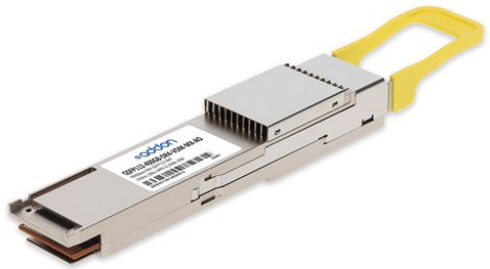
QSFP112-400GB-DR4-VDM-MX-AO

NVIDIA® Compatible TAA 400GBase-DR4 PAM4 QSFP112 Transceiver (SMF, 1310nm, 500m, MPO-12, DOM, CMIS 5.0) VDM

Features:

- QSFP112 MSA Compliant
- 4 Independent Parallel Optical Channels
- 4 Independent Electrical Input/Output Channels
- 3.3V Power Supply
- 500m Link on SMF
- MPO-12 APC Optical Connector
- Silicon Photonics Technology
- CMIS 5.2 Compliant
- Operating Temperature: 0 to 70 Celsius
- Hot-Pluggable
- RoHS Compliant and Lead-Free



Applications:

- HPC Interconnect & Data Centers
- 400GBase Ethernet
- Advance Monitoring Capable Transceiver

Product Description

This NVIDIA® compatible 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. 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.	Max.	Unit	Notes
Storage Ambient Temperature	Tstg	-40	+85	°C	
Relative Humidity – Storage	RHs	0	95	%	1
Relative Humidity – Operating	RHo	0	85	%	1
Module Supply Voltage	Vcc	-0.5	3.6	V	

Notes:

1. RH is a non-condensing condition.
2. Exceeding the Absolute Maximum Ratings may cause irreversible damage to the device. The device is not intended to be operated under the condition of simultaneous Absolute Maximum Ratings, a condition which may cause irreversible damage to the device.

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Case Operating Temperature	Tc	0	+25	70	°C	1
Module Supply Voltage	Vcc	3.135	3.3	3.465	V	
Power Consumption	PC		9		W	
PAM4 Signaling Rate Per Lane	S		53.125		GBaud/s	2

Notes:

1. Temperature range = C.
2. Range: ± 100ppm.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Tx_Data Differential Input Voltage	VIN			800	mV	
Tx_Data Differential Input Impedance	ZIN		100		Ω	
Signaling Rate Per Lane	S		53.125		GBaud/s	1
Receiver						
Rx_Data Differential Output Voltage	VOUT			900	mV	
Rx_Data Differential Output Impedance	ZOUT		100		Ω	
Signaling Rate Per Lane	S		53.125		GBaud/s	1

Notes:

1. Range: ± 100ppm.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
PAM4 Signaling Rate	SR	53.125 ± 100ppm			GBd	
Lane Wavelength	λ	1304.5	1310	1317.5	nm	
Side-Mode Suppression Ratio	SMSR	30				
Average Launch Power Per Lane	POUT	-2.9		4.0	dBm	1
Outer Optical Modulation Amplitude	OMAouter	-0.8		4.2	dBm	
Transmitter and Dispersion Penalty Eye Closure for PAM4	TDECQ			3.4	dB	
Optical Output with Tx Off Per Lane	Poff			-15	dBm	
Extinction Ratio	ER	3.5			dB	
Transmitter Reflectance	RFL			-26	dB	
Receiver						
PAM4 Signaling Rate	SR	53.125 ± 100ppm			GBd	
Lane Wavelength	λ	1304.5	1311	1317.5	nm	
Receiver Sensitivity OMA Per Lane	PIN			Max. (-3.9, SECQ-5.3)	dBm	2
Average Receive Power Per Lane	p	-5.9		4.0	dBm	2
Damage Threshold Per Lane		5			dBm	
Receiver Reflectance	RFL			-26	dB	
Rx_LOS Hysteresis	LOS_H	0.5			dB	

Notes:

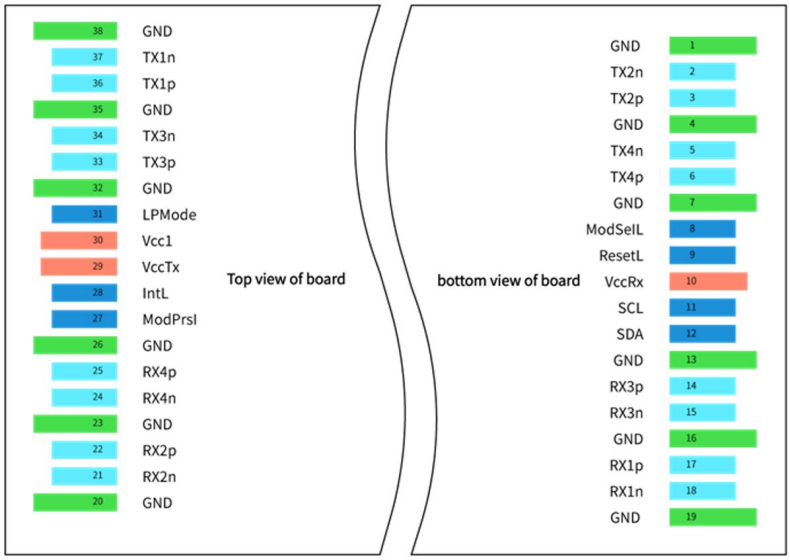
1. Average optical output.
2. BER = $2.4E^{-4}$, PAM4 signaling rate per lane @53.125GBaud, and PRBS 2^{31}-1.

Pin Descriptions

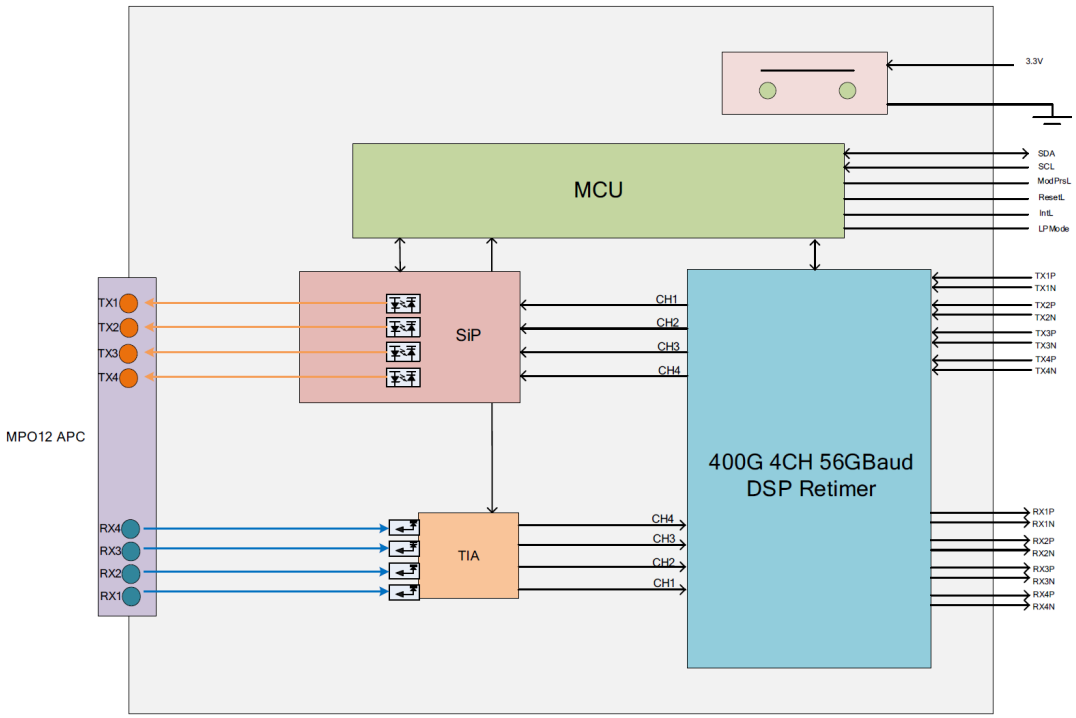
Pin	Symbol	Name/Description
1	GND	Module Ground.
2	Tx2n	Transmitter Inverted Data Input.
3	Tx2p	Transmitter Non-Inverted Data Input.
4	GND	Module Ground.
5	Tx4n	Transmitter Inverted Data Input.
6	Tx4p	Transmitter Non-Inverted Data Input.
7	GND	Module Ground.
8	ModSelL	Module Select.
9	ResetL	Module Reset.
10	VccRx	+3.3V DC Receiver Power Supply.
11	SCL	I^2C Serial Clock.
12	SDA	I^2C Serial Data.
13	GND	Module Ground.
14	Rx3p	Receiver Non-Inverted Data Output.
15	Rx3n	Receiver Inverted Data Output.
16	GND	Module Ground.
17	Rx1p	Receiver Non-Inverted Data Output.
18	Rx1n	Receiver Inverted Data Output.
19	GND	Module Ground.
20	GND	Module Ground.
21	Rx2n	Receiver Inverted Data Output.
22	Rx2p	Receiver Non-Inverted Data Output.
23	GND	Module Ground.
24	Rx4n	Receiver Inverted Data Output.
25	Rx4p	Receiver Non-Inverted Data Output.
26	GND	Module Ground.
27	ModPrsL	Module Present.
28	IntL	Interrupt.
29	VccTx	+3.3V DC Transmitter Power Supply.
30	Vcc1	+3.3V DC Power Supply.
31	LPMode	Low-Power Mode.
32	GND	Module Ground.
33	Tx3p	Transmitter Non-Inverted Data Input.
34	Tx3n	Transmitter Inverted Data Input.
35	GND	Module Ground.

36	Tx1p	Transmitter Non-Inverted Data Input.
37	Tx1n	Transmitter Inverted Data Input.
38	GND	Module Ground.

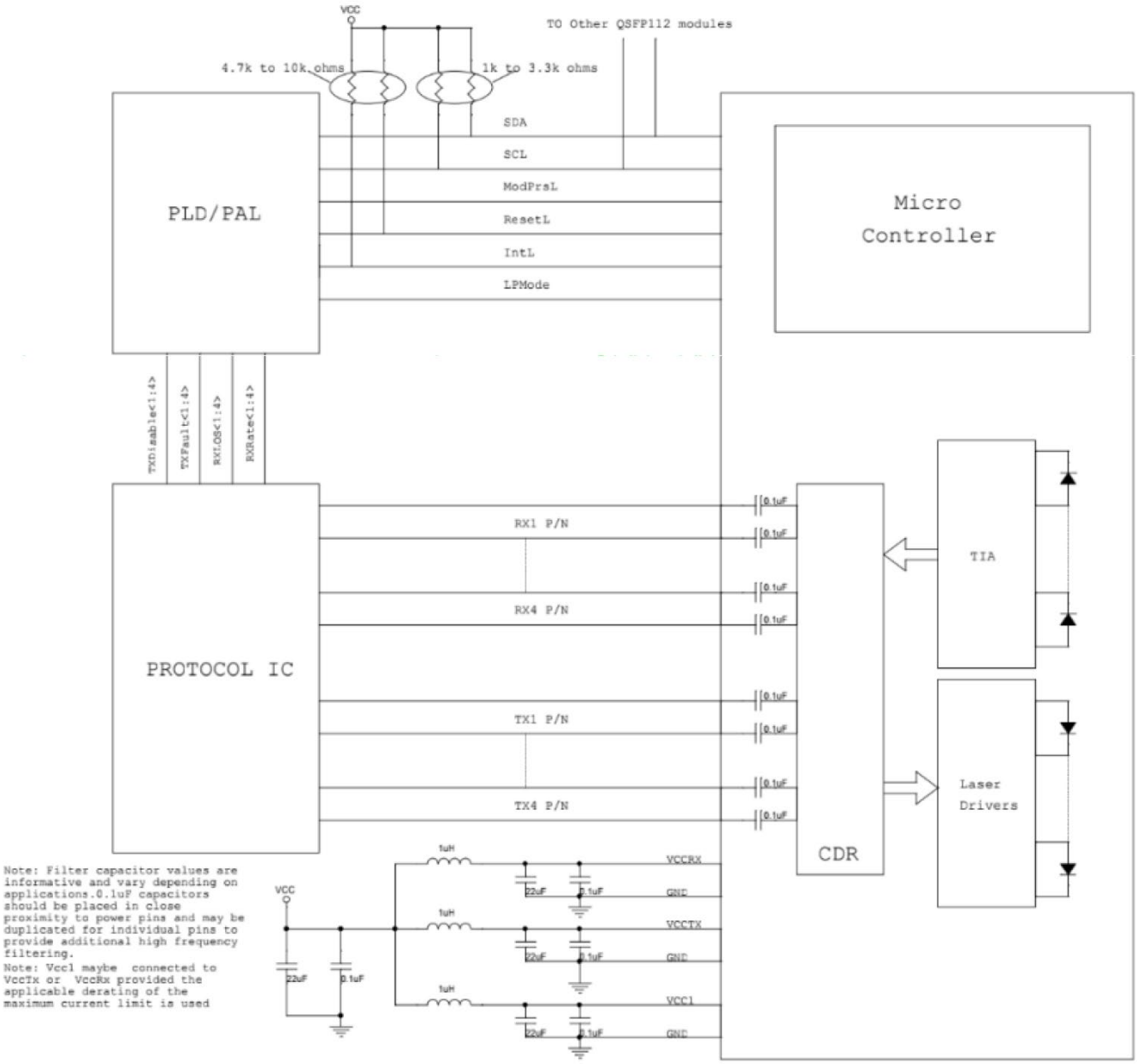
Pin Assignments



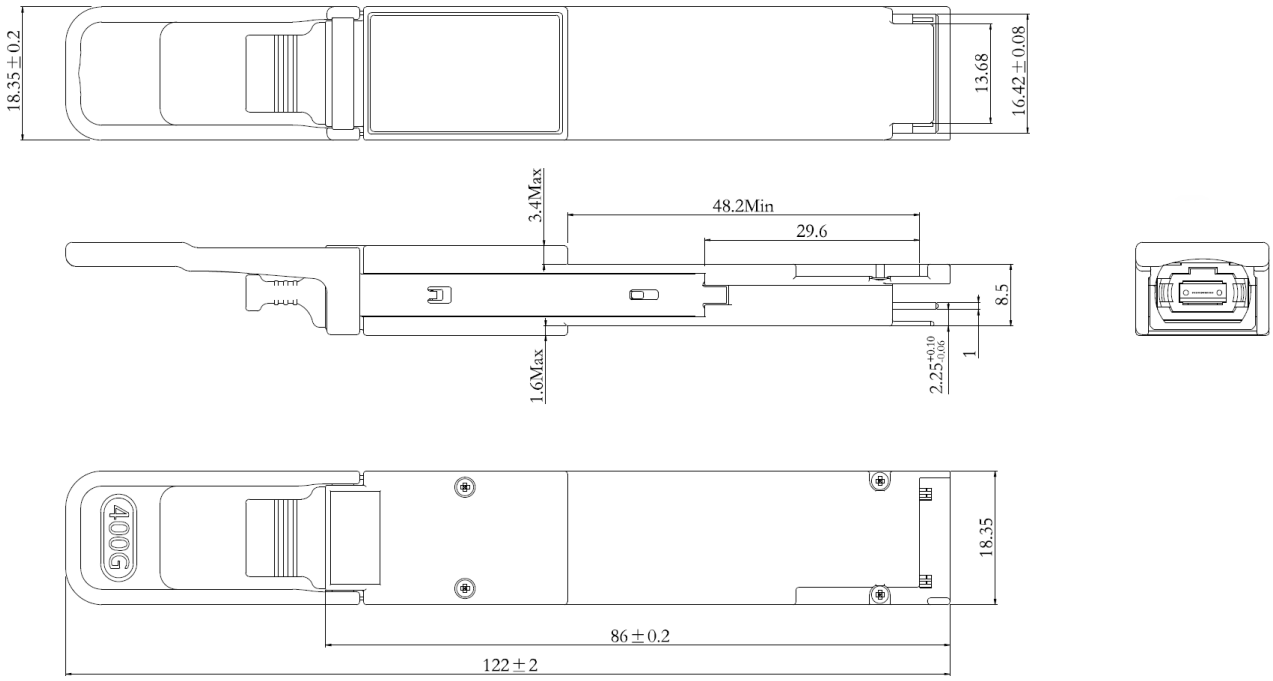
Transceiver Block Diagram



Host Board and Module Board Diagram



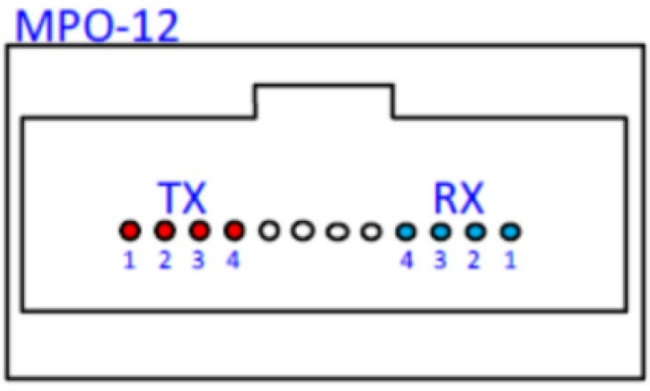
Mechanical Specifications



Notes:

1. Tolerance: ± 0.1mm.
2. Others according with QSFP112 MSA or customer specifications.
3. Light port according to fiber connector specifications.

Optical Lane Assignment



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.



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