

PRODUCT FEATURES

- QSFP MSA compliant
- 4x53.125GBaud electrical interface
- Up to 50m on OM4 with MMF
- MPO-12, APC receptacles
- Commercial case temperature 0~70℃
- Single 3.3V power supply
- Maximum power consumption 9 Watts
- CMIS 5.0 standard interface
- Aligned to IEEE802.3 db

APPLICATIONS

- 400GBASE-SR4 400G Ethernet
- Data Center Interconnect

COMPLIANCE

- QSFP MSA.
- IEEE802.3 db
- RoHS 2.0
- CMIS 5.0

Ordering information

Part Number	Data Rate(Gb/s)	Media	Wavelength(nm)	Operating distance(m)	Temperature(℃)
IP-AAMM50M85C	4x106.25	MMF	850	50	0~70

PRODUCT DESCRIPTION

The IP-AAMM50M85C is an QSFP112 optical transceiver for 4x53.125GBaud optical links for 400Gbit/s. Transmission is based on VCSEL 850nm with electrical driver, while the receiver side is based on PIN photodetector and TIA. Module is equipped with DSP to provide channel equalization. The receptacle of the optical type is MPO-12.

1. Pin Diagram



2. Pin Descriptions

pad	Logic	Symbol	Description	Plug Sequence	Notes
1		GND	Ground	1	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	3	
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input	3	
4		GND	Ground	1	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	3	
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input	3	
7		GND	Ground	1	1
8	LVTTL-I	ModSelL	Select	3	
9	LVTTL-I	ResetL	Reset	3	
10		Vcc Rx	+3.3 V Power supply receiver	2	2
11	LVC MOS-I/O	SCL	2-wire serial interface clock	3	
12	LVC MOS-I/O	SDA	2-wire serial interface data	3	
13		GND	Ground	1	1
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	3	
15	CML-O	Rx3n	Receiver Inverted Data Output	3	
16		GND	Ground	1	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	3	
18	CML-O	Rx1n	Receiver Inverted Data Output	3	

19		GND	Ground	1	1
20		GND	Ground	1	1
21	CML-O	Rx2n	Receiver Inverted Data Output	3	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	3	
23		GND	Ground	1	1
24	CML-O	Rx4n	Receiver Inverted Data Output	3	
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	3	
26		GND	Ground	1	1
27	LVTTL-O	ModPrsL	Present	3	
28	LVTTL-O	IntL/RxLOS	Interrupt/optional RxLOS	3	
29		Vcc Tx	+3.3 V Power supply transmitter	2	2
30		Vcc1	+3.3 V Power Supply	2	2
31	LVTTL-I	LPMODE/Tx Dis	Low Power Mode/optional TX Disable	3	
32		GND	Ground	1	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	3	
34	CML-I	Tx3n	Transmitter Inverted Data Input	3	
35		GND	Ground	1	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	3	
37	CML-I	Tx1n	Transmitter Inverted Data Input	3	
38		GND	Ground	1	

Note

- 1: GND is the symbol for signal and supply (power) common for the QSFP112 module. All are common within the QSFP112 module and all voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.
- 2: Vcc Rx, Vcc1 and Vcc Tx are the receiver and transmitter power supplies and shall be applied concurrently.

3. Absolute Maximum Ratings

It has to be noted that the operation in excess of any individual absolute maximum ratings might cause permanent damage to this module.

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Storage Temperature	TS	-40		85	°C	
Storage Ambient Humidity	HA	0		85	%	
Maximum Supply Voltage	VCC	-0.5		3.6	V	

4. Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Case Temperature	Tcase	0	25	70	°C	
Supply Voltage	VCC	3.135	3.3	3.465	V	
Relative Humidity	RH	5		85	%	
Data Rate (Optical)	DRO		4*106.25		Gbps	
Data Rate (Electrical)	DRE		4*106.25		Gbps	

5. Electrical Characteristics (EOL, Tcase=0~70°C, VCC=3.135~3.465 V)

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Power Dissipation	P _d			9	W	

Transmitter						
Data Rate, each lane	DRE		106.25		Gbps	
Differential Voltage pk-pk	VIN	40		900	mV	
Input differential impedance	ZIN		100		Ohm	
Differential Termination Resistance Mismatch				10	%	
Receiver						
Data Rate, each lane	DRE		106.25		Gbps	
Output differential impedance	Z _{OUT}		100		Ohm	
Differential Termination Resistance Mismatch				10	%	
Differential output voltage	V _{OUT}			1000	mV	

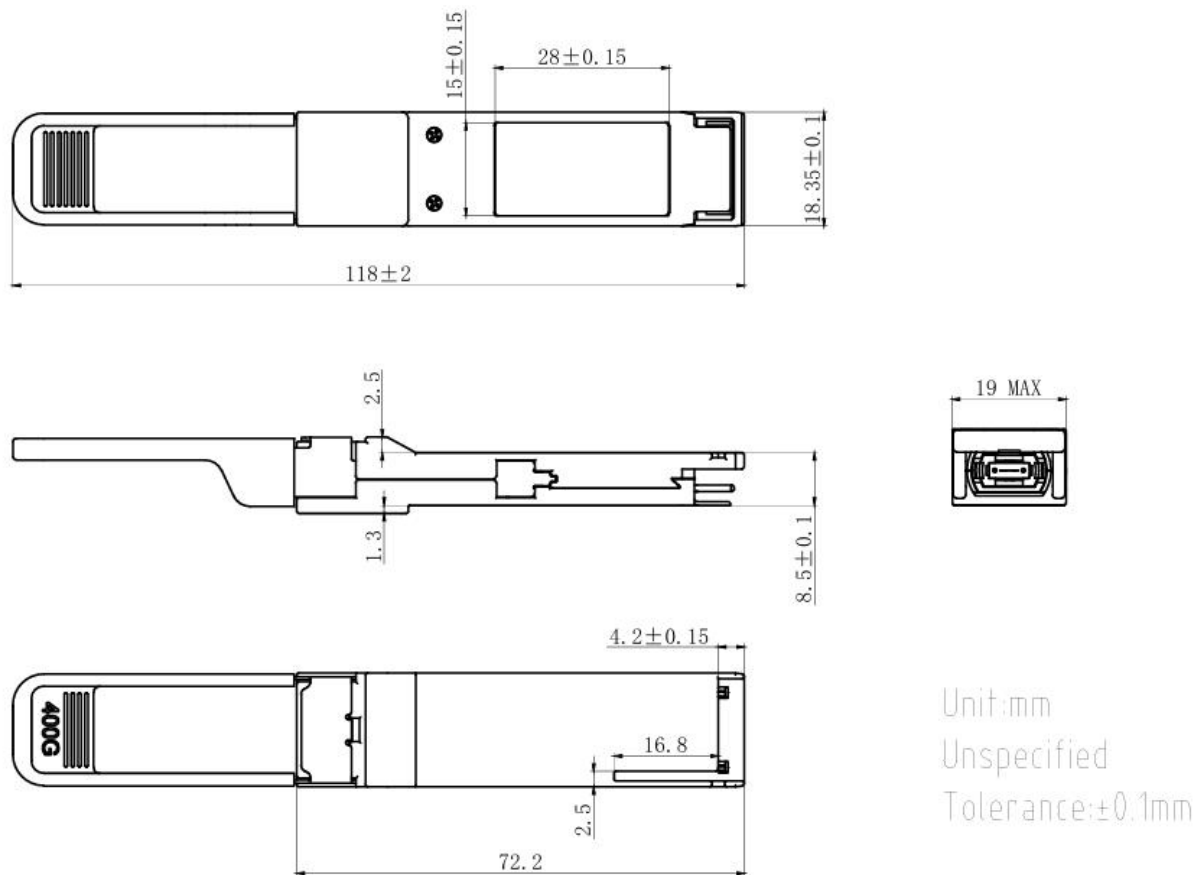
6. Optical Characteristics (EOL, Tcase=0~70℃, VCC=3.135~3.465 V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Signaling Speed per Lane	DRO	106.25			Gbps	
Center Wavelength	λ		850		nm	
RMS Spectral Width	$\Delta\lambda$			0.65	nm	
Average launch power		-4.6		4	dBm	
TX TDECQ				4.4	dB	
TX ER		2.5			dB	
Receiver sensitivity				-4.4 -6.2+TECQ	dBm	

Note:

1.Rx Sensitivity -4.6 for TECQ $\leq$ 1.8, RX Sensitivity -6.2+TECQ for 1.8 < TECQ $\leq$ 4.4

7. Mechanical Specifications



8. Regulatory Compliance

Feature	Reference Standards	Performance
ESD-HBM	JESD22-A114-B	1KV high speed Pins, 2KV other Pins
ESD-Air Discharge	IEC 61000-4-2	+/-15KV
ESD-Contact Discharge	IEC 61000-4-2	+/-8KV
EMC-RE	FCC Part 15 Class B	
EMC-RS	IEC 61000 4-3	
ROHS 2.0	2011/65/EU	

9. Contact Information

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10. Revision History

Version No.	Date	Description
1.0	Aug 1, 2024	Preliminary datasheet