OPTIO CONNECT

QSFP112-400GB-LR4-AR-OPC

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

Features

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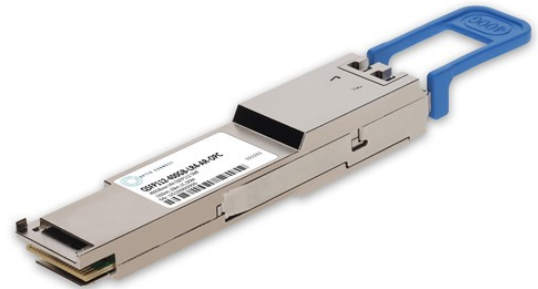
Applications:

- 400GBase Ethernet

Product Description

This Arista Networks® 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 Arista Networks® 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.

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

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	
Differential Pk-Pk Output Voltage — 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	

Parameter	Condition	Symbol	Min	Nom	Max	Unit	Note
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	
Receiver 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.
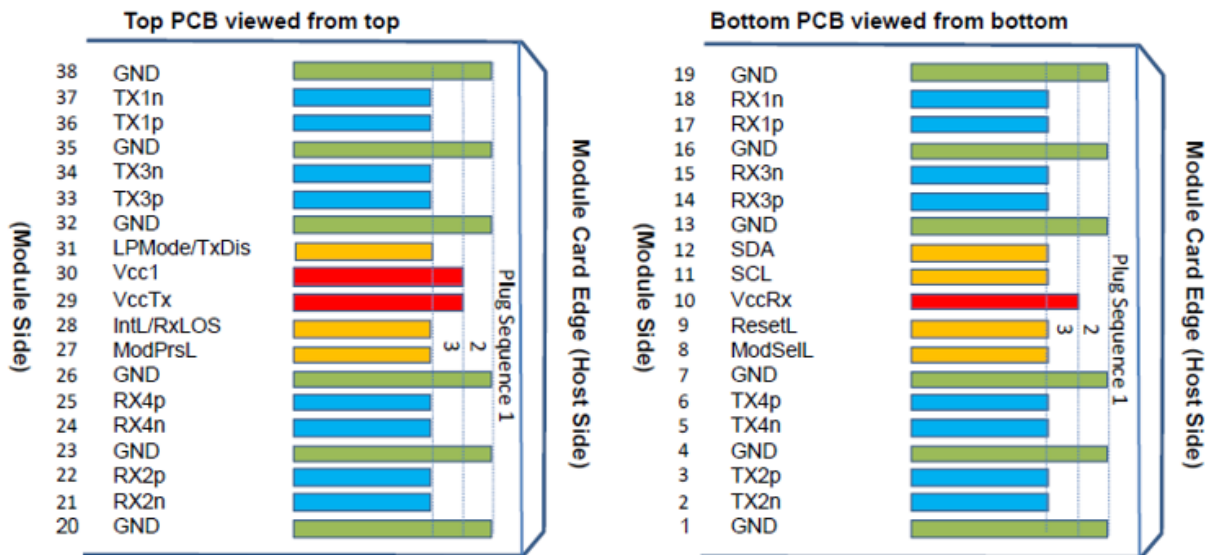
Pin Descriptions

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

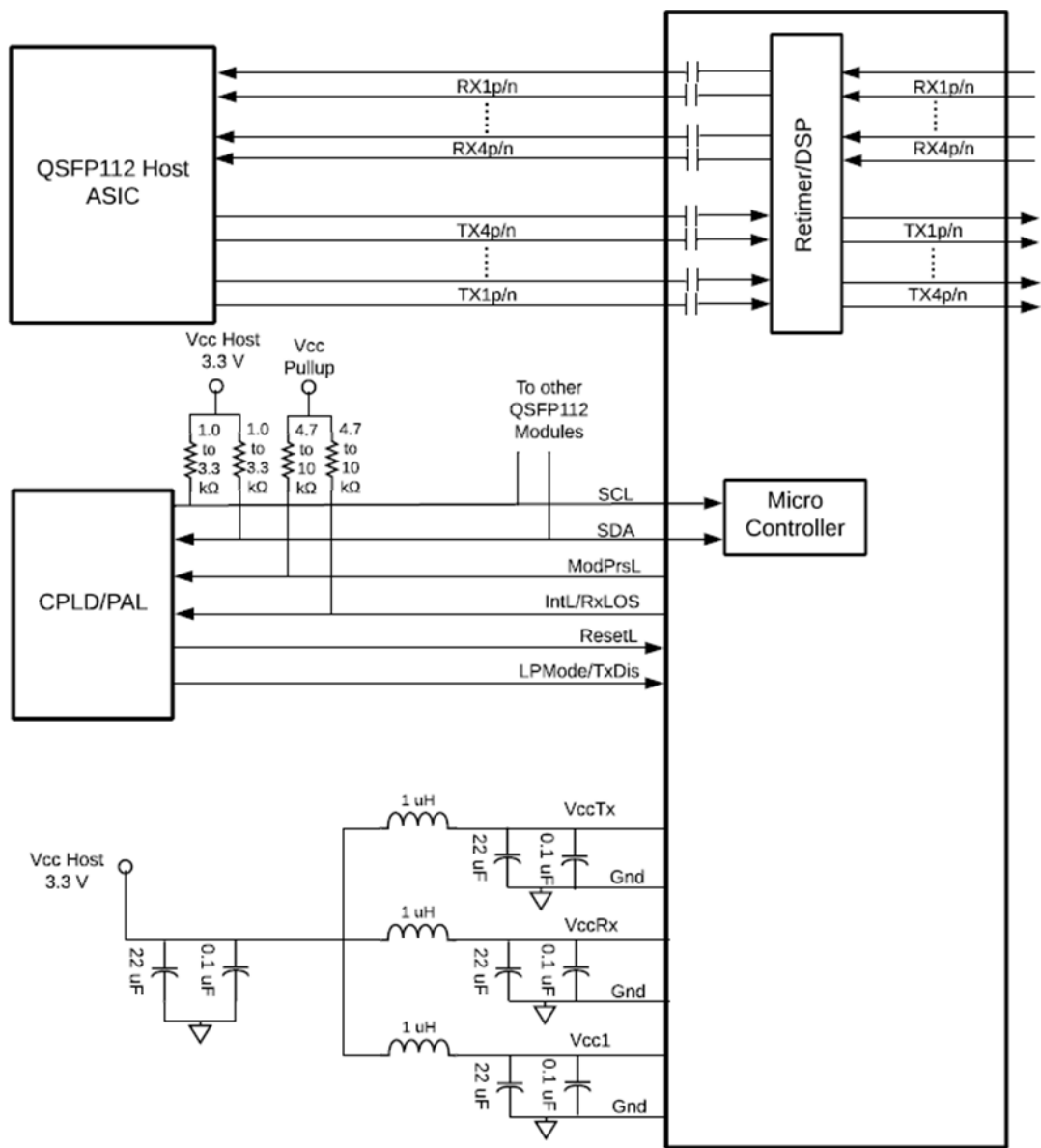| 36	Tx1+	CML-I	Transmitter Non-Inverted Data.	3	
37	Tx1-	CML-I	Transmitter Inverted Data Input.	3	
38	GND		Module Ground.	1	1

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).
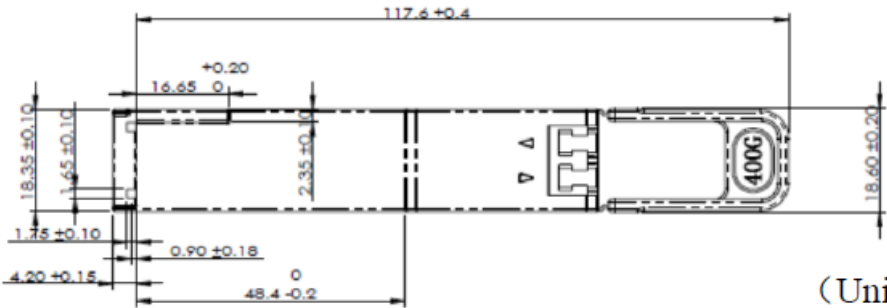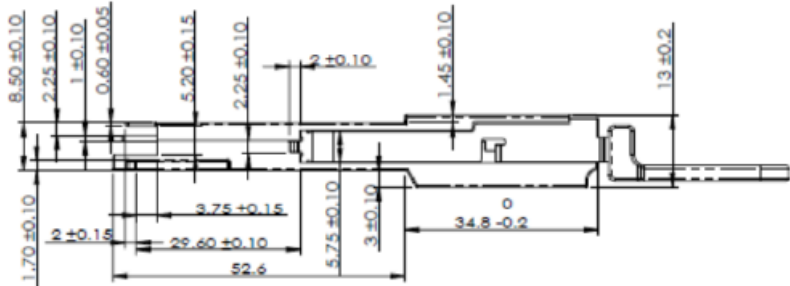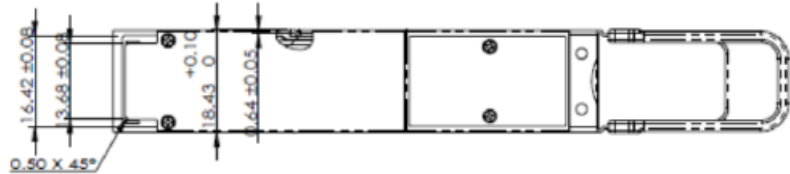
Pin-Out Details

Top PCB viewed from top

38	GND
37	TX1n
36	TX1p
35	GND
34	TX3n
33	TX3p
32	GND
31	LPMode/TxDis
30	Vcc1
29	VccTx
28	IntL/RxLOS
27	ModPrsL
26	GND
25	RX4p
24	RX4n
23	GND
22	RX2p
21	RX2n
20	GND

(Module Side) · Plug Sequence 1 · Module Card Edge (Host Side)

Bottom PCB viewed from bottom

19	GND
18	RX1n
17	RX1p
16	GND
15	RX3n
14	RX3p
13	GND
12	SDA
11	SCL
10	VccRx
9	ResetL
8	ModSelL
7	GND
6	TX4p
5	TX4n
4	GND
3	TX2p
2	TX2n
1	GND

(Module Side) · Plug Sequence 1 · Module Card Edge (Host Side)

Recommended Host Board Schematic

Mechanical Specifications

（Unit: mm）

OptioConnect
Innovation for the Future of High-Speed Networking

Who We Are
OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

What We Do
At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our AI-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

Smarter Networks by Design
Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

Our Team
Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

Our Mission
To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

Let's Connect
Discover how OptioConnect's intelligent infrastructure solutions can power your network's next leap forward.
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