

40G QSFP+ to 4x10G SFP+ Direct Attach Passive Copper Cables

PQS40-DAMxx-4

Features

- ✓ Connector A: 1 QSFP 40Gbps Rated Connector
- ✓ Connector B: 4 SFP+ 10Gbps Rated Connector
- ✓ Support data rates 10Gbps per channel
- ✓ Maximum aggregate data rate 42Gbps
- ✓ Copper link length up to 5m
- ✓ +3.3V single power supply
- ✓ Hot pluggable
- ✓ All-metal housing for superior EMI performance
- ✓ RoHS6 compliant (lead free)
- ✓ Operating case temperature:
Commercial: 0°C to +70°C

Applications

- ✓ 40G Ethernet 40GBASE-CR4
- ✓ 10G Ethernet 10GBASE-CR1
- ✓ Switches, Routers, Servers
- ✓ Data Center Network

Standards

- ✓ Compliant with QSFP+ MSA and SFP+ MSA
- ✓ Compliant with SFF-8472 and SFF-8665
- ✓ Compatible with IEEE802.3ba 40GEBASE-CR4

Description

The PQS40-DAMxx-4 passive copper cable is a high speed, cost-effective 40GbE to 4x10GbE Ethernet connectivity solution, designed for the growing need for higher bandwidth in data centers.

The PQS40-DAMxx-4 cables are compliant with SFP+ MSA and QSFP+ MSA standard specifications and provide connectivity between system units with QSFP+ port on one side and up to four different SFP+ ports on the other. The cable connects data signals from each of the 4 copper pairs on the QSFP+ end to the single pair of each of the SFP+ ends. Each (Q) SFP port comprises an EEPROM providing product information which can be read by the host system.

The unique quality passive copper cable solutions provide power-efficient connectivity for short distance interconnects. It enables higher port bandwidth, density and configuration at a low cost and reduced power requirement in the data centers. Rigorous cable production testing ensures best out-of-the-box installation experience, performance and durability.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit
Power Supply Voltage	V _{CC}	0		3.6	V
Storage Temperature	T _s	-40		+85	°C
Relative Humidity	RH	0		85	%

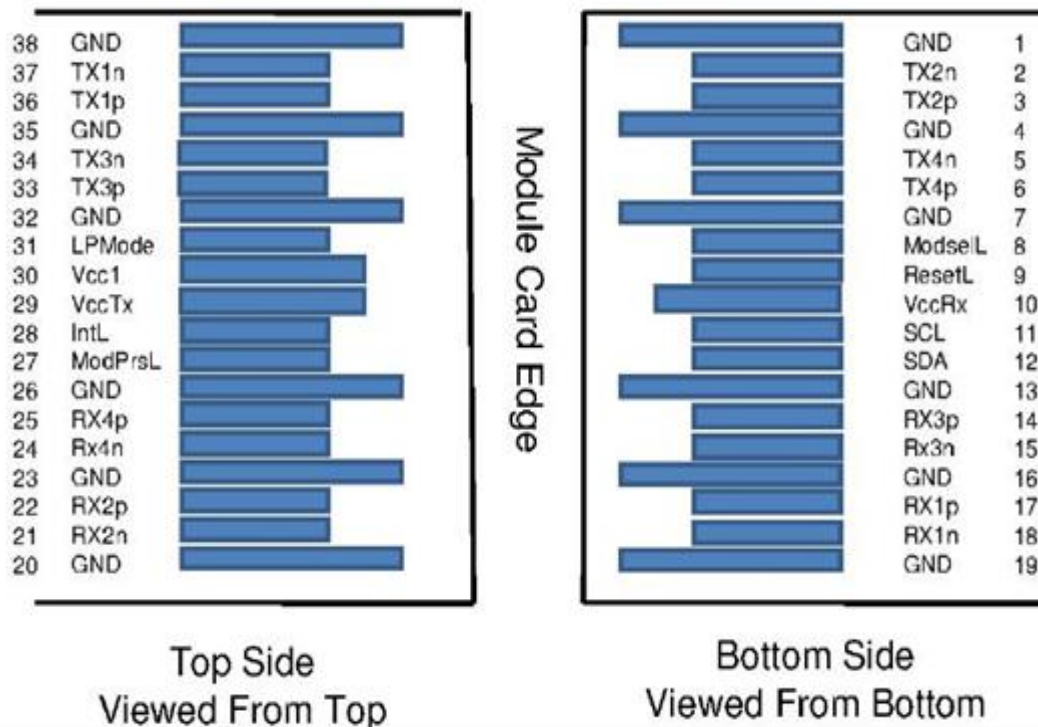
Recommended Operating Environment

Parameter	Symbol	Min.	Typical	Max.	Unit
Power Supply Voltage	V _{CC}	3.13	3.3	3.46	V
Power Dissipation	P _D			0.02	W
Operating Case Temperature	T _C	0		+70	°C
Aggregate Data Rate	-			42	Gbps
Bit Rate per Lane	BR	1		10.5	Gbps

Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Differential Impedance	R _{in}	90	100	110	Ω	

QSFP+ Pin Definitions



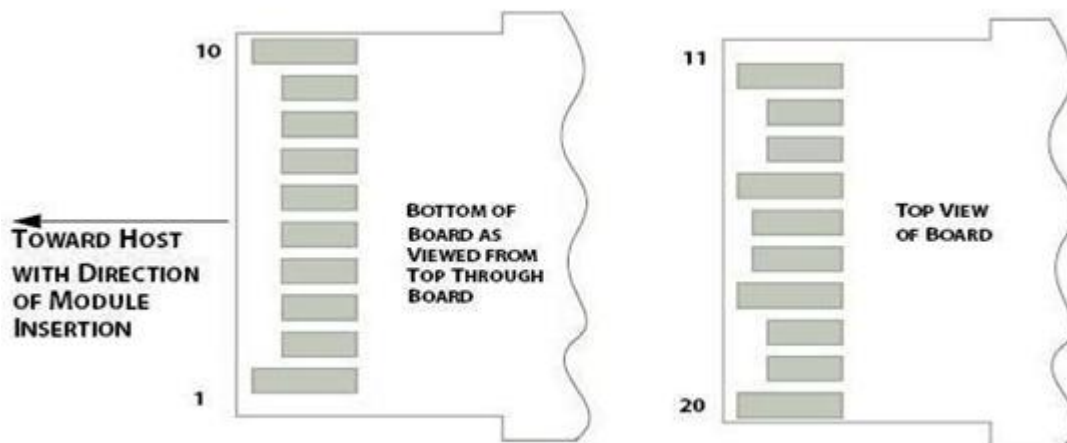
QSFP+ Pin Descriptions

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

Notes:

Plug Seq.: Pin engagement sequence during hot plugging.

1. Module ground pins GND are isolated from the module case.
2. VccRx, Vcc1 and VccTx are the receiver and transmitter power supplies and shall be applied concurrently.

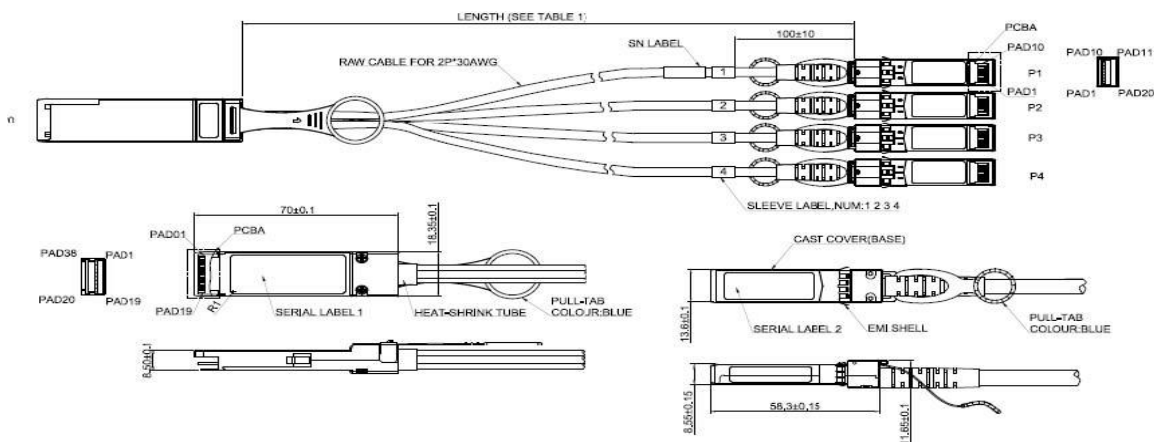
SFP+ Pin Definitions

SFP+ Pin Descriptions

Pin	Signal Name	Description	Plug Seq.	Notes
1	VeeT	Module Transmitter Ground	1	1
2	TX FAULT	Module Transmitter Fault, Not supported	3	
3	TX Disable	Transmitter Disable; Turns off transmitter laser output	3	
4	SDA	2-Wire Serial Interface Data Line	3	2
5	SCL	2-Wire Serial Interface Clock	3	2
6	Mod_ABS	Module Definition, Grounded in the module	3	
7	RS0	Receiver Rate Select(not used)	3	
8	LOS	Receiver Loss of Signal Indication Active LOW	3	
9	RS1	Transmitter Rate Select (not used)	3	
10	VeeR	Module Receiver Ground	1	1
11	VeeR	Module Receiver Ground	1	1
12	RD-	Receiver Inverted Data Output	3	
13	RD+	Receiver Data Output	3	
14	VeeR	Module Receiver Ground	1	1
15	VccR	Module Receiver 3.3 V Supply	2	
16	VccT	Module Receiver 3.3 V Supply	2	
17	VeeT	Module Transmitter Ground	1	1
18	TD+	Transmitter Non-Inverted Data Input	3	
19	TD-	Transmitter Inverted Data Input	3	
20	VeeT	Module Transmitter Ground	1	1

Notes:

- Plug Seq.: Pin engagement sequence during hot plugging.
1. Module ground pins GND are isolated from the module case.
 2. Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.45V on the host board.

Mechanical Dimensions



Ordering information

Part Number	Product Description
PQS40-DAM0.5-4	40G, QSFP+ to 4 SFP+, 0.5m, Passive, AWG 30
PQS40-DAM01-4	40G, QSFP+ to 4 SFP+, 1m, Passive, AWG 30
PQS40-DAM02-4	40G, QSFP+ to 4 SFP+, 2m, Passive, AWG 30
PQS40-DAM03-4	40G, QSFP+ to 4 SFP+, 3m, Passive, AWG 30
PQS40-DAM05-4	40G, QSFP+ to 4 SFP+, 5m, Passive, AWG 30

References

1. QSFP+ MSA and SFP+ MSA.
2. SFF-8431, SFF-8436 and SFF-8665.
3. IEEE802.3ba 40GBASE-CR4.

Important Notice

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