

FPMP28AOC-XX

25G SFP28 Active Optical Cable (AOC)

Features

- Compliant To Electrical SFF-8431
- 850nm VCSEL Laser and PIN Photo-detector
- Multi rate of up to 25.78125Gbps
- Max. Link length 70M on OM3 and 100M On OM4 MM Fiber
- +3.3V single power supply
- Low power consumption
- UL certification cables (optional)
- Operating case temp Commercial: 0°C to +70 °C
- RoHS 6/6 compliant

Applications

- 100GBASE-SR4 at 25.78125Gbps per lane
- Servers, Switches, Storage and Host Card adapters

Order Information

Part No.	Bit Rate	Laser	Distance	Fiber Type	DDMI	Connector	Temp.
FPMP28AOC-XX	25.78G	850nm	0.5~100m	MMF	YES	N/A	0°C~+70°C

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Storage Temperature	T _C	0	-	+70	°C	
Power Supply Voltage	V _{cc}	3.14	3.3	3.47	V	
Operating Humidity	RH	+5	-	+85	%	

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	T_C	0	-	+70	°C	
Power Supply Voltage	V_{CC}	3.14	3.3	3.47	V	
Power Supply Current	I_{CC}	-	-	300	mA	
Power Dissipation	P_d	-	-	1.0	W	1
Bit Rate	BR	8.5	25.78	-	Gbps	

Notes: Per terminal

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Differential Data Input Swing	$V_{in,P-P}$	200	-	1600	mV _{PP}	
Input Differential Impedance	Z_{IN}	90	100	110	Ω	
Tx_Fault	Normal Operation	V_{OL}	0	-	0.8	V
	Transmitter Fault	V_{OH}	2.0	-	V_{CC}	V
Tx_Disable	Normal Operation	V_{IL}	0	-	0.8	V
	Laser Disable	V_{IH}	2.0	-	$V_{CC}+0.3$	V
Receiver						
Differential Date Output	V_{out}	400	-	800	mV	
Output Differential Impedance	Z_D	90	100	110	Ω	
Rx_LOS	Normal Operation	V_{OL}	0	-	0.8	V
	Lose Signal	V_{oH}	2.0	-	V_{CC}	V

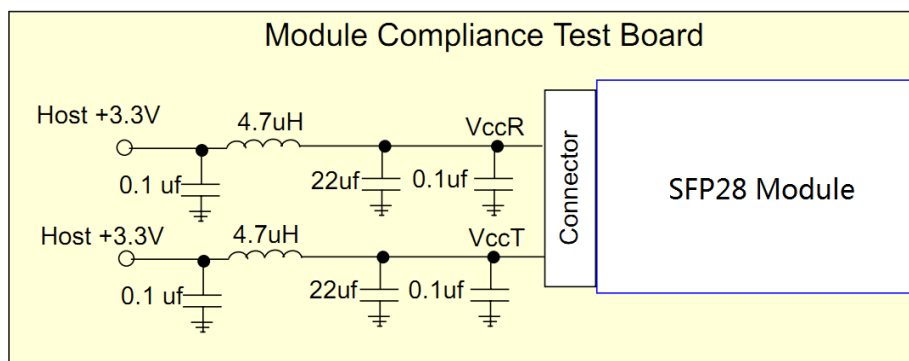
Optical Characteristics

Parameter	Symbol	Unit	Min.	Type	Max.	Notes
Optical transmitter Characteristics						
Bit Rate	BR	Gbps	8.5	25.78125	-	
Center Wavelength Range	λ_c	nm	820	850	880	
Average Launch power Tx_off	P_{off}	dBm	-	-	-45	
Launch Optical Power	P_0	dBm	-6.0		2.4	1
Extinction Ratio	ER	dB	2	-	-	
Optical Receiver Characteristics						
Bit Rate	BR	Gbps	8.5	25.78125		
Bit Error Rate	BER		-	-	E-12	
Overload Input Optical Power	P_{IN}	dBm	2.4	-	-	2

Notes:

1. Coupled into 50/125 MM Fiber
2. PRBS2^31-1@25.78125Gbps

Recommended Host Board Power Supply Circuit



Recommended Interface Circuit

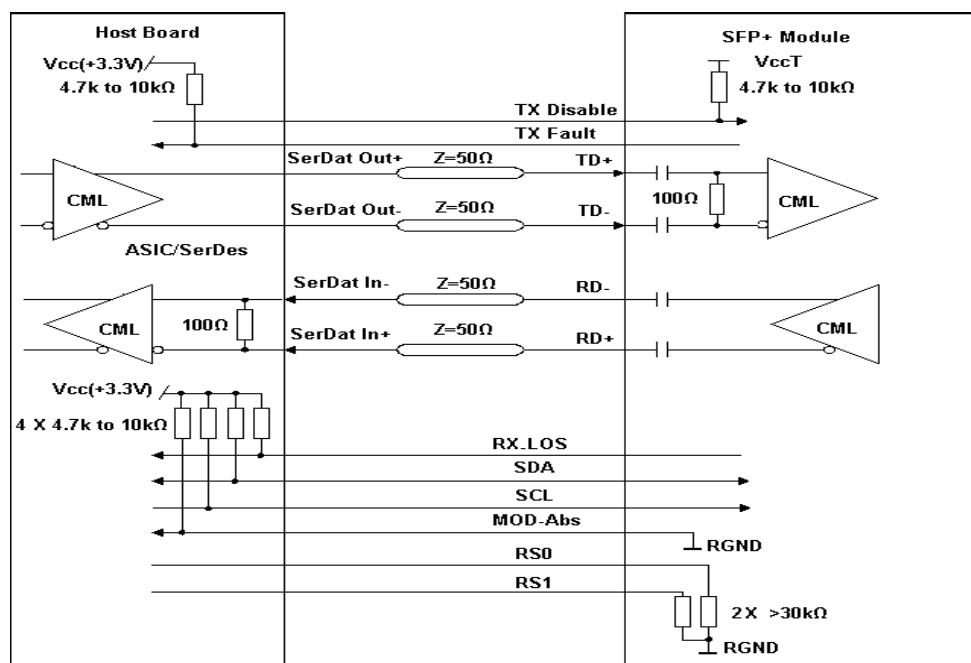


Figure 1, Recommended Interface Circuit

Pin arrangement

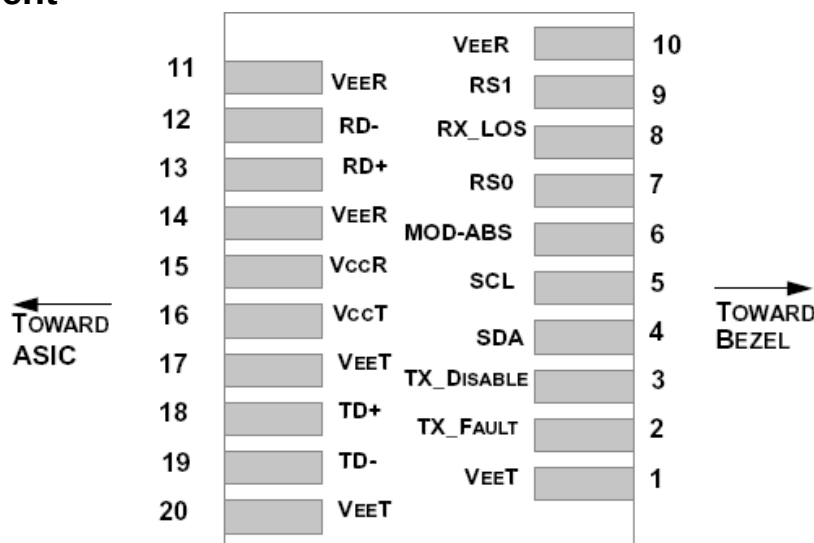


Figure 2, Pin View

Pin	Symbol	Name/Description	Notes
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 (MOD-DEF2)	
5	SCL	2-Wire Serial Interface Clock (MOD-DEF1)	
6	MOD_ABS	Module Absent, connected to V _{EE} T or V _{EE} R in the module	2
7	RS0	Rate Select0, optionally controls SFP+ module receiver	4
8	RX_LOS	Loss of Signal Indication (In FC designated as Rx_LOS and in Ethernet designated as NOT Signal Detect)	2
9	RS1	optionally controls SFP+ module transmitter	4
10	V _{EE} R	Module Receiver Ground	1
11	V _{EE} R	Module Receiver Ground	1
12	RD-	Receiver Inverted Data Output	
13	RD+	Receiver Non-Inverted Data Output	
14	V _{EE} R	Module Receiver Ground	1
15	V _{CC} R	Module Receiver 3.3 V Supply	
16	V _{CC} T	Module Transmitter 3.3 V Supply	
17	V _{EE} T	Module Transmitter Ground	1
18	TD+	Transmitter Non-Inverted Data Input	
19	TD-	Transmitter Inverted Data Input	
20	V _{EE} T	Module Transmitter Ground	1

Notes:

1. The module ground pins are isolated from the module case.
2. The pins shall be pulled up with 4.7K-10K ohms to a voltage between 3.14V and 3.46V on host board.
3. The pin is pulled up to VCCT with a 4.7K-10KΩ resistor in the module.
4. See SFF-8472 Rev12.2 Table

Monitoring Specification

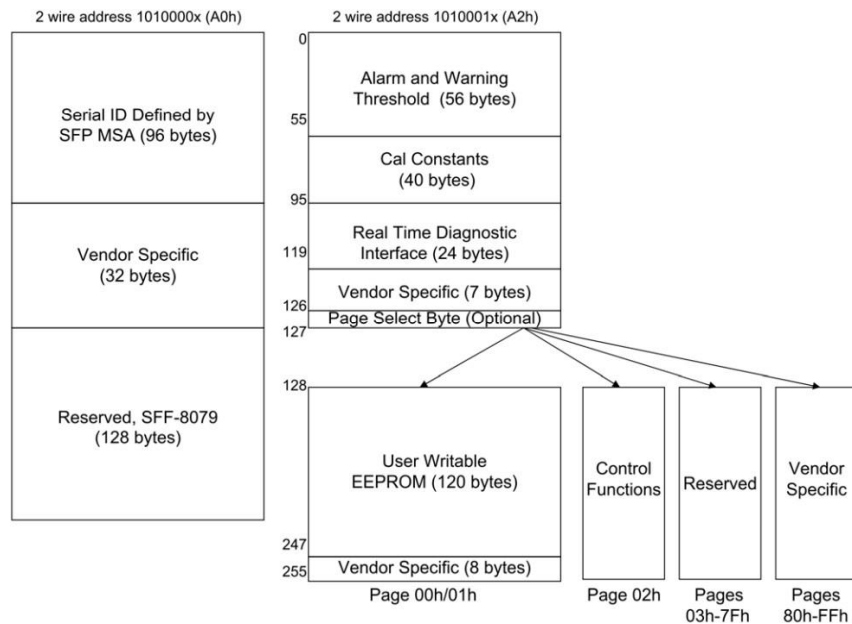
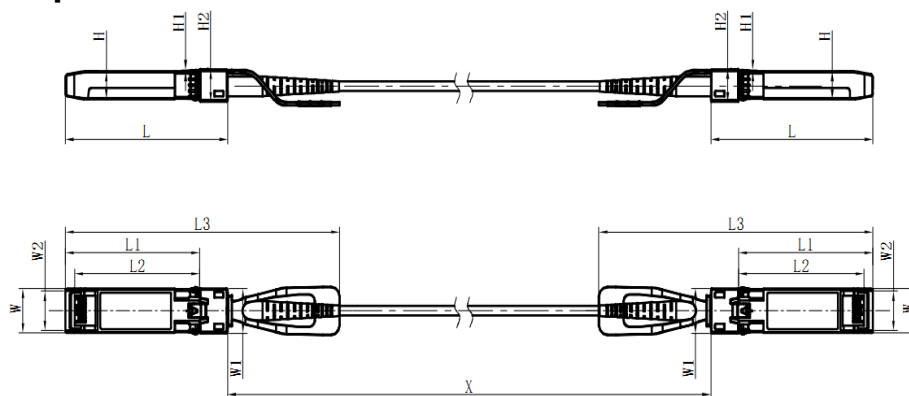


Figure 3, Memory Map

Mechanical Specifications



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

Figure 4, Mechanical Diagram

Handling Precautions:

This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety:

Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.