

## 200G QSFP56 to 2x100G QSFP56 Passive Copper Breakout Direct Attach Cable

### Features

- Supporting 200Gbps to 2x100Gbps
- Compatible with IEEE 802.3bj and IEEE 802.3cd
- In accordance with the paging function in the protocol SFF-8636, paging can be selected 00H or 02H in 127 bytes
- Supports aggregate data rates of 200Gbps(PAM4)
- Optimized construction to minimize insertion loss and cross talk
- Backward compatible with existing QSFP+ connectors and cages
- Pull-to-release slide latch design
- 26AWG through 30AWG cable
- Straight and break out assembly configurations available
- Customized cable braid termination limits EMI radiation
- Customizable EEPROM mapping for cable signature
- 0 to 70°C case temperature operating range
- RoHS Compliant

### Applications

- Switches,servers and routers
- Data Center networks
- Storage area networks
- High performance computing
- Telecommunication and wireless infrastructure
- Medical diagnostics and networking
- Test and measurement equipment

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### Compliance

- 200G Ethernet(IEEE 802.3cd)

## Description

The Q2Q56-200G-DAC Passive cable assembly feature eight differential copper pairs,providing four data transmission channels at speeds up to 56Gbps(PAM4) per channel,and meets 200G Ethernet requirements.Available in a broad rang of wire gages from 26AWG through 30AWG-this 200G copper cable assembly features low insertion loss and low cross talk.

QSFP56 uses PAM4 signals for transmission, which doubles the rate. However, there are more stringent requirements for cable insertion loss. For detailed requirements, please see High Speed Characteristics.

Designed for applications in the data center,networking and telecommunications markets that require a high speed,reliable cable assembly,this next generation product shares the same mating interface with QSFP+ form factor ,making it backward compatible with existing QSFP ports.

## Absolute Maximum Ratings

**Table1- Absolute Maximum Ratings**

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Storage Temperature	TSTG	-40	-	+85	°C	
Operating Temperature	Top	0		70	°C	
3.3V Supply Voltage	VCC	-0.5	-	+3.6	V	
Relative Humidity	RH	0		85	%	
Power Dissipation	PD			0.1	W	

## High Speed Characteristics

**Table2-High Speed Characteristics**

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Differential Impedance	TDR	90	100	110	Ω	
Insertion loss	SDD21	-16.06			dB	At 13.28 GHz
Differential Return Loss	SDD11			See 1	dB	At 4.1 to 19 GHz
	SDD22			See 2	dB	At 4.1 to 19 GHz
Common-mode to common-mode output return loss	SCC11			-2	dB	At 0.2 to 19 GHz
	SCC22					
Differential to common-mode return loss	SCD11			See 3	dB	At 0.01 to 12.89 GHz
	SCD22			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:

Reflection Coefficient given by equation  $SDD11(dB) < -16.5 + 2 \times \sqrt{f}$ , with f in GHz

Reflection Coefficient given by equation  $SDD11(dB) < -10.66 + 14 \times \log_{10}(f/5.5)$ , with f in GHz

Reflection Coefficient given by equation  $SCD11(dB) < -22 + (20/25.78)*f$ , with f in GHz

Reflection Coefficient given by equation  $SCD11(dB) < -15 + (6/25.78)*f$ , with f in GHz

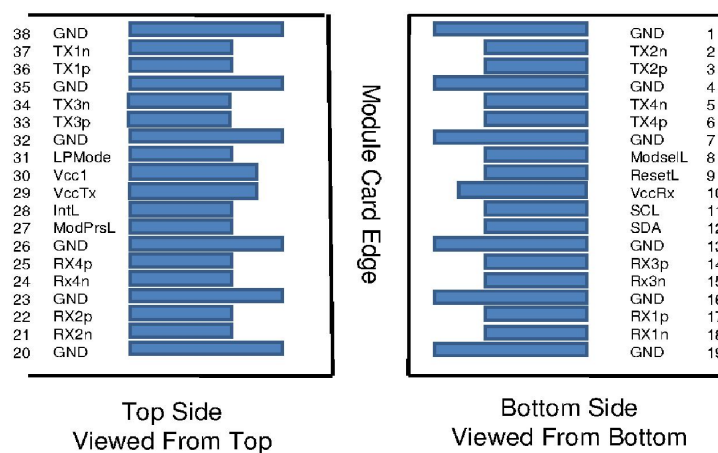
Reflection Coefficient given by equation  $SCD21(dB) < -27 + (29/22)*f$ , with f in GHz

## Pin Descriptions

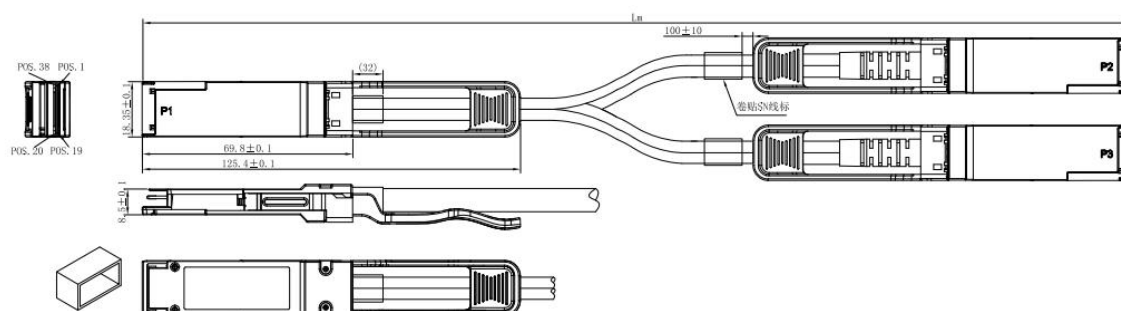
**Table3-QSFP56 Pin Function Definition**

Pin	Symbol	Description	Ref.
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	1
13	GND	Ground	
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	1
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	1
19	GND	Ground	1
20	GND	Ground	
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	1
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	1
27	ModPrsL	Module Present	
28	IntL	Interrupt	

29	Vcc Tx	+3.3V Power supply transmitter	
30	Vcc1	+3.3V Power supply	
31	LPMODE	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	1



## Mechanical Specifications



Length (m)	Cable AWG
1	30
2	26/30
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