TITLE	DOC No. RFD-20250918200-002	
10G SFP+ Active Optical Cable	REVISION：01	AUTHORIZED BY：Hawk Rong
	DATE：2025.09.18	CLASSIFICATION ：Active Optical Cable

1. PRODUCT FEATURES

- 10.3125Gbps serial optical interface
- 850nm VCSEL transmitter and GaAs PIN PD receiver
- Case operating temperature range: 0°C to 70°C
- Power dissipation < 1.0W per cable end

2. PRODUCT APPLICATIONS

- Inter Rack Connection
- High-speed Servers
- High-performance Computing Clusters
- SAN, Routers, Hubs, Load Balancer

3. PRODUCT DESCRIPTION

The SFP+ AOC is intended for short reach service 10.3125Gb/s 850nm Multi-mode high-speed communications equipment where low-cost, extraordinary performance and reliability are essential. It consumes low power, operates base on 3.3V DC power supply and is offered in the industrial temperature range. They are compliant with SFP+ MSA, SFF-8431 and SFF-8432.

The low jitter and low bit error rate optical assembly features a VCSEL laser transmitter and PIN/TIA receiver. The differential AC coupled Tx and Rx data interfaces are CML compatible. The device is Class I laser safety compliant.

3.1 PRODUCT NAME AND SERIES NUMBER(S)

10G SFP+ Active Optical Cable

Bit Rate	Laser(nm)	Distance	Fiber Type	Connector	Tem.
10G SFP+ AOC	850nm	1~100m	MMF	N/A	C

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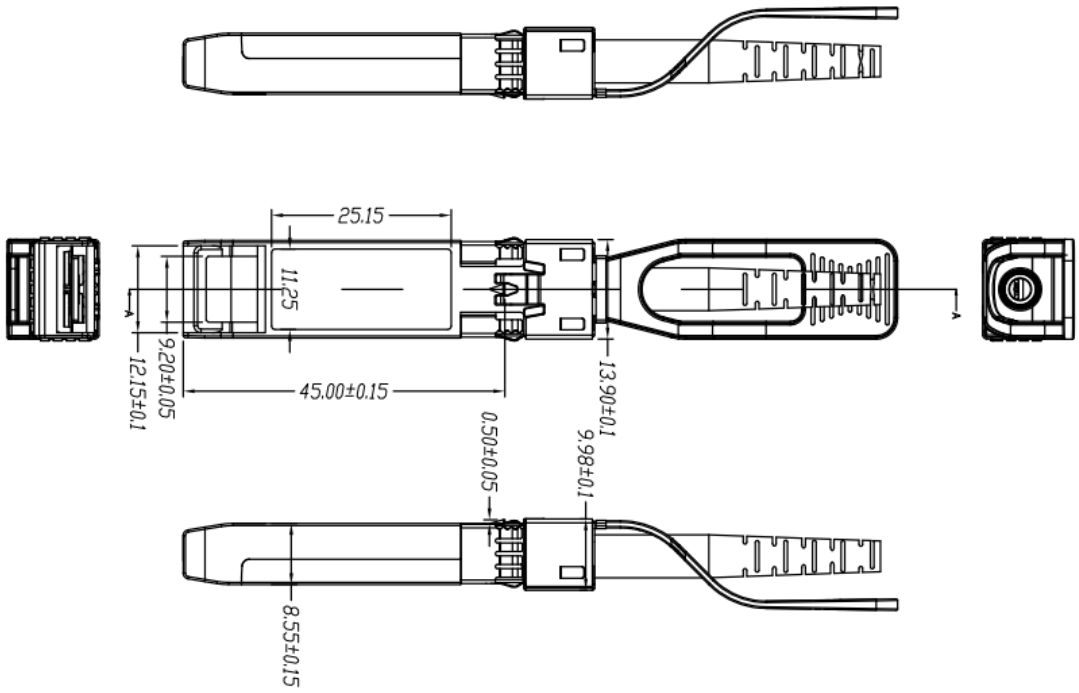
3.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKING



Unit is millimeter. All dimensions are ±0.1mm unless otherwise specified

4. AbsoluteMaximum Ratings

Parameter	Symbol	Conditions	Min.	Max.	Unit
Storage Temperature	$T_{Storage}$		-40	+85	℃
Relative Humidity	RH		0	+85	%

5. Recommended Operating Conditions

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Case Temperature	T_C		0		70	℃
Power Supply Voltage	V_{CC}		3.15	3.3	3.45	V
Data Rate				10.3125		Gbps
Data Rate Accuracy			-100		100	ppm
Bit Error Ratio					1e-12	

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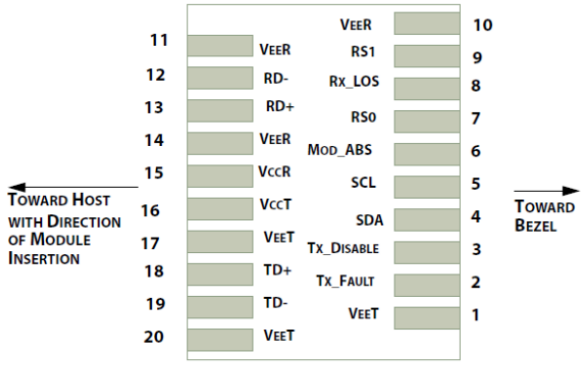
6. Electrical Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Power Consumption					1	W
Supply Current	Icc			180	300	mA

7. Applications Note:

Pin Definitions



Pin Function Definitions

PIN	Logic	Symbol	Name / Description
1		VeeT	Module Transmitter Ground
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
5	LVTTL-I	SCL	2-Wire Serial Interface Clock
6		MOD_DEF0	Module Definition, Grounded in the module
7	LVTTL-I	RS0	Receiver Rate Select
8	LVTTL-O	RX_LOS	Receiver Loss of Signal Indication Active LOW
9	LVTTL-I	RS1	Transmitter Rate Select (not used)
10		VeeR	Module Receiver Ground
11		VeeR	Module Receiver Ground
12	CML-O	RD-	Receiver Inverted Data Output
13	CML-O	RD+	Receiver Data Output
14		VeeR	Module Receiver Ground
15		VccR	Module Receiver 3.3 V Supply
16		VccT	Module Receiver 3.3 V Supply
17		VeeT	Module Transmitter Ground
18	CML-I	TD+	Transmitter Non-Inverted Data Input
19	CML-I	TD-	Transmitter Inverted Data Input
20		VeeT	Module Transmitter Ground

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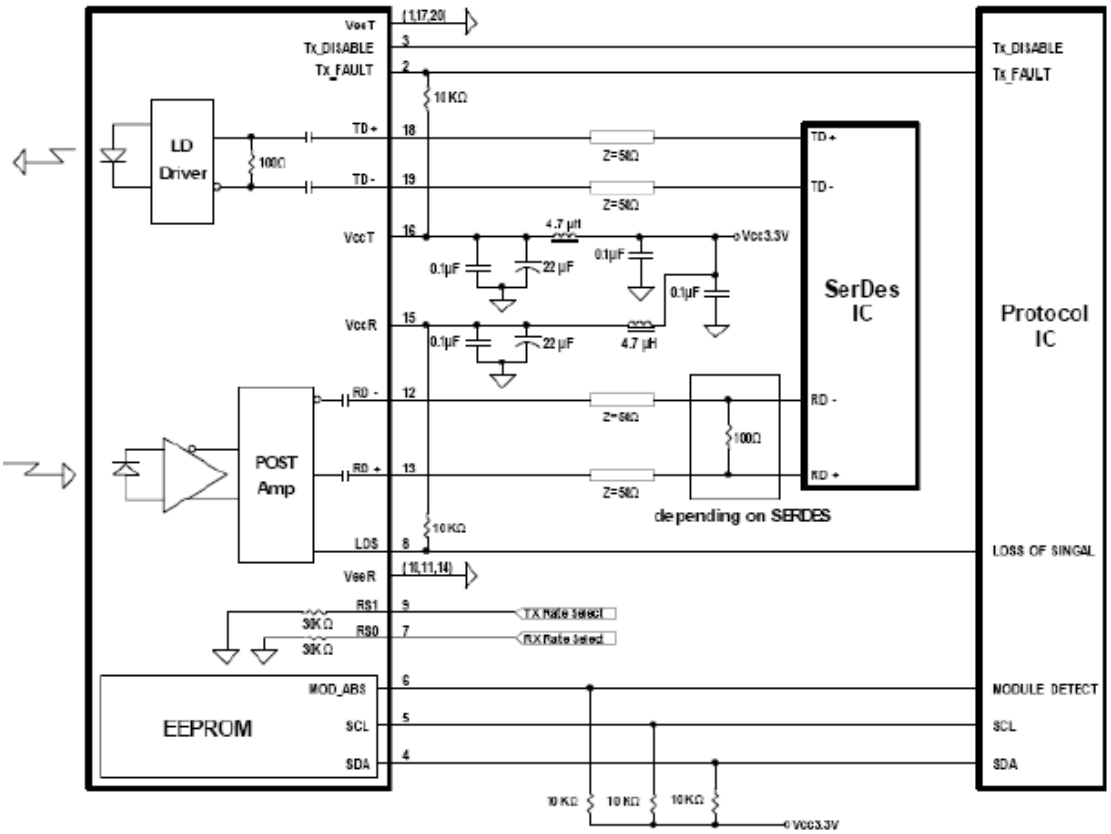
8. Recommended Interface Circuit



9. Digital Diagnostics Functions

As defined by the SFF-8472, Our SFP+ transceivers provide digital diagnostic functions via a 2-wire serial interface, which allows real-time access to the following operating parameters:

- Transceiver temperature
- Laser bias current
- Transmitted optical power
- Received optical power
- Transceiver supply voltage

It also provides a sophisticated system of alarm and warning flags, which may be used to alert end-users when particular operating parameters are outside of a factory-set normal range. The operating and diagnostics information is monitored

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and reported by a Digital Diagnostics Transceiver Controller (DDTC) inside the transceiver, which is accessed through the 2-wire serial interface. The memories are organized as a series of 8-bit data words that can be addressed individually or sequentially. The 2-wire serial interface provides sequential or random access to the 8 bit parameters, addressed from 0x00h to the maximum address of the memory. For more detailed information, including memory map definitions, please refer the SFF-8472 documentation.

10. Digital Diagnostic Monitor Accuracy

The following characteristics are defined over recommended operating conditions

Parameter	Accuracy	Unit
Internally measured transceiver temperature	+/-3	deg.C
Internally measured transceiver supply voltage	+/-3	%
Measured Tx bias current	+/-10	%
Measured Tx output power	+/-3	dB
Measured Rx received average optical power	+/-3	dB

11. Modification History

Rev.	Comments	Date	Originator	Approval
01	Initial	2025.09.18	Hawk Rong	Mike Sun