WAVESPLITTER™ TECHNOLOGIES, INC.

Data Sheet

25G SFP28 AOC Active Optical Cable

P/N: WST-S28-AOC-xxxC

Features:

- Hot pluggable interface
- Supports 25Gbps data rate
- 850nm VCSEL laser and PIN photo detector
- Maximum power consumption 1W
- Single power supply 3.3V
- Compliant with SFF 8472, SFF-8431, and SFF-8432
- Maximum link length of 70m on OM3 and 100m on OM4 MMF
- ROHS Compliant
- Operating case temperature Commercial: 0°C to +70 °C

Applications:

- 25GBASE-SR Ethernet
- Servers, switches, storage and host card adapters
- Other optical links

Descriptions

The series of 25G AOC SFP28 transceivers comply with SFF-8431 for Small Form Factor Pluggable (SFP+). It is designed for multi-mode fiber application with high performance and cost-effective. Each module consists of the high-speed laser diode and photo diode as a light source and a detector. An EEPROM contained the detailed product information for the host equipment is accessed by the 2-wire serial CMOS EEPROM protocol. It complies with the laser class 1 products and EN60825-1.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit
Supply Voltage	Vcc_3	-0.5		+3.6	V
Storage Temperature	T_s	-5		+75	°C
Operating Humidity (No condensation)	RH	5		85	%

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	T_C	0		+70	°C	
Power Supply Voltage	Vcc	3.14	3.3	3.47	V	
Power Supply Current	Icc			300	mA	

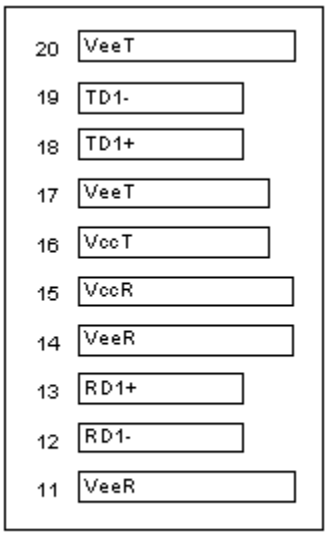
Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Data Rate	BR		25.7815		Gbps	
Power Consumption	P_C			1	W	
Transmitter						
Input Differential Impedance	R_{IN}	90	100	110	Ω	
Input Data Differential Swing	VI	200		1000	mV	
Tx_Fault Voltage - High	V_{FH}	2		VCC+0.3	V	
Tx_Fault Voltage - Low	V_{FL}	-0.3		0.4	V	
Tx_Disable Voltage - High	V_{DH}	2		VCC	V	
Tx_Disable Voltage - Low	V_{DL}	-0.3		0.8	V	
Receiver						
Output Differential Impedance	R_{OUT}	90	100	110	Ω	
Rx Output Differential Voltage	V_O	200		1000	mV	
RX_LOS Level High		2		Vcc+0.3	V	
RX_LOS Level Low		-0.3		0.4	V	
Bit Error Rate (BER)				1E-12		1

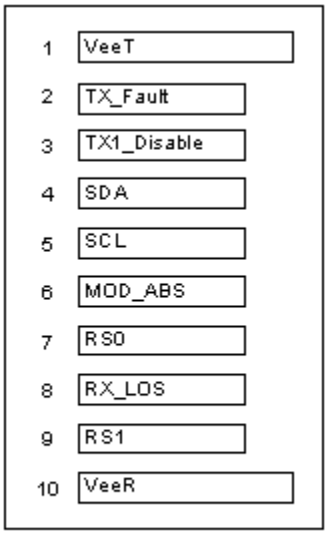
Note:

1. PRBS2^31-1@25.78125Gbps

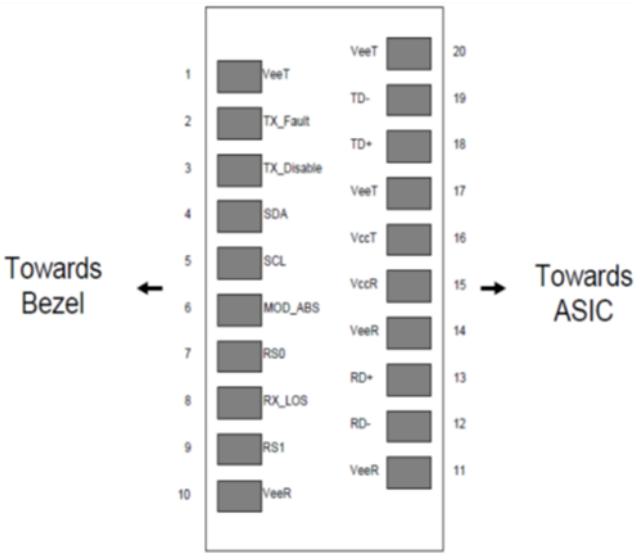
Pin Assignment



Top of Board



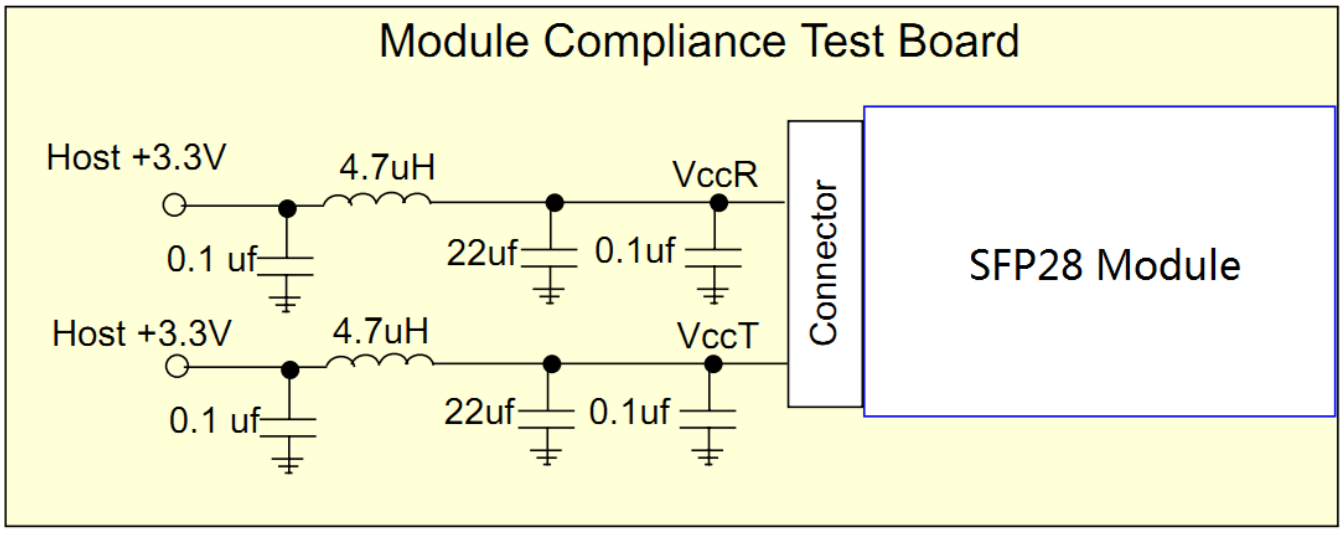
Bottom of Board
(as viewthrough top of board)



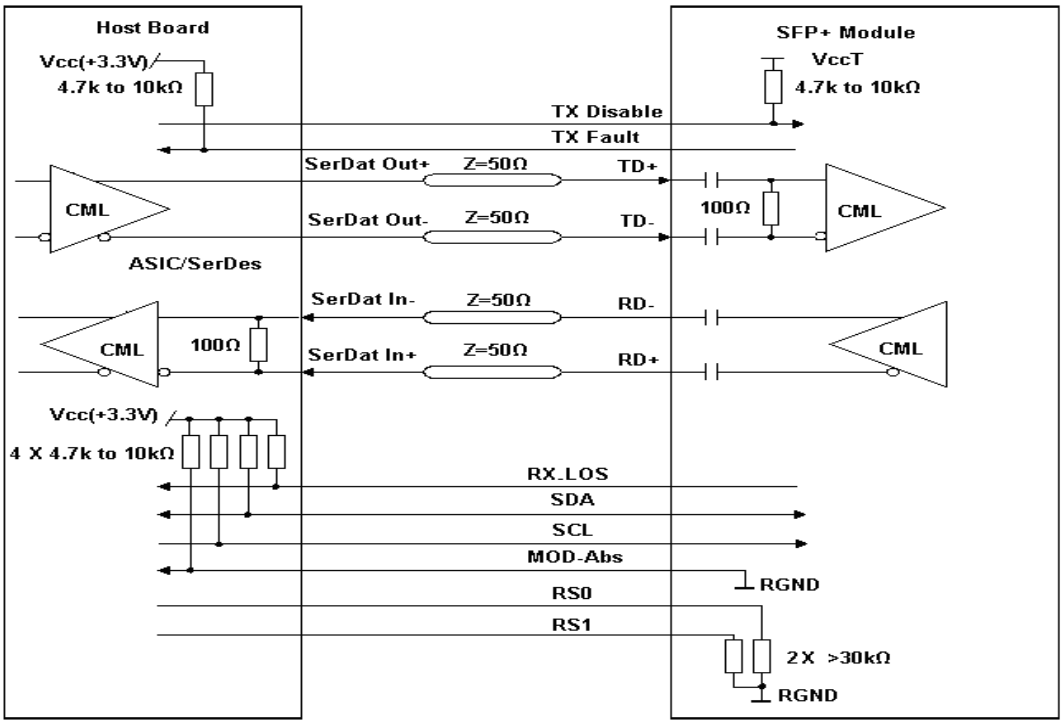
Pin	Pin Name	Description	I/O / Level
1	$V_{ee}T$	Transmitter Ground	Input
2	TX_Fault	Transmitter Fault Indication. High Level Indicates “Laser Failure”.	Output / LVTTL
3	TX_Disable	Transmitter Disable. High Signal/Open Disables TX Laser Output.	Input / LVTTL
4	SDA	SDA, Data line for I2C Bus. Externally Pulled up	Input / Output
5	SCL	SCL, Clock for I2C Bus. Externally Pulled up	Input / Output
6	MOD_ABS	Module Absent, connected to VeeT or VeeR in the module.	--
7	RS0	Rate Select 0, Optionally Controls SFP+ Module Receiver. Select	Input / LVTTL
8	RX_LOS	Receiver Loss of Signal Indication. Low Signal Indicates Optical Signal is Present at RX Input. Should be Externally Pulled up.	Output / LVTTL
9	RS1	Rate Select 1, Optionally Controls SFP+ Module Receiver. Select	Input / LVTTL
10	$V_{ee}R$	Receiver Ground	Input
11	$V_{ee}R$	Receiver Ground	Input
12	RD -	Inverted receiver data output	Output / CML
13	RD +	Non-inverted receiver data output	Output / CML
14	$V_{ee}R$	Receiver Ground	Input
15	$V_{CC}R$	Receiver Power	Input
16	$V_{CC}T$	Non-Inverted Transmitter Data Input	Input
17	$V_{ee}T$	Inverted Transmitter Data Input	Input
18	TD +	Transmitter Data In	Input / CML
19	TD -	Inverted Transmitter Data In	Input / CML

20	VeeT	Transmitter Ground	Input

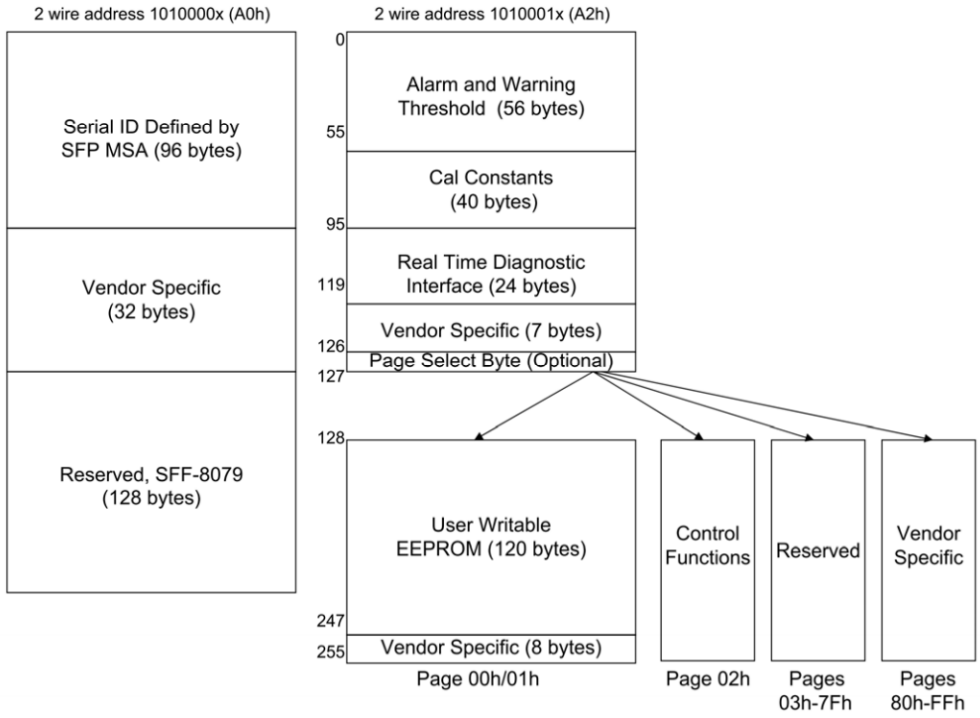
Recommended Host Board Power Supply Circuit



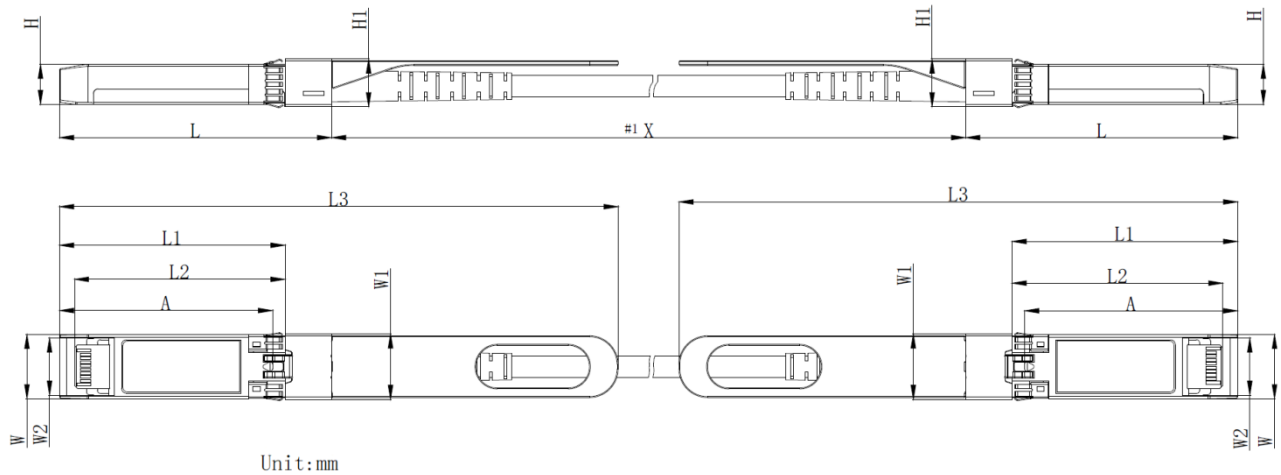
Recommended Interface Circuit



Memory Map



Mechanical Drawing



Unit:mm

	L	L1	L2	L3	W	W1	W2	H	H1	A
MAX	57.6	47.7	44.55	119.9	13.8	14.0	12.3	8.7	10.3	45.25
Typical	57.4	47.5	44.35	117.9	13.55	13.8	12.1	8.5	10.1	45
MIN	57.2	47.3	44.15	115.9	13.3	13.6	11.9	8.4	9.9	44.65

Unit: mm

Cable 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)		

Ordering Information

Part No	Specification						
	Package	Data rate	Fiber	Cable Type	Cable Length	Temp.	Application
WST-S28-AOC-013C	SFP28	25.78Gbps	OM3	LSZH	01 m	0~70°C	25GBASE-SR Ethernet
WST-S28-AOC-033C	SFP28	25.78Gbps	OM3	LSZH	03 m	0~70°C	25GBASE-SR Ethernet
WST-S28-AOC-053C	SFP28	25.78Gbps	OM3	LSZH	05 m	0~70°C	25GBASE-SR Ethernet
WST-S28-AOC-103C	SFP28	25.78Gbps	OM3	LSZH	10 m	0~70°C	25GBASE-SR Ethernet
WST-S28-AOC-153C	SFP28	25.78Gbps	OM3	LSZH	15 m	0~70°C	25GBASE-SR Ethernet
WST-S28-AOC-203C	SFP28	25.78Gbps	OM3	LSZH	20 m	0~70°C	25GBASE-SR Ethernet
WST-S28-AOC-xxxC	SFP28	25.78Gbps	OM3 or OM4	LSZH	xx m	0~70°C	25GBASE-SR Ethernet

Note:
WST-S28-AOC-xxxC
First two "xx" means Fiber Length. 01 means 1M, 02 means 2M.....10 means 10M and 15 means 15M
Third "x" means Fiber Type, 3 means OM3 Fiber; 4 means OM4 Fiber
Other cable type like OFNR or OFNP are available, please contact our sales.

Modification History

Revision	Date	Description	Originator	Review	Approved
V1.0	8-Nov-2019	New Issue	Shaoyu Lee	Wayne Liao	Wayne Liao
V1.1	20-Jul-2023	Revise contents	Ken Cheng	Tom Tang	Tom Tang
VA.0	31-Mar-2026	Revise PN rule	Cynthia Chen	Tom Tang	Wayne Liao

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