

Hybrid Passive Copper 100G QSFP28 to 4x 25GE SFP28 Fanout

Features

- Support hot-pluggable
- Supporting 100Gbps to 4x25Gbps
- Maximum aggregate data rate: 100 Gb/s (4 x 25Gb/s)
- Compliant with IEEE 802.3bj
- Compatible to SFP MSA and QSFP28 MSA.
- Compatible to EIA-364, UL 94, EIA-364-1000.01
- Compatible to IBTA EDR
- Compatible to SFF-8402, SFF-8432, SFF8665 and SFF-8636
- Operating Case Temperature: 0°C~70°C
- Power Supply: +3.3V
- RoHS compliant



Applications

- 100/25 Gigabit Ethernet
- Switches, Routers, and HBAs
- Data Centers

General Description

100G QSFP28 to 4x 25G SFP28 Passive cable assemblies are high performance, cost effective for QSFP28 and SFP28 equipment interconnects. The Hybrid cables are compliant with SFF-8402 and SFF-8665 specifications. Each lane is capable of transmitting data at rates up to 25Gb/s, providing an aggregated rate of 100Gb/s.

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Storage Ambient Temperature		-40		+85	°C
Operating Case Temperature	Tc	0		+70	°C
Power Supply Voltage	VCC3	3.14	3.3	3.47	V

High Speed Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Note
Differential Impedance	TDR	90	100	110	Ω	
Insertion loss	SDD21	-22.4			dB	At 12.8906 GHz
Differential Return Loss	SDD11			See	dB	At 0.05 to 4.1 GHz

	SDD22			1		
				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	dB	At 0.01 to 12.89 GHz
				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		At 12.89 to 15.7 GHz
				-6.3		At 15.7 to 19 GHz
Notes: Reflection Coefficient given by equation $SDD11(dB) < -16.5 + 2 \times \text{SQRT}(f)$, 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

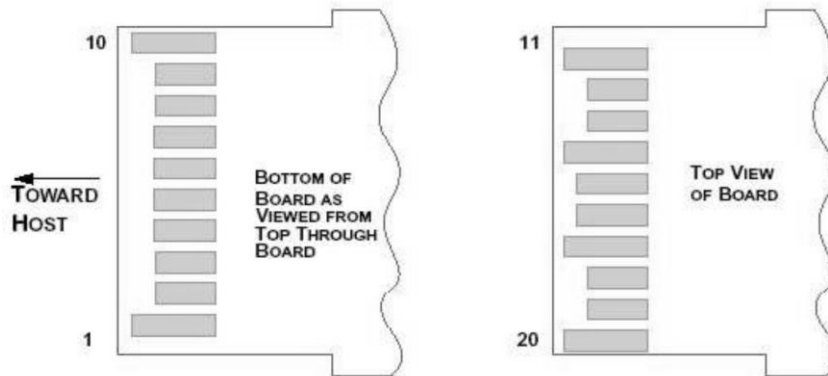
SFP28 Pin Function Definition

Pin	Logic	Symbol	Name/Description	Notes
1		VeeT	Transmitter Ground	
2	LV-TTL-O	TX_Fault	N/A	1
3	LV-TTL-I	TX_DIS	Transmitter Disable	2
4	LV-TTL-I/O	SDA	Tow Wire Serial Data	
5	LV-TTL-I	SCL	Tow Wire Serial Clock	
6		MOD_DEF0	Module present, connect to VeeT	
7	LV-TTL-I	RS0	N/A	1
8	LV-TTL-O	LOS	LOS of Signal	2
9	LV-TTL-I	RS1	N/A	1
10		VeeR	Reciever Ground	
11		VeeR	Reciever Ground	
12	CML-O	RD-	Reciever Data Inverted	
13	CML-O	RD+	Reciever Data Non-Inverted	
14		VeeR	Reciever Ground	
15		VccR	Reciever Supply 3.3V	
16		VccT	Transmitter Supply 3.3V	

17		VeeT	Transmitter Ground	
18	CML-I	TD+	Transmitter Data Non-Inverted	
19	CML_I	TD-	Transmitter Data Inverted	
20		VeeT	Transmitter Ground	

1. Signals not supported in SFP+ Copper pulled-down to VeeT with 30K ohms resistor

2. Passive cable assemblies do not support LOS and TX_DIS



QSFP28 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	LVCNOS-	SCL	2-wire serial interface clock
	I/O		
12	LVCNOS-	SDA	2-wire serial interface data
	I/O		
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

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

Ordering Information

Part No.	Bit Rate (Gbps)	Length	Connectors	Temp
QSFP-4SFP25-XXC	25.781/ch	XX = 01 to 05 meters	1x QSFP28 & 4x SFP28	0°C ~+70°C

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