C-DSFPQ56MX-PDAC1M

MSA to Mellanox® Compatible TAA 100GBase-CU DSFP to QSFP56 Direct Attach Cable (Passive Twinax, 1m) 30AWG

Features:

- DSFP Module Compliant to DSFP MSA
- QSFP Module Compliant to SFF-8661
- Enables 100Gbps (up to 53.125Gbps Per Channel) Transmission
- Built-In EEPROM Functions
- Operating Case Temperature: 0C to 70C
- RoHS Compliant and Lead-Free

Applications:

- 100GBase Ethernet

Product Description

This MSA Compliant to Mellanox® dual oem compatible 100GBase-CU DSFP to QSFP56 passive direct attach cable has a maximum reach of 1.0m (3.3ft). It is 100% MSA Compliantto Mellanox® compatible and has been programmed, uniquely serialized, data-traffic and application tested to ensure that it is compliant and functional. This cable will initialize and perform identically to MSA Compliantand Mellanox®'s individual cables and is built to meet or exceed OEM specifications. This product complies with MSA (Multi-Source Agreement) standards and is TAA (Trade Acts Agreement) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' 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."

Rev. 060425

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	Vcc	3.13	3.3	3.47	V
Storage Temperature	Tstg	-40		85	°C
Operating Case Temperature	Tc	0		70	°C
Humidity	RH	5		85	%
Data Rate			100		Gbps

Electrical Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Resistance	Rcon			3	Ω	
Insulation Resistance	Rins			10	MΩ	
Raw Cable Impedance	Zca	95	100	110	Ω	
Mated Connector Impedance	Zmated	85	100	115	Ω	
Insertion Loss @13.28GHz	SDD21	8		17.16	dB	
Return Loss	SDD11/22	$\text{Return\_loss}(f) \geq \begin{cases} 16.5-2\sqrt{f} & 0.05 \leq f < 4.1 \\ 10.66-14\log_{10}(f/5.5) & 4.1 \leq f \leq 19 \end{cases}$			dB	1
Differential to Common-Mode Return Loss	SCD11/22	$\text{Return\_loss}(f) \geq \begin{cases} 22-(20/25.78)f & 0.01 \leq f < 12.89 \\ 15-(6/25.78)f & 12.89 \leq f \leq 19 \end{cases}$			dB	1
Differential to Common-Mode Conversion Loss	SCD21-SDD21	$\text{Conversion\_loss}(f) - \text{IL}(f) \geq \begin{cases} 10 & 0.01 \leq f < 12.89 \\ 27-(29/22)f & 12.89 \leq f < 15.7 \\ 6.3 & 15.7 \leq f \leq 19 \end{cases}$			dB	1
Minimum COM	COM	3			dB	

Notes:

1. For $0.05 \leq f \leq 19$ GHz. Where f is the frequency in GHz.

Physical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Length	L		1		M
Wire Gauge			30		AWG
Jacket Material		PVC, Black			

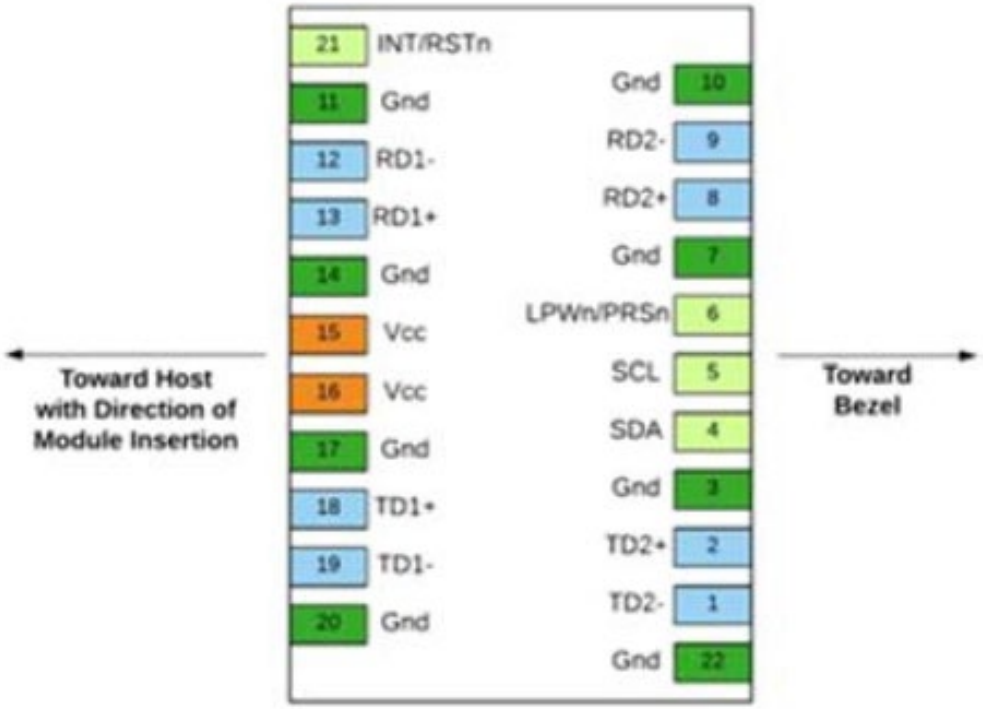
DSFP Pin Descriptions

Pin	Logic	Symbol	Name/Description	Power Sequence Order	Notes
Case		Case	Module Case.		2
1	CML-I	TD2-	Transmitter Inverted Data Input. Lane 2.	3	
2	CML-I	TD2+	Transmitter Non-Inverted Data Input. Lane 2.	3	
3		GND	Module Ground.	1	5
4	LVTTL-I/O	SDA	2-Wire Serial Interface Data.	3	3
5	LVTTL-I/O	SCL	2-Wire Serial Interface Clock.	3	3
6	Multi-Level-I/O	LPWn/PRSn	Low-Power Mode/Module Present. MOD_ABS.	3	
7		GND	Module Ground.	1	5
8	CML-O	RD2+	Receiver Non-Inverted Data Output. Lane 2.	3	
9	CML-O	RD2-	Receiver Inverted Data Output. Lane 2.	3	
10		GND	Module Ground.	1	5
11		GND	Module Ground.	1	5
12	CML-O	RD1-	Receiver Inverted Data Output. Lane 1.	3	4
13	CML-O	RD1+	Receiver Non-Inverted Data Output. Lane 1.	3	4
14		GND	Module Ground.	1	5
15		Vcc	Module 3.3V Supply.	2	
16		Vcc	Module 3.3V Supply.	2	
17		GND	Module Ground.	1	5
18	CML-I	TD1+	Transmitter Non-Inverted Data Input. Lane 1.	3	4
19	CML-I	TD1-	Transmitter Inverted Data Input. Lane 1.	3	4
20		GND	Module Ground.	1	5
21	Multi-Level-I/O	INT/RSTn	Dual-Function Module Interrupt and Reset.	3	
22		GND	Module Ground.	1	5

Notes:

1. Labeling as inputs (I) and outputs (O) are from the perspective of the module.
2. The case makes electrical contact to the cage before any of the board edge contacts are made.
3. See the 2-wire specifications.
4. Backwards compatible with SFF-8431 SFI interface.
5. The module ground contacts (GND) are recommended to be isolated from the module case by offering flexibility in the host EMI control strategy.

Electrical Pin-Out Details - DSFP



QSFP Pin Descriptions

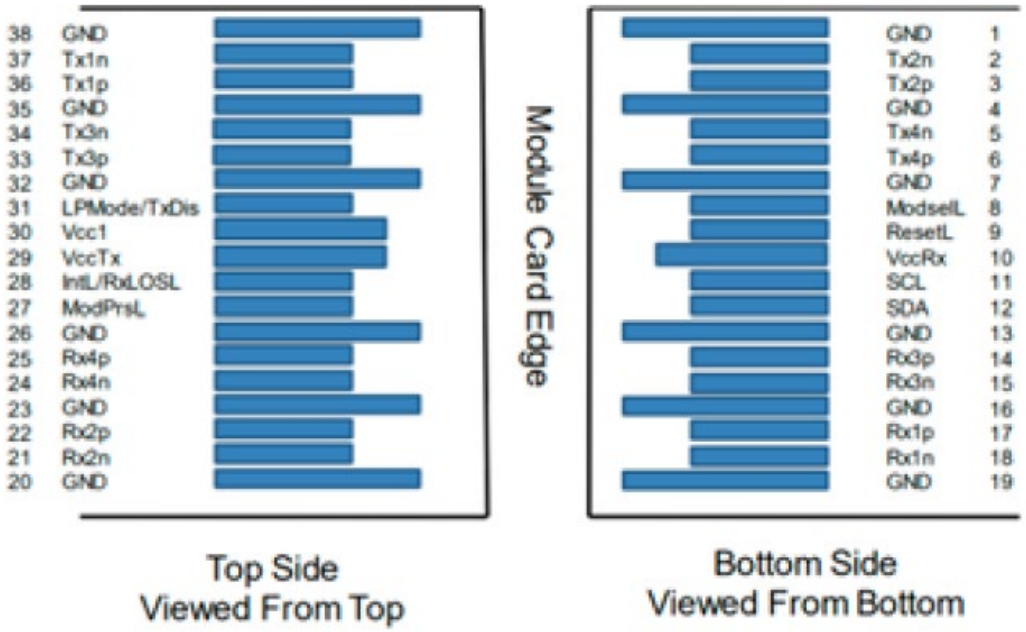
Pin	Logic	Symbol	Name/Description	Plug Sequence	Notes
1		GND	Module Ground.	1	1
2	CML-I	Tx2-	Transmitter Inverted Data Input.	3	
3	CML-I	Tx2+	Transmitter Non-Inverted Data Input.	3	
4		GND	Module Ground.	1	1
5	CML-I	Tx4-	Transmitter Inverted Data Input.	3	
6	CML-I	Tx4+	Transmitter Non-Inverted Data Input.	3	
7		GND	Module Ground.	1	1
8	LVTTL-I	ModSelL	Module Select.	3	
9	LVTTL-I	ResetL	Module Reset.	3	
10		VccRx	+3.3V Receiver Power Supply.	2	2
11	LVCMOS–I/O	SCL	2-Wire Serial Interface Clock.	3	
12	LVCMOS–I/O	SDA	2-Wire Serial Interface Data.	3	
13		GND	Module Ground.	1	1
14	CML-O	Rx3+	Receiver Non-Inverted Data Output.	3	
15	CML-O	Rx3-	Receiver Inverted Data Output.	3	
16		GND	Module Ground.	1	1
17	CML-O	Rx1+	Receiver Non-Inverted Data Output.	3	

18	CML-O	Rx1-	Receiver Inverted Data Output.	3	
19		GND	Module Ground.	1	1
20		GND	Module Ground.	1	1
21	CML-O	Rx2-	Receiver Inverted Data Output.	3	
22	CML-O	Rx2+	Receiver Non-Inverted Data Output.	3	
23		GND	Module Ground.	1	1
24	CML-O	Rx4-	Receiver Inverted Data Output.	3	
25	CML-O	Rx4+	Receiver Non-Inverted Data Output.	3	
26		GND	Module Ground.	1	1
27	LVTTL- O	ModPrsL	Module Present.	3	
28	LVTTL- O	IntL	Interrupt.	3	
29		VccTx	+3.3V Transmitter Power Supply.	2	2
30		Vcc1	+3.3V Power Supply.	2	2
31	LVTTL-I	LPMode	Low-Power Mode.	3	
32		GND	Module Ground.	1	1
33	CML-I	Tx3+	Transmitter Non-Inverted Data Input.	3	
34	CML-I	Tx3-	Transmitter Inverted Data Input.	3	
35		GND	Module Ground.	1	1
36	CML-I	Tx1+	Transmitter Non-Inverted Data Input.	3	
37	CML-I	Tx1-	Transmitter Inverted Data Input.	3	
38		GND	Module Ground.	1	1

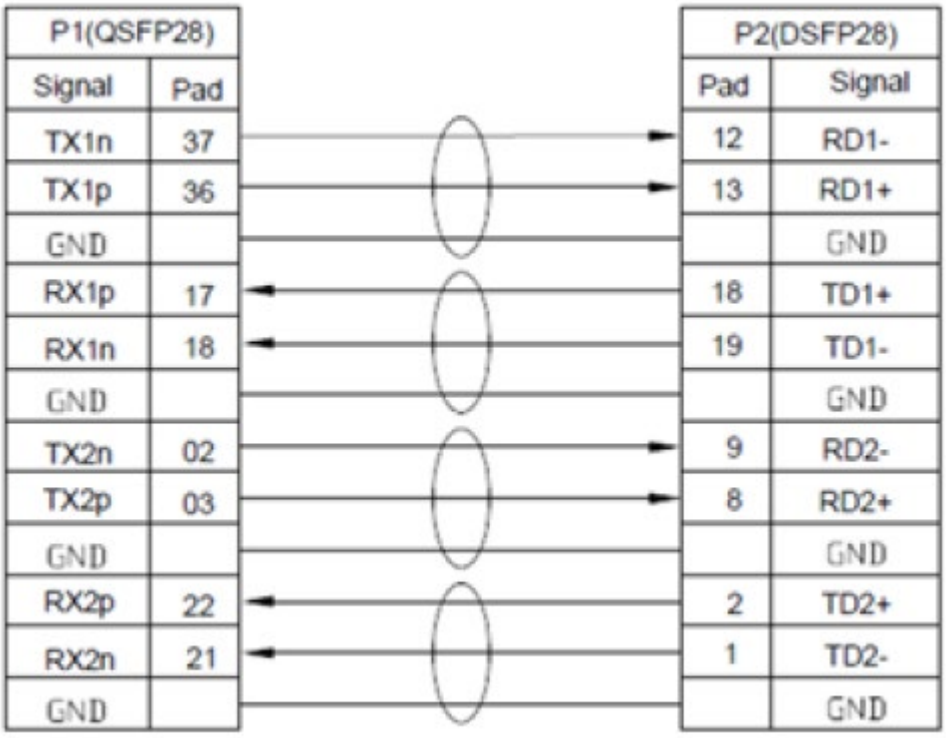
Notes:

1. GND is the symbol for signal and supply (power) common for the 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 suppliers and shall be applied concurrently. Requirements defined for the host side of the Host Edge Connector are listed in this datasheet. Recommended host board power supply filtering is shown below. VccRx, Vcc1, and VccTx may be internally connected within the QSFP+ module in any combination. The connector pins are each rated for a maximum current of 500mA.

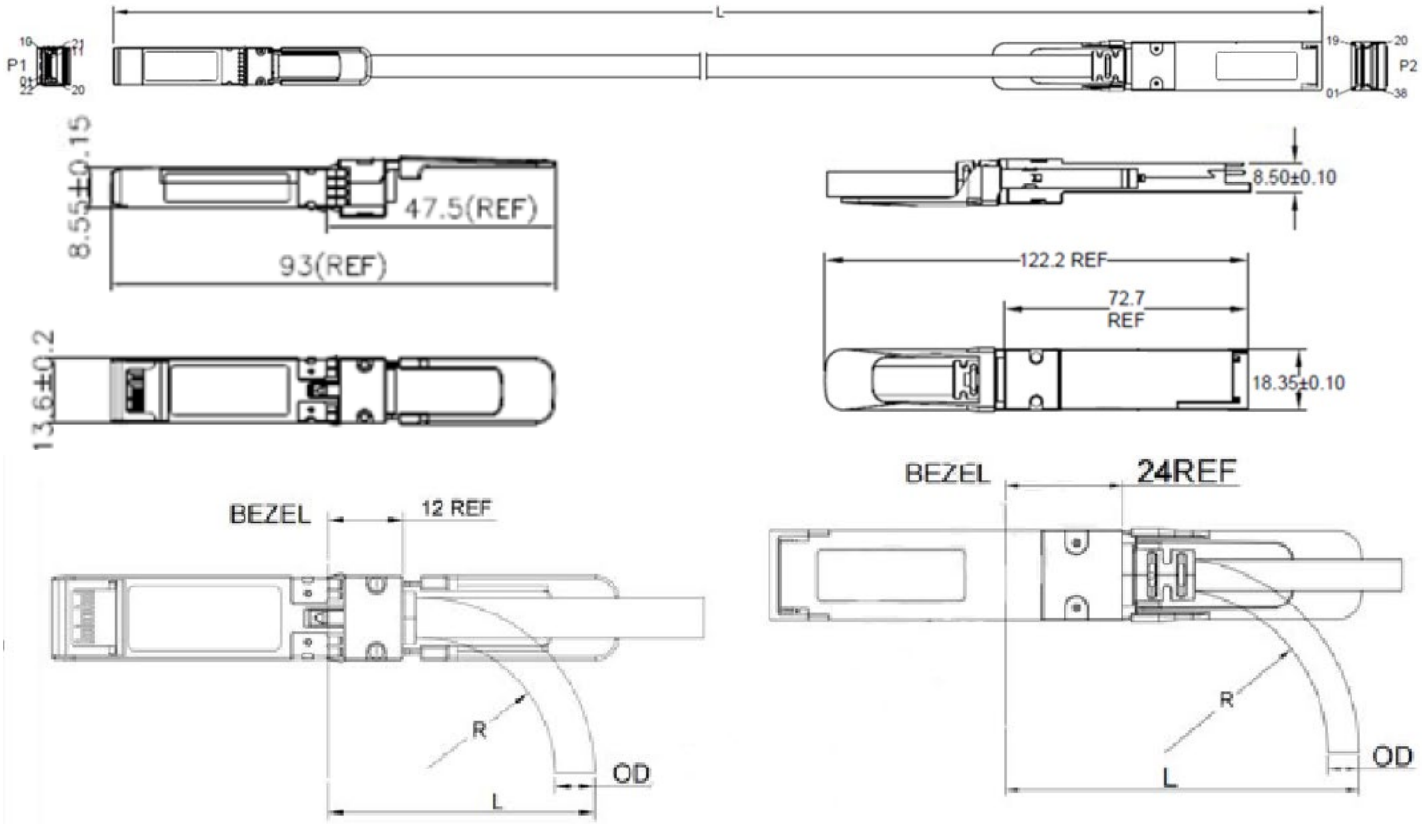
Electrical Pin-Out Details – QSFP56



Wiring Diagram



Mechanical Specifications



Cable Specifications

100G DSFP				QDFP56			
Gauge	**OD**	**Bend Radius "R"**	**Min. Bend Radius "L"**	**Gauge**	**OD**	**Bend Radius "R"**	**Min. Bend Radius "L"**
30AWG	6MM	30MM	48MM	30AWG	6MM	30MM	80MM

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.

Contact Information

ProLabs US

Email: sales@prolabs.com
Telephone: 952-852-0252

ProLabs UK

Email: salessupport@prolabs.com
Telephone: +44 1285 719 600