

400G QSFP56-DD Passive Direct Attach Cable

PN: V4C-DIDyyyC-EA

Product Overview

Vitex V4C-DIDyyyC-EA is a high performance parallel 400 Gbps 8-lane Small Form-factor Pluggable (QSFP56-DD) Direct Attach Cable. The QSFP56-DD full-duplex DAC is a solution that brings increased port density and cost savings to systems. It features 8 independent transmit and receive channels, each capable of operating at 50 Gbps, resulting in an impressive aggregate data rate of 400 Gbps. With a reach of up to 3 meters, this module operates efficiently using a single +3.3V power supply. Designed according to the QSFP56-DD Multi-Source Agreement (MSA), it ensures compatibility and easy integration. The DAC is not affected by bending, maintaining optimal signal integrity. Additionally, the braided PET woven cable used in this product offers superior protection against corrosion, abrasion, heat, moisture, chemicals, and electromechanical waves, making it ideal for industrial applications. Its durability and dependability make it suitable for heavy-duty environments, such as those requiring fire resistance or specific industrial needs.

Features

- 8-lane passive transceiver that supports Data Rate 425Gb/s
- 8x, 53.126Gb/s Tx + 8x, 53.125Gb/s Rx parallel channels
- Up to 3-meter reach
- Hot Pluggable QSFP-DD form factor, QSFP-DD MSA compliant
- I2C management per CMIS 4.0
- Commercial operating case temperature 0°C to +70°C
- RoHS compliant
- Black PET woven net

Applications

- IEEE 802.3cd 400G BASE Ethernet
- Data centers (Servers, Switches, Storages)



Ordering Information

Part Number	Description
V4C-DIDyyyC-EA	400G QSFP-DD Passive Direct Attach Cable, 'yyym' is the length in meters. For fractional length up to 5m, please use "P" designation. Example 0.5 meters V4C-DID0P5C-EA
V4C-DID001C-EA	400G QSFP-DD passive Direct Attach Cable, 1m 30 AWG, C-temp

General Specifications

Parameter	Symbol	Min	Typical	Max	Unit
Power Supply	V _{CC}	3.13	3.3	3.47	V
Relative Humidity	RH	5		85	%
Operating Case Temperature Range	T _C	0		70	°C
Storage Temperature Range	T _S	-40		85	°C
Bit Error Ratio	BER			2.4E-4	
Cable Length	L	0.5		3	m
AWG		30		26	AWG

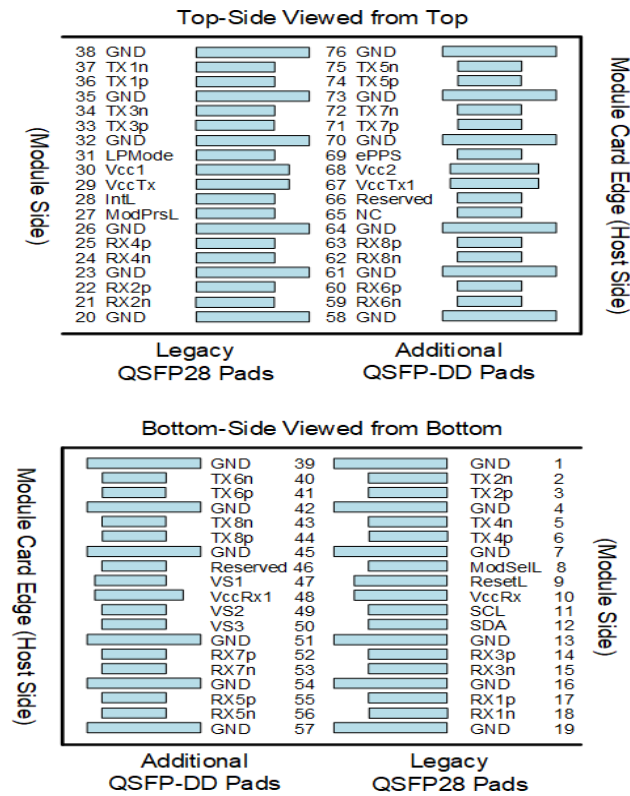
1. Pre-FEC
2. 30 AWG up to 3m; 26 AWG > 3m

Electrical – General

Parameter	Symbol	Min	Typical	Max	Unit
Resistance	R _{con}			3	Ω
Insulated Resistance	R _{ins}			10	MΩ
Raw Cable Impedance	Z _{ca}	95		110	Ω
Mated Connector Impedance	Z _{mated}	85		110	Ω
Maximum Insertion Loss at 13.28GHz	SDD21			17.16	dB

Note: Other SI Performance compliant to IEEE802.3cdSDD21

Electrical Connector Layout



Electrical Pin Definition for QSFP-DD

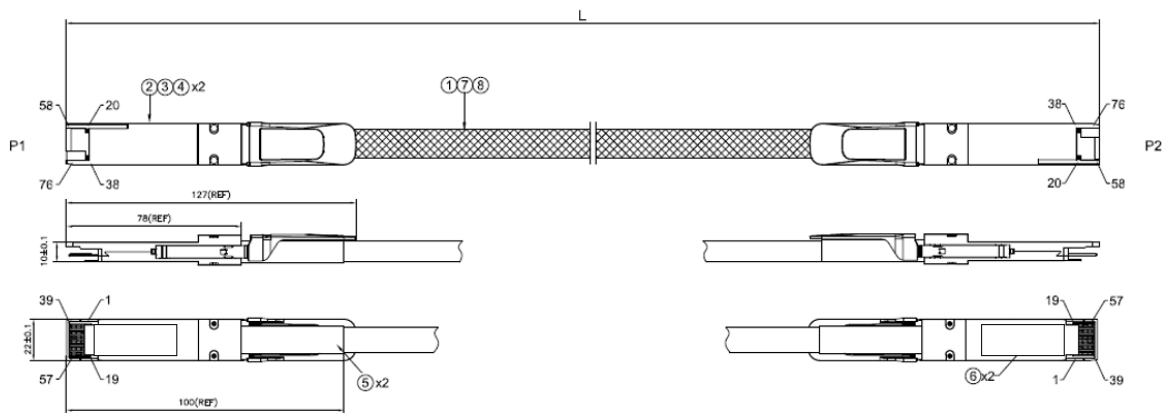
PIN #	Symbol	Description	Notes
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	VccRx	3.3V Power Supply Receiver	2
11	SCL	2-wire Serial Interface Clock	
12	SDA	2-wire Serial Interface Data	
13	GND	Ground	1
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	
19	GND	Ground	1
20	GND	Ground	1
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	VccTx	3.3V Power Supply Transmitter	2
30	VccI	3.3V Power Supply	2
31	InitMode	Initialization Mode; In legacy QSFP applications, LPMode	
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
39	GND	Ground	1
40	Tx6n	Transmitter Inverted Data Input	
41	Tx6p	Transmitter Non-Inverted Data Input	
42	GND	Ground	1
43	Tx8n	Transmitter Inverted Data Input	
44	Tx8p	Transmitter Non-Inverted Data Input	
45	GND	Ground	1
46	Reserved	For Future Use	3
47	VS1	Module Vendor Specific 1	3
48	VccRxI	3.3V Power Supply Receiver	2
49	VS2	Module Vendor Specific 2	3
50	VS3	Module Vendor Specific 3	3
51	GND	Ground	1
52	Rx7p	Receiver Non-Inverted Data Output	
53	Rx7n	Receiver Inverted Data Output	
54	GND	Ground	1
55	Rx5p	Receiver Non-Inverted Data Output	
56	Rx5n	Receiver Inverted Data Output	
57	GND	Ground	1
58	GND	Ground	1
59	Rx6n	Receiver Inverted Data Output	
60	Rx6p	Receiver Non-Inverted Data Output	
61	GND	Ground	1
62	Rx8n	Receiver Inverted Data Output	

63	Rx8p	Receiver Non-Inverted Data Output	
64	GND	Ground	1
65	NC	No Connect	3
66	Reserved	For Future Use	3
67	VccTx1	3.3V Power Supply Transmitter	2
68	Vcc2	3.3V Power Supply	2
69	Reserved	For future use	3
70	GND	Ground	1
71	Tx7p	Transmitter Non-Inverted Data Input	
72	Tx7n	Transmitter Inverted Data Input	
73	GND	Ground	1
74	Tx5p	Transmitter Non-Inverted Data Input	
75	Tx5n	Transmitter Inverted Data Input	
76	GND	Ground	1

1. QSFP-DD uses common ground (GND) for all signals and supply (power). All are common within the QSFP-DD module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.
2. VccRx, VccRx1, Vcc1, Vcc2, VccTx and VccTx1 shall be applied concurrently. Requirements defined for the host side of the Host Card Edge Connector are listed in Table 7. VccRx, VccRx1, Vcc1, Vcc2, VccTx and VccTx1 may be internally connected within the module in any combination. The connector Vcc pins are each rated for a maximum current of 1000mA.
3. All Vendor Specific, Reserved and No Connect pins may be terminated with 50 ohms to ground on the host. Pad 65 (No Connect) shall be left unconnected within the module. Vendor specific and Reserved pads shall have an impedance to GND that is greater than 10k ohms and less than 100pF.

Mechanical Dimensions



8	BRAID SHIELD	COPPER, BRAID	A/R
7	PLASTIC BRAIDED MESH	PET, BLACK	A/R
6	BACK SHELL LABEL	BACK SHELL LABEL, 29,5*10mm	2
5	HEAT SHINK	BLACK	A/R
4	SR	TPU BLACK	2
3	QSFP DD CONN ASSEMBLY	Zn ALLOY, PLATED NI OVER Cu +STAINLESS STEEL LATCH+PULLTAB+SPRING+RIVET	2
2	PCBA	QSFP-DD DAC PCB, 76P, Au 30u"Min	2
1	SAS CABLE	SAS CABLE, 56G, ROHS2,0	A/R
ITEM	NAME	DESCRIPTION	Q'TY

Revision History

Date	Rev	Description
10/1/2021	1.0	Initial Release
07/05/2023	1.1	Updated Format

For more information

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