

DATA SHEET

MODULETEK : DAC-SFP10-A-M-xxAWG-aa.aaM-C0C0B

10Gb/s SFP+ (Small Form Pluggable) Active Copper Cable Assembly

DAC-SFP10-A-M-xxAWG-aa.aaM-C0C0B Overview

ModuleTek's DAC-SFP10-A-M-xxAWG-aa.aaM-C0C0B SFP+ Active Copper Cable assemblies are designed for operation in short connection using Fiber Channel and 10G Ethernet networking equipment. It is integrated with Amphenol Spectra-Strip SkewClear cable, the completed assembly spans 15 meters and operates up to 10Gb/s. The transmitter pre-emphasis can be configured to best compensate for different cable lengths. Active copper assemblies are typically used in host systems that do not employ EDC.

Product Features

- Up to 10 Gb/s bi-directional data links
- 24AWG through 30AWG cable available
- Dual SFP+ Connectors
- Industry standard small form pluggable (SFP+) package
- Spans up to 15 meters
- Hot Pluggable
- Single power supply 3.3V
- RoHS Compliant
- Operating temperature range: 0°C to 70°C

Applications

- 10G Ethernet
- 10G Fiber Channel

Ordering Information

Part Number	Description	Gauge	Length
DAC-SFP10-A-M-30AWG-aa.aaM-C0C0B	10 Gb/s SFP+ Active Copper Cable, aa.aa \leq 7	30AWG	\leq 7m
DAC-SFP10-A-M-28AWG-aa.aaM-C0C0B	10 Gb/s SFP+ Active Copper Cable, 7<aa.aa \leq 9	28AWG	7m<length \leq 9m
DAC-SFP10-A-M-24AWG-aa.aaM-C0C0B	10 Gb/s SFP+ Active Copper Cable, aa.aa $>$ 9	24AWG	$>$ 9m
<p>Note:</p> <ol style="list-style-type: none"> 1. "A" indicates active cable 2. "M" indicates built-in MCU 3. "aa.aaM" represents the cable length, where "M" represents the length unit meter and "aa.aa" represents the meter size 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
Data Rate	DR		10.3125		Gb/s	1
Bit Error Rate	BER			10^{-12}		
Operating Temperature	T _C	0		70	°C	2
Storage Temperature	T _{STO}	-40		85	°C	3
Input Voltage	V _{CC}	3.14	3.3	3.46	V	4
Supply Current	I _{CC}		100	300	mA	4

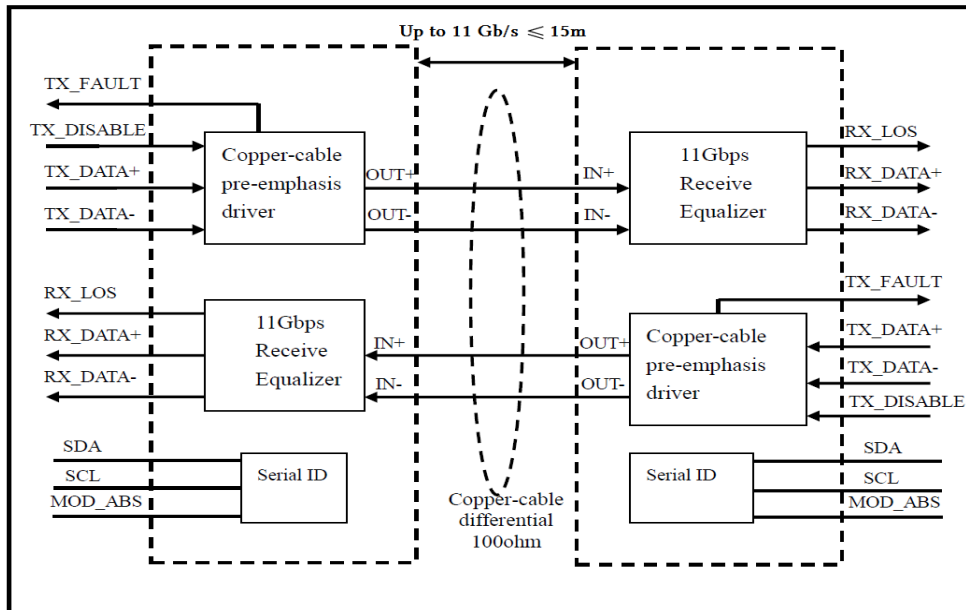
Notes:

1. IEEE 802.3ae compatible
2. Case temperature
3. Ambient temperature
4. For electrical power interface

Cable Specifications

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Wire Gauge		30AWG		24AWG	AWG	
Cable Impedance	Z	90	100	110	Ohm	

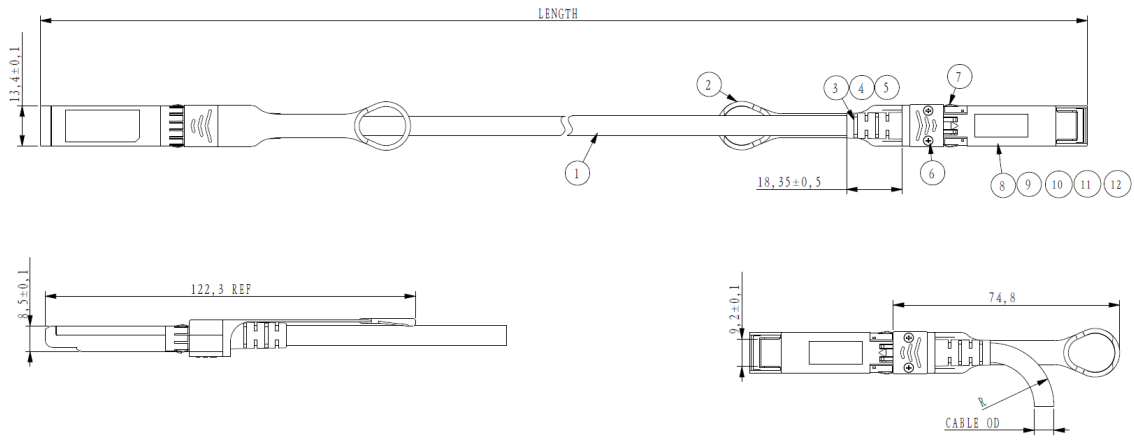
Block Diagram of Transceiver



Functions Description

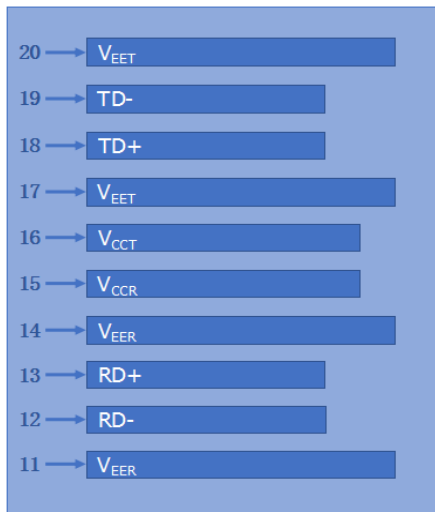
Active cable assembly has signal amplification and equalization in the assembly. Active copper assemblies are typically used in host systems that do not employ EDC. Active SFP+ cable assemblies also incorporate Rx LOS and Tx Disable features. Active cable assembly has built-in MCU, offer a number of additional host-management capabilities. I2C (Inter-IC bus protocol) interface and on-board EEPROM features enable the host to detect or configure specific performance characteristics.

Dimensions

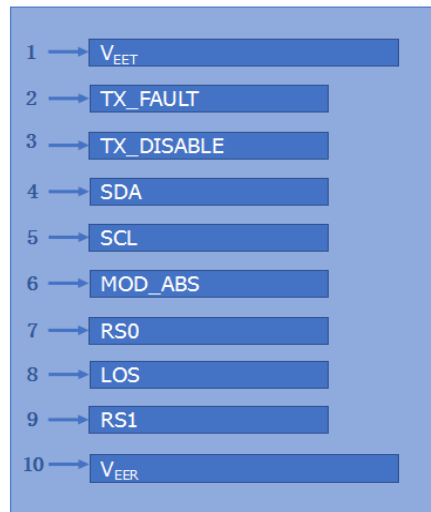


ALL DIMENSIONS ARE ± 0.2 mm UNLESS OTHERWISE SPECIFIED
UNIT: mm

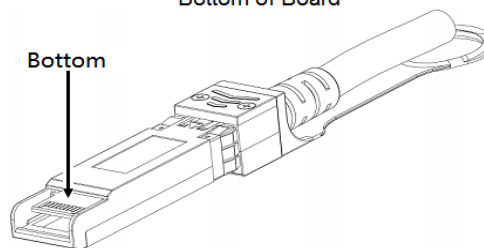
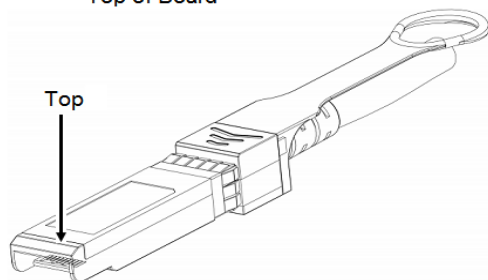
Electrical Pad Layout



Top of Board



Bottom of Board



Pin Assignment

PIN #	Symbol	Description	Remarks
1	V _{EET}	Transmitter ground (common with receiver ground)	1
2	TX_FAULT	Transmitter Fault.	
3	TX_DISABLE	Transmitter Disable. Laser output disabled on high or open	2
4	SDA	Data line for serial ID	3
5	SCL	Clock line for serial ID	3
6	MOD_ABS	Module Absent. Grounded within the module	3
7	RS0	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation	4
9	RS1	No connection required	
10	V _{EER}	Receiver ground (common with transmitter ground)	1
11	V _{EER}	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 _{EER}	Receiver ground (common with transmitter ground)	1
15	V _{CCR}	Receiver power supply	
16	V _{CCT}	Transmitter power supply	
17	V _{EET}	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 _{EET}	Transmitter ground (common with receiver ground)	1

Notes:

1. Circuit ground is isolated from chassis ground
2. Disabled: T_{DIS}>2V or open, Enabled: T_{DIS}<0.8V
3. Should Be pulled up with 4.7k - 10k ohm on host board to a voltage between 2V and 3.6V
4. LOS is open collector output

References

1. IEEE standard 802.3ae. IEEE Standard Department, 2005.
2. Enhanced 8.5 and 10 Gigabit Small Form Factor Pluggable Module "SFP+" - SFF-8431 (FC-PH/PH2/PH3).