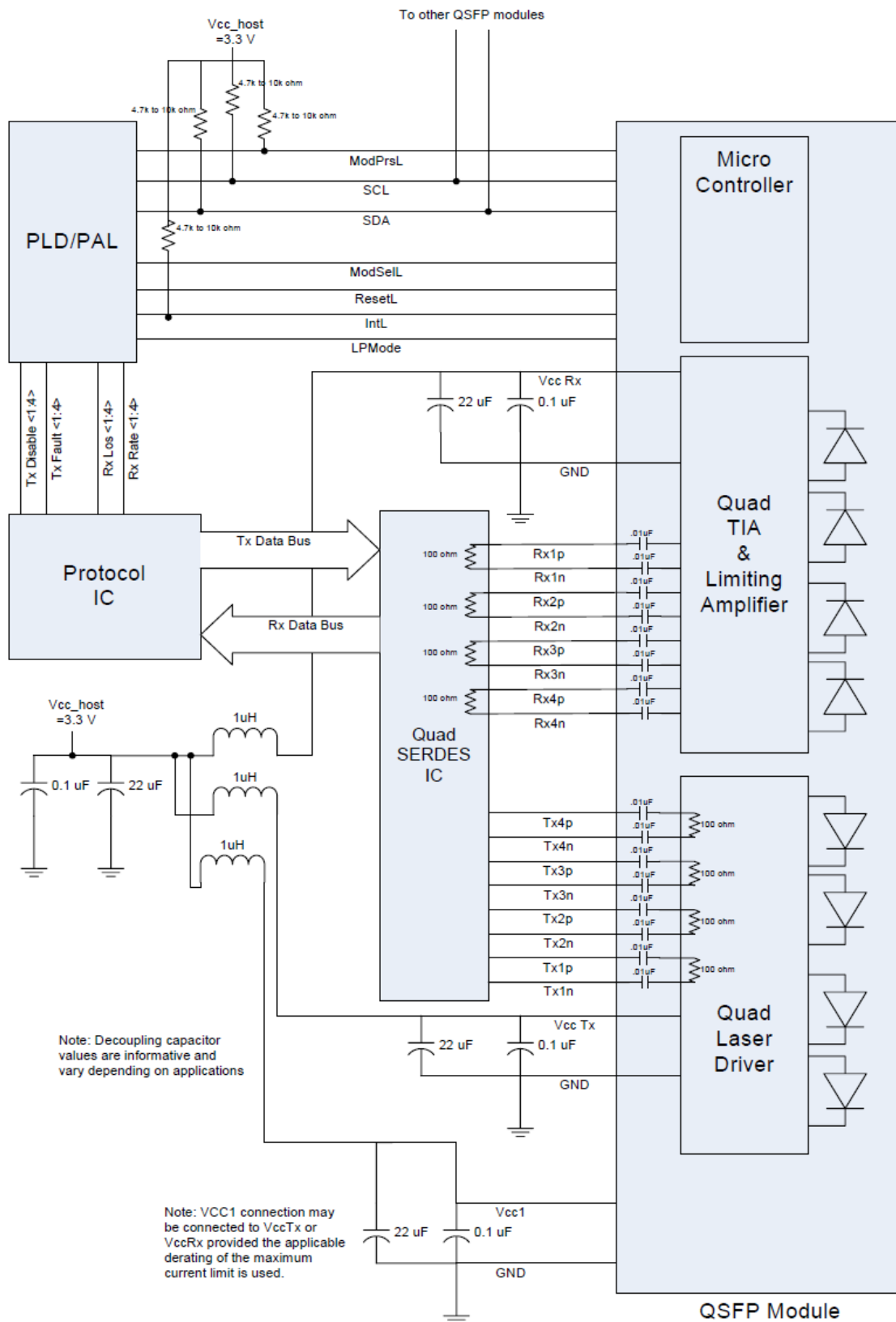
Note :

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

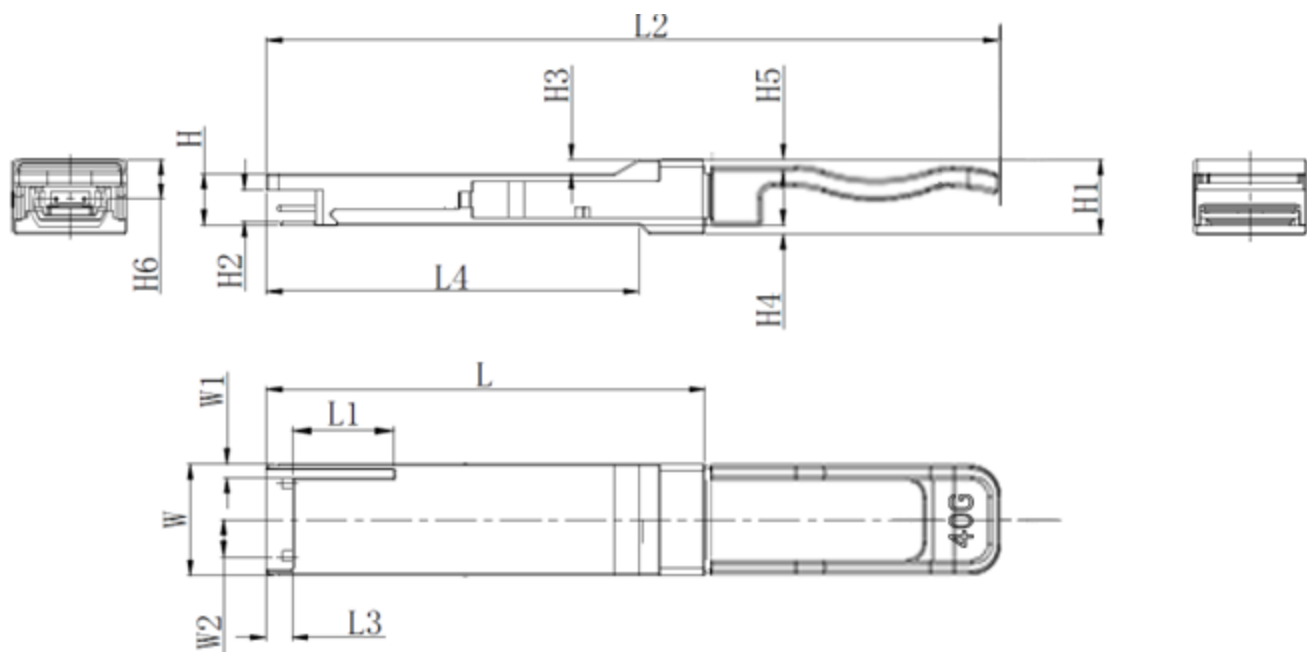
VI. Memory Map and Control Registers

Compatible with SFF-8436Rev.4.8(QSFP+).

VII. Recommended Interface Circuit



VIII.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	-