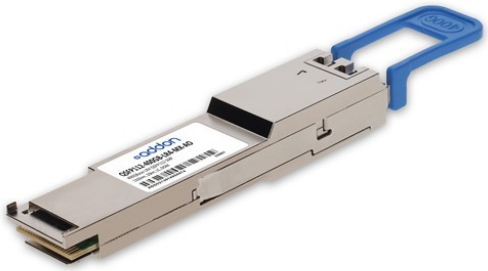
QSFP112-400GB-LR4-MX-AO

NVIDIA® Compatible TAA 400GBase-LR4 QSFP112 Transceiver (SMF, 1310nm, 10km, LC, CMIS 5.2)

Features:

- Compliant with 400GBASE-LR4
- Single 3.3V Power Supply
- Up to 10km over SMF with FEC
- Compliant with QSFP-DD MSA
- Duplex LC Connector
- Compliant with IEEE802ck and IEEE802cu Standards
- 4 CWDM EML and PIN Array design
- CMIS 5.2
- Operating Temperature: 0 to 70 Celsius
- Class 1 Laser
- RoHS Compliant and Lead-Free



Applications:

- 400GBase Ethernet

Product Description

This NVIDIA® compatible QSFP112 transceiver provides 400GBase-LR4 throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1310nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent NVIDIA® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

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

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S.-made or designated country end products."

TAA COMPLIANT

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	0		70	°C	
Relative Humidity	RH	5		85	%	
Supply Voltage	Vcc	-0.5		3.6	V	
Signaling Rate Per Lane			53.125 ± 100ppm		Gbd	PAM4
Damage Threshold Per Lane		5			dBm	
Link Distance with G.652	D	0.002		10	km	
Modulation Format			PAM4			

Electrical Characteristics

Parameter		Symbol / Test Point	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage		Vcc	3.135	3.3	3.465	V	
Power Consumption		PC			10	W	
Transmitter							
Differential Pk-Pk Input Voltage Tolerance		TP1a	750			mV	
AC Common-Mode RMS Voltage Tolerance		TP1a	25			mV	
Single-Ended Voltage Tolerance		TP1a	-0.4		3.3	V	
DC Common-Mode Voltage Tolerance		TP1	-0.35		2.85	V	
Receiver							
AC Common-Mode Output Voltage (RMS)		TP4			25	mV	
Differential Pk-Pk Output Voltage	**Short-Mode**	TP4			600	mV	
	Long-Mode				845		
Eye Height		TP4	15			mV	
DC Common-Mode Voltage Tolerance		TP4	-0.35		2.85	V	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λC	1264.5	1271	1277.5	nm	
		1284.5	1291	1297.5		
		1304.5	1311	1317.5		
		1324.5	1331	1337.5		
Total Average Launch Power	POUT			11.1	dBm	

Average Launch Power Per Lane		P	-27		5.1	dBm	1
OMAouter Per Lane	**TDECQ < 1.4dB**	POMA	-0.3		4.4	dBm	
	1.4dB ≤ TDECQ ≤ 3.4dB		-1.1 + TDECQ		4.4		
Difference in Launch Power Between Any Two Lanes (OMAouter)		DP			4	dB	
Transmitter and Dispersion Eye Closure for PAM4 (TDECQ) Per Lane		TDECQ			3.4	dB	
Transmitter Eye Closure for PAM4 (TECQ) Per Lane		TECQ			3.4	dB	
| TDECQ - TECQ |					2.5	dB	
Side-Mode Suppression Ratio		SMSR	30			dB	
Extinction Ratio		ER	3.5			dB	
Average Launch Power of Off Transmitter Per Lane		Poff			-16	dBm	
$RIN_{15.6}OMA$		RIN			-136	dB/Hz	
Optical Return Loss Tolerance		ORLT			15.6	dB	
Transmitter Reflectance		TR			-26	dB	2
Receiver							
Center Wavelength		λC	1264.5	1271	1277.5	nm	
			1284.5	1291	1297.5		
			1304.5	1311	1317.5		
			1324.5	1331	1337.5		
Damage Threshold Per Lane			6.1			dBm	3
Average Receive Power Per Lane			9		5.1	dBm	4
Receive Power (OMAouter) Per Lane		ROMA			4.4	dBm	
Difference in Receive Power Between Any Two Lanes (OMAouter)					4.3	dB	
Receiver Reflectance					-26	dB	
Recevier Sensitivity (OMAouter) Per Lane		SEN	Max. (-6.8, TECQ - 8.2)			dBm	
LOS Assert			-26			dBm	
LOS De-Assert					-8	dBm	
LOS Hysteresis			0.5			dBm	

Notes:

1. Average launch power, per lane (minimum), is informative and not the principal indicator of signal strength. A transmitter with launch power below this value cannot be compliant; however, a value above this does not ensure compliance.
2. Transmitter reflectance is defined looking into the transmitter.
3. The receiver shall be able to tolerate, without damage, continuous exposure to an optical signal having this average power level.
4. Average receive power, per lane (minimum), is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance.

Pin Descriptions

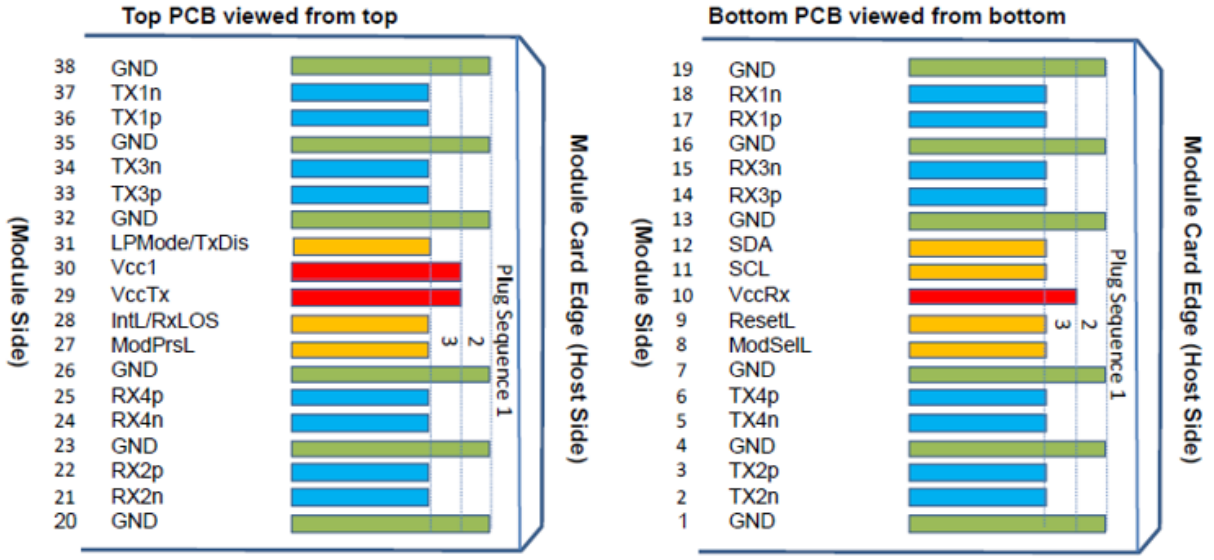
Pin	Symbol	Logic	Name/Description	Plug Sequence	Notes
1	GND		Module Ground.	1	1
2	Tx2-	CML-I	Transmitter Inverted Data Input.	3	
3	Tx2+	CML-I	Transmitter Non-Inverted Data Input.	3	
4	GND		Module Ground.	1	1
5	Tx4-	CML-I	Transmitter Inverted Data Input.	3	
6	Tx4+	CML-I	Transmitter Non-Inverted Data Input.	3	
7	GND		Module Ground.	1	1
8	ModSelL	LVTTL-I	Module Select.	3	
9	ResetL	LVTTL-I	Module Reset.	3	
10	VccRx		+3.3V Receiver Power Supply.	2	2
11	SCL	LVCMOS-I/O	2-Wire Serial Interface Clock.	3	
12	SDA	LVCMOS-I/O	2-Wire Serial Interface Data.	3	
13	GND		Module Ground.	1	1
14	Rx3+	CML-O	Receiver Non-Inverted Data Output.	3	
15	Rx3-	CML-O	Receiver Inverted Data Output.	3	
16	GND		Module Ground.	1	1
17	Rx1+	CML-O	Receiver Non-Inverted Data Output.	3	
18	Rx1-	CML-O	Receiver Inverted Data Output.	3	
19	GND		Module Ground.	1	1
20	GND		Module Ground.	1	1
21	Rx2-	CML-O	Receiver Inverted Data Output.	3	
22	Rx2+	CML-O	Receiver Non-Inverted Data Output.	3	
23	GND		Module Ground.	1	1
24	Rx4-	CML-O	Receiver Inverted Data Output.	3	
25	Rx4+	CML-O	Receiver Non-Inverted Data Output.	3	
26	GND		Module Ground.	1	1
27	ModPrsL	LVTTL- O	Module Present.	3	
28	IntL/RxLOS	LVTTL- O	Interrupt/Optional RxLOS.	3	
29	VccTx		+3.3V Transmitter Power Supply.	2	2
30	Vcc1		+3.3V Power Supply.	2	2
31	LPMode/TxDis	LVTTL- I	Low-Power Mode/Optional Tx_Disable.	3	
32	GND		Module Ground.	1	1
33	Tx1+	CML-I	Transmitter Non-Inverted Data Input.	3	
34	Tx1-	CML-I	Transmitter Inverted Data Input.	3	
35	GND		Module Ground.	1	1

36	Tx1+	CML-I	Transmitter Non-Inverted Data.	3	
37	Tx1-	CML-I	Transmitter Inverted Data Input.	3	
38	GND		Module Ground.	1	1

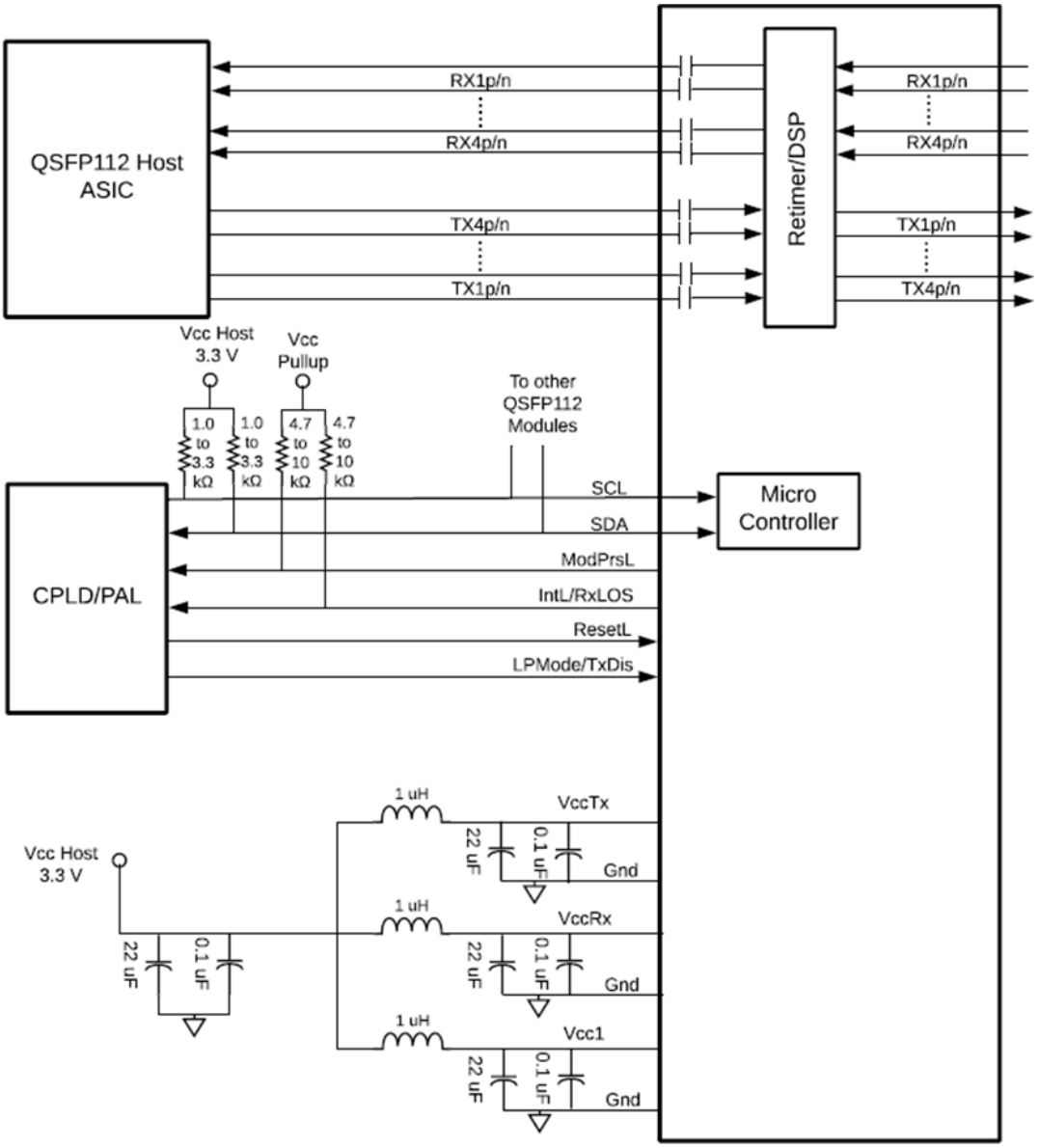
Notes:

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. 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 (maximum current of 2.0A is required for a high module power of 15-20W).

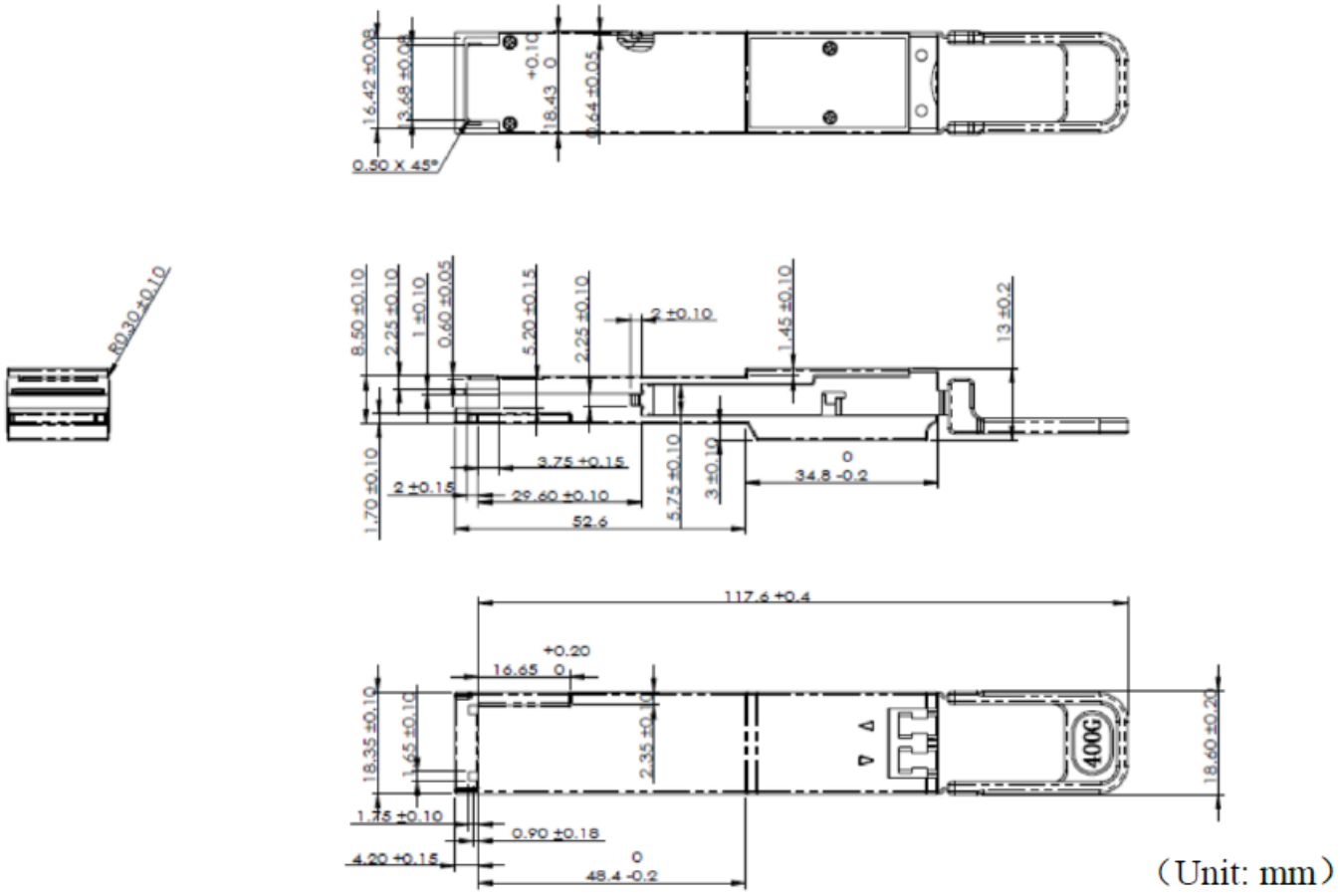
Pin-Out Details



Recommended Host Board Schematic



Mechanical Specifications



（Unit: mm）

About AddOn Networks

In 1999, AddOn Networks entered the market with a single product. Our founders fulfilled a severe shortage for compatible, cost-effective optical transceivers that compete at the same performance levels as leading OEM manufacturers. Adhering to the idea of redefining service and product quality not previously had in the fiber optic networking industry, AddOn invested resources in solution design, production, fulfillment, and global support.

Combining one of the most extensive and stringent testing processes in the industry, an exceptional free tech support center, and a consistent roll-out of innovative technologies, AddOn has continually set industry standards of quality and reliability throughout its history.

Reliability is the cornerstone of any optical fiber network and is ingrained in AddOn's DNA. It has played a key role in nurturing the long-term relationships developed over the years with customers. AddOn remains committed to exceeding industry standards with certifications ranging from NEBS Level 3 to ISO 9001:2015 with every new development while maintaining the signature reliability of its products.



U.S. Headquarters

Email: sales@addonnetworks.com

Telephone: +1 877.292.1701

Fax: 949.266.9273

Europe Headquarters

Email: salesemea@addonnetworks.com

Telephone: +44 1285 842070