Соединитель, SFP28-SFP28, 25G, AOC, XXm

Соединители моделей SFP28-AOC-XXM являются сборками двух модулей SFP28 соединенных оптическим кабелем, XX от 1M до 100M в зависимости от модели

Особенности:
- до 25Gb/s
- 850nm VCSEL лазер и PIN фотоприемник
- одно питание 3.3В
- поддержка горячей замены
- соответствие спецификации SFP28 MSA SFF-8402

Области применения:
- 10GB / 25GB Ethernet

Recommended Operation Condition

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	Tc	0	-	+70	℃	
Power Supply Voltage	Vcc	3.14	3.3	3.47	V	
Power Supply Current	Icc	-	-	300	mA	
Power Dissipation	Pd	-	-	1.0	W	
Bit Rate	BR	8.5	25.78125	-	Gbps	
Fiber Bend Radius	Rb	3	-	-	cm	

Electrical Characteristics

Parameter		Symbol	Min	Typ	Max	Units	Notes
Electrical Transmitter Characteristics							
Differential Data Input Swing		Vin,p-p	200	-	1600	mVpp	
Input Differential Impedance		ZIN	90	100	110	Ω	
Tx_Fault	Normal Operation	VOL	0	-	0.8	V	
	Transmitter Fault	VOH	2.0	-	Vcc	V	

Tx_Disable	Normal Operation	VIL	0	-	0.8	V	
	Laser Disable	VIH	2.0	-	Vcc+0.3	V	
Electrical Receiver Characteristics							
Differential Date Output Swing		Vout	400	-	800	mV	
Output Differential Impedance		ZD	90	100	110	Ω	
Rx_LOS	Normal Operation	VOL	0	-	0.8	V	
	Transmitter Fault	VOH	2.0	-	Vcc	V	

Optical Characteristics

Parameter	Symbol	Unit	Min	Typical	Max	Notes
Optical transmitter Characteristics						
Bit Rate	BR	Gbps	8.5	25.78125		
Centre Wavelength Range	λc	nm	820	850	880	
Average Output Power Tx_off	Poff	dBm	-	-	-45	
Launch Optical Power	Po	dBm	-6.0		2.4	1
Extinction Ratio	ER	dB	2	-	-	
Spectral Width(RMs)	RMs	nm	-	-	0.65	
Differential data input swing	VIN,PP	mV	40		1000	
Spectral Width(RMS)	RMS	nm	-	-	0.65	
Optical Receiver Characteristics						
Bit Rate	BR	Gbps	8.5	25.78125		
Bit Error Rate	BER		-	-	E-12	
Damage threshold	DT	dBm	3.4	-	-	
Overload Input Optical Power	PIN	dBm	2.4	-	-	2
Center Wavelength Range	λc	nm	820	-	880	
Receiver Sensitivity in Average Power	Sen	dBm	-	-	-5.2	3
LOS De-Assert	LosA	dBm	-30	-	-	
LOS Assert	LosD	dBm	-	-	-13	
LOS Hysteresis	LosH	dBm	0.5			

Note:

1. Coupled into 50/125 MMF.

Measured with PRBS 2^{31} -1 test pattern @25.78125Gbps.BER=E-12 3. BER=1x10^{-12} ; PRBS2^{31} -1@25.78125Gbps.

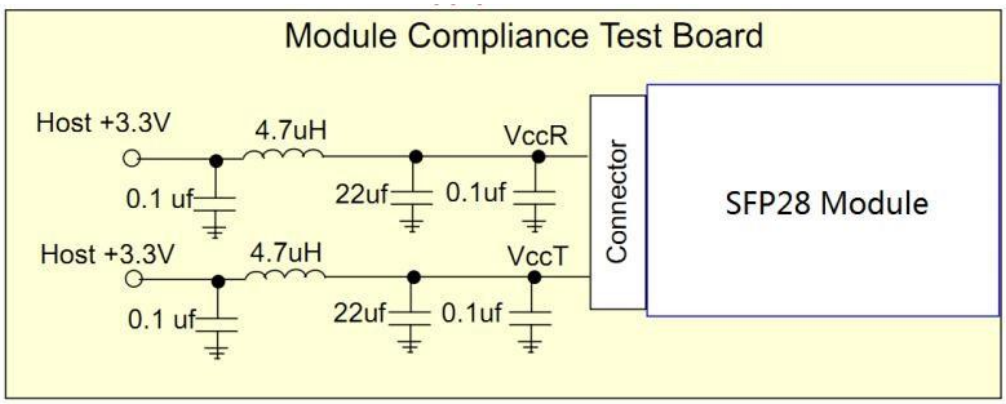


Figure 1, Recommended Host Board Power Supply Circuit

Pin Function Definitions

Pin Num.	Name	Function	Plug Seq.	Notes
1	VeeT	Transmitter Ground	1	
2	TX Fault	Transmitter Fault Indication	3	Note 1
3	TX Disable	Transmitter Disable	3	Note 2, Module disables on high or open
4	SDA	Module Definition 2	3	Data line for Serial ID.
5	SCL	Module Definition 1	3	Clock line for Serial ID.
6	MOD-ABS	Module Definition 0	3	Note 3
7	RS0	RX Rate Select (LVTTL).	3	Rate Select 0, optionally controls SFP28 module receiver. This pin is pulled low to VeeT with a >30K resistor..
8	LOS	Loss of Signal	3	Note 4
9	RS1	TX Rate Select (LVTTL).	1	Rate Select 1, optionally controls SFP28 module transmitter. This pin is pulled low to VeeT with a >30K resistor.
10	VeeR	Receiver Ground	1	Note 5
11	VeeR	Receiver Ground	1	Note 5
12	RD-	Inv. Received Data Out	3	Note 6

13	RD+	Received Data Out	3	Note 6
14	VeeR	Receiver Ground	1	Note 5
15	VccR	Receiver Power	2	3.3V ± 5%, Note 7
16	VccT	Transmitter Power	2	3.3V ± 5%, Note 7
17	VeeT	Transmitter Ground	1	Note 5
18	TD+	Transmit Data In	3	Note 8
19	TD-	Inv. Transmit Data In	3	Note 8
20	VeeT	Transmitter Ground	1	Note 5

Notes:

1) TX Fault is an open collector/drain output, which should be pulled up with a 4.7K – 10KΩ resistor on the host board. Pull up voltage between 2.0V and VccT/R+0.3V. 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.

2) TX disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7K~10 K Ω resistor. Its states are:

Low (0 – 0.8V): Transmitter on (>0.8, < 2.0V): Undefined

High (2.0 – 3.465V): Transmitter Disabled Open: Transmitter Disabled

3) Module Absent, connected to VeeT or VeeR in the module.

4) LOS (Loss of Signal) is an open collector/drain output, which should be pulled up with a 4.7K – 10KΩ resistor. Pull up voltage between 2.0V and Vcc_Host. When high, this output indicates the received optical power is below the worst-case receiver sensitivity (as defined by the standard in use). Low indicates normal operation. In the low state, the output will be pulled to < 0.8V.

5) VeeR and VeeT may be internally connected within the SFP28 module.

6) RD-/+: These are the differential receiver outputs. They are AC coupled 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board. The voltage swing on these lines will be between 185 and 425 mV differential (92.5 –212.5 mV single ended) when properly terminated.

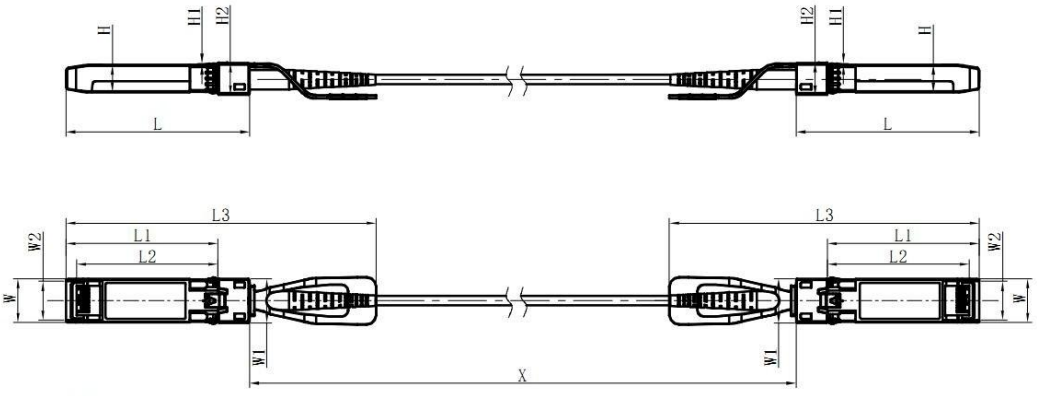
7) VccR and VccT are the receiver and transmitter power supplies. They are defined as 3.3V ±5% at the SFP+ connector pin. Maximum supply current is 340mA. Inductors with DC resistance of less than 1 ohm should be used in order to maintain the required voltage at the SFP28 input pin with 3.3V supply voltage. When the recommended supply-filtering network is used, hot plugging of the SFP28 transceiver module will result in an inrush current of no more than 30mA greater than the steady state value. VccR and VccT may be internally connected within the SFP28 transceiver module.

8) TD-/+: These are the differential transmitter inputs. They are AC-coupled, differential lines with 100Ω differential termination inside the module. The AC coupling is done inside the module and is thus not required on the host board. The inputs will accept differential swings of 90 – 800 mV (45 – 400 mV single-ended), though it is recommended that values between 90 and 800 mV differential (45 – 400 mV single-ended) be used for best EMI performance.

Mechanical Specifications

Parameter	Value	Units
Diameter	3	mm
Minimum bend radius	30	mm
Length tolerance	Length < 1 m: +5 /-0	cm
	1 m ≤length ≤ 4.5 m: +15 / -0	cm
	5 m ≤length ≤ 14.5 m: +30 / -0	cm
	Length≥15.0 m +2% / -0	m
Cable color	Aqua(OM3),Megenta(OM4)	

Mechanical Dimensions



Unit: mm

	L	L1	L2	L3	W	W1	W2	H	H1	H2
MAX	57.75	48.0	44.65	102.5	13.75	14.0	12.25	8.65	0.55	10.4
Typical	57.55	47.8	44.45	101.5	13.65	13.9	12.15	8.55	0.5	10.2
MIN	57.35	47.6	44.25	100.5	13.55	13.8	12.05	8.45	0.45	10.0