DATA SHEET

MODULETEK – DAC-QSFP28-4SFP28-P-x-xxAWG-aa.aaM-C0C0C

QSFP28 to 4xSFP28 Passive Copper Cable Assembly

DAC-QSFP28-4SFP28-P-x-xxAWG-aa.aaM-C0C0C Overview

ModuleTek's DAC-QSFP28-4SFP28-P-x-xxAWG-aa.aaM-C0C0C QSFP28 to 4xSFP28 copper direct attach cables are suitable for very short distances and offer a highly cost-effective way to connect QSFP28 and SFP28 equipment. The direct attach assemblies support 4 lanes of 25Gbps. This interconnect system is fully compliant with QSFP28 MSA and SFP28 MSA.

Product Features

- QSFP28 End: Compliant with QSFP28 MSA specifications
- SFP28 End: Compliant with SFP28 MSA specifications
- 4 independent duplex channels operating at 25Gbps
- AC coupled inputs and outputs
- 100 Ohm differential impedance
- All-metal housing for superior EMI performance
- Single power supply 3.3V, low power consumption
- RoHS Compliant
- Operating temperature range: 0°C to 70°C

Applications

- 100Gigabit Ethernet
- Infiniband EDR
- Serial Data Transmission
- Networking
- Storage
- Fiber Channel

Ordering Information

Part Number	Description	Gauge	Length
DAC-QSFP28-4SFP28-P-E-30AWG-aa.aaM-C0C0C	QSFP28 to 4 SFP28 Passive Direct Attach Copper Cable Assembly,without MCU, aa.aa≤2	30AWG	≤2m
DAC-QSFP28-4SFP28-P-E-28AWG-aa.aaM-C0C0C	QSFP28 to 4 SFP28 Passive Direct Attach Copper Cable Assembly,without MCU, 2<aa.aa≤3	28AWG	2m<length≤3m
DAC-QSFP28-4SFP28-P-E-26AWG-aa.aaM-C0C0C	QSFP28 to 4 SFP28 Passive Direct Attach Copper Cable Assembly,without MCU, 3<aa.aa≤5	26AWG	3m<length≤5m
DAC-QSFP28-4SFP28-P-M-30AWG-aa.aaM-C0C0C	QSFP28 to 4 SFP28 Passive Direct Attach Copper Cable Assembly,with MCU, aa.aa≤2	30AWG	≤2m
DAC-QSFP28-4SFP28-P-M-28AWG-aa.aaM-C0C0C	QSFP28 to 4 SFP28 Passive Direct Attach Copper Cable Assembly,with MCU, 2<aa.aa≤3	28AWG	2m<length≤3m
DAC-QSFP28-4SFP28-P-M-26AWG-aa.aaM-C0C0C	QSFP28 to 4 SFP28 Passive Direct Attach Copper Cable Assembly,with MUC, 3<aa.aa≤5	26AWG	3m<length≤5m

Note:
1. “aa.aa” indicates the cable length in meters.
2. The wire diameter of the products in the above list is the default value under different lengths. We can also provide other wire products to customers with special requirements.

For More Information:
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General Specifications

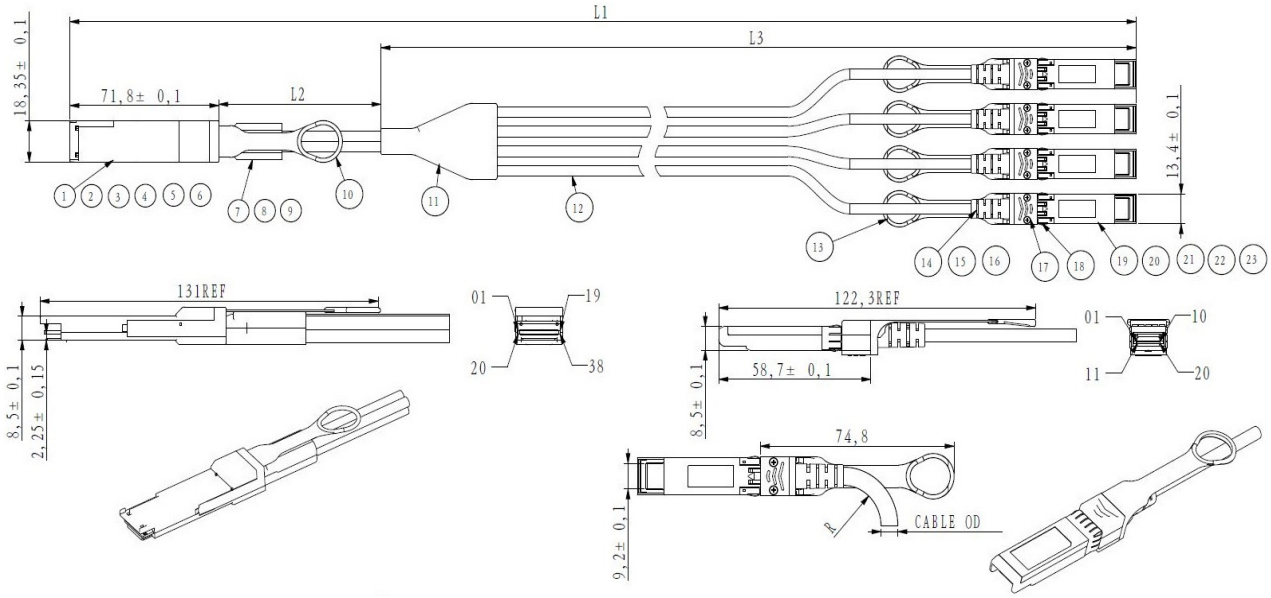
Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Bit Error Rate	BER			10^{-12}		
Operating Temperature	T_{OP}	0		70	°C	1
Storage Temperature	T_{STO}	−40		85	°C	2
Input Voltage	V_{CC}	3.14	3.3	3.46	V	3
Maximum Voltage	V_{MAX}	−0.5		4	V	3

Notes:
1.Case temperature
2.Ambient temperature
3.For electrical power interface

Cable Mechanical Specifications

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Wire Gauge		30AWG		26AWG	AWG	
Cable Impedance	Z	95	100	105	Ohm	

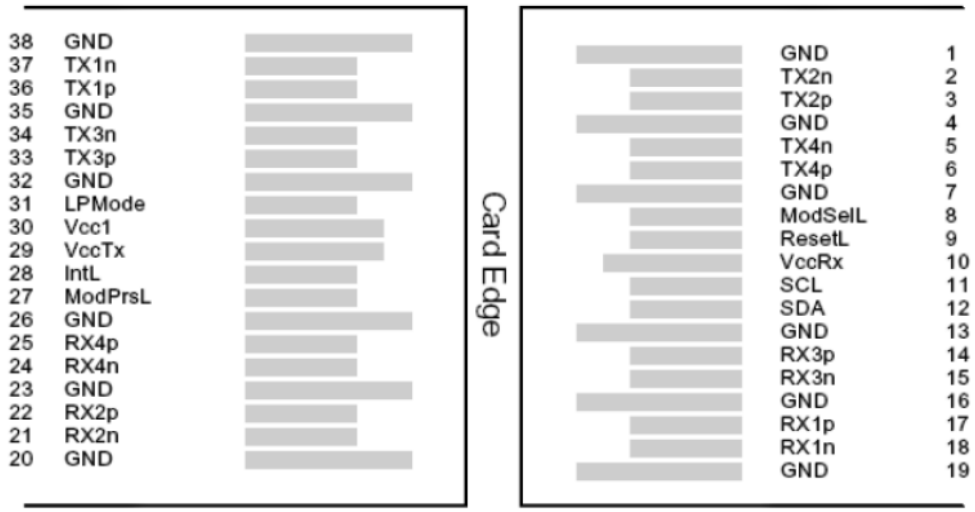
Dimensions



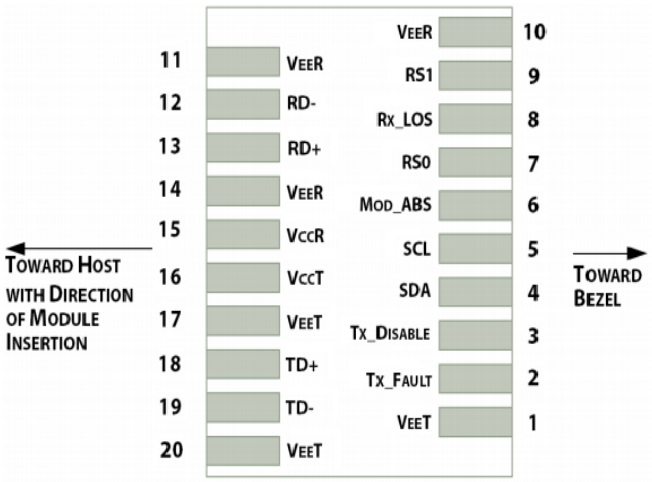
ITEM	NAME	DESCRIPTION	Q'TY
1	BOTTOM SHELL FOR QSFP	Zn ALLOY,PLATED Ni OVER Cu	1
2	TOP SHELL FOR QSFP	Zn ALLOY,PLATED Ni OVER Cu	1
3	PCB ASSEMBLY FOR QSFP	QSFP PCB,38P,Au 30u"Min	1
4	SPRING FOR QSFP	HANDED ROTATION,SWPB	2
5	PULL ROD FOR QSFP	Zn ALLOY,PLATED Ni OVER Cu	1
6	SCREW FOR QSFP	MILD STEEL	4
7	PLASTIC BOOT FOR QSFP	PC AND ABS,BLACK	1
8	COPPER RING FOR QSFP	COPPER,PLATED Ni	1
9	ALUMINUM RING FOR QSFP	ALUMINIUM ALLOY	1
10	PULL TAB FOR QSFP	PA66, BLUE 300C	1
11	PLASTIC SPLITTER	PC AND ABS,BLACK	1
12	RAW CABLE	2PAIRS, BLACK,ROTHS2.0	4
13	PULL TAB FOR SFP	PA66, BLUE 300C	4
14	PLASTIC BOOT FOR SFP	PVC, BLACK	4
15	COPPER RING FOR SFP	COPPER,PLATED Ni	4
16	ALUMINUM RING FOR SFP	ALUMINIUM ALLOY	4
17	SCREW FOR SFP	MILD STEEL	8
18	GROUNDING SPRINGS	SUS303	4
19	BOTTOM SHELL FOR SFP	Zn ALLOY,PLATED Ni OVER Cu	4
20	TOP SHELL FOR SFP	Zn ALLOY,PLATED Ni OVER Cu	4
21	PCB ASSEMBLY FOR SFP	SFP PCB,20P,Au 30u"Min	4
22	SPRING FOR SFP	HANDED ROTATION,SWPB	8
23	PULL ROD FOR SFP	SUS316	8

ALL DIMENSIONS ARE ±0.2mm UNLESS OTHERWISE SPECIFIED
UNIT: mm

Electrical Pad Layout (QSFP28 END)



Electrical Pad Layout (SFP28 END)



Pin Assignment (QSFP28 END)

PIN #	Symbol	Description	Remarks
1	GND	Ground	
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	V_{CC}RX	+3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	
20	GND	Ground	
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	V_{CC}TX	+3.3V Power Supply transmitter	
30	V_{CC1}	+3.3V Power Supply	
31	LPMode	Low Power Mode	
32	GND	Ground	
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	

35	GND	Ground	
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	

Pin Assignment (SFP28 END)

PIN #	Symbol	Description	Remarks
1	V_{EET}	Transmitter ground (common with receiver ground)	
2	T_{FAULT}	Transmitter Fault.	
3	T_{DIS}	Transmitter Disable. Laser output disabled on high or open	
4	SDA	Data line for serial ID	
5	SCL	Clock line for serial ID	
6	MOD_ABS	Module Absent. Grounded within the module	
7	RS0	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation	
9	RS1	No connection required	
10	V_{EER}	Receiver ground (common with transmitter ground)	
11	V_{EER}	Receiver ground (common with transmitter ground)	
12	RD−	Receiver Inverted DATA out. AC coupled	
13	RD+	Receiver Non-inverted DATA out. AC coupled	
14	V_{EER}	Receiver ground (common with transmitter ground)	
15	V_{CCR}	Receiver power supply	
16	V_{CCT}	Transmitter power supply	
17	V_{EET}	Transmitter ground (common with receiver ground)	
18	TD+	Transmitter Non-Inverted DATA in. AC coupled	
19	TD−	Transmitter Inverted DATA in. AC coupled	
20	V_{EET}	Transmitter ground (common with receiver ground)	

References

1. IEEE standard 802.3bj. IEEE Standard Department, 2008.