ProLabs

CAB-D-D-200G-XM-C

Arista Networks® Compatible and TAA Compliant - 200GBase-CU QSFP-DD to QSFP-DD NRZ Direct Attach Cable (Passive Twinax, Up to 2.5m)

Features

- Compliant with QSFP-DD MSA Specification Rev 3.4
- SFF-8679 electrical interface compliant
- SFF-8636 management interface support
- Compliant with IEEE802.3Bj, By, IEEE802.3CD Standard
- Support 25G (PAM4) electrical data rates/channel
- I2C for EEPROM communication
- Pull to Release latch design
- Excellent EMI/EMC performance 360-degree cable shield termination
- Advantage dual side pre-solder automated assembly technologies
- Low loss, stronger mechanical features, more flexible
- QSFP-DD modules will be backwards compatible, allowing them to support existing QSFP modules and provide flexibility for end users and system designers
- ROHS Compliant

Applications

- Data center & Networking Equipment
- Servers/Storage Devices
- High Performance Computing (HPC)
- Switches/Routers

Product Description

This is an Arista Networks® compatible 200GBase-CU QSFP-DD to QSFP-DD NRZ direct attach cable that operates over passive copper with a maximum reach up to 2.5m (8.2ft). It has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. This direct attach cable is TAA (Trade Agreements Act) compliant, and is built to comply with MSA (Multi-Source Agreement) standards. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' direct attach cables 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

Order Information

Part Number	Description
CAB-D-D-200G-1M-C	Arista Networks® CAB-D-D-200G-1M Compatible and TAA Compliant - 200GBase-CU QSFP-DD to QSFP-DD NRZ Direct Attach Cable (Passive Twinax, 1m)
CAB-D-D-200G-2M-C	Arista Networks® CAB-D-D-200G-2M Compatible and TAA Compliant - 200GBase-CU QSFP-DD to QSFP-DD NRZ Direct Attach Cable (Passive Twinax, 2m)
CAB-D-D-200G-2-5M-C	Arista Networks® CAB-D-D-200G-2-5M Compatible and TAA Compliant - 200GBase-CU QSFP-DD to QSFP-DD NRZ Direct Attach Cable (Passive Twinax, 2.5m)

Regulatory Compliance

Certification	Standard
Laser Eye Safety	IEC: 60825-1, 3rd Edition FDA: CFR-21 Sections 1040.10 and 1040.11
Product Safety	TUV: EN62368-1 UL/CSA 60950-1
EMC/EMI	FCC: Part 15 sb.B EN: 55032/55024

Wiring Table

PORT1 SHELL		PORT2 SHELL		PORT1 SHELL		PORT2 SHELL	
GND(TX)	P1	P20	GND	GND(TX)	P39	P58	GND(RX)
TX2n−	P2	P21	RX2n−	TX6n−	P40	P59	RX6n−
TX2p+	P3	P22	RX2p+	TX6p+	P41	P60	RX6p+
GND(TX)	P4	P23	GND	GND(TX)	P42	P61	GND(RX)
TX4n−	P5	P24	RX4n−	TX8n−	P43	P62	RX8n−
TX4p+	P6	P25	RX4p+	TX8p+	P44	P63	RX8p+
GND(TX)	P7	P26	GND	GND(TX)	P45	P64	GND(RX)
GND(RX)	P13	P32	GND	GND(RX)	P51	P70	GND(TX)
RX3p+	P14	P33	TX3p+	RX7p+	P52	P71	TX7p+
RX3n−	P15	P34	TX3n−	RX7n−	P53	P72	TX7n−
GND(RX)	P16	P35	GND	GND(RX)	P54	P73	GND(TX)
RX1p+	P17	P36	TX1p+	RX5p+	P55	P74	TX5p+
RX1n−	P18	P37	TX1n−	RX5n−	P56	P75	TX5n−
GND(RX)	P19	P38	GND	GND(RX)	P57	P76	GND(TX)
GND(RX)	P20	P1	GND	GND(RX)	P58	P39	GND(TX)
RX2n−	P21	P2	TX2n−	RX6n−	P59	P40	TX6n−
RX2p+	P22	P3	TX2p+	RX6p+	P60	P41	TX6p+
GND(RX)	P23	P4	GND	GND(RX)	P61	P42	GND(TX)
RX4n−	P24	P5	TX4n−	RX8n−	P62	P43	TX8n−
RX4p+	P25	P6	TX4p+	RX8p+	P63	P44	TX8p+
GND(RX)	P26	P7	GND	GND(RX)	P64	P45	GND(TX)
GND(TX)	P32	P13	GND	GND(TX)	P70	P51	GND(RX)
TX3p+	P33	P14	RX3p+	TX7p+	P71	P52	RX7p+
TX3n−	P34	P15	RX3n−	TX7n−	P72	P53	RX7n−
GND(TX)	P35	P16	GND	GND(TX)	P73	P54	GND(RX)
TX1p+	P36	P17	RX1p+	TX5p+	P74	P55	RX5p+
TX1n−	P37	P18	RX1n−	TX5n−	P75	P56	RX5n−
GND(TX)	P38	P19	GND	GND(TX)	P76	P57	GND(RX)

Low Speed Signals

SIDE PORT1 & PORT2

P8	ModselL		P46	Reserved
P9	ResetL		P47	VS1
P10	VccRx		P48	VccRx1
P11	SCL		P49	VS2
P12	SDA		P50	VS3
P27	ModPrsL		P65	NC
P28	IntL		P66	Reserved
P29	VccTx		P67	VccTx1
P30	Vcc1		P68	Vcc2
P31	InitMode		P69	Reserved

Wire Gauge
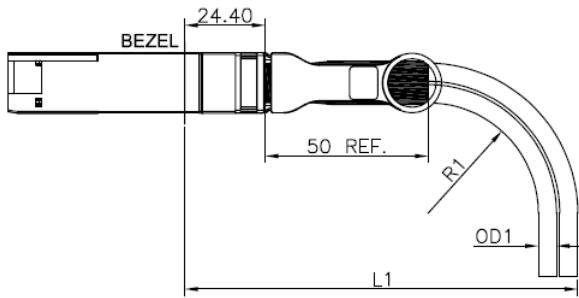
ASSEMBLY BEND RADIUS & INSTALL RADIUS

U–QSFP–DD			
CABLE GUAGE	DIAMETER"OD1"	MIN. BEND RADIUS"R1"	MIN. BEND SPACE"L1"
28AWG	7.9mm	39.5mm	130mm
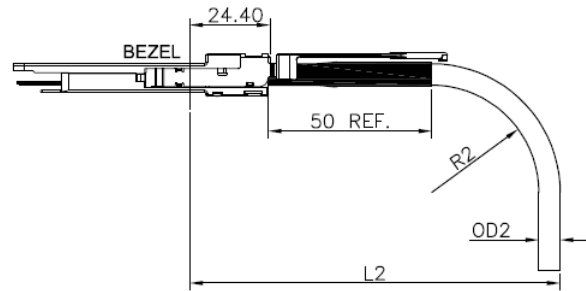
ASSEMBLY BEND RADIUS & INSTALL RADIUS

U–QSFP–DD			
CABLE GUAGE	DIAMETER"OD2"	MIN. BEND RADIUS"R2"	MIN. BEND SPACE"L2"
28AWG	7.9mm	39.5mm	122mm

Pin Descriptions

PIN	Logic	Symbol	Description	Notes
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input	
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input	
7		GND	Ground	1
8	LVTTL-I	ModSelL	Module Select	
9	LVTTL-I	ResetL	Module Reset	
10		VccRx	+3.3V Power Supply Receiver	2
11	LVCMOS-I/O	SCL	2-wire serial interface clock	
12	LVCMOS-I/O	SDA	2-wire serial interface data	
13		GND	Ground	1
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CML-O	Rx3n	Receiver Inverted Data Output	
16		GND	Ground	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	1
24	CML-O	Rx4n	Receiver Inverted Data Output	
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTL-O	ModPrsL	Module Present	
28	LVTTL-O	IntL	Interrupt	
29		VccTx	+3.3V Power Supply Transmitter	2
30		Vccl	+3.3V Power Supply	2
31	LVTTL-I	InitMode	Initialization mode; In legacy QSFP applications, the InitMode pad is called LPMODE	
32		GND	Ground	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Input	
35		GND	Ground	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Input	
38		GND	Ground	1

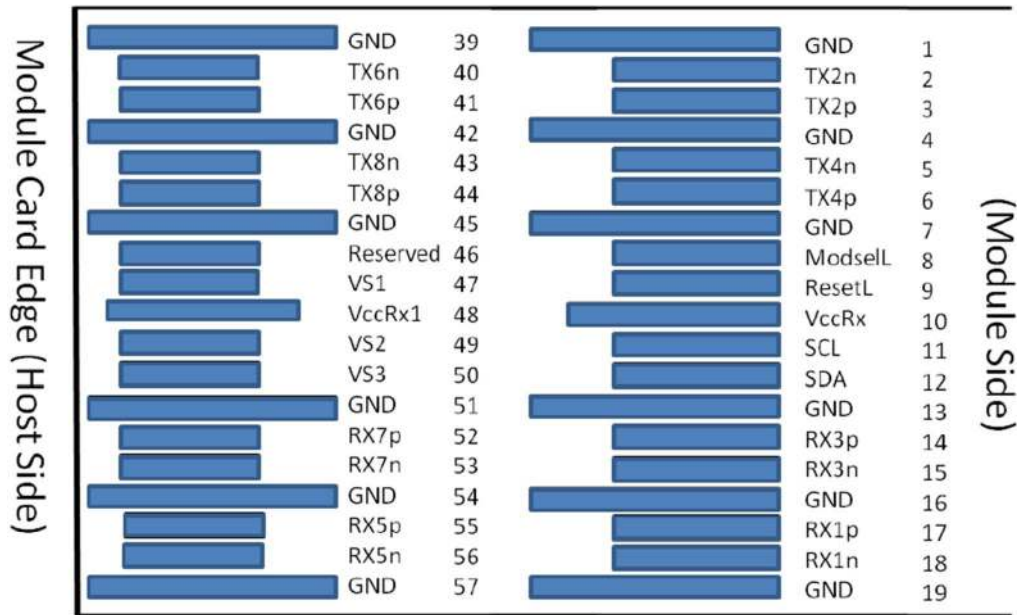| PIN		Symbol	Description	Notes
39		GND	Ground	1
40	CML-I	Tx6n	Transmitter Inverted Data Input	
41	CML-I	Tx6p	Transmitter Non-Inverted Data Input	
42		GND	Ground	1
43	CML-I	Tx8n	Transmitter Inverted Data Input	
44	CML-I	Tx8p	Transmitter Non-Inverted Data Input	
45		GND	Ground	1
46		Reserved	For future use	3
47		VSl	Module Vendor Specific 1	3
48		VccRx1	3.3V Power Supply	2
49		VS2	Module Vendor Specific 2	3
50		VS3	Module Vendor Specific 3	3
51		GND	Ground	1
52	CML-O	Rx7p	Receiver Non-Inverted Data Output	
53	CML-O	Rx7n	Receiver Inverted Data Output	
54		GND	Ground	1
55	CML-O	Rx5p	Receiver Non-Inverted Data Output	
56	CML-O	Rx5n	Receiver Inverted Data Output	
57		GND	Ground	1
58		GND	Ground	1
59	CML-O	Rx6n	Receiver Inverted Data Output	
60	CML-O	Rx6p	Receiver Non-Inverted Data Output	
61		GND	Ground	1
62	CML-O	Rx8n	Receiver Inverted Data Output	
63	CML-O	Rx8p	Receiver Non-Inverted Data Output	
64		GND	Ground	1
65		NC	No Connect	3
66		Reserved	For future use	3
67		VccTx1	3.3V Power Supply	2
68		Vcc2	3.3V Power Supply	2
69		Reserved	For future use	3
70		GND	Ground	1
71	CML-I	Tx7p	Transmitter Non-Inverted Data Input	
72	CML-I	Tx7n	Transmitter Inverted Data Input	
73		GND	Ground	1
74	CML-I	Tx5p	Transmitter Non-Inverted Data Input	
75	CML-I	Tx5n	Transmitter Inverted Data Input	
76		GND	Ground	1

Notes:

1. QSFP-DD uses common ground (GND)for all signals and supply (power). All are common within the QSFP-DD 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, VccRx1, Vcc1, Vcc2, VccTx and VccTx1 shall be applied concurrently. Requirements defined for the host side of the Host Card Edge Connector are listed in Table 6. VccRx, VccRx1, Vcc1, Vcc2, VccTx and VccTx1 may be internally connected within the module in any combination. The connector Vcc pins are each rated for a maximum current of 1000 mA.

3. All Vendor Specific, Reserved and No Connect pins may be terminated with 50 ohms to ground on the host. Pad 65 (No Connect) shall be left unconnected within the module. Vendor specific and Reserved pads shall have an impedance to GND that is greater than 10 kOhms and less than 100 pF.

4. Plug Sequence specifies the mating sequence of the host connector and module. The sequence is 1A, 2A, 3A, 1B, 2B, 3B. (see Figure 2 for pad locations) Contact sequence A will make, then break contact with additional QSFP-DD pads. Sequence 1A, 1B will then occur simultaneously, followed by 2A, 2B, followed by 3A,3B.
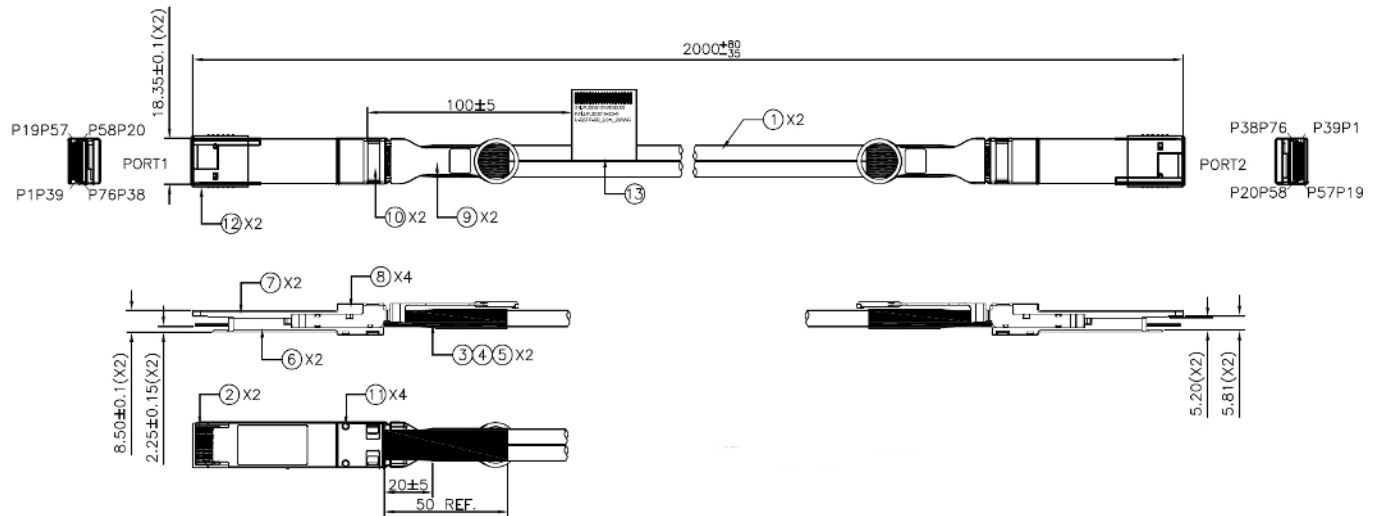
Electrical Pin-out Details

Top side viewed from top

(Module Side)		Module Card Edge (Host Side)
38 GND		76 GND
37 TX1n		75 TX5n
36 TX1p		74 TX5p
35 GND		73 GND
34 TX3n		72 TX7n
33 TX3p		71 TX7p
32 GND		70 GND
31 InitMode		69 Reserved
30 Vcc1		68 Vcc2
29 VccTx		67 VccTx1
28 IntL		66 Reserved
27 ModPrsL		65 NC
26 GND		64 GND
25 RX4p		63 RX8p
24 RX4n		62 RX8n
23 GND		61 GND
22 RX2p		60 RX6p
21 RX2n		59 RX6n
20 GND		58 GND
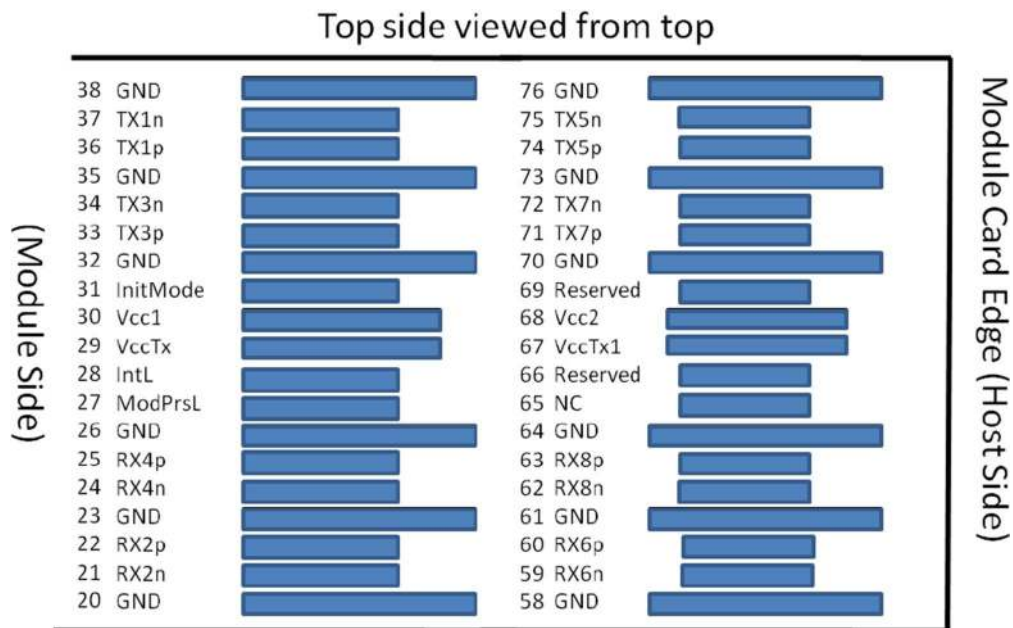
Bottom side viewed from bottom

Module Card Edge (Host Side)

(Module Side)

Pin	Name		Name	Pin
39	GND		GND	1
40	TX6n		TX2n	2
41	TX6p		TX2p	3
42	GND		GND	4
43	TX8n		TX4n	5
44	TX8p		TX4p	6
45	GND		GND	7
46	Reserved		ModselL	8
47	VS1		ResetL	9
48	VccRx1		VccRx	10
49	VS2		SCL	11
50	VS3		SDA	12
51	GND		GND	13
52	RX7p		RX3p	14
53	RX7n		RX3n	15
54	GND		GND	16
55	RX5p		RX1p	17
56	RX5n		RX1n	18
57	GND		GND	19

Mechanical Specifications

Item	Name	Description	Quantity	Unit
1	Raw Cable	28AWG, 8 Pairs, 100ohm, PVC Jacket	A/R	mm
2	PCBA	U-QSFP-DD PCBA, 76P Au 30u" Min	2	PCS
3	Acetate Tape	Acetate Tape, Black	A/R	mm
4	HST	Heat shrink tube, OD13mm, Black	A/R	mm
5	Copper Foil	Double-sided conductive, W=8.5mm	A/R	mm
6	Bottom Shell	ZN Alloy, NI 120U" over 280U" min.	2	PCS
7	Top Shell	ZN Alloy, NI 120U" over 280U" min.	2	PCS
8	Spring	Left-handed rotation, SWP-B	4	PCS
9	Pull Tap	SUS301 + PA66, Black	2	PCS
10	Lock	Stainless Steel	2	PCS
11	Rivet	Stainless Steel	4	PCS
12	Anti-Static Cap	PVC, Blue, Anti-Static	2	PCS
13	Label	PP, LXW=57x26mm, White	1	PCS

Notes:

1. 100% conductor test, test condition, voltage 5V, insulation resistance 10MΩ, conductor resistance 2Ω Max.
2. 100% High-frequency test according to IEEE802.3bj Standard
3. Differential Impedance:
   Rise Time: 35ps (20%~80%)
   Raw Cable: 100 +10/-5 ohm
   Cable termination: 100 $\pm$ 10 ohm
4. 100% EEPROM Check, 100% Latch Function Check
5. All materials comply with RoHS 2.0

Electrical Test Characteristics

Item		Requirement	Test Condition
Differential Impedance	**Cable Impedance**	100 +10/-5 Ω	Rise time of 35ps (at the SMA) (20 % - 80 %).
	Paddle Card Impedance	100 ± 10 Ω	
	Cable Termination Impedance	100 +10 / -15 Ω	

Other Electrical Performance Requirement

Item	Description	Test condition	Judgment
3.2.1	Insulation Resistance	EIA-364-21, DC 300V 1 minute.	Meet Spec. 10M ohm (Min.)
3.2.2	Dielectric Withstanding Voltage	EIA-364-20, apply a voltage of 300V DC for 1 minute between adjacent terminals, and between adjacent terminals and ground.	Meet Spec. NO disruptive discharge.
3.2.3	Low Level Contact Resistance (LLCR)	EIA-364-23, apply a maximum voltage of 20mV and a current of 100mA.	Meet Spec. 70 milliohms Max. From initial.
3.2.4	Continuity	Verify the continuous electrical path of all expected connections	No unexpected opens, shorts, or high resistance areas.

Mechanical Test Characteristics

#	Item	Industry Spec	Test Condition	Requirement
3.3.1	Vibration	EIA-364-28	Clamp & vibrate per EIA-364-28F,TC-VII, Test condition letter – D, 15 minutes in X, Y & Z axis.	No evidence of physical damage
3.3.2	Mechanical Shock	EIA-364-27C	Clamp and Shock per EIA-364-27C, TC-G,3 times in 6 directions, 100g, 6ms	No evidence of physical damage
3.3.3	Cable Flex	EIA-364-41C	Flex cable 180° for 20 cycles (±90° from nominal position) at 12 cycles per minute with a 1.0kg load applied to the cable jacket. Flex in the boot area 90º in each direction from vertical. Per EIA-364-41C	No evidence of physical damage
3.3.4	Cable Plug Retention in Cage	EIA-364-38B	Cable plug is clamped with the cable hanging vertically. A 90N load is applied (gradually) to the cable jacket for a 1-minute duration. Force to be applied axially with no damage to plug latch. Per EIA-364-38B	90N Min. No evidence of physical damage per QSFP-DD MSA
3.3.5	Cable Retention in Plug	EIA-364-38B	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	90N Min. No evidence of physical damage

3.3.6	Cable Plug Insertion	EIA-364-13B	Per EIA-364-13B	90N Max per QSFP-DD MSA
3.3.7	Cable Plug Extraction	EIA-364-13B	Place axial load on latch pull to de-latch plug. Per EIA-364-13B,	30N Max. per QSFP-DD MSA
3.3.8	Latch Pull Strength	EIA-364-38B	Per EIA-364-38B	90N Min. No evidence of physical damage
3.3.9	Durability	EIA-364-09	EIA-364-09, perform plug &unplug cycles: Plug and receptacle mate rate: 250times/hour. 50times for QSFP-DD module (CONNECTOR TO PCB)	50 cycles, No evidence of physical damage

Environmental Test Characteristics

#	Item	Industry Spec	Test condition	Requirement
3.4.1	Operating Temperature	/	Cable operating temperature range.	-20℃ to +80°
3.4.2	Storage Temp. Range (in packed condition)	/	Cable storage temp. range in packed condition.	-40℃ to +80℃
3.4.3	Thermal Shock	EIA-364-32D	EIA-364-32D: method A, TC-1, -55℃ to 85℃,100 cycles	1. No Physical Damage 2. MeetΔLLCR 3. Meet 3.1 SDD21
3.4.4	Cyclic Temperature& Humidity	EIA-364-31	EIA-364-31 Method III, Test condition B	1. No Physical Damage 2. MeetΔLLCR 3. Meet 3.1 SDD21
3.4.5	Salt spraying	EIA-364-26B	48 hours salt spraying after shell corrosive area less than 5％	no physical crack
3.4.6	Mixed Flowing Gas	EIA-364-65	EIA-364-65 Class IIA 14 days	1. MeetΔLLCR 2. Meet 3.1 SDD21
3.4.7	Temperature Life	EIA-364-17B	EIA-364-17B, With 85±2℃ and 85±2% RH condition for 500 hours	1. No Physical Damage 2. MeetΔLLCR 3. Meet 3.1 SDD21 stressing
3.4.8	Cold bend	/	Condition: -20℃±2℃, mandrel diameter is 6 times the cable diameter.	4h, no physical crack
3.4.9	Flame Retardant Grade	VW-1	/	VW-1

About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

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