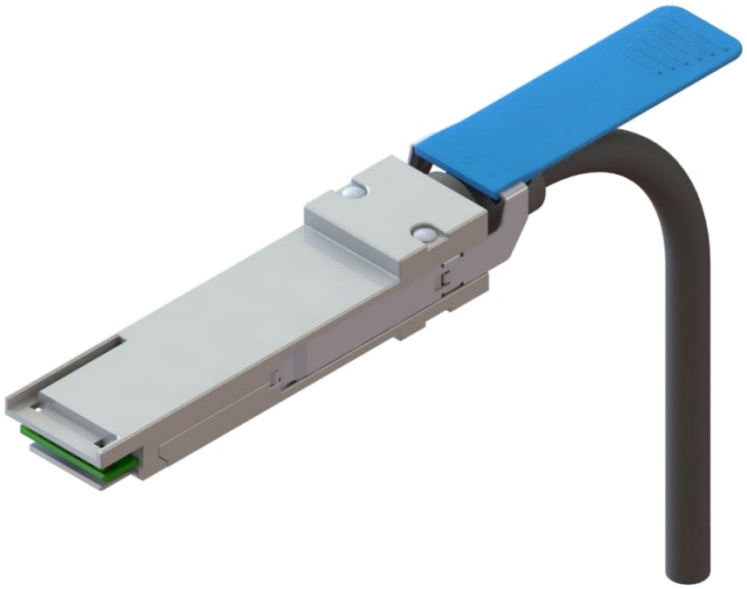
QSFP28 Breakout to 2xQSFP28 Direct Attached Cable



Features

- QSFP Module compliant to SFF-8661
- Transmission data rate up to 25.78Gbps per channel
- Enable 100Gb/s Transmission
- Maximum link length up to 5m
- Built-in EEPROM functions
- Operating case temperature -0°C ~ +70°C
- RoHS2.0 compliant

Absolute Maximum Ratings

Parameter	Symbol	Min	Typical	Max	Unit
Supply Voltage	Vcc	3.13	3.3	3.47	V
Storage temperature	Ts	-40		85	ºC
Operating Case temperature	Tc	0		70	ºC
Humidity	Rh	5		85	%

Data Rate			100		Gbps

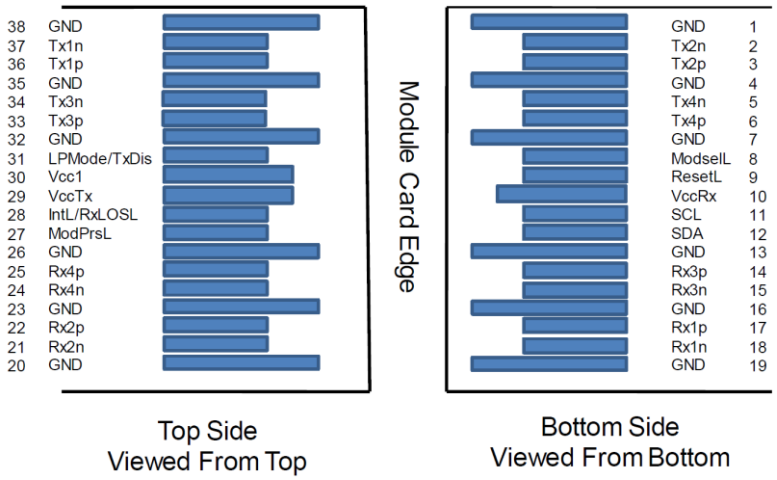
Physical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit
Length	L	0.5		5.0	M
AWG		30		26	AWG
Jacket material		PVC, Black (or Customization)			

Electrical Specifications

Parameter	Symbol	Min	Typical	Max	Unit
Resistance	Rcon			3	ohm
Insulation Resistance	Rins			10	Mohm
Raw cable impedance	Zca	95	100	110	ohm
Mated connector Impedance	Zmated	85	100	110	ohm
Insertion loss at 12.89 GHz	SDD21	8		22.48	dB
Return loss	SDD11/22	$\text{Return\_loss}(f) \geq \begin{cases} 16.5-2\sqrt{f} & 0.05 \leq f < 4.1 \\ 10.66-14\log_{10}(f/5.5) & 4.1 \leq f \leq 19 \end{cases}$ For 0.05 ≤f ≤19 GHz, Where f is the frequency in GHz			dB
Differential to common-mode return loss	SCD11/22	$\text{Return\_loss}(f) \geq \begin{cases} 22-(20/25.78)f & 0.01 \leq f < 12.89 \\ 15-(6/25.78)f & 12.89 \leq f \leq 19 \end{cases}$ For 0.01 ≤f ≤19 GHz, Where f is the frequency in GHz			dB
Differential to common-mode conversion loss	SCD21-SDD21	$\text{Conversion\_loss}(f) - \text{IL}(f) \geq \begin{cases} 10 & 0.01 \leq f < 12.89 \\ 27-(29/22)f & 0.01 \leq f < 15.7 \\ 6.3 & 15.7 \leq f \leq 19 \end{cases}$ For 0.01 ≤f ≤19 GHz, Where f is the frequency in GHz			dB
Minimum COM	COM	3			dB

Pin Description



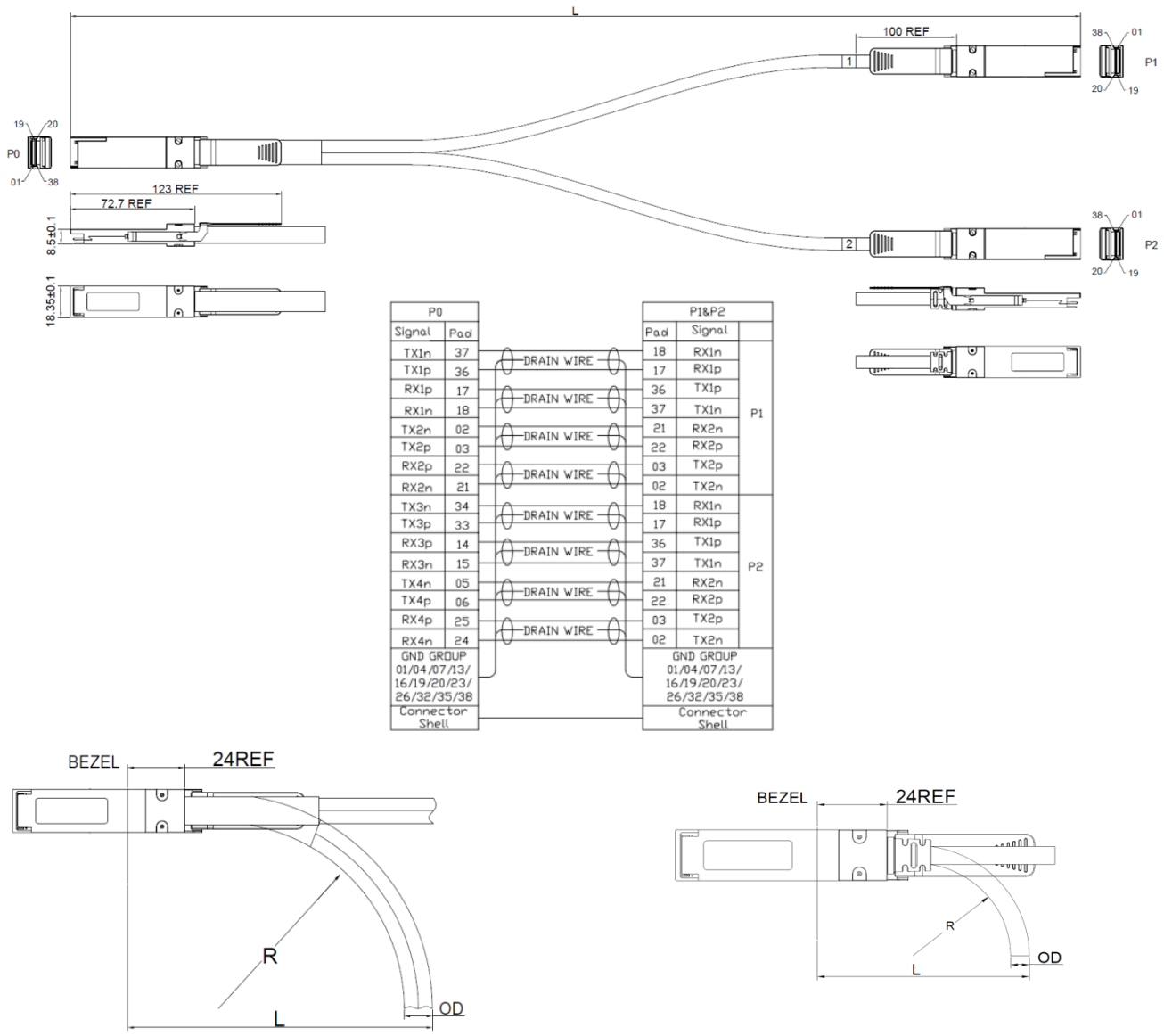
Electrical Pin-out Details for QSFP

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

Note 1: GND is the symbol for signal and supply (power) common for the QSFP+ module. All are common within the QSFP+ module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.

Note 2: Vcc Rx, Vcc1 and Vcc Tx are the receiver and transmitter power supplies and shall be applied concurrently. Requirements defined for the host side of the Host Edge Card Connector are listed in Table 6. Recommended host board power supply filtering is shown in Figures 3 and 4. Vcc Rx Vcc1 and Vcc Tx may be internally connected within the QSFP+ Module in any combination. The connector pins are each rated for a maximum current of 500 mA.

Mechanical Dimensions



P0				P1&P2			
GAUGE	OD	BEND RADIUS "R"	MIN. BEND RADIUS "L"	GAUGE	OD	BEND RADIUS "R"	MIN. BEND RADIUS "L"
30AWG	12MM	60MM	96MM	30AWG	6MM	30MM	60MM
27AWG	14.4MM	72MM	110MM	27AWG	7.2MM	36MM	67MM
26AWG	15MM	75MM	114MM	26AWG	7.5MM	38MM	70MM

Ordering Information

Model Number	Part Number	Description
P-25-Q-2Q-005	1060100002201	100G QSFP28 to 2xQSFP28 DAC,30AWG,PVC,BLACK,0.5m.
P-25-Q-2Q-010	1060100002202	100G QSFP28 to 2xQSFP28 DAC,30AWG,PVC,BLACK,1.0m.
P-25-Q-2Q-015	1060100002203	100G QSFP28 to 2xQSFP28 DAC,30AWG,PVC,BLACK,1.5m.
P-25-Q-2Q-020	1060100002204	100G QSFP28 to 2xQSFP28 DAC,30AWG,PVC,BLACK,2.0m.
P-25-Q-2Q-025	1060100002205	100G QSFP28 to 2xQSFP28 DAC,30AWG,PVC,BLACK,2.5m.
P-25-Q-2Q-030	1060100002206	100G QSFP28 to 2xQSFP28 DAC,30AWG,PVC,BLACK,3.0m.
P-25-Q-2Q-035	1060100002207	100G QSFP28 to 2xQSFP28 DAC,28/27AWG,PVC,BLACK,3.5m.
P-25-Q-2Q-040	1060100002208	100G QSFP28 to 2xQSFP28 DAC,28/27AWG,PVC,BLACK,4.0m.
P-25-Q-2Q-045	1060100002209	100G QSFP28 to 2xQSFP28 DAC,27/26AWG,PVC,BLACK,4.5m.
P-25-Q-2Q-050	1060100002210	100G QSFP28 to 2xQSFP28 DAC,26AWG,PVC,BLACK,5.0m.

References

1. IEEE802.3bj
2. QSFP MSA
3. SFF-8636

Revision Records

REV.	Description	Designed	Checked	Approved	Issue Date
X1	NEW	FANGQIAN DENG	XICHUN TAN	RANY LEI	2024.05.29