

## DATA SHEET

### MODULETEK : DAC-SFP28-P-x-xxAWG-aa.aaM-C0C0C

SFP28 25Gbps Direct Attach Copper Cable Assembly

#### DAC-SFP28-P-x-xxAWG-aa.aaM-C0C0C Overview

ModuleTek's SFP28 passive cable uses shielded high-speed differential cables, compliant with 25G Ethernet IEEE802.3by standard and SFF-8402 SFP28 standard, it supports 25G transmission rate and can be backward compatible with low-rate applications. The SFP28 passive cable is the preferred solution for 25G rate short-distance applications. It is commonly used for data transmission between data centers and cabinets or adjacent cabinets, its biggest features are low cost, ultra low power consumption (less than 0.1 watt) and high reliability.

#### Product Features

- Up to 25Gb/s bi-directional data links
- Compliant with SFF-8402
- Hot-pluggable
- AC coupled inputs and outputs
- 100 Ohm differential impedance
- Enhanced EMI design
- Single power supply 3.3V
- RoHS Compliant
- Operating temperature range: 0°C to 70°C

#### Applications

- 25GBASE Ethernet

## Ordering Information

Part Number	Description	Gauge	Length
DAC-SFP28-P-E-30AWG-aa.aaM-C0C0C	SFP28 Passive Direct Attach Copper Cable Assembly,without MCU, aa.aa $\leq$ 2	30AWG	$\leq$ 2m
DAC-SFP28-P-E-28AWG-aa.aaM-C0C0C	SFP28 Passive Direct Attach Copper Cable Assembly,without MCU, 2<aa.aa $\leq$ 3	28AWG	2m<length $\leq$ 3m
DAC-SFP28-P-E-26AWG-aa.aaM-C0C0C	SFP28 Passive Direct Attach Copper Cable Assembly,without MCU, 3<aa.aa $\leq$ 5	26AWG	3m<length $\leq$ 5m
<p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. "P" indicates passive cable</li> <li>2. "E" indicates no built-in MCU , "M" indicates built-in MCU</li> <li>3. "aa.aa" indicates the cable length in meters.</li> <li>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.</li> <li>5. The cable used in this product is produced by Belden Hessmann Industrial (Suzhou) Co., Ltd. (Brand: BELDEN).</li> </ol>			
<p><b>For More Information:</b>            ModuleTek Limited            Web: <a href="http://www.moduletek.com">www.moduletek.com</a>            Email: sales@moduletek.com</p>			

## General Specifications

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Data Rate	DR		25		Gb/s	1
Bit Error Rate	BER			$10^{-12}$		
Operating Temperature	T <sub>C</sub>	0		70	°C	2
Storage Temperature	T <sub>STO</sub>	-40		85	°C	3
Supply Current	I <sub>CC</sub>			4	mA	4
Input Voltage	V <sub>CC</sub>	3.14	3.3	3.46	V	4

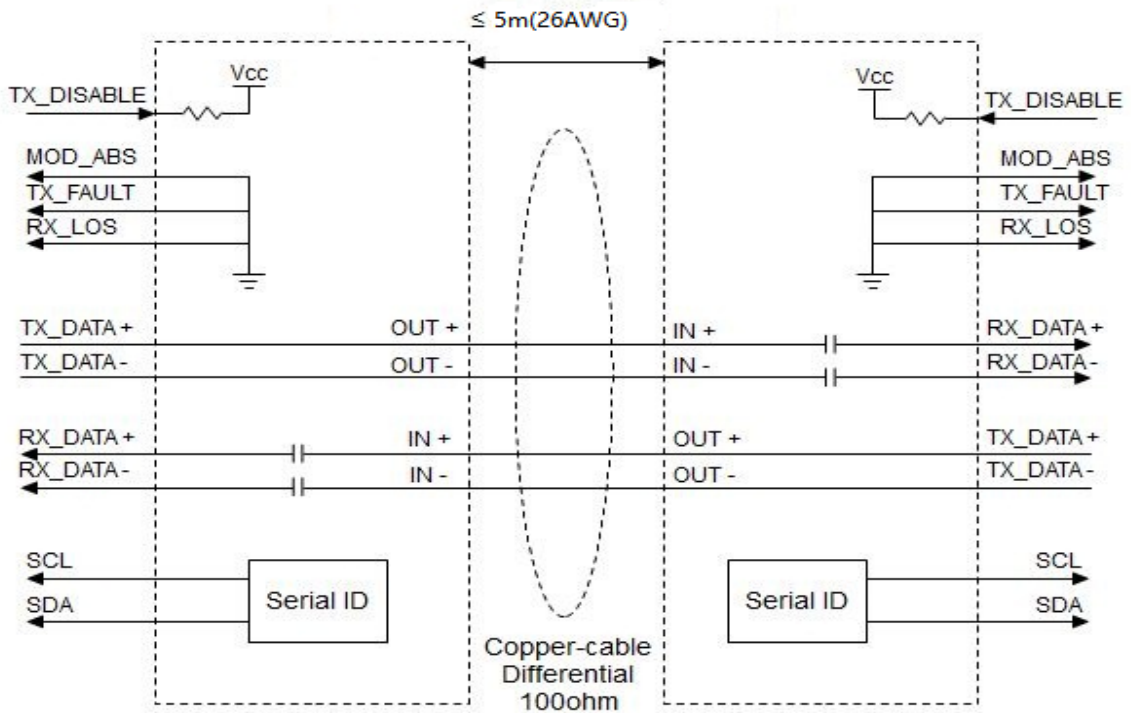
**Notes:**

- 1.IEEE 802.3by
- 2.Case temperature
- 3.Ambient temperature
- 4.For electrical power interface

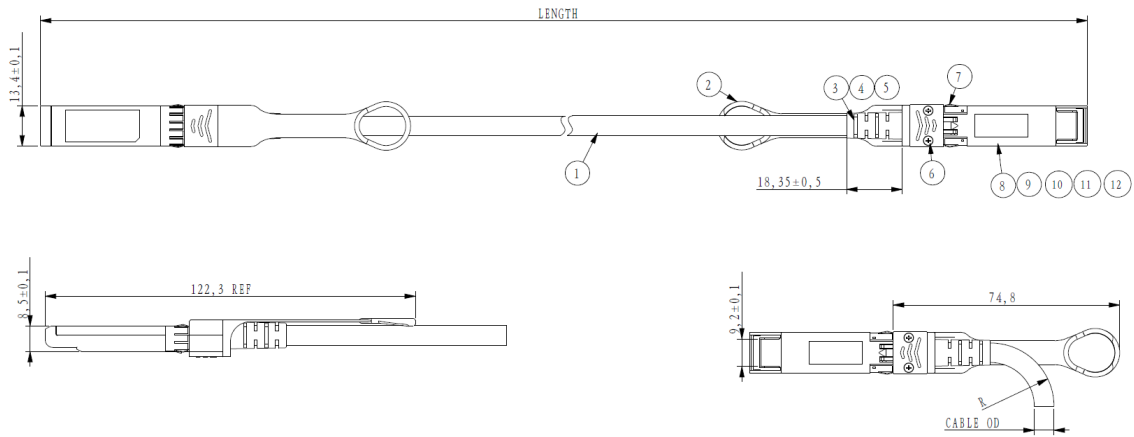
## Cable Specifications

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

## Block Diagram of Transceiver



## Dimensions



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

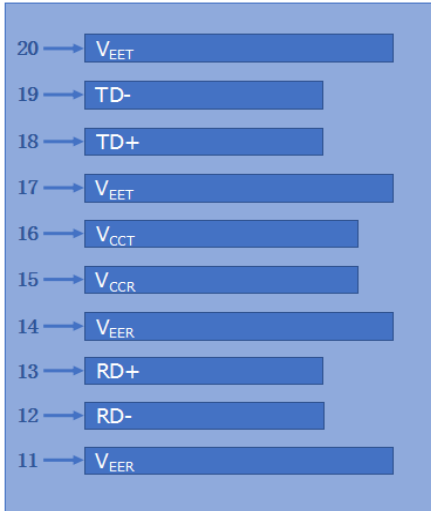
## Cable dimension

serial number	Standard Wire Gauge AWG	Cable diameter OD (mm)	Minimum bending radius R (mm)
1	30	4.6	26
2	28	5.0	28
3	26	5.6	30

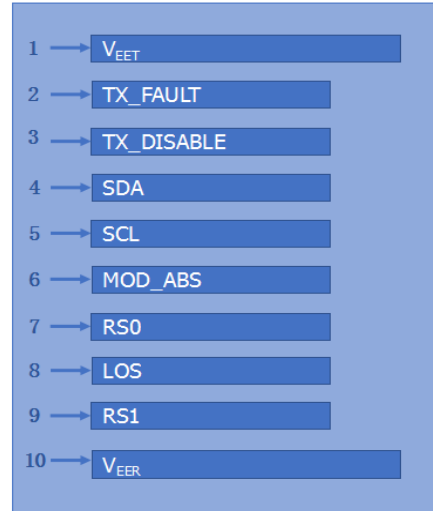
## Product Structure

Serial number	Name	Description	Amount
1	Raw Cable	2Pairs,Black,Roths2.0	1
2	Pull TAB	PA66,Blue 300C	2
3	Plastic Boot	PVC, Black	2
4	Copper Ring	Copper	2
5	Aluminum Ring	Aluminum Alloy	2
6	Screw	Mild Steel	4
7	Grounding Springs	SUS303	2
8	Bottom Shell	Zn Alloy , Plated Ni Over Cu	2
9	TOP Shell	Zn Alloy , Plated Ni Over Cu	2
10	PCB Assembly	SFP PCB ,38P,Au 30u"Min	2
11	Spring	Handed Rotation,SWPB	4
12	Pull Rod	SUS316	4

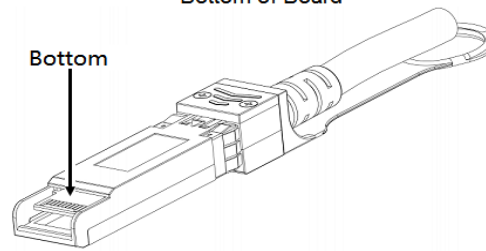
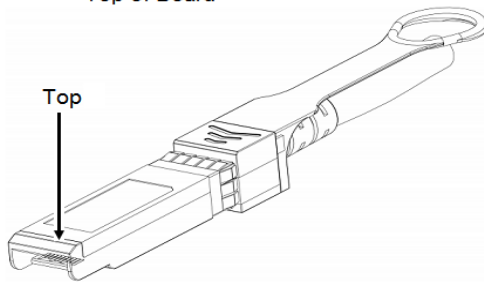
## Electrical Pad Layout



Top of Board



Bottom of Board



## Pin Assignment

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

### Notes:

1. Circuit ground is isolated from chassis ground
2. Should Be pulled up with 4.7k - 10k ohm on host board to a voltage between 2V and 3.6V

## References

1. IEEE standard 802.3by. IEEE Standard Department.