

DATA SHEET

MODULETEK : DAC-QSFP28-QSFP28-P-x-xxAWG-aa.aaM-C0C0C

QSFP28 100G Passive Copper Cable Assembly

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

ModuleTek's QSFP28 passive cable uses shielded high-speed differential cables, Compliant with 100G Ethernet standard and QSFP28 Multi-Source Agreement (MSA) standard, it supports 100G transmission rate and can be backward compatible with various rates. QSFP28 passive cable is the preferred solution for short-distance applications. It is widely used for data transmission between data centers and cabinets or adjacent cabinets. Its biggest feature is low cost, ultra-low power consumption (less than 0.1 watt) and high reliability.

Product Features

- Up to 100 Gb/s bi-directional data links
- Compliant with QSFP28 MSA specifications
- Fully Compliant with IEEE 802.3bj and Infiniband EDR specifications
- 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
- Serial Data Transmission

Ordering Information

Part Number	Description	Gauge	Length
DAC-QSFP28-QSFP28-P-E-30AWG-aa.aaM-C0C0C	QSFP28 100G Passive Direct Attach Copper Cable Assembly,without MCU, aa.aa \leq 2	30AWG	\leq 2m
DAC-QSFP28-QSFP28-P-E-28AWG-aa.aaM-C0C0C	QSFP28 100G Passive Direct Attach Copper Cable Assembly,without MCU, 2<aa.aa \leq 3	28AWG	2m<length \leq 3m
DAC-QSFP28-QSFP28-P-E-26AWG-aa.aaM-C0C0C	QSFP28 100G Passive Direct Attach Copper Cable Assembly,without MCU, 3<aa.aa \leq 5	26AWG	3m<length \leq 5m
DAC-QSFP28-QSFP28-P-M-30AWG-aa.aaM-C0C0C	QSFP28 100G Passive Direct Attach Copper Cable Assembly,with MCU, aa.aa \leq 2	30AWG	\leq 2m
DAC-QSFP28-QSFP28-P-M-28AWG-aa.aaM-C0C0C	QSFP28 100G Passive Direct Attach Copper Cable Assembly,with MCU, 2<aa.aa \leq 3	28AWG	2m<length \leq 3m
DAC-QSFP28-QSFP28-P-M-26AWG-aa.aaM-C0C0C	QSFP28 100G Passive Direct Attach Copper Cable Assembly,with MUC, 3<aa.aa \leq 5	26AWG	3m<length \leq 5m
<p>Note:</p> <ol style="list-style-type: none"> 1. "P" indicates passive cable 2. "E" indicates no built-in MCU , "M" indicates built-in MCU 3. "aa.aa" indicates the cable length in meters. 4. 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. 			
<p>For More Information: ModuleTek Limited Web: www.moduletek.com Email: sales@moduletek.com</p>			

General Specifications

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Bit Error Rate	BER			10 ⁻¹²		
Operating Temperature	T _C	0		70	°C	1
Storage Temperature	T _{STO}	-40		85	°C	2
Input Voltage	V _{CC}	3.14	3.3	3.46	V	

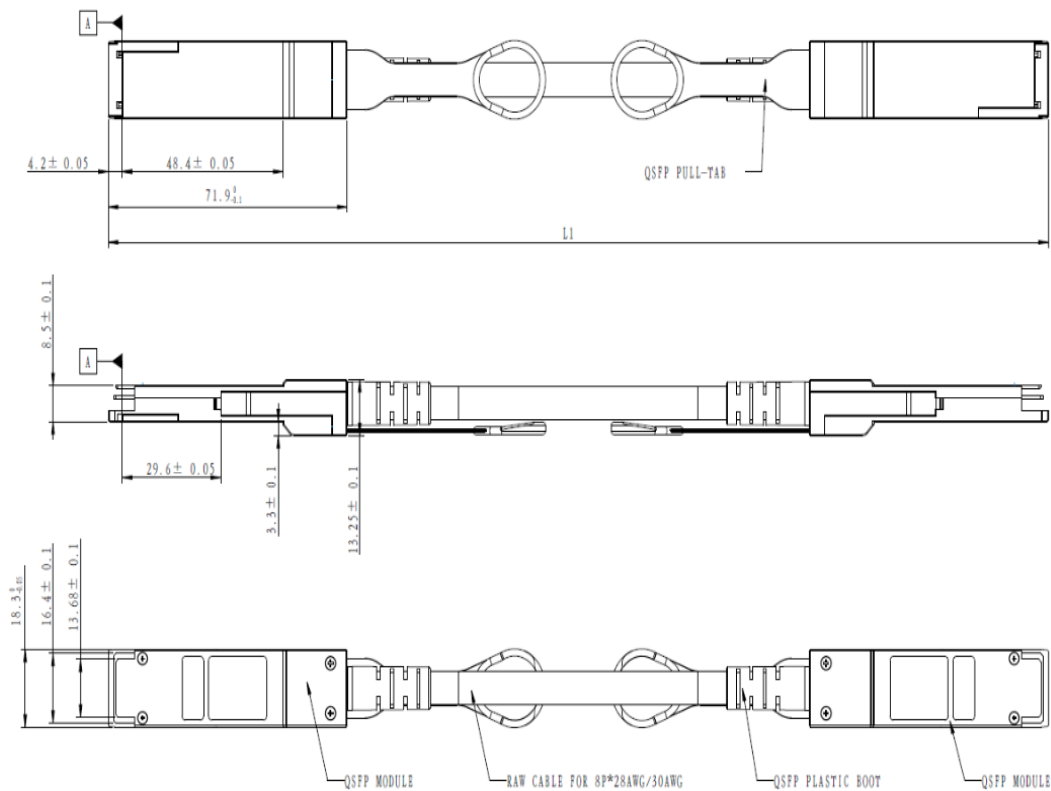
Notes:

1. Case temperature
2. Ambient temperature

Cable Specifications

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Wire Gauge		30AWG		26AWG	AWG	
Cable Impedance	Z	90	100	110	Ohm	

Dimensions

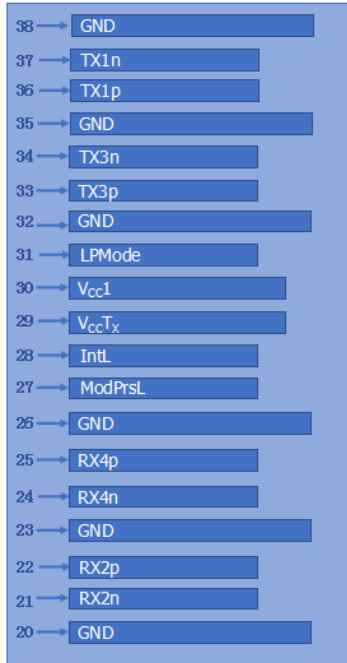


ALL DIMENSIONS ARE ± 0.2 mm UNLESS OTHERWISE SPECIFIED
UNIT: mm

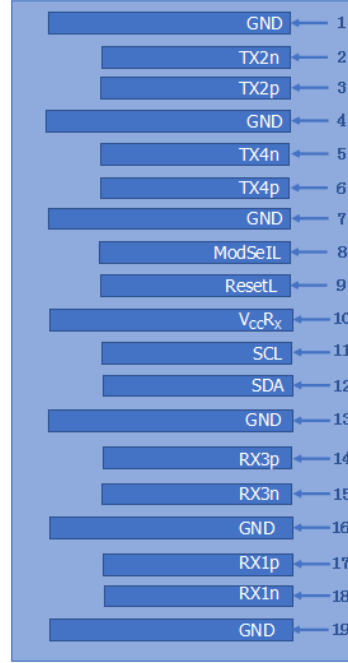
Cable dimension

serial number	Standard Wire Gauge AWG	Cable diameter OD (mm)	Minimum bending radius R (mm)
1	30	6.9	35
2	28	8.4	42
3	26	9.2	45

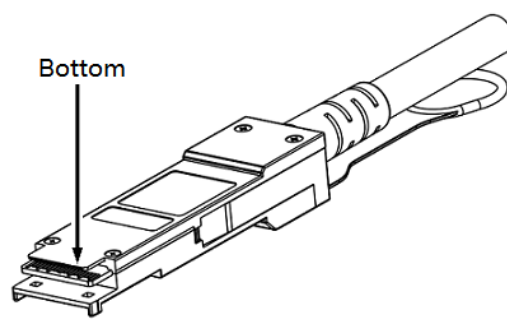
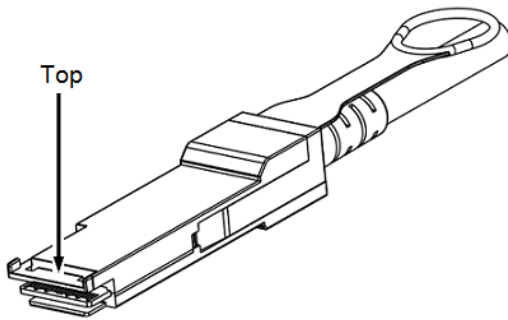
Electrical Pad Layout



Top of Board



Bottom of Board



Pin Assignment

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

34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	5
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	5

Notes:

1. ModSelL is the input pin. The module responds to 2-wire serial communication commands when it is held low by the host. ModSelL allows multiple QSFP modules to be used on a single 2-wire interface bus. If ModSelL is High, the module will not respond to any 2-wire interface communication from the host. ModSelL has internal pull-up resistors in the module
2. The module restart pin, when the low level on the ResetL pin lasts longer than the minimum pulse length, resets the module and restores all user modules to their default state. When performing reset device, the host should ignore all status bits. Until the module reset interrupt is completed, please note that during hot plugging, the module will issue this information to complete the reset interrupt without resetting
3. This pin is active high, indicating that the module is running under a low power module.
4. IntL is the output pin, which is the open collector output and must be pulled up to Vcc on the motherboard. When it is low, it indicates that the module may malfunction. The host uses a 2-wire serial interface to identify the interrupt source
5. Circuit ground is internally isolated from chassis ground.

References

1. IEEE standard 802.3bj. IEEE Standard Department.
2. SFF-8665
3. SFF-8436