

## DATA SHEET

### **MODULETEK: DAC-QSFP28-2QSFP28-P-M-xxAWG-aa.aaM-C0C0C**

QSFP28 to 2xQSFP28 Passive Copper Cable Assembly

### **DAC-QSFP28-2QSFP28-P-M-xxAWG-aa.aaM-C0C0C Overview**

ModuleTek's DAC-QSFP28-2QSFP28-P-M-xxAWG-aa.aaM-C0C0C QSFP28 to 2xQSFP28 passive, copper, splitter cable is a high speed, cost-effective, 100Gbps to 2x50Gbps, Ethernet connectivity solution designed to meet the growing needs for higher bandwidth in data centers. cables provide connectivity between systems using a QSFP28 port one side and two QSFP28 ports on the other. This interconnect system is compliant with SFF-8665.

### **Product Features**

- Compliant with SFF-8665 specifications
- 2 independent duplex channels operating at 50Gbps
- Single power supply 3.3V
- BER better than 1E-15
- Hot pluggable
- RoHS Compliant
- Operating temperature range: 0°C to 70°C

### **Applications**

- 100Gigabit Ethernet
- Fiber Channel

## Ordering Information

Part Number	Description	Gauge	Length
DAC-QSFP28-2QSFP28-P-M-30AWG-aa.aaM-C0C0C	QSFP28 to 2xQSFP28, Passive Direct Attach Copper Cable Assembly,with MCU	30AWG	1m
DAC-QSFP28-2QSFP28-P-M-30AWG-aa.aaM-C0C0C	QSFP28 to 2xQSFP28, Passive Direct Attach Copper Cable Assembly,with MCU	30AWG	1.5m
DAC-QSFP28-2QSFP28-P-M-30AWG-aa.aaM-C0C0C	QSFP28 to 2xQSFP28, Passive Direct Attach Copper Cable Assembly,with MCU	30AWG	2m
DAC-QSFP28-2QSFP28-P-M-30AWG-aa.aaM-C0C0C	QSFP28 to 2xQSFP28, Passive Direct Attach Copper Cable Assembly,with MCU	30AWG	2.5m
DAC-QSFP28-2QSFP28-P-M-28AWG-aa.aaM-C0C0C	QSFP28 to 2xQSFP28, Passive Direct Attach Copper Cable Assembly,with MCU	28AWG	3m
<b>Note:</b> 1. "P" indicates passive cable 2. "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.			
<b>For More Information:</b> ModuleTek Limited Web: <a href="http://www.moduletek.com">www.moduletek.com</a> Email: <a href="mailto:sales@moduletek.com">sales@moduletek.com</a>			

## General Specifications

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

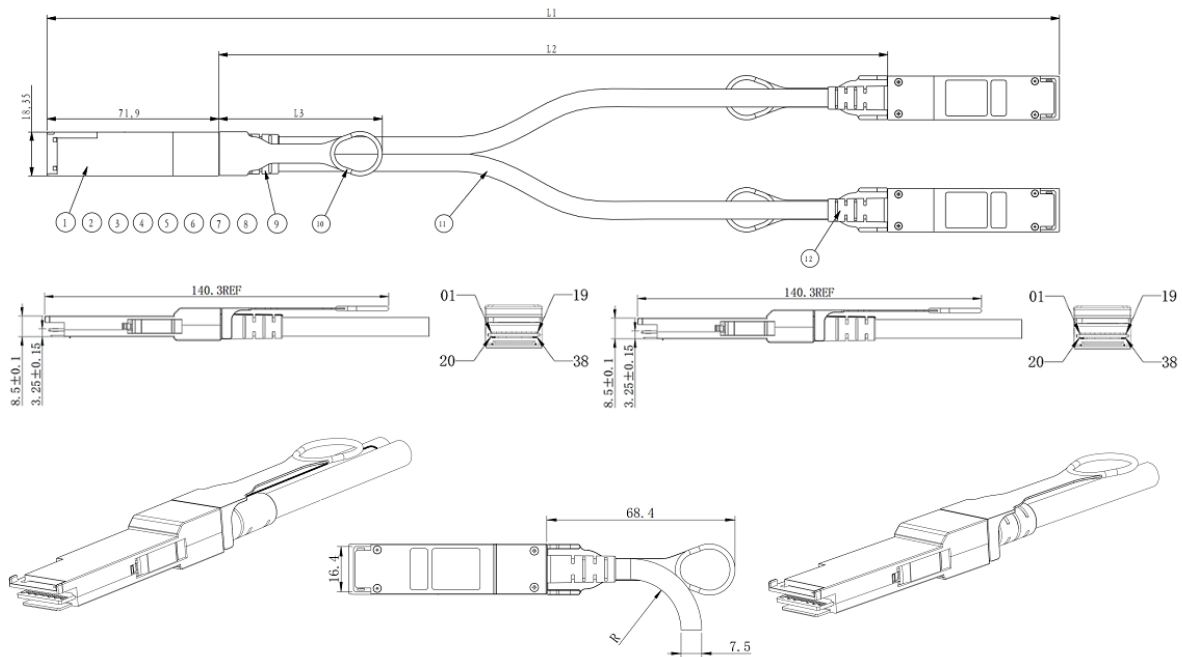
**Notes:**

1. Case temperature
2. Ambient temperature

## Cable Mechanical Specifications

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Wire Gauge		30AWG		28AWG	AWG	
Cable Impedance	Z	95	100	105	Ohm	

## Dimensions

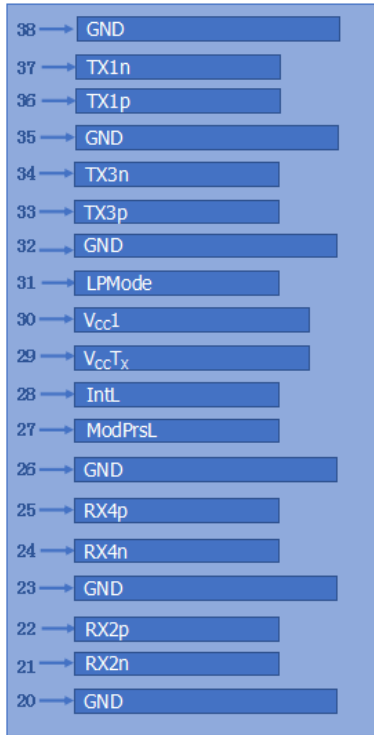


ALL DIMENSIONS ARE  $\pm 0.2\text{mm}$  UNLESS OTHERWISE SPECIFIED  
UNIT: mm

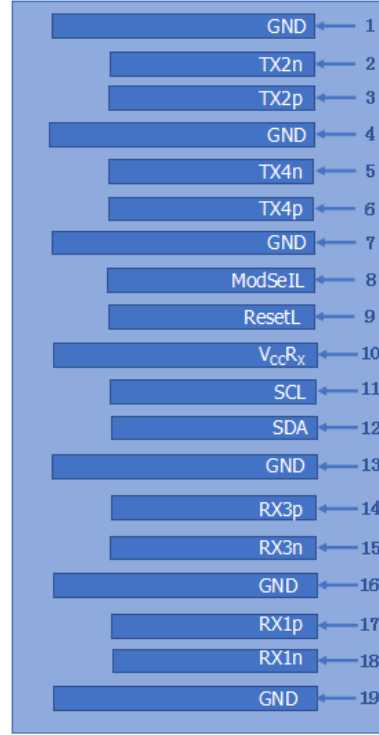
## Product Structure

Serial number	Name	Description	Amount
1	Bottom Shell for QSFP	Zn Alloy , Plated Ni Over Cu	3
2	Top Shell for QSFP	Zn Alloy , Plated Ni Over Cu	3
3	PCB Assembly for QSFP	QSFP PCB ,38P,Au 30u"Min	3
4	Spring for QSFP	Handed Rotation,SWPB	6
5	Pull Rod for QSFP	Zn Alloy, Plated Ni Over Cu	3
6	Screw for QSFP	Mild Steel	12
7	Aluminum Ring for QSFP	Aluminium Alloy	3
8	Copper Ring for QSFP	Copper, Plated Ni	3
9	Plastic Boot for QSFP	PC AND ABS ,Black	1
10	Pull TAB for QSFP	PA66,Blue 300C	3
11	Raw cable	2Pairs,Black,Roths2.0	2
12	Single Plastic Boot for QSFP	PC AND ABS ,Black	2

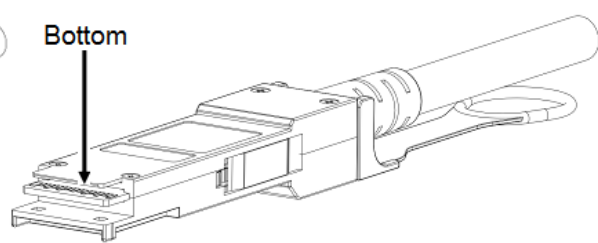
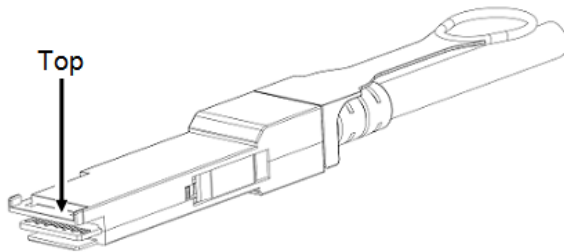
## Electrical Pad Layout



Top of Board



Bottom of Board



## Pin Assignment

PIN #	Symbol	Description	Remarks
1	GND	Ground	5
2	Tx2n	Transmitter Inverted Data Input, LAN2	
3	Tx2p	Transmitter Non-Inverted Data Input, LAN2	
4	GND	Ground	5
5	Tx4n	Transmitter Inverted Data Input, LAN4	
6	Tx4p	Transmitter Non-Inverted Data Input, LAN4	
7	GND	Ground	5
8	ModSelL	Module select pin, the module responds to two-wire serial communication when low level	1
9	ResetL	Module Reset	2
10	V <sub>cc</sub> R <sub>X</sub>	+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, LAN3	
15	Rx3n	Receiver Inverted Data Output, LAN3	
16	GND	Ground	5
17	Rx1p	Receiver Non-Inverted Data Output, LAN1	
18	Rx1n	Receiver Inverted Data Output, LAN1	
19	GND	Ground	5
20	GND	Ground	5
21	Rx2n	Receiver Inverted Data Output, LAN2	
22	Rx2p	Receiver Non-Inverted Data Output, LAN2	
23	GND	Ground	5
24	Rx4n	Receiver Inverted Data Output, LAN4	
25	Rx4p	Receiver Non-Inverted Data Output, LAN4	
26	GND	Ground	5
27	ModPrsL	The module is inserted into the indicate pin and grounded in the module.	3
28	IntL	Interrupt	4
29	V <sub>cc</sub> T <sub>X</sub>	+3.3V Power Supply transmitter	
30	V <sub>cc</sub> 1	+3.3V Power Supply	
31	LPMMode	Low Power Mode	5
32	GND	Ground	5

33	Tx3p	Transmitter Non-Inverted Data Input, LAN3	
34	Tx3n	Transmitter Inverted Data Input, LAN3	
35	GND	Ground	5
36	Tx1p	Transmitter Non-Inverted Data Input, LAN1	
37	Tx1n	Transmitter Inverted Data Input, LAN1	
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, 2008.