

LPOSMM85-M50C

QSFP112, 400G SR4 MPO-12, 850nm MMF, 50m

Features

- 4x106.25 Gbps electrical interface
- 4x VCSEL850nm arrays and 4x PIN PD arrays
- Hot-pluggable QSFP112 form factor
- Maximum link length of 50m on OM4 fiber, with FEC
- +3.3V single power supply
- Power dissipation < 8W
- MPO-12 APC connector
- Operating case temp: 0°C to +70 °C
- RoHS compliant



Applications

- 400G Ethernet
- Data centers and cloud networks

Order Information

Part NO.	Bit Rate	Laser	Distance *1	Fiber Media	DDMI	Connector	Temp *2
LPOSMM85-M50C	425.Gbps	850nm VCSEL	50m (OM4)	MMF	YES	MPO 1x12 APC	0~70 °C

Note:

1. 50M for OM4 fiber, and 30m for OM3 fiber, with FEC

2. Case Temperature.

I. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	U	Notes
Supply Voltage	VCC ₃	-0.5	-	+3.6	V	
Storage Temperature	T _s	-40	-	+85	°C	
Operating Humidity	RH	5	-	85	%	No condensation
RX damage threshold, per Lane	P _{Rdmg}	5	-	-	dBm	each lan

II. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	T _C	0	-	+70	°C	
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Power Dissipation	Pd	-	-	8	W	
Link distance on OM4 MMF	d			50	meters	

III. Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter						
Signaling Rate per Lane		53.125 ± 100 ppm			GBd	
Modulation Format		PAM4				
Center wavelength	λC	840	850	860	nm	
RMS Spectral Width	SW	-	-	0.6	dBm	
Average Launch Power per Lane	AOP	-4.6		4.0	dBm	1
Outer Optical Modulation Amplitude (OMA _{outer}), each lane (min)	TxOMA	-2.6	-	3.5	dBm	
Transmitter and Dispersion Eye Closure for PAM4 (TDECQ), each lane	TDECQ	-	-	4.4	dB	
Average Launch Power of OFF Transmitter, each lane	TOFF	-	-	-30	dBm	
Extinction Ratio, each lane	ER	2.5	-	-	dB	
Optical Return Loss Tolerance	ORL	-	-	12	dB	
Transmitter Reflectance	TR	-	-	-26	dBm	2
Receiver						
Signaling Rate per Lane		53.125 ± 100 ppm			GBd	
Modulation Format		PAM4				

Wavelength	W	842	-	865	nm	
Damage Threshold, average optical power, each lane	DT	5	-	-	dBm	
Average Receive Power, each lane	RXPx	-6.3	-		dBm	
Receive Power (OMA) per Lane	RxOMA	-	-	3.5	dBm	
Receiver Reflectance	Rfl	-	-	-26	dB	
Receiver Sensitivity (OMOuter), each lane	SOMA	-4.4	-	-	dBm	3

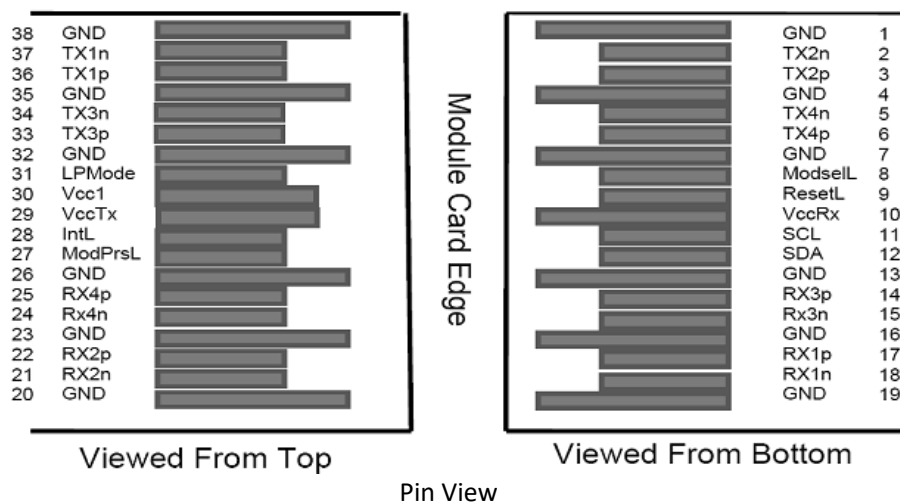
Note:

1. Minimum value is informative only and not the principal indicator of signal strength.
2. Transmitter reflectance is defined looking into the transmitter.
3. Receiver sensitivity (OMOuter), each lane (max) is informative and is defined for a transmitter with TDECQ≤1.8 dB

IV. Electrical Characteristics

Parameter	Symbol	Unit	Min	Typ	Max	Notes
Transmitter						
Signaling Rate per Lane	SR	Gbd	53.125 ± 100 ppm			
Modulation format	-	-	PAM4			
Differential pk-pk input Voltage tolerance	Vin,pp,diff	mV	750	-	-	
Differential termination mismatch	-	%	-	-	10	
Single-ended voltage tolerance range	-	V	-0.4	-	3.3	
DC common mode voltage	-	mV	-350	-	2850	
Receiver						
Signaling Rate per Lane	SR	Gbd	53.125 ± 100 ppm			
Modulation format	-	-	PAM4			
Differential output Voltage (Long mode)	-	mV	-	-	845	
Differential output Voltage (Short mode)	-	mV	-	-	600	
Near-end Eye height, differential	-	mV	70	-	-	
Far-end Eye height, differential	-	mV	30	-	-	
Far end pre-cursor ratio	-	%	-4.5	-	2.5	
Differential Termination Mismatch	-	%	-	-	10	
Transition Time (min, 20% to 80%)	-	%	9.5	-	-	
DC common mode Voltage	-	mV	-350	-	2850	

V. Pin arrangement



Pin Function Definitions:

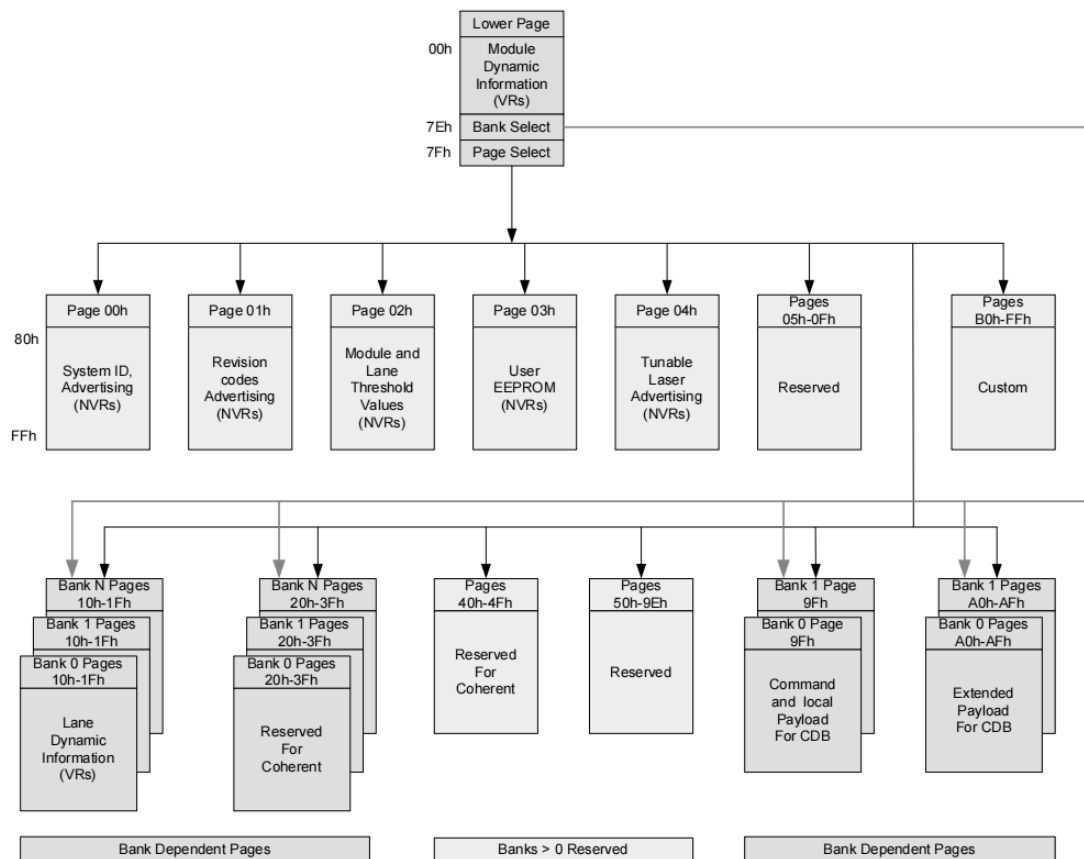
Pin	Symbol	Name/Description	Notes
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc 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

Note: 1. Circuit ground is internally isolated from chassis ground.

VI. Memory Map

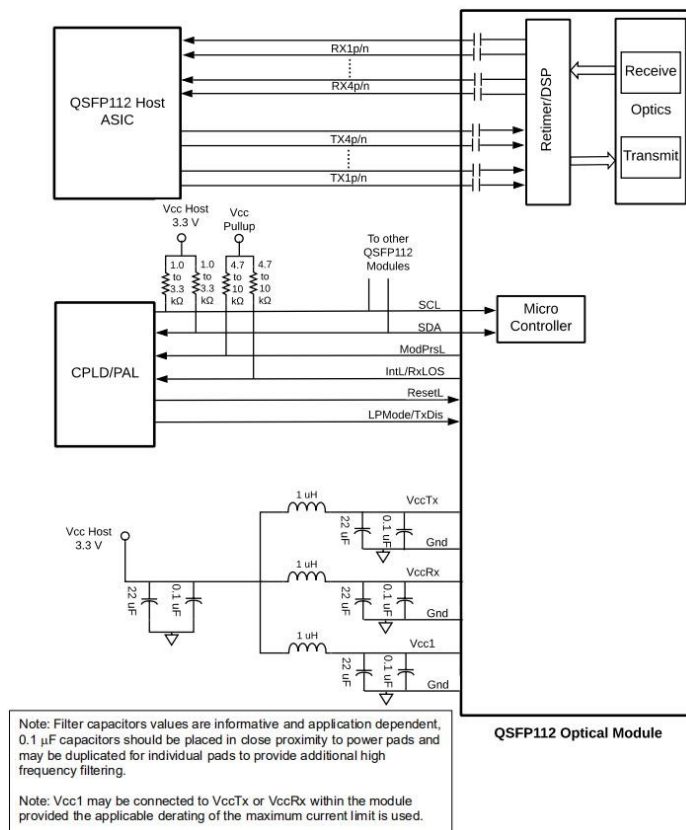
Compatible with CMIS rev4.0 and upper



VII. Digital Diagnostic Monitor Accuracy

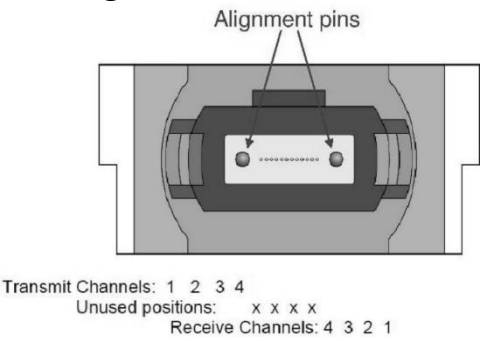
Parameter	Accuracy	Unit
Internally Measured Transceiver Temperature	+/-3	°C
Internally Measured Transceiver Supply Voltage	+/-3	%
Measured Tx Bias Current	+/-10	%
Measured Tx Output Power	+/-3	dB
Measured Rx Received Average Optical Power	+/-3	dB

VIII. Recommended Interface



Recommended Interface Circuit

IX. Optical interface arrangement

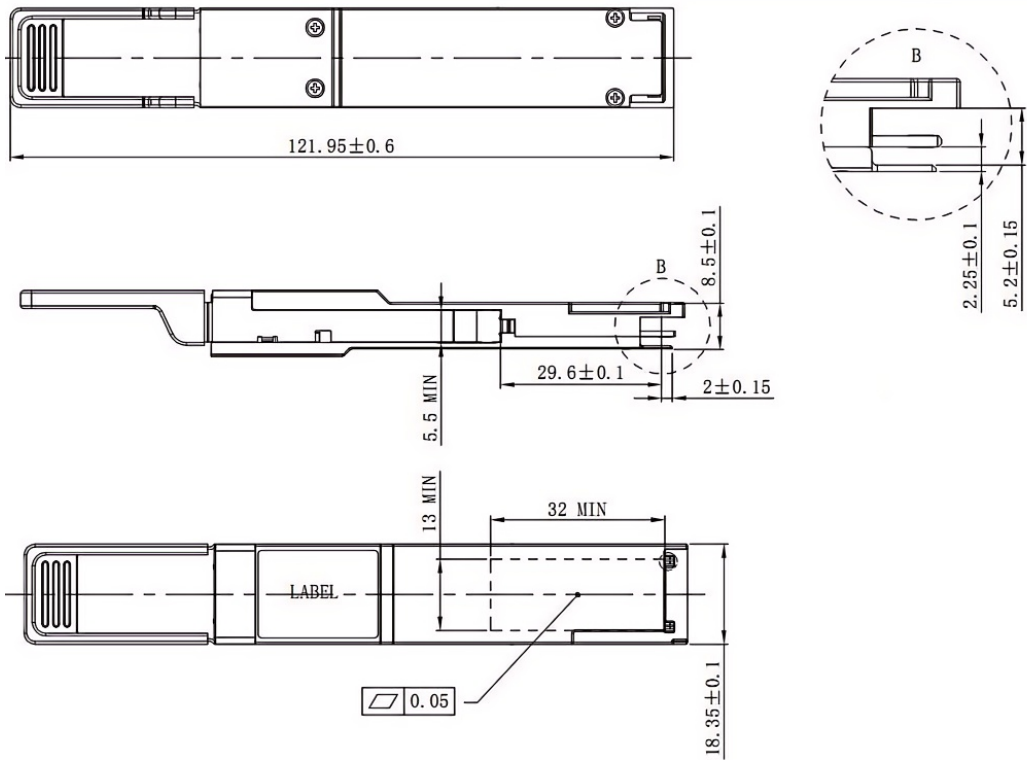


Optical interface arrangement.

X. Mechanical

compatible with QSFP112 MSA Specification Rev1.0

Unit mm



Mechanical Diagram