ATGBICS®

Technical Datasheet

SFP28-25G-AOCxM

25GBase SFP28 Active Optical Cable

1m to 100m Lengths, Commercial Temperature

FEATURES

- 25G Serial Optical Interface
- 850nm VCSEL Transmitter and GaAs PIN PD Receiver
- Power Dissipation < 1.0W per Cable End
- Commercial Operating Temperature Range: 0°C to 70°C

APPLICATIONS

- Inter Rack Connection
- High Speed Servers
- High Performance Computing Clusters
- SAN, Routers, Hubs, Load Balancer

DESCRIPTION

This SFP28 Active Optical Cable (AOC) is intended for short reach service 25.78Gb/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 SFP28 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. It utilizes internal clock and data recovery (CDR) units on transmitter and the receiver chains for low jitter compliance. The differential AC coupled Tx and Rx data interfaces are CML compatible. The device is Class I laser safety compliant.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Typical	Max.	Unit
Storage Temperature	Ts	-40	-	+85	°C
Storage Relative Humidity	RH	0	-	85	%

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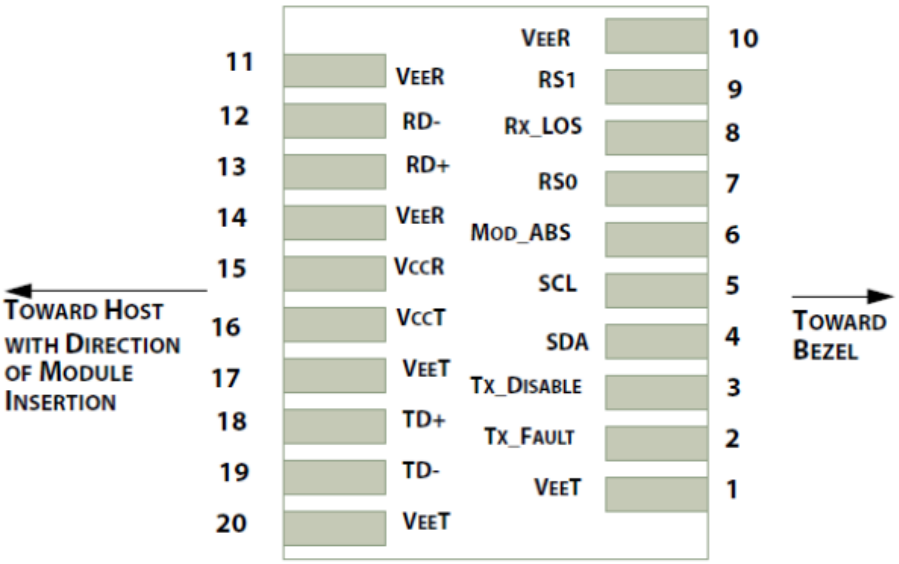
RECOMMENDED OPERATING ENVIRONMENT

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Temperature	Tc	0	-	+70	℃
Supply Voltage	Vcc	3.15	3.3	3.45	V
Data Rate		-	25.78125	-	Gbps
Data Rate Accuracy		-100	-	100	ppm
Pre-FEC Data Bit Error Ratio		-	-	5e-5	
Post-FEC Data Bit Error Ratio		-	-	1e-12	

ELECTRICAL CHARACTERISTICS

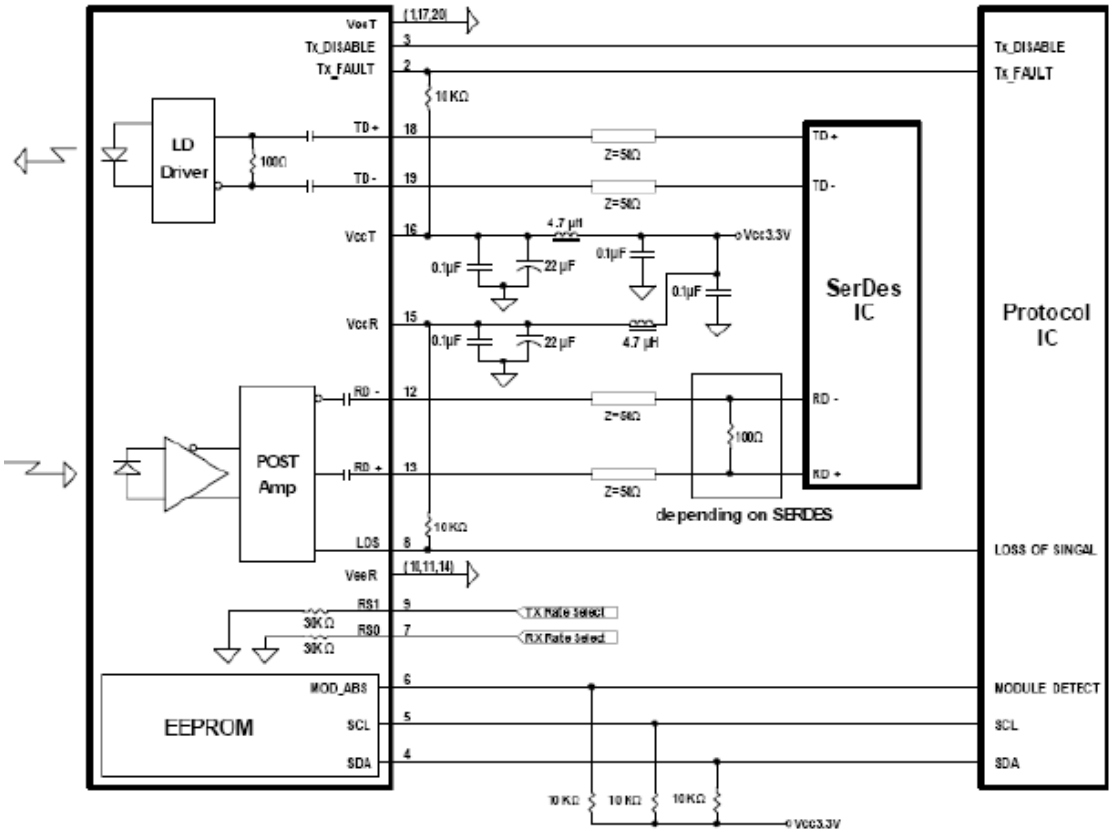
Parameter	Symbol	Min.	Typical	Max.	Unit
Power Consumption		-	-	1	W
Supply Current	Icc	-	180	300	mA

PIN ASSIGNMENT

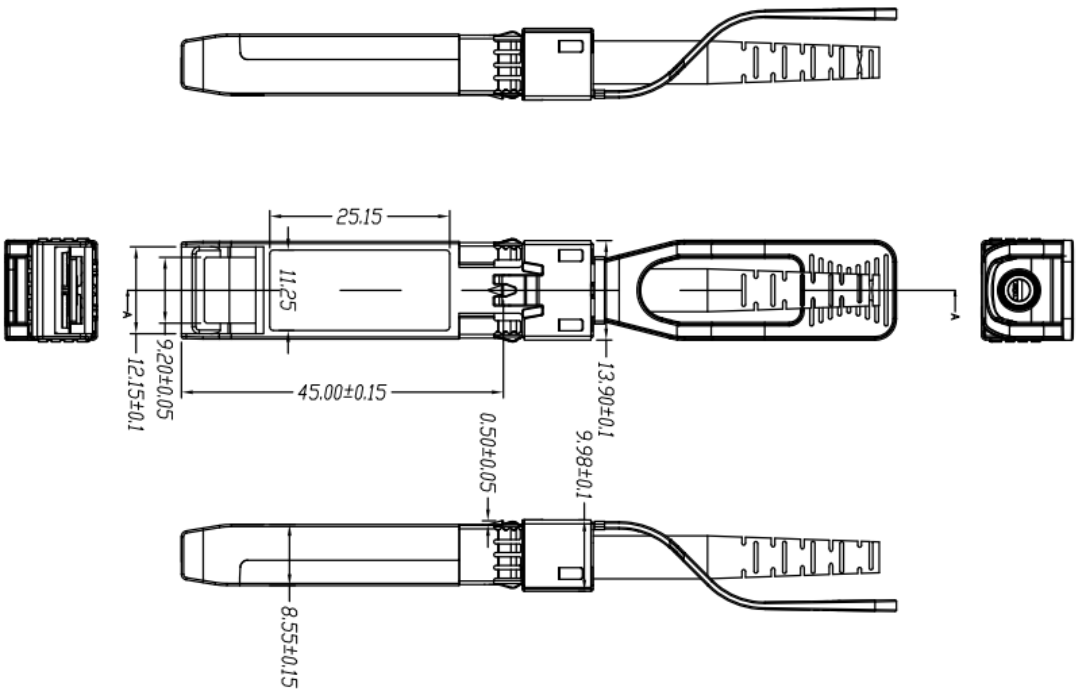


Pin	Logic	Symbol	Definition
1		VEET	Module Transmitter Ground
2	LVTTL-O	TX_FAULT	Module Transmitter Fault
3	LVTTL-I	TX_DIS	Transmitter Disable. Turns off transmitter laser output
4	LVTTL-I/O	SDA	2 Wire Serial Interface Data Line
5	LVTTL-I	SCL	2 Wire Serial Interface CLock
6		MOD_DEF(0)	Module Definition 0. Grounded within 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 3.3V Supply
16		VCCT	Module Receiver 3.3V 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

Recommended Interface Circuit



MECHANICAL DIMENSIONS (UNITS: mm)



Digital Diagnostics Functions

As defined by the SFF-8472, Our SFP28 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 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 to the SFF-8472 documentation.

Digital Diagnostic Monitor Accuracy

Parameter	Accuracy	Unit
Internally measured transceiver temperature	+/-3	ºC
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