

40G QSFP+ Direct Attach Passive Copper Cable

Features

- Compliant with SFF- 8436
- Up to 10.3125Gbps data rate per channel
- Up to 7m transmission
- Single 3.3V power supply
- RoHS compliant
- Commercial temperature range(COM): 0 to 70°C
- Low power consumption: less than 0.1W
- High-Density QSFP 38-PIN Connector

Applications

- 40 Gigabit Ethernet
- Fiber Channel over Ethernet

Compliance

- Compliant with SFF-8636
- Compliant with IEEE 802.3ba
- RoHS Compliance

Description

QSFP+ (Quad Small Form-factor Pluggable Plus) passive cable assemblies are high performance, cost effective I/O solutions for 40G LAN, HPC and SAN applications. QSFP+ copper direct-attach cables are suitable for very short distances and offer a highly cost effective way to establish a 40-Gigabit link between QSFP+ ports of QSFP+ switches within racks and across adjacent racks.

QSFP+ passive copper cables are compliant with SFF-8436, QSFP+ MSA and IEEE 802.3ba 40GBASE-CR4. It is offer a low power consumption, short reach inter connect applications. The cable each lane is capable of transmitting data at rates up to 10Gb/s, providing an aggregated rate of 40Gb/s.

General Product Characteristics

SFP+ DAC Specifications	
Number of Lanes	Tx & Rx
Channel Data Rate	10.3125Gbps
Operating Temperature	0 to + 70°C
Storage Temperature	-40 to + 85°C
Supply Voltage	3.3 V nominal
Electrical Interface	38 pins edge connector
Management Interface	Serial, I ² C

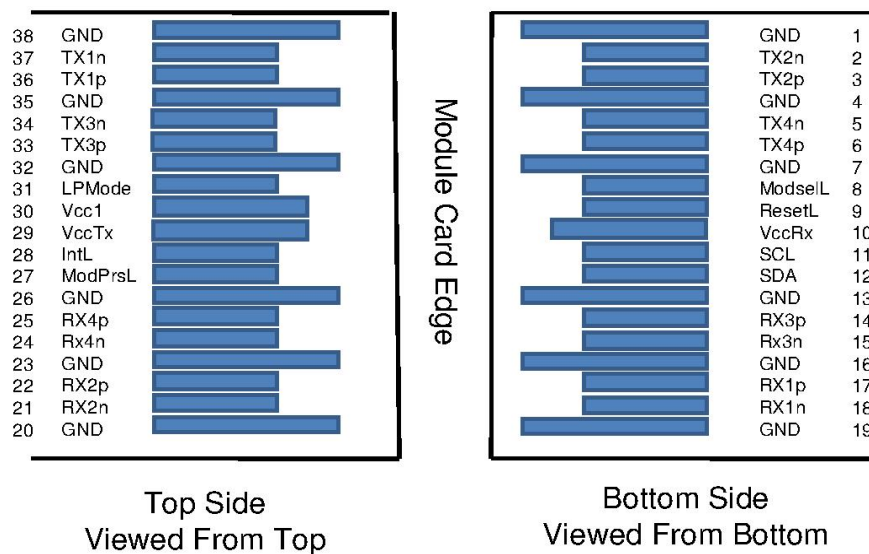
High Speed Characteristics

Table1-High Speed Characteristics						
Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Differential Impedance	Zd	90	100	110	Ω	
Differential Input Return Loss	SDDXX	$< -12 + 2 * \sqrt{f}$ with f in GHz			dB	0.01~4.1GHz
		$< -6.3 + 13 * \log_{10}(f/5.5)$ with f in GHz			dB	4.1~11.1GHz
Common Mode Output Return Loss	SCCXX	$< -7 + 1.6 * f$ with f in GHz			dB	0.01~2.5GHz
				-3		2.5~11.1GHz
Difference Waveform Distortion Penalty	dWDPc			6.75	dB	
VMA Loss	L			4.4	dB	
VMA Loss to Crosstalk Ratio	VCR	32.5			dB	

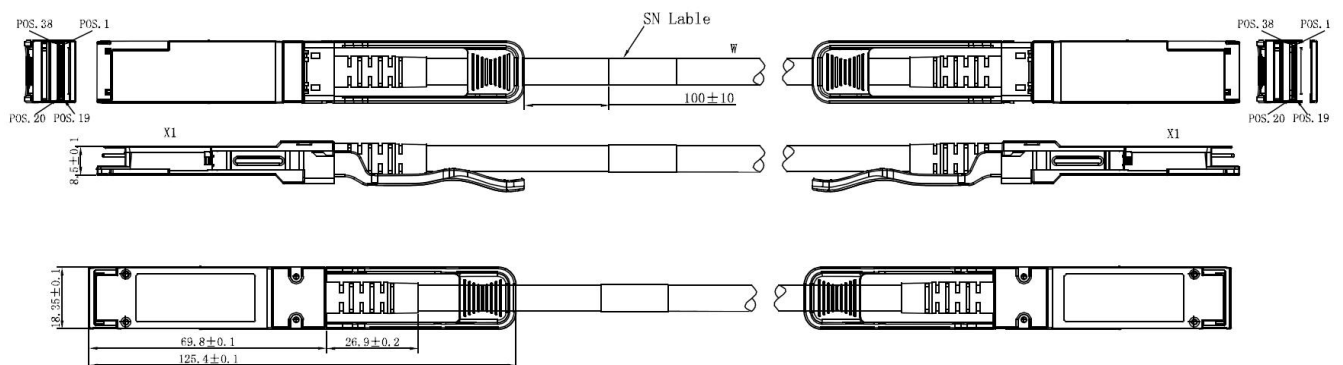
Pin Descriptions

Table2- Pin Function Definition			
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	ModSelL	Module Select
10		Vcc Rx	+3.3V Power Supply Receiver
11	LVC MOS-I/O	SCL	2-wire serial interface clock
12	LVC MOS-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	Rx1p	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 Ground
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	LVTTTL-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 Specifications



Length (m)	Cable AWG
1	30
3	30
5	26
7	26

Regulatory Compliance

Feature	Test Method	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883C Method 3015.7	Class 1(→2000 Volts)
Electromagnetic Interference(EMI)	FCC Class B	Compliant with Standards
	CENELEC EN55022 Class B	
	CISPR22 ITE Class B	
RF Immunity(RFI)	IEC61000-4-3	Typically Show no Measurable Effect from a 10V/m Field Swept from 80 to 1000MHz
RoHS Compliance	RoHS Directive 2011/65/EU and it's Amendment Directives 6/6	RoHS 6/6 compliant

Further Information:

Web www.naddod.com

Email For order requirements: sales@naddod.com
For customer service: support@naddod.com
For technical support: tech@naddod.com

For cooperation: agency@naddod.com

For other informations: info@naddod.com

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2. Nothing herein should be construed as constituting an additional warranty.

3. NADDOD assumes no responsibility for the use or reliability of equipment or software not provided by NADDOD.

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