QSFP28-4x25G-PDAC-xM

100GBase QSFP28 to 4x SFP28
Passive Copper Cable
Up to 5m Reach

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Features

- Supports 100Gb/s Data Rate
- Up to 5m reach
- Passive copper cable
- Pull-to-release slide latch design
- 26AWG & 30AWG cable available
- Customized cable braid termination limits EMI radiation
- Single +3.3V power supply
- Lowest total system power solution
- 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

Part number	Product description
QSFP28-4x25G-PDAC-xM	xm 100GBase QSFP28 to 4xSFP28 Passive DAC x = value for meters (e.g. 5M = 5 meters length)

PIN Description (SFP28 side)

PIN	Symbol	Name - Description	Notes
1	VEET	Transmitter Ground (Common with Receiver Ground)	
2	TFAULT	Transmitter Fault. Not supported.	1
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	2
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	1
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	1
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	1
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	3
9	VEER	Receiver Ground (Common with Transmitter Ground)	
10	VEER	Receiver Ground (Common with Transmitter Ground)	
11	VEER	Receiver Ground (Common with Transmitter Ground)	
12	RD-	Receiver Inverted DATA out. AC Coupled	4
13	RD+	Receiver Non-inverted DATA out. AC Coupled	4
14	VEER	Receiver Ground (Common with Transmitter Ground)	
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	5
19	TD-	Transmitter Inverted DATA in. AC Coupled.	5
20	VEET	Transmitter Ground (Common with Receiver Ground)	

Notes:

1. Open collector/drain output, which should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board if intended for use. Pull up voltage should be between 2.0V to 3.6V. A high output indicates a transmitter fault caused by either the TX bias current or the TX output power exceeding the preset alarm thresholds. A low output indicates normal operation. In the low state, the output is pulled to <0.8V.
2. Laser output disabled on Tx_Disable >2.0V or open, enabled on Tx_Disable <0.8V.
3. LOS is open collector output. Should be pulled up with 4.7kΩ to 10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.
4. RD-/+: These are the differential receiver outputs. They are internally AC-coupled 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES.
5. TD-/+: These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.

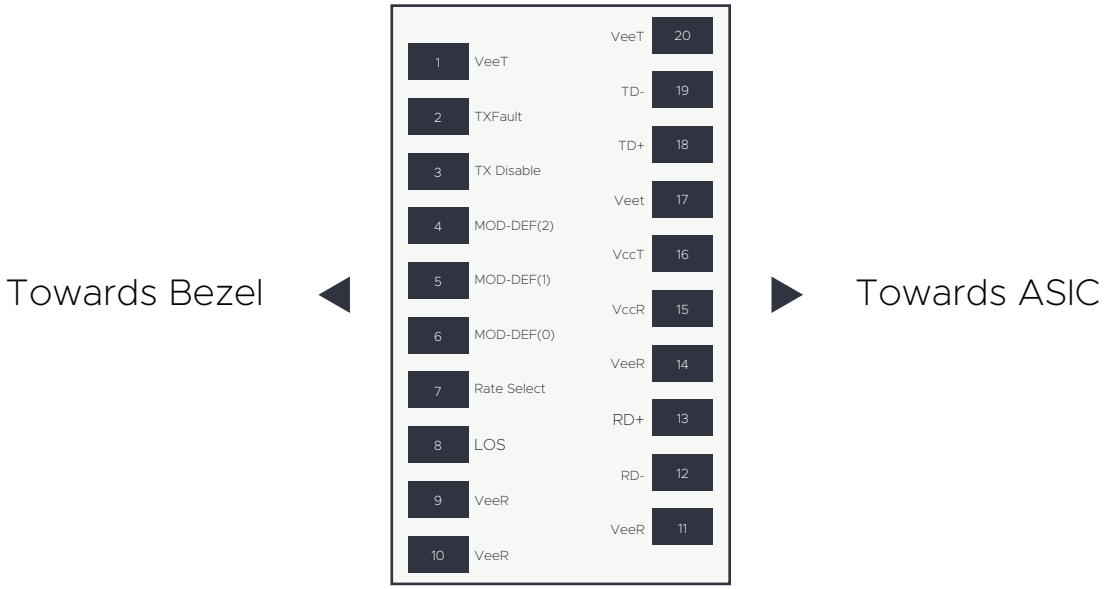
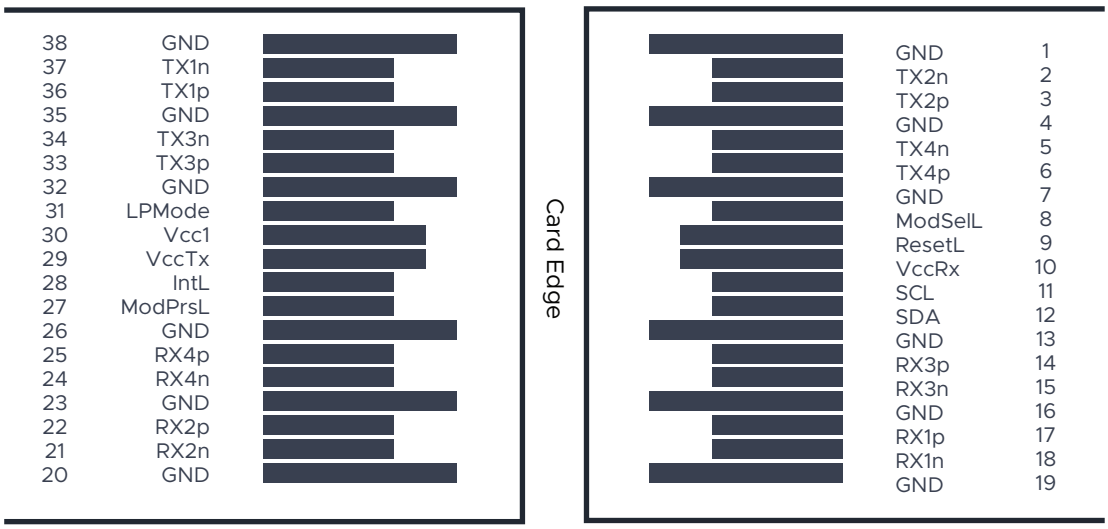


Figure 1. Diagram of host board connector block pin numbers and names

PIN Description (QSFP28 side)

Pin		Function/Description	Notes
1	GND	Transmitter Ground (Common with Receiver Ground)	1
2	Tx2-	Transmitter Inverted Data Input	
3	Tx2+	Transmitter Non-Inverted Data output	
4	GND	Transmitter Ground (Common with Receiver Ground)	1
5	Tx4-	Transmitter Inverted Data Input	
6	Tx4+	Transmitter Non-Inverted Data output	
7	GND	Transmitter Ground (Common with Receiver Ground)	1
8	ModSelL	Module Select	2
9	ResetL	Module Reset	2
10	VccRx	3.3V Power Supply Receiver	
11	SCL	2-Wire serial Interface Clock	2
12	SDA	2-Wire serial Interface Data	2
13	GND	Transmitter Ground (Common with Receiver Ground)	1
14	Rx3+	Receiver Non-Inverted Data Output	
15	Rx3-	Receiver Inverted Data Output	
16	GND	Transmitter Ground (Common with Receiver Ground)	1
17	Rx1+	Receiver Non-Inverted Data Output	
18	Rx1-	Receiver Inverted Data Output	
19	GND	Transmitter Ground (C ommon with Receiver Ground)	1
20	GND	Transmitter Ground (Common with Receiver Ground)	1
21	Rx2-	Receiver Inverted Data Output	
22	Rx2+	Receiver Non-Inverted Data Output	
23	GND	Transmitter Ground (Common with Receiver Ground)	1
24	Rx4-	Receiver Inverted Data Output	1
25	Rx4+	Receiver Non-Inverted Data Output	
26	GND	Transmitter Ground (Common with Receiver Ground)	1
27	ModPrsl	Module Present	
28	IntL	Interrupt	2
29	VccTx	3.3V power supply transmitter	
30	Vcc1	3.3V power supply	
31	LPMode	Low Power Mode	2
32	GND	Transmitter Ground (Common with Receiver Ground)	1
33	Tx3+	Transmitter Non-Inverted Data Input	
34	Tx3-	Transmitter Inverted Data Output	
35	GND	Transmitter Ground (Common with Receiver Ground)	1
36	Tx1+	Transmitter Non-Inverted Data Input	
37	Tx1-	Transmitter Inverted Data Output	
38	GND	Transmitter Ground (Common with Receiver Ground)	1

Notes:
1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that on the host board requires a 4.7KΩ to 10KΩ pull-up resistor to VccHost.



Top Side
Viewed from Top

Bottom Side
Viewed from Bottom

High Speed Characteristics

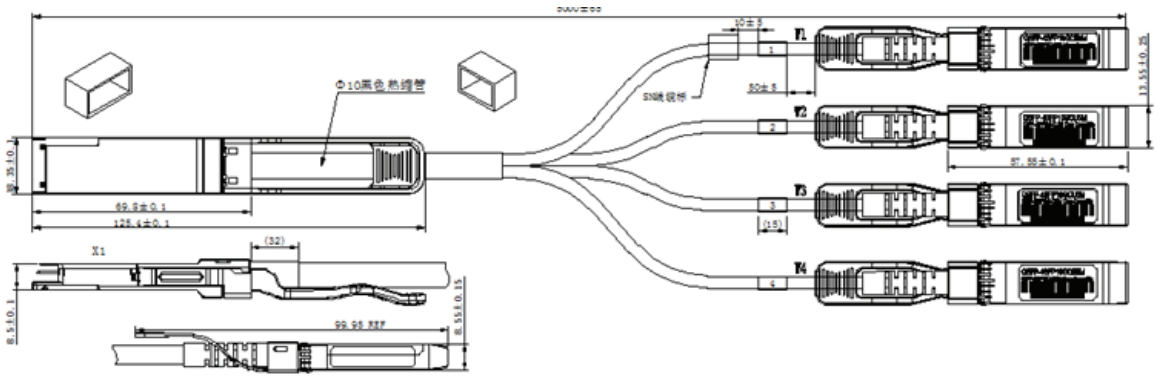
Parameter	Symbol	Min	Typ	Max	Unit	Notes
Differential Impedance	RIN,p-p	90	100	110	Ω	
Insertion loss	SDD21	8	-	22.48	dB	@ 12.8906 GHz
Differential Return Loss	SDD11	12.45	-	Note 1	dB	[0.05 ; 4.1] GHz
Differential Return Loss	SDD22	3.12	-	Note 2	dB	[4.1 ; 19] GHz
Common-mode to common-mode output return loss	SCC11	2	-	-	dB	[0.2 ; 19] GHz
Common-mode to common-mode output return loss	SCC22	2	-	-	dB	[0.2 ; 19] GHz
Differential to common-mode return loss	SCD11	12	-	Note 3	dB	[0.01 ; 12.89] GHz
Differential to common-mode return loss	SCD22	10.58	-	Note 4	dB	[12.89 ; 15.7] GHz
Differential to common Mode conversion Loss	SCD21-IL	10	-	-	dB	[0.01 ; 12.89] GHz
Differential to common Mode conversion Loss	SCD21-IL	-	-	Note 5	dB	[12.89 ; 15.7] GHz
Differential to common Mode conversion Loss	SCD21-IL	6.3	-	-	dB	[15.7 ; 19] GHz
Channel Operating Margin	COM	3	-	-	dB	

Notes:
1. Reflection Coefficient given by equation SDD11(dB) < 16.5 - 2 × SQRT(f), with f in GHz
2. Reflection Coefficient given by equation SDD11(dB) < 10.66 - 14 × log10(f/5.5), with f in GHz
3. Reflection Coefficient given by equation SCD11(dB) < 22 - (20/25.78)*f, with f in GHz
4. Reflection Coefficient given by equation SCD11(dB) < 15 - (6/25.78)*f, with f in GHz
5. Reflection Coefficient given by equation SCD21(dB) < 27 - (29/22)*f, with f in GHz

Cable AWG Type

Cable Length	Cable AWG
1	30
2	30
3	26 / 30
4	26
5	26

Block Diagram



Revision history

Revision	Date	Author	Description
V1.1	05-03-2020	JGN	Initial Document

Note : Nexgen A/S reserves the right to change this document without notice.