

200G QSFP56 SR4 to 2xQSFP28 SR2 Active Optical Cable



Features

- ◆ Active optical cable with breakout from QSFP56 200G to two QSFP28 100G
- ◆ Up to 53.125Gbps data rate per channel PAM4 modulation
- ◆ Integrated 850nm VCSEL array and PD array
- ◆ DDM function implemented
- ◆ Hot-pluggable
- ◆ Low power dissipation, <4W on 200G end, <3W on 100G end
- ◆ Commercial operating case temperature range: 0°C to 70 °C
- ◆ Compliant with ROHS2.0

Applications

- ◆ Data centers and Cloud Networks
- ◆ 200G InfiniBand HDR systems

Standards

- ◆ IEEE 802.3cd
- ◆ InfiniBand 4xHDR
- ◆ SFF 8679
- ◆ CMIS4.0 or SFF8636

Rev	Date	Modified by	Description
A	Nov 5,2021	Alan	Initial Release
B	Feb 9,2022	Alan	Update drawing
C	Jul 16,2022	Alma	Update product picture

Absolute Maximum Ratings

Product	Modulation	Protocol	Nominal Rate			Specifications		
			Aggregate (Gbps)	Electrical Lanes (Gbaud)	ppm	High Speed Electrical	Pre-FEC Max BER	Link
200G end	PAM4	IEEE802.3cd	212.5	26.5625	±100	200GAUI-4	1E-6 for InfiniBand HDR; 2.4E-4 for 200GBAS E-SR4	0.5 ~ 100m
Per 100G end	PAM4	IEEE802.3cd	106.25	26.5625	±100	200GAUI-4		

Parameter	Symbol	Unit	Min	Max
Case Operating Temperature	Top	°C	0	70

Storage Temperature Range	Ts	°C	-40	85
Relative Humidity	RH	%	0	85
Power Supply Voltage	Vcc	V	-0.5	3.6

Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Operating Case Temperature Range	Tca	oC	0	/	70
Power Supply Voltage	Vcc	V	3.135	3.3	3.465

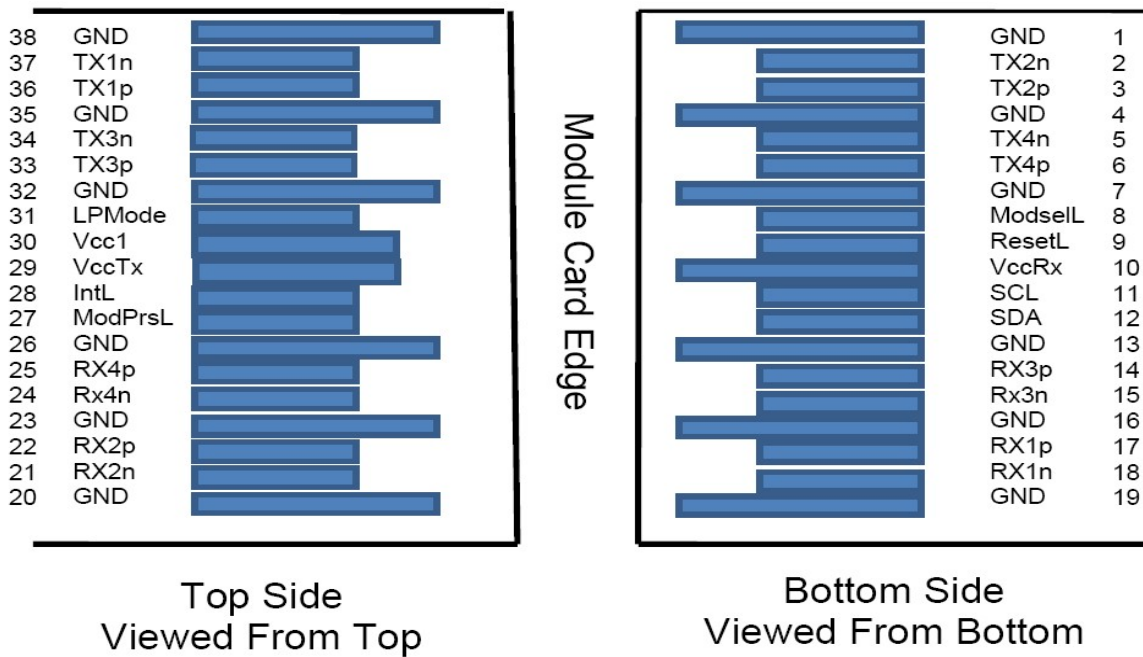
Electric Ports Definition

Parameter	Symbol	Unit	Min	Typ	Max	Notes
Supply Voltage	VCC	V	3.135	3.3	3.465	
Power Consumption	Pc	W			4	200G end
					3	100G end
Transmitter						
Input Differential Impedance	RIN	Ω	80	100	120	
Single Ended Data Input Swing	VIN	mVp-p	90		500	

Transmit Disable Voltage	VDIS	V	2		VCCHOST	
Transmit Enable Voltage	VEN	V	VEE		VEE+0.8	
Transmit Fault Assert Voltage	VFA	V	2		VCCHOST	
Transmit Fault De-Assert Voltage	VFDA	V	VEE		VEE+0.8	
Receiver						
Single Ended Data Output Swing	VOD	mVp-p	200		500	
LOS Fault	VLOSFT	V	2		VCCHOST	
LOS Normal	VLOSNR	V	VEE		VEE+0.8	
Differential termination mismatch		%			10	
IIC communication						
IIC Clock frequency	-	KHZ	/	100	400	
clock stretching	-	us	/	/	500	

Pin Description

The electrical interface to the transceiver is a 38 pins edge connector. The 38 pins provide high speed data, low speed monitoring and control signals, I2C communication, power and ground connectivity. The top and bottom views of the connector are provided below, as well as a table outlining the contact numbering, symbol and full description.



Pin	Symbol	Name/Description
1	GND	Ground
2	Tx2n	Channel 2 Transmitter Inverted Data Input
3	Tx2p	Channel 2 Transmitter Non-Inverted Data Input
4	GND	Ground
5	Tx4n	Channel 4 Transmitter Inverted Data Input
6	Tx4p	Channel 4 Transmitter Non-Inverted Data Input
7	GND	Ground
8	ModSelL	Module Select
9	ResetL	Module Reset
10	Vcc Rx	+3.3 V Power supply receiver
11	SCL	2-wire serial interface clock
12	SDA	2-wire serial interface data
13	GND	Ground
14	Rx3p	Channel 3 Receiver Non-Inverted Data Output
15	Rx3n	Channel 3 Receiver Inverted Data Output
16	GND	Ground
17	Rx1p	Channel 1 Receiver Non-Inverted Data Output
18	Rx1n	Channel 1 Receiver Inverted Data Output
19	GND	Ground
20	GND	Ground

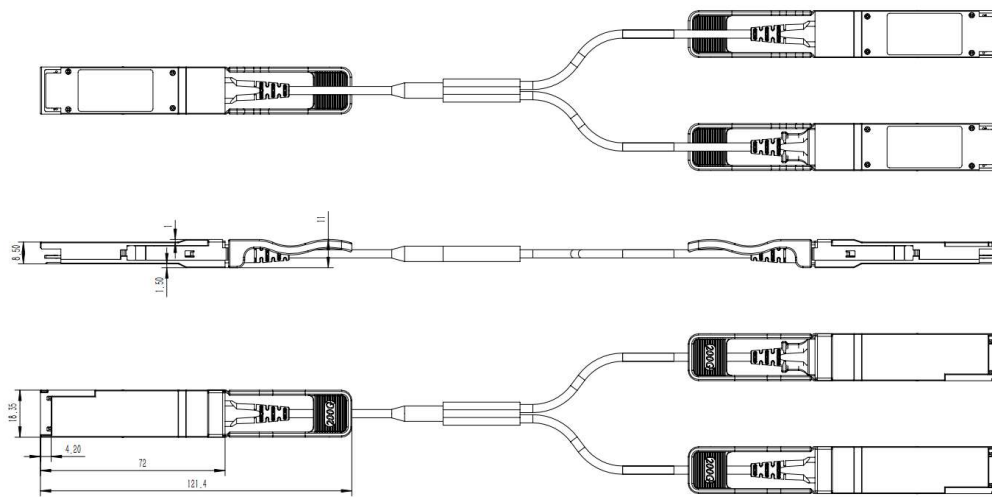
21	Rx2n	Channel 2 Receiver Inverted Data Output
22	Rx2p	Channel 2 Receiver Non-Inverted Data Output
23	GND	Ground
24	Rx4n	Channel 4 Receiver Inverted Data Output
25	Rx4p	Channel 4 Receiver Non-Inverted Data Output
26	GND	Ground
27	ModPrsL	Module Present
28	IntL	Interrupt
29	Vcc Tx	+3.3 V Power supply transmitter
30	Vcc1	+3.3 V Power Supply
31	LPMode	Low Power Mode
32	GND	Ground
33	Tx3p	Channel 3 Transmitter Non-Inverted Data Input
34	Tx3n	Channel 3 Transmitter Inverted Data Input
35	GND	Ground
36	Tx1p	Channel 1 Transmitter Non-Inverted Data Input
37	Tx1n	Channel 1 Transmitter Inverted Data Input
38	GND	Ground

Module Memory Map

Compatible with CMIS rev 4.0/ SFF8636

Package Outline

The mechanical specifications are based on QSFP56 transceiver module specification, substituting the optical connectors with a cable connecting three ends.



Cable Breakout point

Total Length (m)	Breakout * 2*100G (m)
1	0.5
2	0.5
3	1
5	2
7	3
X (X≥10)	3

Ordering information

Part Number	Description
Q56-2Q28-200G-1M	200G QSFP56 SR4 to 2xQSFP28 SR2 AOC 1M
Q56-2Q28-200G-3M	200G QSFP56 SR4 to 2xQSFP28 SR2 AOC 3M
Q56-2Q28-200G-5M	200G QSFP56 SR4 to 2xQSFP28 SR2 AOC 5M
Q56-2Q28-200G-7M	200G QSFP56 SR4 to 2xQSFP28 SR2 AOC 7M
Q56-2Q28-200G-10M	200G QSFP56 SR4 to 2xQSFP28 SR2 AOC 10M
Q56-2Q28-200G-15M	200G QSFP56 SR4 to 2xQSFP28 SR2 AOC 15M
Q56-2Q28-200G-20M	200G QSFP56 SR4 to 2xQSFP28 SR2 AOC 20M
Q56-2Q28-200G-30M	200G QSFP56 SR4 to 2xQSFP28 SR2 AOC 30M
Q56-2Q28-200G-40M	200G QSFP56 SR4 to 2xQSFP28 SR2 AOC 40M
Q56-2Q28-200G-50M	200G QSFP56 SR4 to 2xQSFP28 SR2 AOC 50M
Q56-2Q28-200G-xxM	200G QSFP56 SR4 to 2xQSFP28 SR2 AOC xxM