25Gb/s SFP28 850nm Active Optical Cable

Product Features

- Up to 28Gbps Data rate per channel
- High Reliability 850nm VCSEL technology
- Electrically hot-pluggable
- Electrical interface compliant to SFF-8431
- Case operating temperature range: 0° C to 70° C
- Power dissipation < 1.0W per cable end

Applications

- 25G Ethernet
- Other optical data links

The Axiom optical transceiver is compliant with SFF-8431. It offers previously unavailable system cost, upgrade, and reliability benefits by virtue of being hot-pluggable.

Regulatory Compliance

Feature	Standard	Performance
Electromagnetic Interference (EMI)	FCC Part 15 Class B EN 55022:2010, Class B	Compatible with standards
Electromagnetic susceptibility (EMS)	EN 55024:2010	Compatible with standards
Laser Eye Safety	FDA 21CFR 1040.10 and 1040.11 EN60950, EN (IEC) 60825-1,2	Compatible with Class I laser product

Absolute Maximum Ratings

The operation in excess of any absolute maximum ratings might cause permanent damage to this module.

Parameter	Symbol	Min	Max	Unit	Notes
Storage Temperature	TS	-40	85	℃	
Operating Case Temperature	TOP	0	70	℃	
Power Supply Voltage	V_{CC}	-0.3	3.6	V	
Relative Humidity (non-condensation)	RH	5	85	%	

Recommended Operating Conditions and Power Supply Requirements

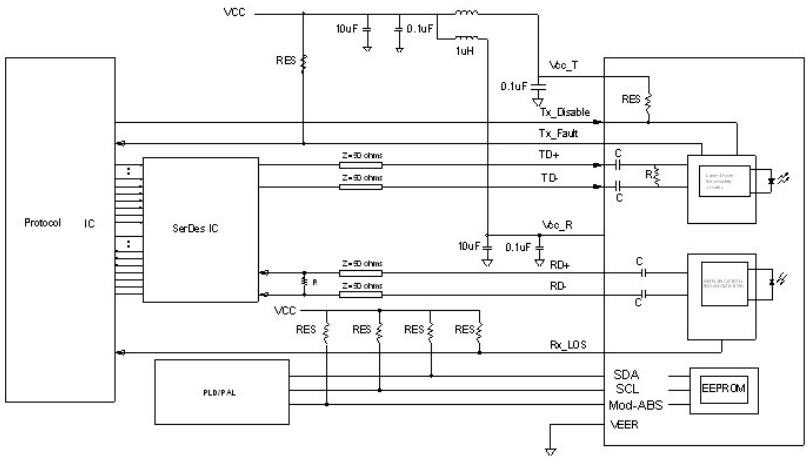
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Case Temperature	TOP	0		70	℃	
Power Supply Voltage	V_{CC}	3.135	3.3	3.465	V	
Power Consumption				1	W	
Data Rate	DR		25.78		Gbps	

Specification

All parameters are specified under the recommended operating conditions unless otherwise specified..

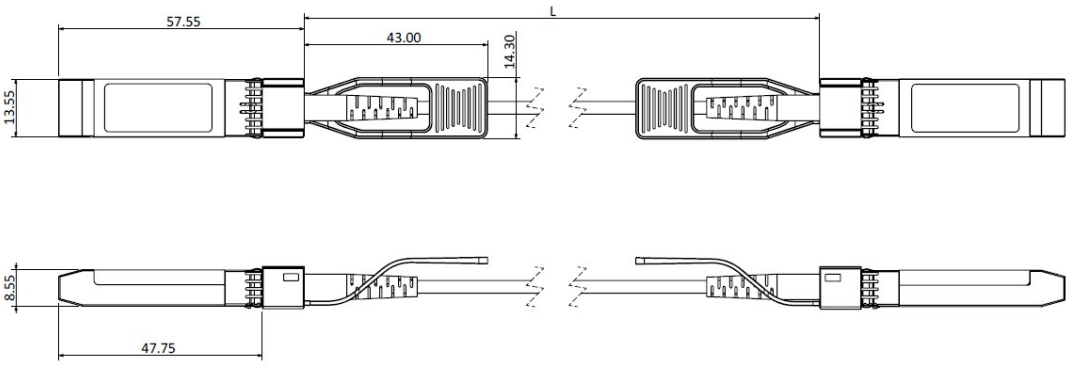
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Center Wavelength	□	840	850	860	nm	
Differential input impedance	Zin	90	100	110	ohm	Differential input impedance
Differential Output impedance	Zout	90	100	110	ohm	Differential Output impedance
Differential input voltage amplitude	ΔVin	300		1100	mVp-p	Differential input voltage amplitude
Differential output voltage amplitude	ΔVout	500		800	mVp-p	Differential output voltage amplitude
Bit Error Rate	BR			E-12		Bit Error Rate
Input Logic Level High	VIH	2.0		VCC	V	Input Logic Level High
Input Logic Level Low	VIL	0		0.8	V	Input Logic Level Low

Recommended Circuit

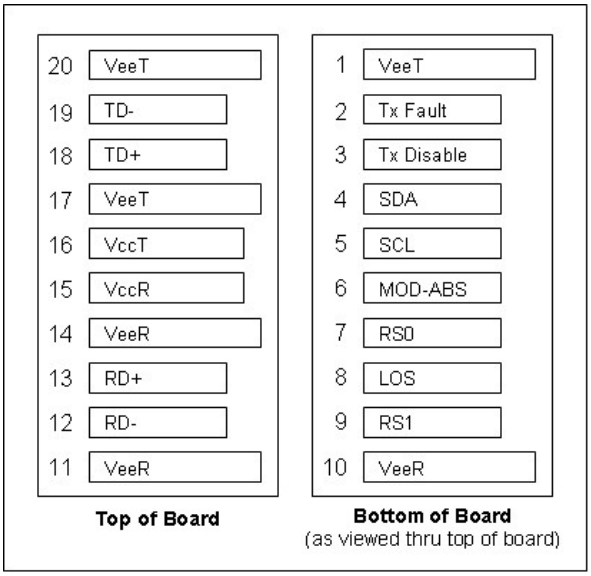


NOTE: 4.7K ohms<RES<10K ohms

Mechanical Dimensions



Pin Assignment and Description



Pin Assignment

PIN #	Symbol	Description	Notes
1	VEET	Transmitter Ground	1
2	TX FAULT	Transmitter Fault Indication	2
3	TX DISABLE	Transmitter Disable	3
4	SDA	SDA Serial Data Signal	4
5	SCL	SCL Serial Clock Signal	4
6	MOD_ABS	Module Absent. Grounded within the module	4
7	RS0	Not Connected	5
8	LOS	Loss of Signal	6
9	RS1	Not Connected	1
10	VEER	Receiver ground	1

11	VEER	Receiver ground	1
12	RD-	Inv. Received Data Out	
13	RD+	Received Data Out	
14	VEER	Receiver ground	1
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground	1
18	TD+	Transmit Data In	
19	TD-	Inv. Transmit Data In	
20	VEET	Transmitter Ground	1

Notes:

1. Circuit ground is internally isolated from chassis ground.

2. TX Fault is an open collector/drain output, which should be pulled up with a 4.7k–10k Ohms resistor on the host board if intended for use. Pull up voltage should be between 2.0V to VCC

+0.3V.A high output indicates a transmitter fault caused by either the TX bias current or the TX

output power exceeding the preset alarm thresholds. A low output indicates normal operation. In the low state, the output is pulled to <0.8V.

3. Laser output disabled on TX Disable >2.0V or open, enabled on TX Disable <0.8V.

4. Should be pulled up with 4.7kΩ–10kΩ host board to a voltage between 2.0V and 3.6V. MOD-ABS pulls line low to indicate module is plugged in.

5. Internally pulled down per SFF-8431 Rev 4.1.

6. LOS is open collector output. It should be pulled up with 4.7kΩ–10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.