QSFP-40GB-ZR4-AR-AO

Arista Networks® Compatible TAA 40GBase-ZR4 QSFP+ Transceiver (SMF, 1295nm to 1309nm, 80km, LC, DOM)

Features:

- Compliant with QSFP28 MSA
- 4 channels SOA PIN photo detector
- 4 cooled 10.3125Gbps channels LAN WDM EML TOSA
- Class 1 laser safety certified
- Duplex LC Connector
- Single +3.3V power supply
- Commercial Temperature 0 to 70 Celsius
- Single-mode Fiber
- RoHS Compliant and Lead Free



Applications:

- 40GBase Ethernet

Product Description

This Arista Networks® compatible QSFP+ transceiver provides 40GBase-ZR4 throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1295nm to 1309nm via an LC connector. It can operate at temperatures between 0 and 70C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Arista Networks®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide 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.	Typ.	Max.	Unit
Supply Voltage	Vcc	-0.5		4.0	V
Supply Voltage	Vcc	3.135	3.3	3.465	V
Storage Temperature	Tstg	-40		85	°C
Operating Case Temperature	Tc	0	25	70	°C
Relative Humidity	RH	5		95	%
Data Rate Per Channel		10.3125			Gbps

Notes:

1. Stresses exceeding the absolute maximum ratings can cause permanent damage to the device.
2. These are absolute stress ratings only.
3. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the datasheet.
4. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Module Supply Current	Icc			1650	mA
Power Dissipation	P_{DISS}			5000	mW
Transmitter					
Single-Ended Input Voltage Tolerance		-0.3		4.0	V
Input Differential Impedance	ZIN		100		Ω
Differential Data Input Swing	VIN,pp	190		700	mVp-p
AC Common-Mode Input Voltage Tolerance		15			mV
Differential Input Voltage Swing Threshold			50		mVp-p
Receiver					
Single-Ended Output Voltage		-0.3		4.0	V
Output Differential Impedance	ZOUT	90	100	110	Ω
Differential Data Output Swing	VOUT,pp	300		850	mVp-p
AC Common-Mode Output Voltage				7.5	mV

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Launch Optical Power Per Lane	Po	2.0		6.5	dBm	1
Total Launch Optical Power	Po			12.5	dBm	1
Center Wavelength Range	L1	1294.53	1295.56	1296.59	nm	
	L2	1299.02	1300.05	1301.09	nm	
	L3	1303.54	1304.58	1305.63	nm	
	L4	1308.09	1309.14	1310.19	nm	
Extinction Ratio	ER	8			dB	1
Spectral Width (-20dB)	Δλ			1	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
Optical Return Loss Tolerance	ORLT			20	dB	
POUT @ Tx_Disable Asserted	Poff			-30	dBm	1
Eye Mask (X1, X2, X3, Y1, Y2, Y3)	(0.25, 0.4, 0.45, 0.25, 0.28, 0.4)					
Receiver						
Center Wavelength	L1	1294.53	1295.56	1296.59	nm	
	L2	1299.02	1300.05	1301.09	nm	
	L3	1303.54	1304.58	1305.63	nm	
	L4	1308.09	1309.14	1310.19	nm	
Sensitivity Per Channel (OMA)	S1			-26.9	dBm	2
Sensitivity Per Channel (Average)	S2			-28	dBm	2
Overload (Per Channel)	POL	2			dBm	
Damage Threshold (Per Channel)	Pdmg	4.5			dBm	
Receiver Reflectance	Rf			-26	dB	
LOS De-Assert	LOSD			-28	dBm	
LOS Assert	LOSA	-35			dBm	
LOS Hysteresis	LOSH	0.5		5	dB	

Notes:

1. Measured with a PRBS 2^{31}-1 test pattern @10.3125Gbps.
2. Measured with a PRBS 2^{31}-1 test pattern, @10.3125Gbps, and BER $5.0E^{-5}$.

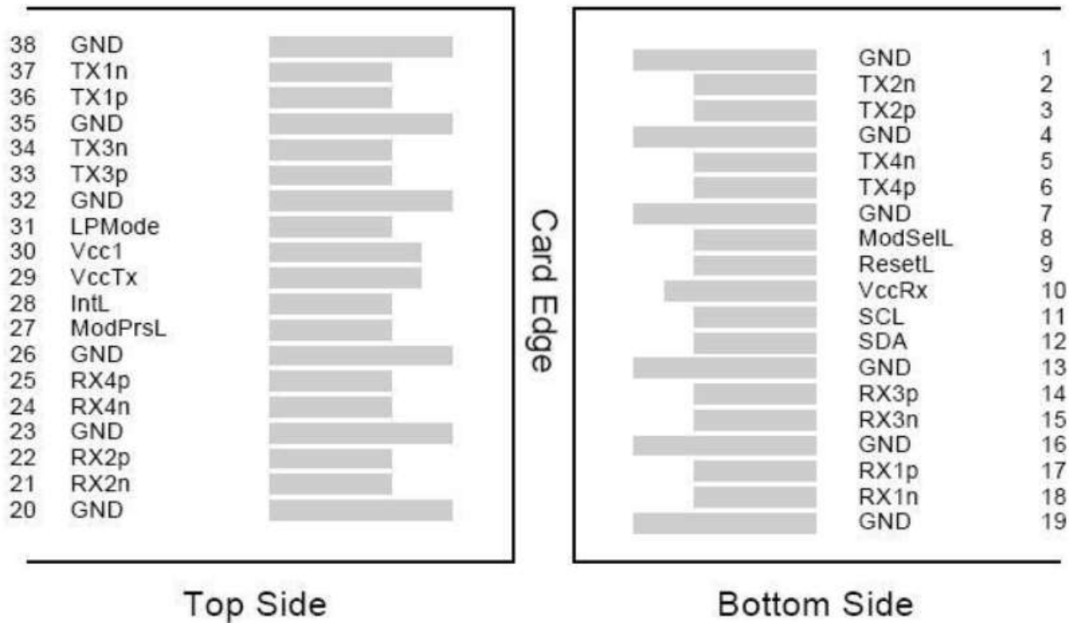
Pin Description

Pin	Symbol	Name/Description	Note
1	GND	Transmitter Ground (Common with Receiver Ground).	1
2	Tx2-	Transmitter Inverted Data Input.	
3	Tx2+	Transmitter Non-Inverted Data Output.	
4	GND	Transmitter Ground (Common with Receiver Ground).	1
5	Tx4-	Transmitter Inverted Data Input.	
6	Tx4+	Transmitter Non-Inverted Data Output.	
7	GND	Transmitter Ground (Common with Receiver Ground).	1
8	ModSelL	Module Select.	2
9	ResetL	Module Reset.	2
10	VccRx	+3.3V Power Supply Receiver.	
11	SCL	2-Wire Serial Interface Clock.	2
12	SDA	2-Wire Serial Interface Data.	2
13	GND	Transmitter Ground (Common with Receiver Ground).	1
14	Rx3+	Receiver Non-Inverted Data Output.	
15	Rx3-	Receiver Inverted Data Output.	
16	GND	Transmitter Ground (Common with Receiver Ground).	1
17	Rx1+	Receiver Non-Inverted Data Output.	
18	Rx1-	Receiver Inverted Data Output.	
19	GND	Transmitter Ground (Common with Receiver Ground).	1
20	GND	Transmitter Ground (Common with Receiver Ground).	1
21	Rx2-	Receiver Inverted Data Output.	
22	Rx2+	Receiver Non-Inverted Data Output.	
23	GND	Transmitter Ground (Common with Receiver Ground).	1
24	Rx4-	Receiver Inverted Data Output.	
25	Rx4+	Receiver Non-Inverted Data Output.	
26	GND	Transmitter Ground (Common with Receiver Ground).	1
27	ModPrsl	Module Present.	
28	IntL	Interrupt.	2
29	VccTx	+3.3V Transmitter Power Supply.	
30	Vcc1	+3.3V Power Supply.	
31	LPMode	Low-Power Mode.	2
32	GND	Transmitter Ground (Common with Receiver Ground).	1
33	Tx3+	Transmitter Non-Inverted Data Input.	
34	Tx3-	Transmitter Inverted Data Output.	
35	GND	Transmitter Ground (Common with Receiver Ground).	1
36	Tx1+	Transmitter Non-Inverted Data Input.	
37	Tx1-	Transmitter Inverted Data Output.	
38	GND	Transmitter Ground (Common with Receiver Ground).	1

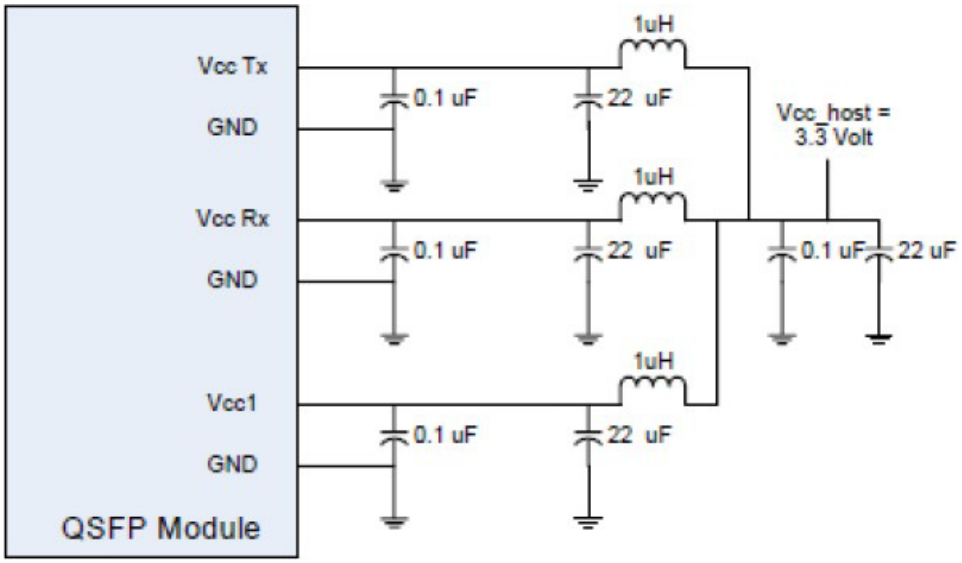
Notes:

1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that on the host board requires a 4.7kΩ to 10kΩ pull-up resistor to Host_Vcc.

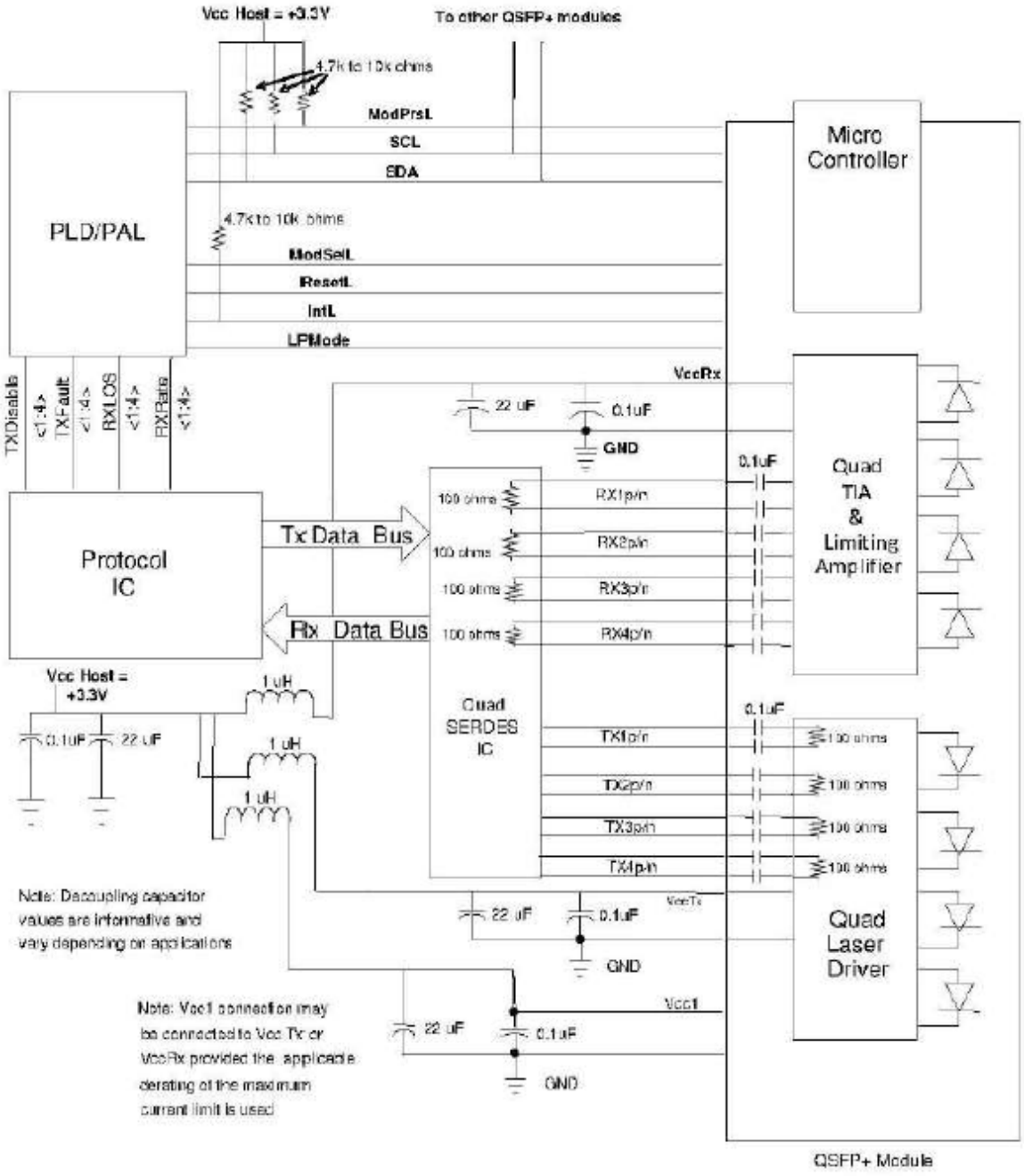
Host PCB QSFP28 Pad Assignment Top View



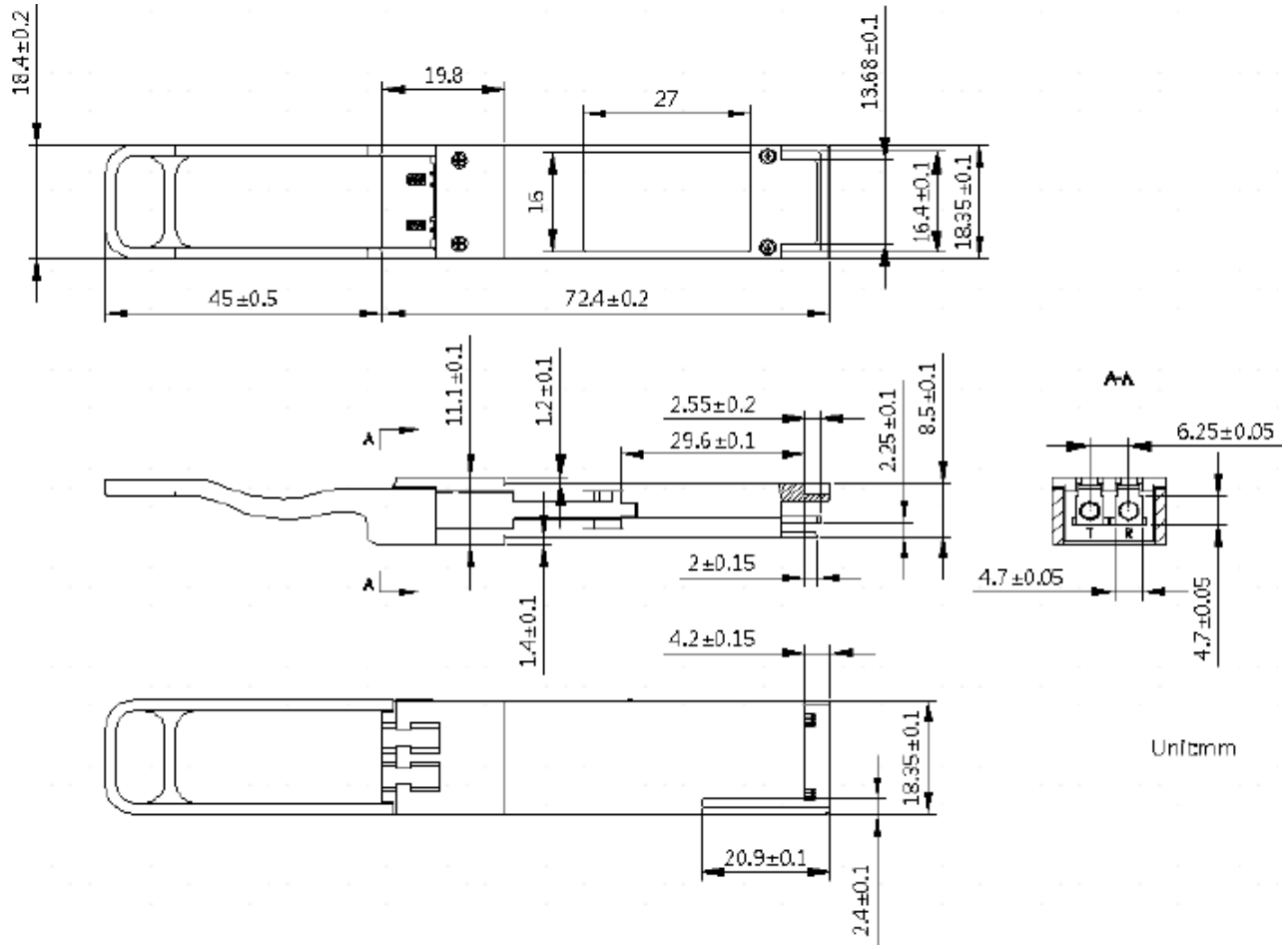
Recommended Host Board Power Supply Filter Network



Recommended Application Interface Block Diagram



Mechanical Specifications



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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