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## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## Specification

### Small Form Factor Pluggable

### Optical Transceivers AOC



## Ordering Information

**TAS-A1EH8-XAQxx**

Distance

Part Number	Description
TAS-A1EH8-XAQ01	25Gbps SFP28 Active Optical Cable 1m
TAS-A1EH8-XAQ03	25Gbps SFP28 Active Optical Cable 3m
TAS-A1EH8-XAQ05	25Gbps SFP28 Active Optical Cable 5m
TAS-A1EH8-XAQ07	25Gbps SFP28 Active Optical Cable 7m
TAS-A1EH8-XAQ10	25Gbps SFP28 Active Optical Cable 10m
TAS-A1EH8-XAQ20	25Gbps SFP28 Active Optical Cable 20m

Model Name	Voltage	Category	Device type	Interface	LOS	Temperature
TAS-A1EH8-XAQxx	3.3V	With DDMI	VSCSEL / PIN	AC / AC Coupling	LVTTL	0°C~+70°C

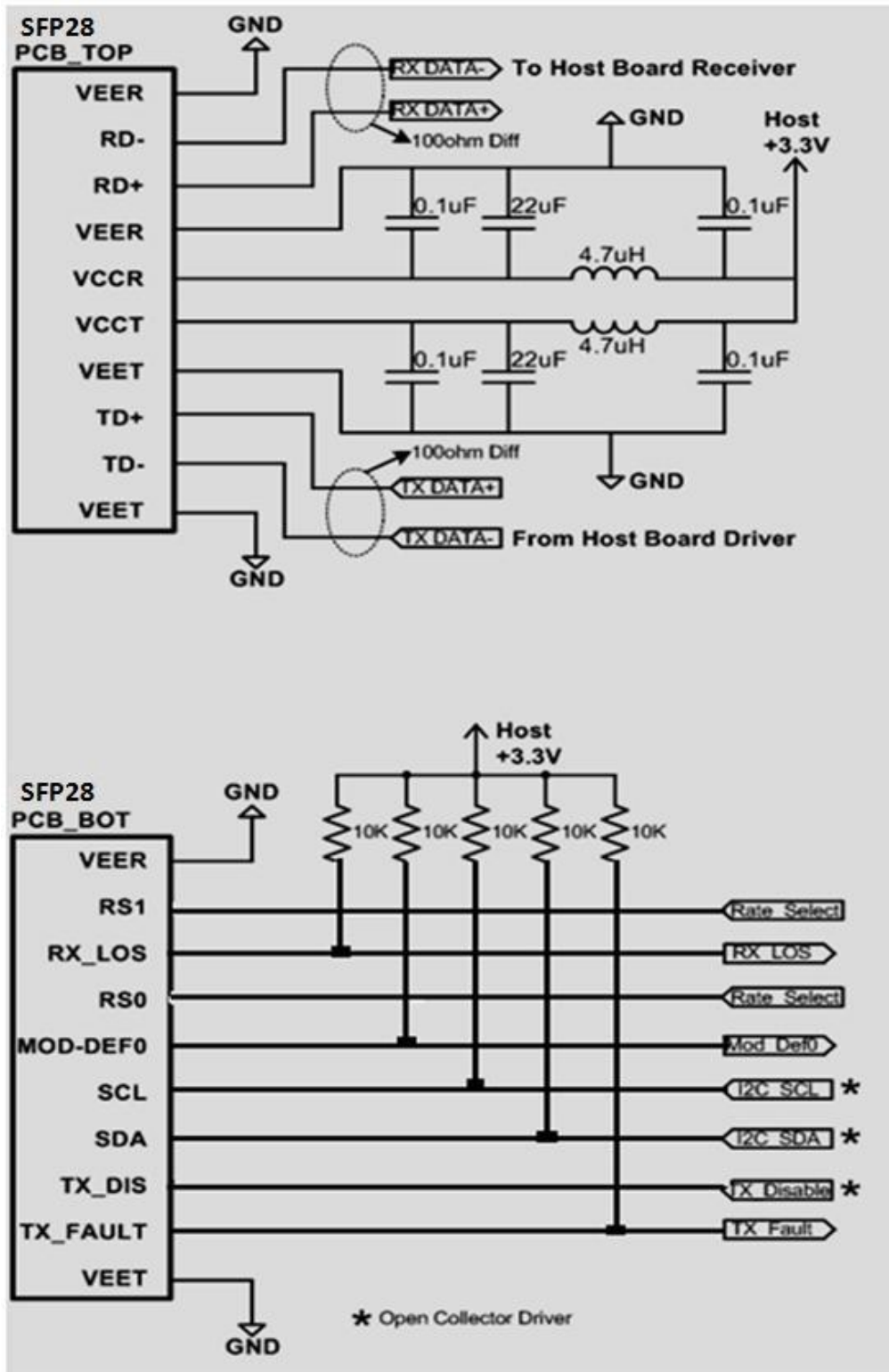
## Features

- Hot pluggable
- Bit rate support from 25G to 28Gbps
- Pre-terminated fiber cable
- Operating environment temperature 0 ~ 70°C
- Maximum power consumption 1.0W each terminal
- SFP28 housing with enhanced EMI shielding
- Single 3.3V power supply
- Programmable EEPROM for serial identification
- Up to 70m/100m by active optical cable with OM3/OM4 fiber
- SFF-8432 Mechanical MSA
- RoHS complaint

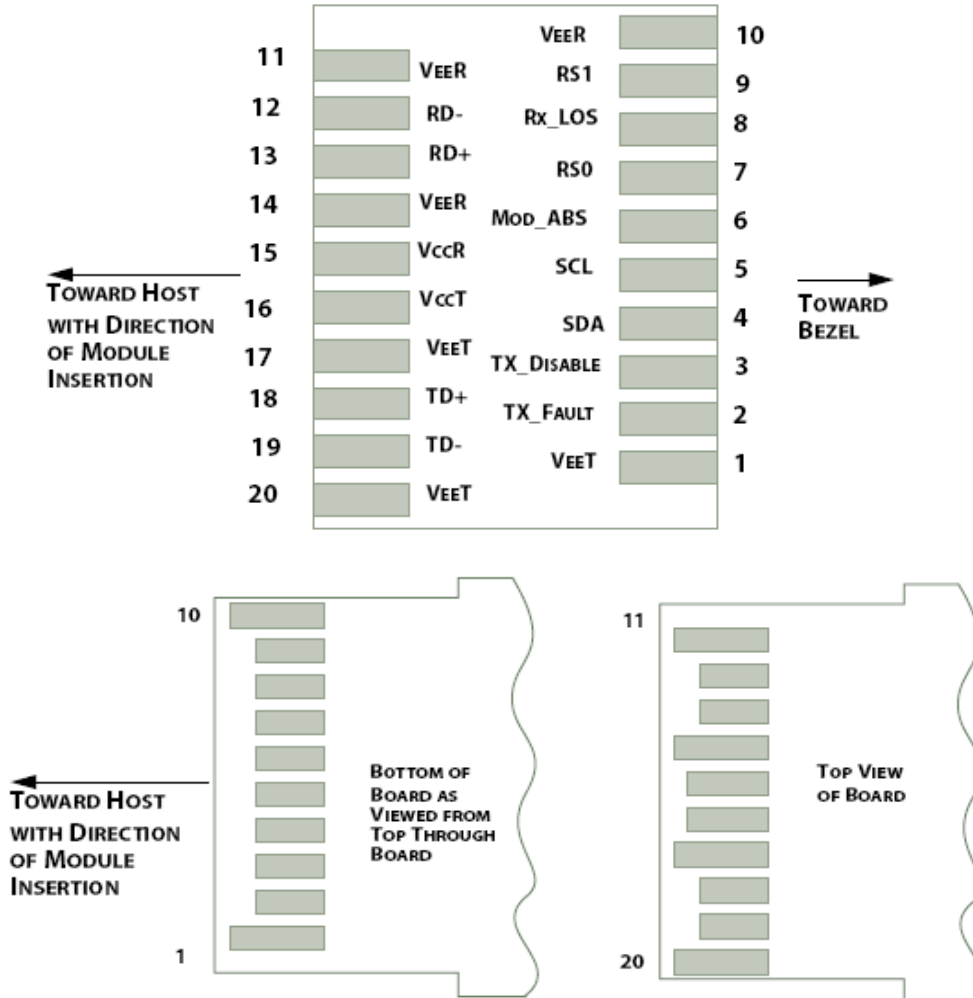
## Applications

- 25G Ethernet
- High capacity IO with SFP28 interface
- Data center and in-rack connection

Proposed Application Schematics



### Pin Definition and Descriptions



PIN	Logic	Symbol	Name / Description	Note
1		VeeT	Module Transmitter Ground	1
2	LVTTL-O	TX_Fault	Module Transmitter Fault	
3	LVTTL-I	TX_Dis	Transmitter Disable; Turns off transmitter laser output	
4	LVTTL-I/O	SDA	2-Wire Serial Interface Data Line	2
5	LVTTL-I	SCL	2-Wire Serial Interface Clock	2
6		MOD_DEF0	Module Definition, Grounded in the module	
7	LVTTL-I	RS0	Receiver Rate Select, default is high for 8G/10G application, when set to low by system, transceiver will set the bandwidth to under 4.25G to improve the sensitivity at low data rate	

8	LVTTL-O	RX_LOS	Receiver Loss of Signal Indication Active LOW	
9	LVTTL-I	RS1	Transmitter Rate Select, default input is high for 8G/10G application, when set to low by system, transceiver will set the TX optical output to be compliant with low data rate fiber channel specifications	
10		VeeR	Module Receiver Ground	1
11		VeeR	Module Receiver Ground	1
12	CML-O	RD-	Receiver Inverted Data Output	
13	CML-O	RD+	Receiver Data Output	
14		VeeR	Module Receiver Ground	1
15		VccR	Module Receiver 3.3 V Supply	
16		VccT	Module Transmitter 3.3 V Supply	
17		VeeT	Module Transmitter Ground	1
18	CML-I	TD+	Transmitter Non-Inverted Data Input	
19	CML-I	TD-	Transmitter Inverted Data Input	
20		VeeT	Module Transmitter Ground	1

**Note:**

1. Module ground pins GND are isolated from the module case.
2. Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.45V on the host board.

## Absolute Maximum Ratings

These values represent the damage threshold of the module. Stress in excess of any of the individual Absolute Maximum Ratings can cause immediate catastrophic damage to the module even if all other parameters are within Recommended Operating Conditions.

Parameters	Symbol	Min.	Max.	Unit
Power Supply Voltage	V <sub>CC</sub>	0	3.6	V
Storage Temperature	T <sub>c</sub>	-40	85	°C
Operating Case Temperature	T <sub>c</sub>	0	70	°C
Relative Humidity	RH	5	95	%

## Recommended Operating Environment

Recommended Operating Environment specifies parameters for which the electrical and optical characteristics hold unless otherwise noted.

Parameters	Symbol	Min.	Typical	Max	Unit
Power Supply Voltage	V <sub>CC</sub>	3.135	3.3	3.465	V
Power Supply Current	I <sub>CC</sub>			300	mA
Operating Case Temperature	T <sub>c</sub>	0	25	70	°C
Data Rate		-	25.78125	-	Gbps
Fiber Bend Radius	R <sub>bend</sub>	3			cm

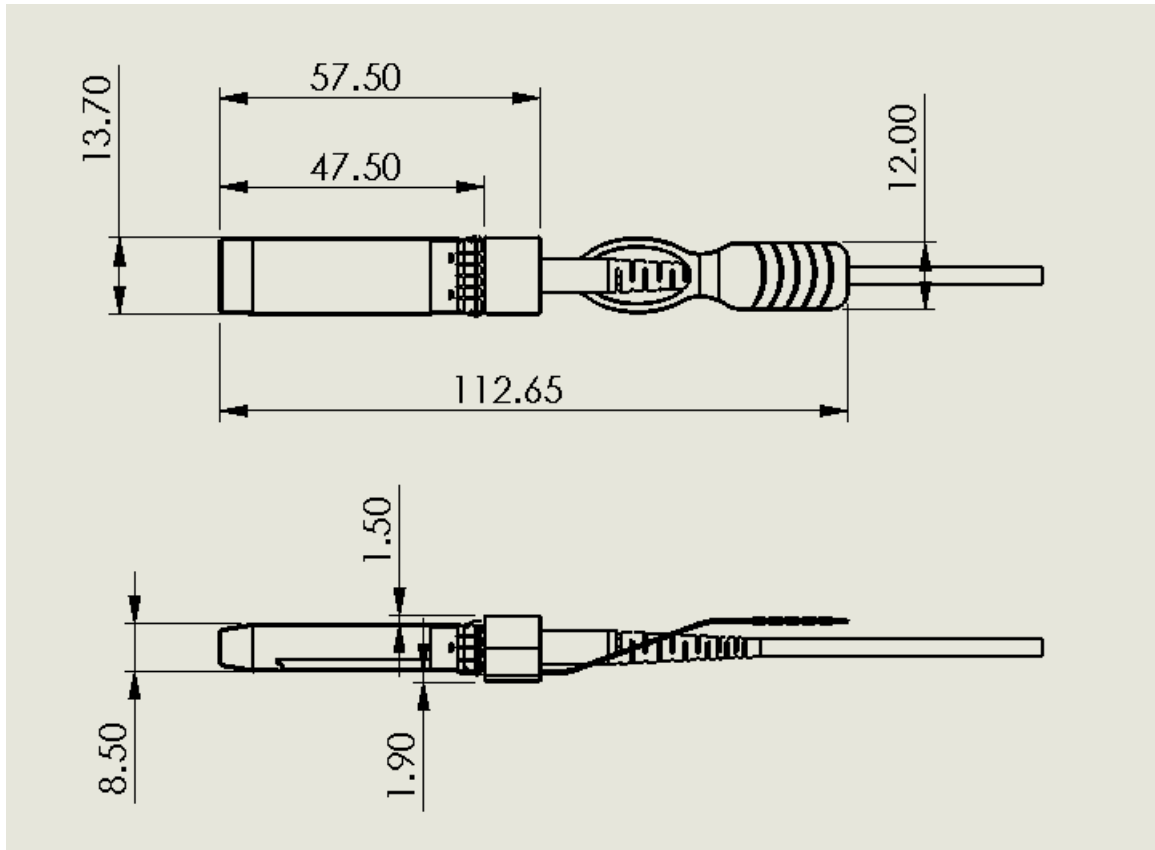
## Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
Power Consumption				1.0	W	
Supply Current	I <sub>cc</sub>			300	mA	
<b>Transmitter</b>						
Overload Differential Voltage pk-pk	TP1a	900			mV	
Common Mode Voltage (V <sub>cm</sub> )	TP1	-350		2850	mV	2
Differential Termination Resistance Mismatch	TP1			10	%	At 1MHz
Differential Return Loss (SDD11)	TP1			See CEI-28G-VSR Equation 13-19	dB	
Common Mode to Differential conversion and Differential to Common Mode conversion (SDC11, SCD11)	TP1			See CEI-28G-VSR Equation 13-20	dB	
Stressed Input Test	TP1a	See CEI-28G-VSR Section 13.3.11.2.1				
<b>Receiver</b>						
Differential Voltage, pk-pk	TP4			900	mV	
Common Mode Voltage (V <sub>cm</sub> )	TP4	-350		2850	mV	2
Common Mode Noise, RMS	TP4			17.5	mV	
Differential Termination Resistance Mismatch	TP4			10	%	At 1MHz
Differential Return Loss (SDD22)	TP4			See CEI-28G-VSR Equation 13-19	dB	
Common Mode to Differential conversion and Differential to Common Mode conversion (SDC22, SCD22)	TP4			See CEI-28G-VSR Equation 13-21	dB	
Common Mode Return Loss (SCC22)	TP4			-2	dB	3
Transition Time, 20 to 80%	TP4	9.5			Ps	
Eye Width at 10 <sup>-15</sup> probability	TP4	0.57			UI	
Eye Height at 10 <sup>-15</sup> probability	TP4	228			mV	



## Mechanical

Comply to SFF-8432 rev. 5.0, the improved Pluggable form factor specification.



## ESD

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kv for all others electrical input pins, tested per MIL-STD-883, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module. This transceiver is shipped in ESD protective packaging. It should be removed from the packaging and handled only in an ESD protected environment.

## LASER Safety

This is a Class 1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007)