Q-4S-DAC-PxM

40G QSFP+ to 4x10G SFP+ DAC Passive Copper Breakout Cable, 0.5~7 meters

Features

- Connector A: 1x QSFP 40Gbps Rated Connector (QSFP+ MSA SFF-8436 Compliant)
- Connector B: 4x SFP+ 10Gbps Rated Connector (SFP+ MSA SFF-8431 Compliant)
- Economically Links up a QSFP port with an upstream 10GbE-SFP+ Switch
- Compliant with IEEE 802.3ba 40GBASE-CR4 standard
- Up to 10.3125 Gbps transfer rate per SFP+ channel (40 Gbps aggregate)
- Bridge the gap between your 10G and 40G capable switches/host adapters
- High-Density QSFP 38-PIN and 4x SFP 20-PIN Connector
- Reduced power budget and lower port cost compared to transceiver and AOC
- RoHS Compliant and Lead-Free
- 24AWG to 30AWG cable available
- Operating temperature range: 0 to 70°C
- RoHS Compliant and Lead-Free

Applications

- 10/40 Gigabit Ethernet links
- 40G Ethernet transmission (40GBASE-CR4)
- InfiniBand 4x SDR, DDR, QDR
- 10G/40G Ethernet Switches, Routers, and HBAs
- Data center interconnect
- Networked storage systems
- High density connections between networking equipment

Description

Optcore's Q-4S-DAC-PxM QSFP+ to 4xSFP+ breakout direct attach copper cable assembly (also known as Fan-out DAC) is suitable for very short distances, which offers a highly cost-effective way to establish a interconnect between the devices using QSFP+ ports and SFP+ ports. The QSFP+ to 4x SFP+ DAC breakout cable is designed for 40Gb/s high-speed interconnecting networking applications such as high-performance computing (HPC), enterprise networking including top-of-rack switching, and network storage markets. It fully complies with QSFP+ Multi-Source Agreement (MSA) standards SFF-8436 and SFP+ MSA SFF-8431. The QSFP+ to 4x SFP+ cables connect the 40GbE systems to 10G switches and adapter cards.

Ordering information

Part Number	Data Rate	Cable Length	Wire Gauge		
Q-4S-DAC-P05M	40Gbps	0.5 m	/	/	AWG30
Q-4S-DAC-P1M	40Gbps	1 m	/	/	AWG30
Q-4S-DAC-P2M	40Gbps	2 m	/	/	AWG30
Q-4S-DAC-P3M	40Gbps	3 m	/	/	AWG30

Q-4S-DAC-P4M	40Gbps	4 m	/	AWG26	/
Q-4S-DAC-P5M	40Gbps	5 m	/	AWG26	/
Q-4S-DAC-P6M	40Gbps	6 m	/	AWG24	/
Q-4S-DAC-P7M	40Gbps	7 m	/	AWG24	/

Notes:

1. Customized 40G QSFP+ to 4 x SFP+ breakout cooper 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	%	

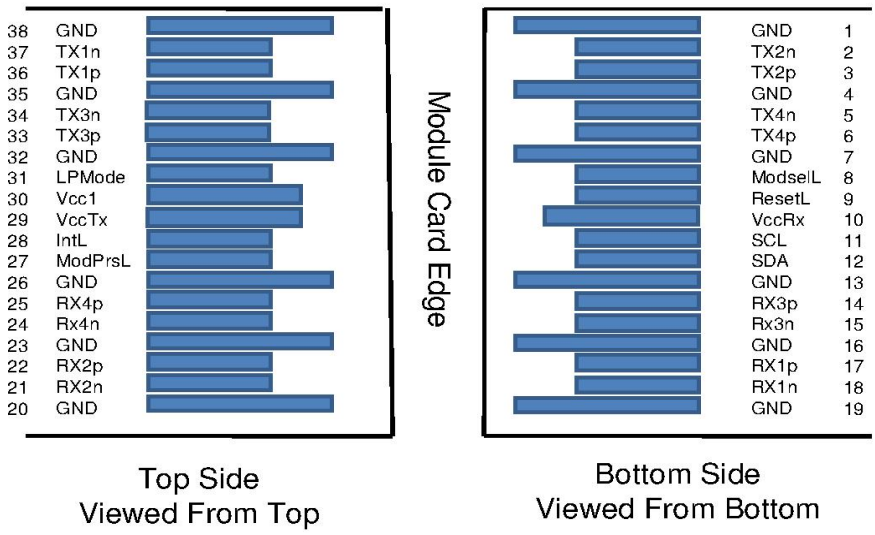
Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.13	3.3	3.47	V	
Power Dissipation	PD			0.1	W	
Case Operating Temperature	Tc	0		70	°C	
Data Rate Per Lane				10.3	Gbps	
Bit Error Rate	BER			10^{-12}		

Cable Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Cable Diameter	DIA		6.0		mm	AWG 24
			5.4		mm	AWG 26
			4.7		mm	AWG 28
			4.2		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

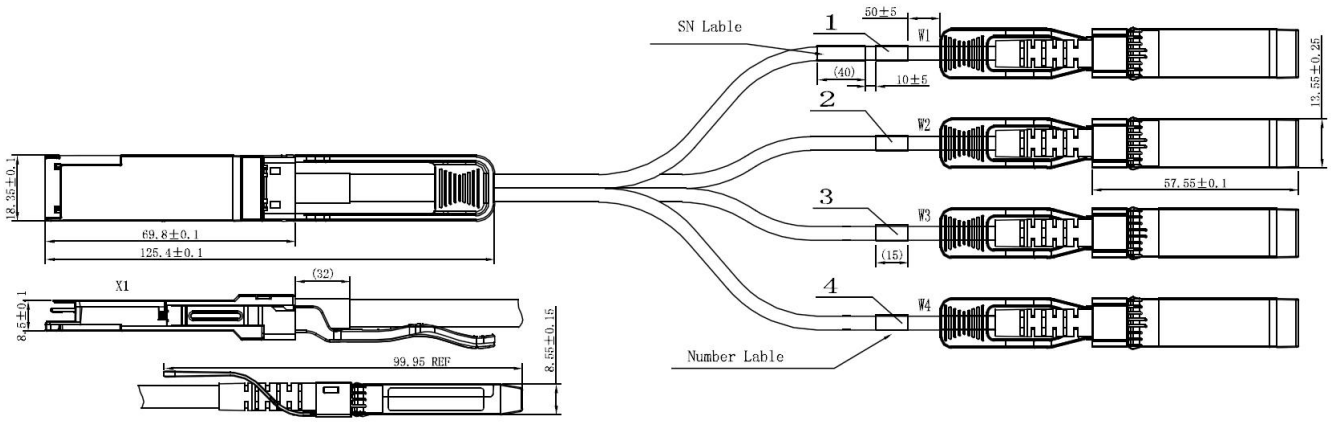
Bottom Side
Viewed From Bottom

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



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.

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