ADD-Q56AR2Q56MX-P3M

Arista Networks® to Mellanox® MCP7H50-V003R26-AO Compatible TAA Compliant 200GBase-CU QSFP56 to 2xQSFP56 Direct Attach Cable (Passive Twinax, 3m, LSZH)

Features

- PAM4 modulation
- Meet IEEE802.3bj & IEEE802.3cd
- Meet SFF-8636
- Low crosstalk
- Low power
- Support I2C two - line string interface, easy to control
- Hot pluggable
- Operating case temperature: -20 to 75 Celsius
- RoHS Compliant and Lead-Free



Applications

- Infiniband SDR, DDR, QDR, FDR, EDR, HDR SWITCH
- 10G/40G/100G/200GBase Ethernet
- Data center, cloud server

Product Description

This is an Arista Networks® to Mellanox® MCP7H50-V003R26 Compatible 200GBase-CU QSFP56 to 2xQSFP56 Infiniband HDR direct attach cable that operates over passive copper with a maximum reach of 3m. It has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. We stand behind the quality of our products and proudly offer a limited lifetime warranty. This cable is TAA (Trade Agreements Act) compliant and is built to comply with MSA (Multi-Source Agreement) standards.

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

Rev. 053024

Environment Performance

Parameter	Requirement	Test Condition
Operating Temperature Range	-20°C to +75°C	Cable operating temperature range
Storage Temperature Range (In Packed Condition)	-40°C to +80°C	Cable storage temperature range in packed condition
Thermal Cycling Non-Powered	No evidence of physical damage	EIA-364-32D, method A, -25 to 90C, 100 cycles, 15 min. dwells
Salt Spraying	48 hours salt spraying after shell corrosive area less than 5%	EIA-364-26
Mixed Flowing Gas	Pass electrical tests per 3.1 after stressing (for connector only)	EIA-364-35 Class II, 14 days
Temperature Life	No evidence of physical damage	EIA-364-17C w/RH, damp heat 90℃ at 85% RH for 500 hours then return to ambient
Cable Cold Bend	4H, no evidence of physical damage	Condition: -20℃±2℃, mandrel diameter is 6 times the cable diameter
Low-Level Contact Resistance	70milliΩ maximum from initial	EIA-364-23: apply a maximum voltage of20mV and a current of 100mA
Insulation Resistance	10MΩ (minimum)	EIA364-21: AC 300V 1 minute
Dielectric Withstanding Voltage	No disruptive discharge	EIA-364-20: apply a voltage of 300 VDC for 1 minute between adjacent terminals and between adjacent terminals and ground

Electrical Performance

<table>
<tr><th colspan="2">Parameter</th><th>Requirement</th><th>Test Condition</th></tr>
<tr><td rowspan="3">Differential Impedance</td><td>Cable Impedance</td><td>105+5/-10Ω</td><td>Rise time of 25ps (20-80%)</td></tr>
<tr><td>Paddle Card Impedance</td><td>100±10Ω</td><td>Rise time of 25ps (20-80%)</td></tr>
<tr><td>Cable Termination Impedance</td><td>100±15Ω</td><td>Rise time of 25ps (20-80%)</td></tr>
<tr><td colspan="2">Differential (Input/Output) Return Loss SDD11/SDD22</td><td>Return_loss(f)≥ {16.5-2√f 0.05 ≤ f ﹤ 4.1
10.66-14log10(f/ 5.5) 4.1≤ f≤ 19}

Where f is the frequency in GHz
Return_loss(f) is the return loss at frequency f</td><td>10MHz≤f ≤19GHz</td></tr>
<tr><td colspan="2">Differential to Common-Mode (Input/Output) Return Loss SCD11/SCD22</td><td>Return_loss(f)≥ {22-(20/25.78)f 0.01 ≤ f ﹤ 12.89
15-(6/25.78)f 12.89≤ f≤ 19}

Where f is the frequency in GHz
Return_loss(f) is the Differential to common-mode return loss at frequency f</td><td>10MHz≤f ≤19GHz</td></tr>
<tr><td colspan="2">Common-Mode to Common-Mode (Input/Output) Return Loss SCC11/SCC22</td><td>Return_loss(f)≥2dB 0.2≤f≤19

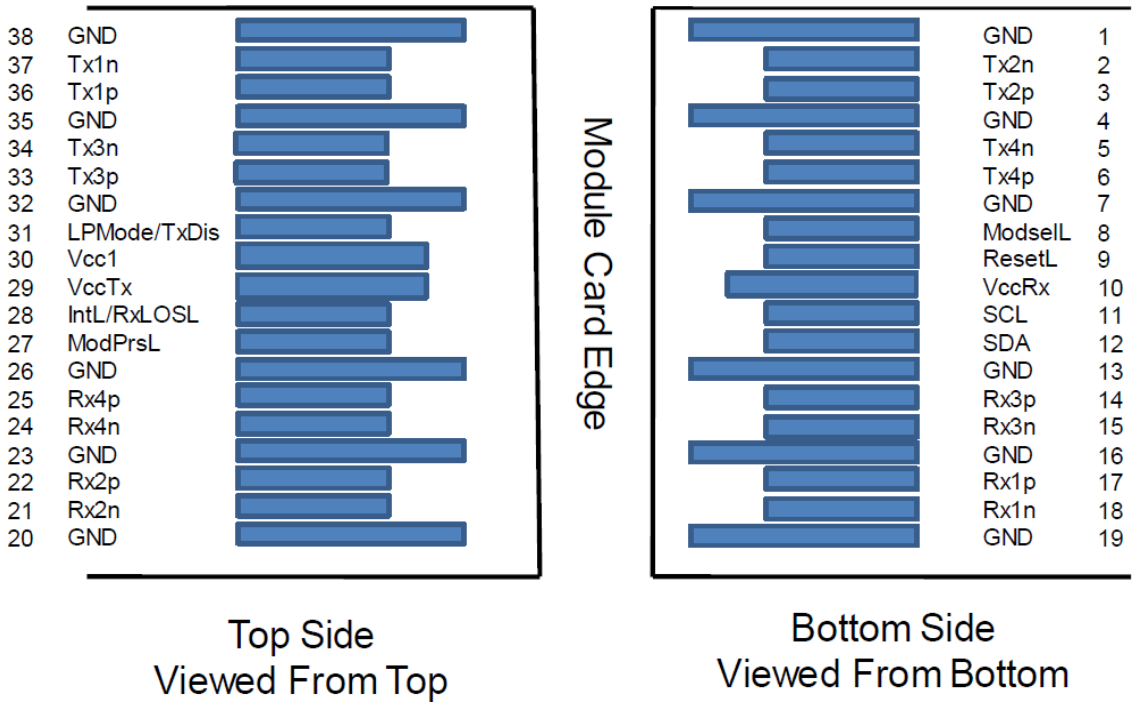
Where f is the frequency in GHz
Return_loss(f) is the common-mode to common-mode return loss at frequency f</td><td>10MHz≤f ≤19GHz</td></tr>
<tr><td colspan="2" rowspan="6">Differential Insertion Loss (SDD21 Maximum)</td><td colspan="7">(Differential Insertion Loss Maximum for TPa to TPb Excluding Test Fixture)</td><td rowspan="6">10MHz≤f ≤19GHz</td></tr>
<tr><td>F AWG</td><td>1.25GHz</td><td>2.5GHz</td><td>5.0GHz</td><td>7.0GHz</td><td>10Ghz</td><td>12.89Ghz</td></tr>
<tr><td>30 (1m) Max.</td><td>4.5dB</td><td>5.4dB</td><td>6.3dB</td><td>7.5dB</td><td>8.5dB</td><td>10.5dB</td></tr>
<tr><td>30/28 (3m) Max.</td><td>7.5dB</td><td>9.5dB</td><td>12.2dB</td><td>14.8dB</td><td>18.0dB</td><td>21.5dB</td></tr>
<tr><td>26 (3m) Max.</td><td>5.7dB</td><td>7.2dB</td><td>9.9 dB</td><td>11.9dB</td><td>14.1dB</td><td>16.5dB</td></tr>
<tr><td>26/25 (5m) Max.</td><td>7.8dB</td><td>10.0dB</td><td>13.5dB</td><td>16.0dB</td><td>19.0dB</td><td>22.0dB</td></tr>
<tr><td colspan="2">Insertion Loss Deviation</td><td>-0.176*f - 0.7 ≤ILD ≤0.176* f + 0.7</td><td>50MHz≤f ≤19GHz</td></tr>
<tr><td colspan="2">Differential to Common-Mode Conversion Loss-Differential Insertion Loss (SCD21-SDD21)</td><td>Conversion _loss(f) – IL(f)≥ { 10 0.01≤f﹤ 12.89
27-(29/22)f 12.89≤ f ﹤ 15.7 }
6.3 15.7≤ f≤ 19

Where f is the frequency in GHz
Conversion_loss(f) is the cable assembly differential to common-mode conversion loss
IL(f) is the cable assembly insertion loss</td><td>10MHz≤f ≤19GHz</td></tr>
<tr><td colspan="2">MDNEXT (Multiple Disturber Near-End Crosstalk)</td><td>≥26dB @12.89GHz</td><td>10MHz≤f ≤19GHz</td></tr>
<tr><td colspan="2">Intra Skew</td><td>15ps/m</td><td>10MHz≤f ≤19GHz</td></tr>
</table>

Mechanical and Physical Characteristics

Parameter	Requirement	Test Condition
Vibration	Pass electrical tests per 3.1 after stressing	Clamp & vibrate per EIA-364-28E, TC-VII, test condition letter – D, 15 minutesin X, Y & Z axis.
Cable Flex	No evidence of physicaldamage	Flex cable 180° for 20 cycles (±90° from nominal position) at 12 cycles per minutewith a 1.0kg load applied to the cable jacket. Flex in the boot area 90º in each direction from vertical. Per EIA-364-41C.
Cable Plug Retention in Cage	90N Minimum No evidence of physicaldamage	Force to be applied axially with no damageto cage. Per SFF-8661 Rev. 2.1. Pull on cable jacket approximately 1 ft behind cable plug. No functional damage to cable plug below 90N. Per SFF-8432 Rev. 5.0.
Cable Retention in Plug	90N Minimum No evidence of physicaldamage	Cable plug is fixtured with the bulk cable hanging vertically. A 90N axial load is applied (gradually) to the cable jacket and held for 1 minute. Per EIA-364-38B.
Mechanical Shock	Pass electrical tests per 3.1 after stressing	Clamp and shock per EIA-364-27B, TC-G, 3 times in 6 directions, 100g, 6ms.
Cable Plug Insertion	40N Maximum (QSFP56)	Per SFF-8661 Rev. 2.1.
Cable plug Extraction	30N Maximum (QSFP56)	Place axial load on de-latch to de-latch plug. Per SFF8661 Rev. 2.1.
Durability	50 cycles, no evidence ofphysical damage	EIA-364-09, perform plug & un-plug cycles: plug and receptacle mate rate: 250times/hour. 50 times for QSFP28/SFP28 module (connector to PCB).

Electrical Pin-Out Details



Pin Descriptions

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

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

Note:

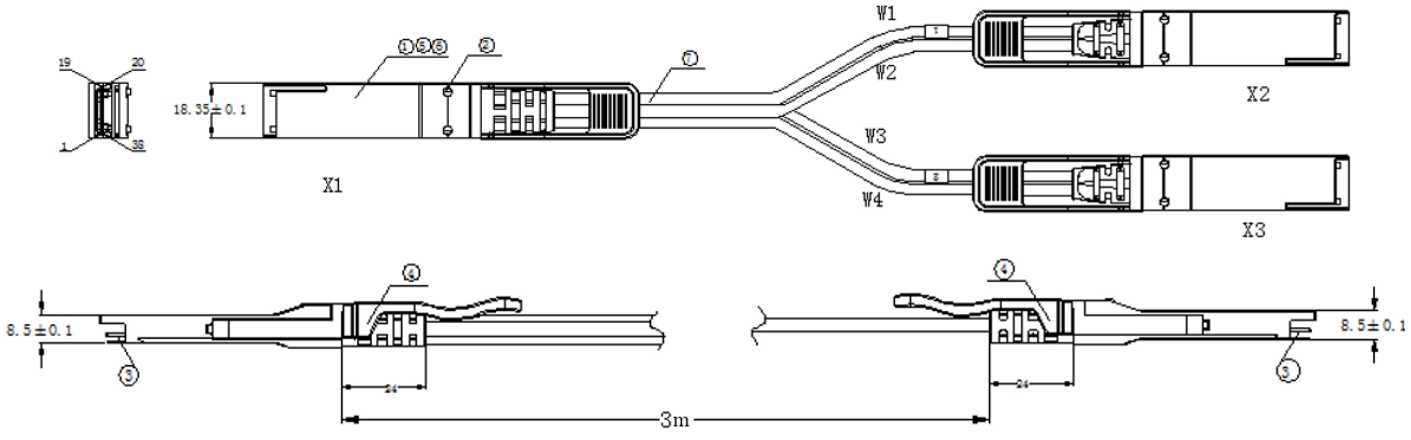
1. GND is the symbol for signal and supply (power) common for the QSFP module. All are common within the QSFP module, and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.
2. VccRx, Vcc1, and VccTx are the receiver and transmitter power supplies and shall be applied concurrently. VccRx, Vcc1, and VccTx may be internally connected within the QSFP transceiver module in any combination. The connector pins are each rated for a maximum current of 500mA.

Wiring Diagram

wire	Starting signal	Starting	End	End signal
W1	RX1+	X1.17	X2.36	TX1+
	RX1-	X1.18	X2.37	TX1-
	GND	X1.19	X2.38	GND
	TX1+	X1.36	X2.17	RX1+
	TX1-	X1.37	X2.18	RX1-
	GND	X1.38	X2.19	GND
W2	GND	X1.20	X2.1	GND
	RX2-	X1.21	X2.2	TX2-
	RX2+	X1.22	X2.3	TX2+
	GND	X1.1	X2.20	GND
	TX2-	X1.2	X2.21	RX2-
	TX2+	X1.3	X2.22	RX2+

wire	Starting signal	Starting	End	End signal
W3	RX3+	X1.14	X3.36	TX1+
	RX3-	X1.15	X3.37	TX1-
	GND	X1.16	X3.38	GND
	TX3+	X1.33	X3.17	RX1+
	TX3-	X1.34	X3.18	RX1-
	GND	X1.35	X3.19	GND
W4	GND	X1.23	X3.1	GND
	RX4-	X1.24	X3.2	TX2-
	RX4+	X1.25	X3.3	TX2+
	GND	X1.4	X3.20	GND
	TX4-	X1.5	X3.21	RX2-
	TX4+	X1.6	X3.22	RX2+

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 in engrained 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 from ranging from NEBS Level 3 to ISO 9001:2005 with every new development while maintaining the signature reliability of its products.



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