SFP28 Active Optical Cable

Key Features

- Up to 25.78 Gbps
- Single 3.3 V power supply
- Low power consumption: < 0.8 W per end
- Up to 150 m using OM3 fibers
- Hot pluggable
- RoHS compliant
- Commercial operating case temperature range: 0 to 70°C
- LSZH, LSZH/OFNR, OFNP-rated cables
- TUV/UL-certified

Applications

- 10/25G Ethernet
- Proprietary high-speed interconnections

Description

SFP28 AOC fully takes advantage of the high transmission bandwidth, low power consumption, and long reach.

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1. Absolute Maximum Ratings

Parameters	Symbol	Min.	Typ.	Max.	Units	Note
Supply Voltage	V_{IN}	0	-	4.0	V	
Storage Temperature	T_{STG}	-40	-	85	°C	Ambient
Relative Humidity	RH	0		85	%	

2. Operating Specifications

Parameters	Symbol	Min.	Typ.	Max.	Units	Note
Operating Case Temperature	T_{OP}	0	-	70	°C	
Power Supply Voltage	V_{CC}	3.13	3.30	3.47	V	
Power Supply Current	I_{CC}	-	220	-	mA	Per End
Power Consumption		-	-	0.8	W	Per End

3. Electrical Characteristics

Parameters	Symbol	Min.	Typ.	Max.	Units	Note
Data Rate	BR	10.00	25.78	-	Gbps	
Transmitter						
Input Differential Impedance	R_{IN}	-	100	-	Ω	
Differential Data Input Swing	V_{INP-P}	200	-	900	mV	
Receiver						
Output Differential Impedance	R_{OUT}	-	100	-	Ω	
Differential Data Output Swing	V_{OUTP-P}	-	-	800	mV	
Raw Bit Error Ratio (at 25.78 Gbps)	-	-	-	10^{-8}	-	PRBS 2^{31}-1

4. Pin Description

Pin	Name	Description	Note
1	VeeT	Module Transmitter Ground	1
2	Tx_Fault	Module Transmitter Fault	2
3	Tx_Disable	Transmitter Disable; Turns off transmitter laser output	3
4	SDA	2-wire Serial Interface Data Line	4
5	SCL	2-wire Serial Interface Clock	4
6	Mod_ABS	Module Absent, grounded within the module	
7	RS0	Rate Select 0, optionally controls SFP+ module receiver	5
8	Rx_LOS	Receiver Loss of Signal Indication	2
9	RS1	Rate Select 1, optionally controls SFP+ module transmitter	5
10	VeeR	Module Receiver Ground	1
11	VeeR	Module Receiver Ground	1
12	RD-	Receiver Inverted Data Output	
13	RD+	Receiver Non-Inverted Data Output	
14	VeeR	Module Receiver Ground	1
15	VccR	Module Receiver 3.3V Supply	
16	VccT	Module Transmitter 3.3V Supply	
17	VeeT	Module Transmitter Ground	1
18	TD+	Transmitter Non-Inverted Data Input	
19	TD-	Transmitter Inverted Data Input	
20	VeeT	Module Transmitter Ground	1

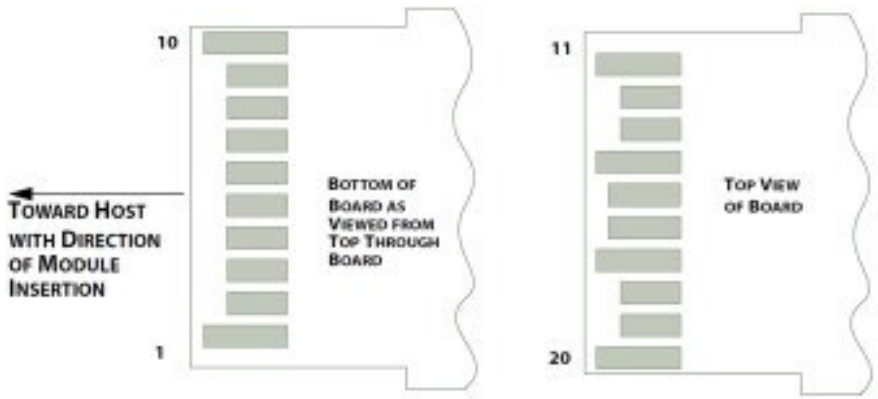
Note : 1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.

2.The TTL level TX Fault is an open collector/drain output, which should be pulled up with a 4.7 – 10 kΩ resistor on the host board to VccT. When high, output indicates a laser fault of some kind. Low indicates normal operation. In the low state, the output will be pulled to < 0.8V. When sensing an improper power level in the laser driver, the SFP sets this signal high and turns off the laser. TX-FAULT can be reset with the TX-DISABLE line.

3. TX disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7 – 10 kΩ resistor. The states are: Low (0 – 0.8V): Transmitter on / (>0.8, < 2.0V): Undefined / High (>2.0): Transmitter Disabled / Open: Transmitter Disabled. Make TX-DISABLE high (TTL logic "1") to turn off the laser output. The laser will turn on when TX-DISABLE is low (TTL logic "0").

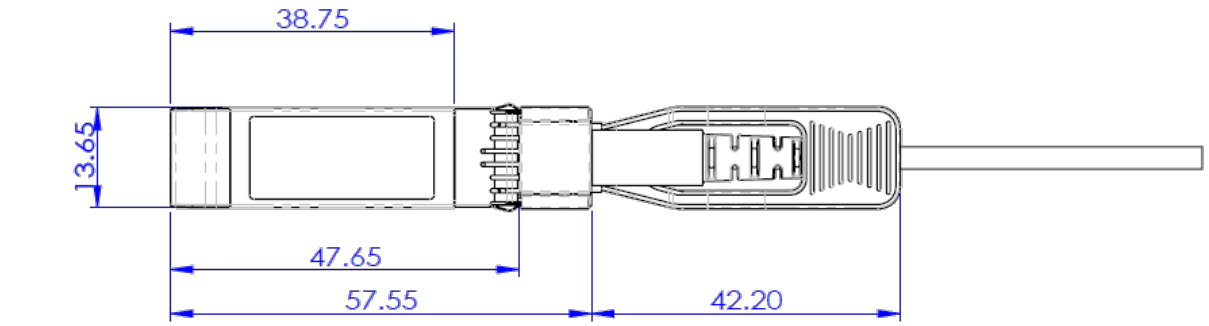
4.These are the module definition pins. They should be pulled up with a 4.7 – 10 kΩ resistor on the host board to supply less than VccT+0.3V or VccR+0.3V.

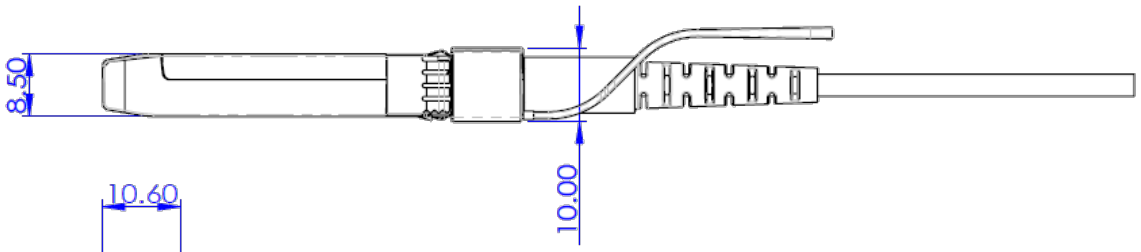
5. No used.

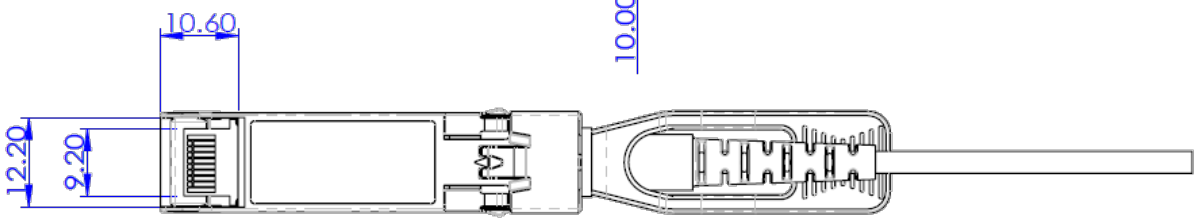


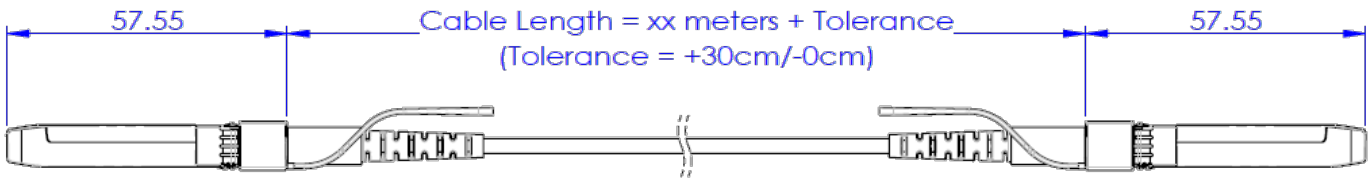
PAD Layout

5. Mechanical Specifications









6. Active Optical Cable

Parameter	Value	Unit	Note
Cable Diameter	• LSZH: Ø2.2 ± 0.15 • LSZH/OFNR, OFNP: Ø3.0 ± 0.2	mm	
Minimum Bend Radius	30	mm	
Length Tolerance	+300 / –0	mm	
Cable Jacket	LSZH, LSZH/OFNR, OFNP-rated, Aqua		

7. Ordering Information

Part Number	Description	Note
MD25EXXyyyZZ	SFP28, AOC, LSZH, yyy m, three-digit number yyy for length in meter	

Note 1) The maximum cable length is 150 m.
Note 2) The first digit A, B or C of the three-digit number denotes 0.25 m, 0.50 m and 0.75 m, respectively.
Note 3) The first digit A, B or C of the three-digit number can be used for the cable length no greater than 10 m.
Note 4) Cable jacket XX – GA (LSZH), GB (LSZH/OFNR), GC (OFNP)

Examples

Part Number	Description
MD25EGAB00ZZ	SFP28, AOC, LSZH, 0.5m
MD25EGBA09ZZ	SFP28, AOC, LSZH/OFNR, 9.25m
MD25EGCC01ZZ	SFP28, AOC, OFNP, 1.75m

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