



QSFP112-400GB-DR4-LPO-SKY

MSA Compliant 400GBase-DR4 PAM4 QSFP112 Transceiver (SMF, 1310nm, 500m, MPO-12, DOM, CMIS 5.0) LPO

Product Description

This MSA compliant QSFP112 transceiver provides 400GBase-DR4 throughput up to 500m over single-mode fiber (SMF) using a wavelength of 1310nm via an MPO connector. All of our transceivers are built to comply with Multi-Source Agreement (MSA) standards and are uniquely serialized and tested for data-traffic and application to ensure seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows access to real-time operating parameters. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Skylane's transceivers are RoHS compliant and lead-free.

Features:

- Supports 106.25Gbps Data Rate Per Channel
- CMIS 5.0
- QSFP112 MSA Compliant
- Single 3.3V Power Supply
- Type 2A Housing MPO-12 Connector
- Electrically Hot-Pluggable
- Up to 500m Reach Over SMF
- Power Dissipation: 5W, Typical 4.5W
- RoHS Compliant and Lead-Free
- Operating Temperature: 0 to 70 Celsius



Applications:

- 400GBase Ethernet

For your product safety, please read the following information carefully before any manipulation of the transceiver:



ESD

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 / JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



LASER SAFETY

This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	0		70	°C	Without air flow
Relative Humidity	RH	5		85	%	
Supply Voltage	Vcc	-0.5		3.6	V	
Data Rate	DR		53.125 ± 100ppm			@PAM4 per channel
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Power Supply Current	Icc			1515	mA	When Vcc is 3.3V
Power Dissipation	PD		4.5	5	W	
Transmission Distance	TD			500	m	
Coupled Fiber		Single-Mode Fiber				9/125μm SMF

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λ_C	1304.5		1317.5	nm	1
Average Launch Power Per Lane	P	-2.9		4	dBm	
Transmit OMA Per Lane		-0.8		4.2	dBm	
Transmitter and Dispersion Eye Closure for PAM4 TDECQ Per Lane	TDECQ			3.4	dB	
Side-Mode Suppression Ratio	SMSR	30			dB	
Optical Extinction Ratio	ER	3.5			dB	
Average Launch Power of Off Per Lane	P _{off}			-15	dBm	
RIN _{17,1} OMA	RIN			-136	dB/Hz	
Transmitter Reflectance	TR			-26	dBm	
Receiver						
Lane Wavelength	λ	1304.5		1317.5	nm	1
Damage Threshold Per Lane		5			dBm	2
Receive Power (OMA) Per Lane	ROMA			4.2	dBm	
Average Input Power Per Channel	RxPx	-5.9		4.0	dBm	
Receiver Sensitivity (OMA) Per Lane	PxSens			-4.4	dBm	3
Receiver Reflectance	RR			-26	dB	

Notes:

1. The wavelength assignment is suitable for all channels.
2. Measured wavelength with a PRBS31Q test pattern, BER@2.4x10⁻⁴.
3. The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level.

Pin Descriptions

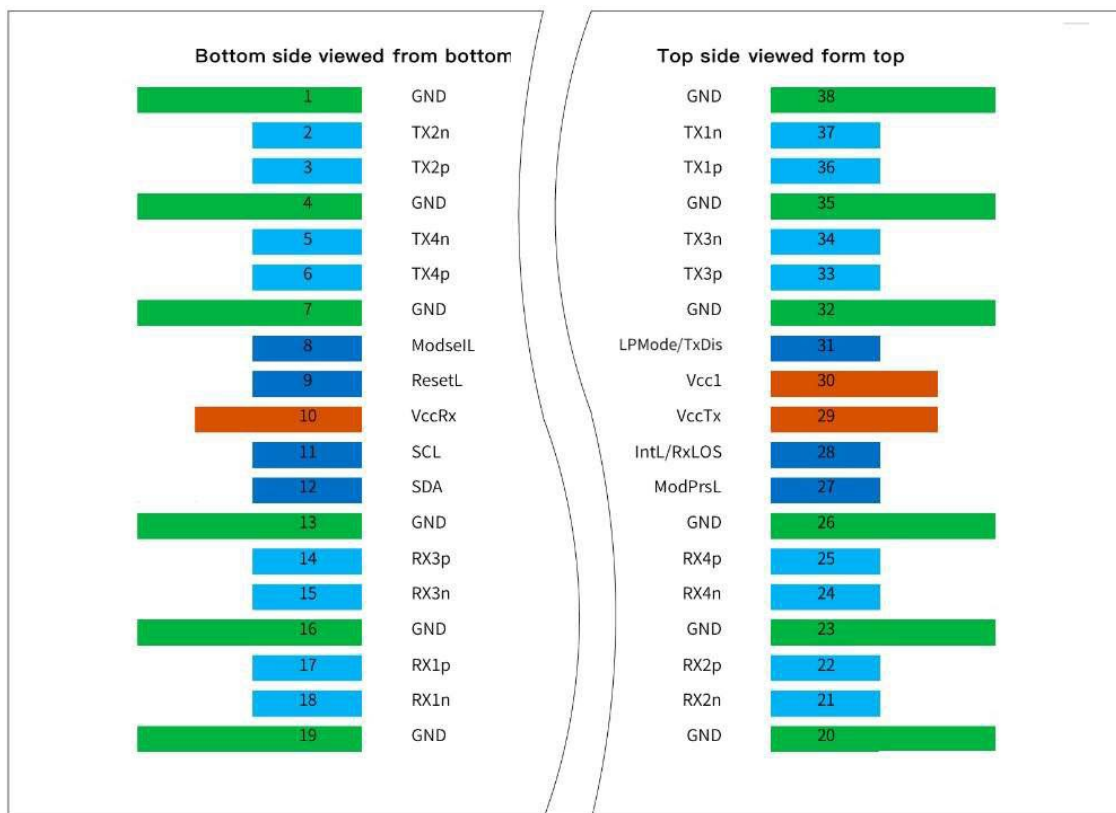
Pin	Symbol	Name/Description	Notes
1	GND	Module Ground.	1
2	Tx2-	Transmitter Inverted Data Input.	
3	Tx2+	Transmitter Non-Inverted Data Input.	
4	GND	Module Ground.	1
5	Tx4-	Transmitter Inverted Data Input.	
6	Tx4+	Transmitter Non-Inverted Data Input.	
7	GND	Module Ground.	1
8	ModSelL	Module Select.	
9	ResetL	Module Reset.	
10	VccRx	+3.3V Receiver Power Supply.	2
11	SCL	2-Wire Serial Interface Clock.	
12	SDA	2-Wire Serial Interface Data.	
13	GND	Module Ground.	1
14	Rx3+	Receiver Non-Inverted Data Output.	
15	Rx3-	Receiver Inverted Data Output.	
16	GND	Module Ground.	1
17	Rx1+	Receiver Non-Inverted Data Output.	
18	Rx1-	Receiver Inverted Data Output.	
19	GND	Module Ground.	1
20	GND	Module Ground.	1
21	Rx2-	Receiver Inverted Data Output.	
22	Rx2+	Receiver Non-Inverted Data Output.	
23	GND	Module Ground.	1
24	Rx4-	Receiver Inverted Data Output.	
25	Rx4+	Receiver Non-Inverted Data Output.	
26	GND	Module Ground.	1
27	ModPrsL	Module Present.	
28	IntL/RxLOS	Interrupt/Optional RxLOS.	
29	VccTx	+3.3V Transmitter Power Supply.	2
30	Vcc1	+3.3V Power Supply.	2
31	LPMode/TxDis	Low-Power Mode/ Optional Tx Disable.	
32	GND	Module Ground.	1
33	Tx3+	Transmitter Non-Inverted Data Input.	
34	Tx3-	Transmitter Inverted Data Input.	
35	GND	Module Ground.	1

36	Tx1+	Transmitter Non-Inverted Data Input.	
37	Tx1-	Transmitter Inverted Data Input.	
38	GND	Module Ground.	1

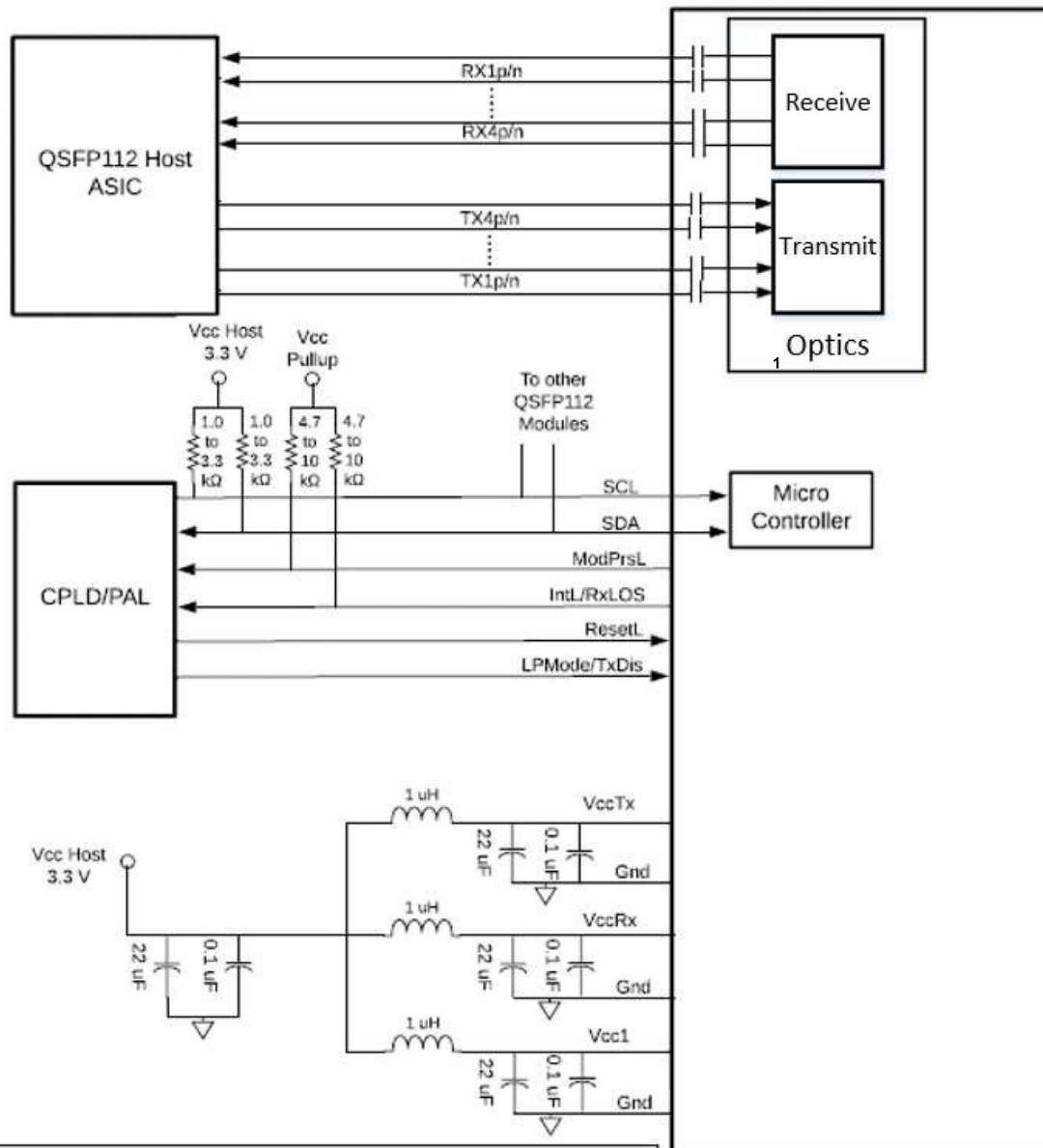
Notes:

1. QSFP112 uses common ground (GND) for all signals and supply (power). All are common within the QSFP112 module, and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.
2. VccRx, Vcc1, and VccTx are the receiver and transmitter power supplies and shall be applied concurrently. VccRx, Vcc1, and VccTx may be internally connected within the QSFP112 module in any combination. The connector pins are each rated for a maximum current of 1.5A.

Pin Assignment



Recommended Host Board Power Supply Filter Network

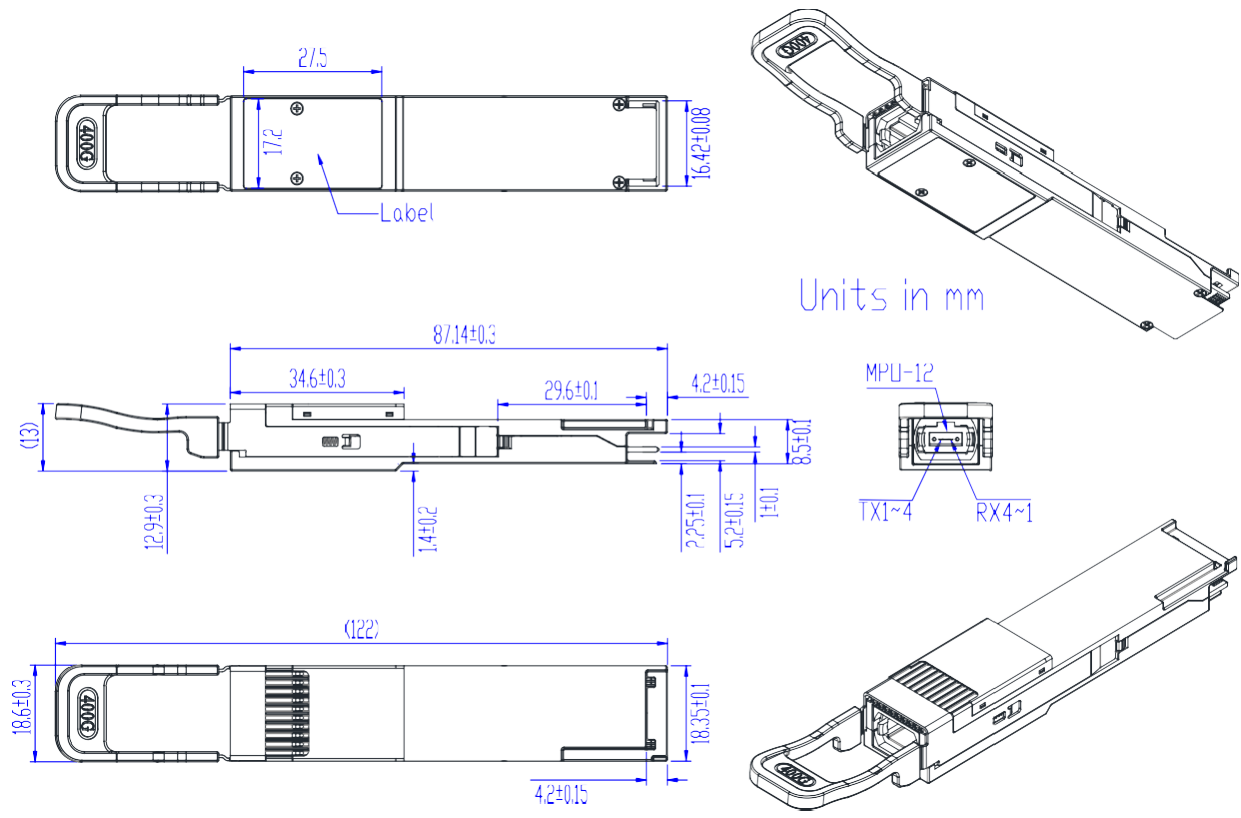


Note: Filter capacitors values are informative and application dependent, 0.1 μF capacitors should be placed in close proximity to power pads and may be duplicated for individual pads to provide additional high frequency filtering.

Note: Vcc1 may be connected to VccTx or VccRx within the module provided the applicable derating of the maximum current limit is used.

QSFP112 Optical Module

Mechanical Specifications



About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box.

