Q-100G-DAC-PxM

100G QSFP28 Passive Direct Attach Copper Cable (PCC), 0.5~5 meters

Features

- QSFP28 conforms to the Small Form Factor SFF8665
- 4-Channel Full-Duplex Passive Copper Cable
- Up to 25.78 Gbps data rate per channel
- Maximum aggregate data rate: 100Gb/s (4 x 25.78Gb/s)
- Compliant with IEEE 802.3bj 100GEBASE-CR4
- Up to 5m transmission
- Single 3.3V power supply
- 24AWG to 30AWG cable available
- Operating temperature range: 0 to 70°C
- RoHS Compliant and Lead-Free

Applications

- 100 Gigabit Ethernet links
- Fiber Channel over Ethernet
- Data storage and communication industry
- Switches, servers,routers and HBA
- Enterprise network
- SAN (Storage area networks)
- Data center cabling infrastructure
- High density connections between networking equipment

Description

The Q-100G-DAC-PxM direct attach copper cable assembly (also known as QSFP28 DAC) is suitable for very short distances. It offers a highly cost-effective way to establish a 100 Gigabit link connectivity between devices using QSFP28 ports. The QSFP28 DAC copper cable is designed for 100Gb/s high-speed interconnecting networking applications such as high-performance computing (HPC), data center, and network storage markets.

The Q-100G-DAC-PxM fully complies with QSFP28 Multi-Source Agreement (MSA) standards SFF-8665, IEEE 802.3bj, and Infiniband EDR. It is developed specifically as a cost-effective and lower-power replacement to 100G QSFP28 optics and QSFP28 active optical fiber (QSFP+ AOC) for short distances.

Ordering information

Part Number	Data Rate	Cable Length	Wire Gauge		
Q-100G-DAC-P05M	100Gbps	0.5 m	/	/	AWG30
Q-100G-DAC-P1M	100Gbps	1 m	/	/	AWG30
Q-100G-DAC-P2M	100Gbps	2 m	/	/	AWG30
Q-100G-DAC-P3M	100Gbps	3 m	AWG24	AWG26	/
Q-100G-DAC-P4M	100Gbps	4 m	AWG24	AWG26	/

Q-100G-DAC-P5M	100Gbps	5 m	AWG24	AWG26	/

Notes:

1. Customized 100G QSFP28 DAC cables are available in various lengths.
2. The Wire Gauge is available in AWG24, AWG26, AWG28, and AWG30 for customized need.

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5	4.0	V	
Storage Temperature	T_S	-40	85	°C	
Operating Humidity	RH	5	95	%	

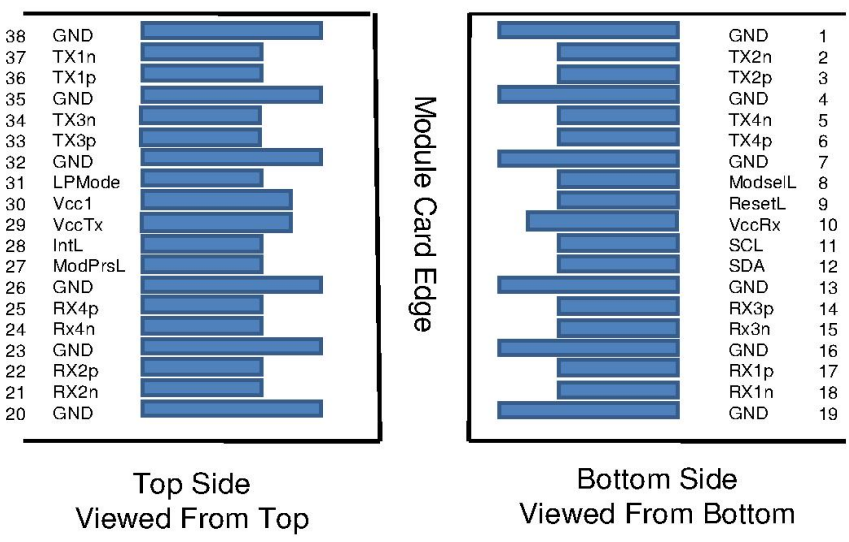
Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.13	3.3	3.47	V	
Case Operating Temperature	Tc	0		70	°C	
Data Rate Per Lane				25.78	Gbps	
Bit Error Rate	BER			10^{-12}		

Cable Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Cable Diameter	DIA		9.8		mm	AWG 24
			8.4		mm	AWG 26
			7.4		mm	AWG 28
			6.6		mm	AWG 30
Bend Radius		5x Cable Diameter			mm	
Cable Jacket Type		PVC				
Cable Impedance	Z	90	100	110	Ω	

Electrical Pad Layout



Top Side
Viewed From Top

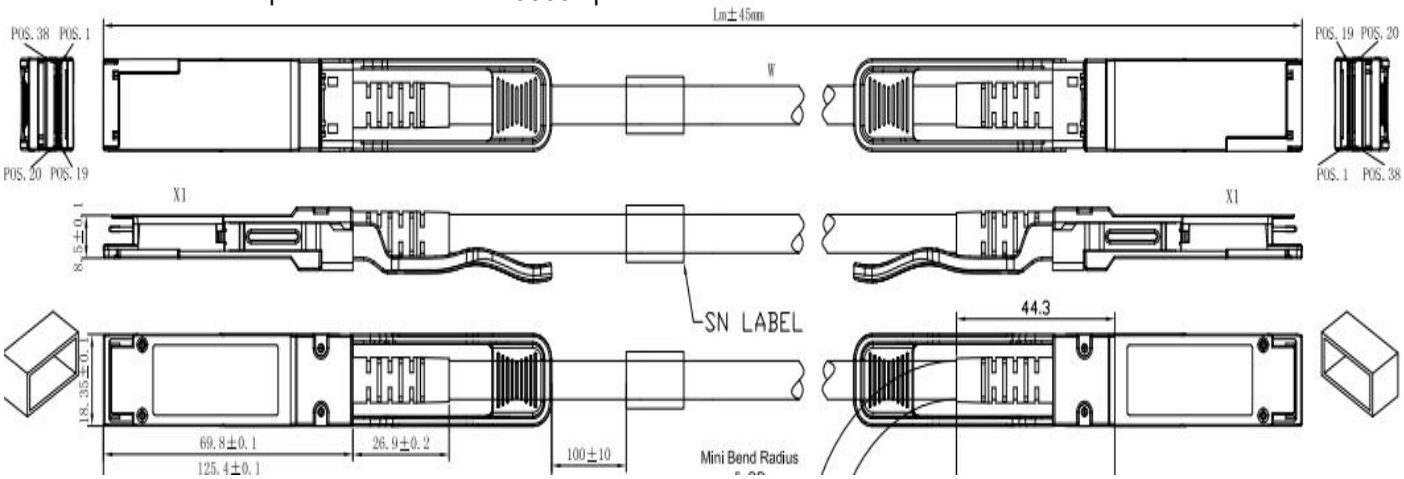
Bottom Side
Viewed From Bottom

Pin Definitions

Pin	Logic	Symbol	Description
1		GND	Ground
2	CML-I	Tx2n	Transmitter Inverted Data Input
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input
4		GND	Ground
5	CML-I	Tx4n	Transmitter Inverted Data Input
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input
7		GND	Ground
8	LVTTL-I	ModSelL	Module Select
9	LVTTL-I	ResetL	Module Reset
10		Vcc Rx	+3.3V Power Supply Receiver
11	LVCMOS-I/O	SCL	2-wire serial interface clock
12	LVCMOS-I/O	SDA	2-wire serial interface data
13		GND	Ground
14	CML-O	Rx3p	Receiver Non-Inverted Data Output
15	CML-O	Rx3n	Receiver Inverted Data Output
16		GND	Ground
17	CML-O	Rx1p	Receiver Non-Inverted Data Output
18	CML-O	Rx1n	Receiver Inverted Data Output
19		GND	Ground
20		GND	Ground
21	CML-O	Rx2n	Receiver Inverted Data Output
22	CML-O	Rx2p	Receiver Non-Inverted Data Output
23		GND	Ground
24	CML-O	Rx4n	Receiver Inverted Data Output
25	CML-O	Rx4p	Receiver Non-Inverted Data Output
26		GND	Ground
27	LVTTL-O	ModPrsL	Module Present
28	LVTTL-O	IntL	Interrupt
29		Vcc Tx	+3.3V Power supply transmitter
30		Vcc1	+3.3V Power supply
31	LVTTL-I	LPMode	Low Power Mode
32		GND	Ground
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input
34	CML-I	Tx3n	Transmitter Inverted Data Input
35		GND	Ground
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input
37	CML-I	Tx1n	Transmitter Inverted Data Input
38		GND	Ground

Mechanical Dimensions

The connector is compatible with the SFF-8665 specification.



Warnings

Process plug

The transceiver optics is supplied with a dust cover. This plug protects the transceiver optics during standard manufacturing processes by preventing contamination from air borne particles.It is recommended that the dust cover remain in the transceiver whenever an optical fiber connector is not inserted.

Handling Precautions

The transceiver optics is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety

The transceiver optics is a Class 1 laser product per international standard IEC 60825-1. Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

Appendix A. Document Revision

Version No	Date	Description
DS/V1.0/EN	2018-01-06	Preliminary datasheet
DS/V2.0/EN	2021-11-03	Correct datarate errors, add wire gauge details
DS/V3.0/EN	2024-07-23	Add appendix information

For more product information, visit us on the web at www.optcore.net