

200G QSFP56-2QSFP56

Direct Attach Cable - PAM4

Features

- QSFP56 conforms to the Small Form Factor SFF8636
- 4-Channel QSFP56 2X breakout passive copper cable assembly
- Maximum aggregate data rate: 200Gb/s (4x 50G Per channel)
- I2C interface for EEPROM signature which can be customized and CMIS V4.0 compliant
- Backward compatible with existing QSFP+ connectors and cages
- Operating Temperature: 0~ 70 °C
- ROHS Compliant

Applications

- 40GE/100GE/200GE
- Infiniband QDR/FDR/EDR/HDR
- Storage area networks
- Switch / router / HBA
- Enterprise network
- Data Center Network

Standards Compliance

- IEEE 802.3bj & 200G Ethernet (IEEE 802.3cd)
- 100GBASE-CR4&200GBASE-CR4
- SFF-8665 QSFP+ 28G 4X Pluggable Transceiver Solution (QSFP28)
- InfiniBand HDR



General Description

The 200G QSFP56 to 2x100G QSFP56 Passive Direct Attach Copper Breakout Cable operates over passive copper, which requires no additional power to ensure connectivity. It provides a connection of a QSFP56 on one side and two QSFP56 on the other side. The high-speed cable assembly meets 200Gigabit Ethernet, InfiniBand EDR /HDR and temperature requirements for performance and reliability.

High Speed Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Note
Differential Impedance	TDR	90	100	110	Ω	
Insertion loss	SDD21	-17.16			dB	At 13.28 GHz
Differential Return Loss	SDD11			See 1	dB	At 0.05 to 4.1 GHz
	SDD22			See 2	dB	At 4.1 to 19 GHz
Common-mode to common-mode output return loss	SCC11 SCC22			-2	dB	At 0.2 to 19 GHz
Differential to common-mode return loss	SCD11 SCD22			See 3	dB	At 0.01 to 12.89 GHz
				See 4		At 12.89 to 19 GHz
Differential to common Mode Conversion Loss	SCD21-IL			-10	dB	At 0.01 to 12.89 GHz
				See 5		At 12.89 to 15.7 GHz
				-6.3		At 15.7 to 19 GHz

Notes:

1. Reflection Coefficient given by equation $SDD11(\text{dB}) < -16.5 + 2 \times \text{SQRT}(f)$, with f in GHz
2. Reflection Coefficient given by equation $SDD11(\text{dB}) < -10.66 + 14 \times \log_{10}(f/5.5)$, with f in GHz
3. Reflection Coefficient given by equation $SCD11(\text{dB}) < -22 + (20/25.78)*f$, with f in GHz
4. Reflection Coefficient given by equation $SCD11(\text{dB}) < -15 + (6/25.78)*f$, with f in GHz
5. Reflection Coefficient given by equation $SCD21(\text{dB}) < -27 + (29/22)*f$, with f in GHz

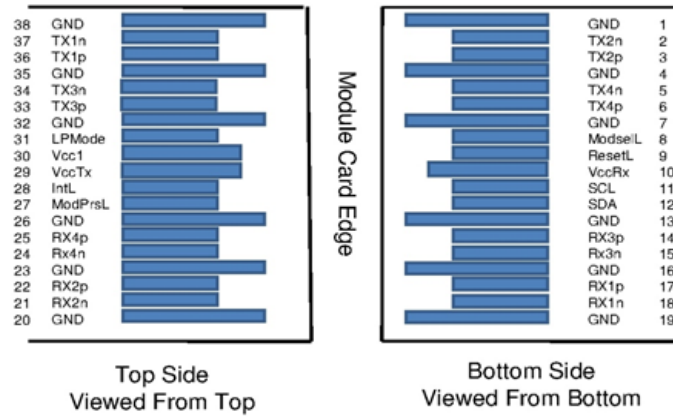
Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Storage Ambient Temperature		-40		+85	$^{\circ}\text{C}$
Operating Case Temperature	Tc	0		+70	$^{\circ}\text{C}$
Power Supply Voltage	V _{CC3}	3.14	3.3	3.47	V
Data Rate Per Lane		1		28	GBaud/s

Pin Description

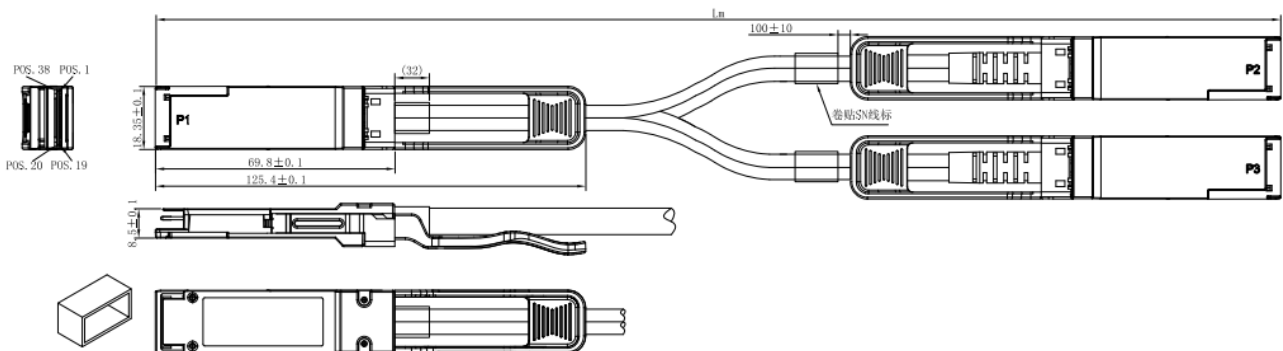
QSF56 Pin Function Definition

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	ResetL	Module Reset
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	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 Specifications

The connector is compatible with the SFF-8436 specification.



Length (m)	Cable AWG
1	30
1.5	30
2	26
2.5	26
3	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 (EU) 2015/863	RoHS (EU) 2015/863 compliant
REACH Compliance	REACH Regulation (EC) No 1907/2006	REACH (EC) No 1907/2006 compliant

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