AXP85B1-XXX

28Gb/s SFP28 Active Optical Cable

PRODUCT FEATURES

- Up to 28Gbps Data rate per channel
- Maximum link length of 100m links on OM3 multimode fiber
- 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
- Data center and Fiber channel

STANDARD

- Compliant to SFF-8431
- Compliant to SFF 8472
- RoHS Compliant.

Product selection

Part Number	Product description
AXP85B1-XXX	**XXX**=different cable lengths on OM3 Multimode Fiber (MMF) –Note
XXX	**cable lengths on OM3 Multimode Fiber (MMF)**
003	3m
005	5m
007	7m
010	10m
050	50m
100	100m

Note：

1. Cable length =<100m

2 . More detail product selection and cable lengths，please contact sales

Ⅰ Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Storage Temperature	Ts	-40	-	85	ºC	
Relative Humidity	RH	5	-	95	%	
Power Supply Voltage	VCC	-0.3	-	4	V	
Signal Input Voltage		Vcc-0.3	-	Vcc+0.3	V	

Ⅱ Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Case Operating Temperature	Tcase	0	-	70	ºC	Without air flow
Power Supply Voltage	VCC	3.14	3.3	3.46	V	
Power Supply Current	ICC	-		300	mA	per cable end
Data Rate	BR		25.78		Gbps	

Ⅲ General Product Characteristics

Parameter	Value	Unit	Notes
Module Form Factor	SFP+		
Maximum Data Rate	28	Gb/s	
Standard Cable Lengths	3, 5, 7, 10, 50, 100	meters	Other lengths may be available upon request (<= 100m OM3)
Protocols Supported	Typical applications include Infiniband, Fibre Channel, 25G Ethernet		
Electrical Interface and Pin-out	20-pin edge connector		Pin-out as defined by the SFP+ MSA
Standard Optical Cable Type	Multimode ribbon fiber cable assembly		
Maximum Power Consumption per End	1.0	W	per cable end
Management Interface	Serial, I2C-based, 400 kHz maximum frequency		As defined by the SFP+ MSA

Note：Low rate is 24~26Gb/s&High rate is 25~28Gb/s， different rate range has different register setting ，not auto-Negotiatio

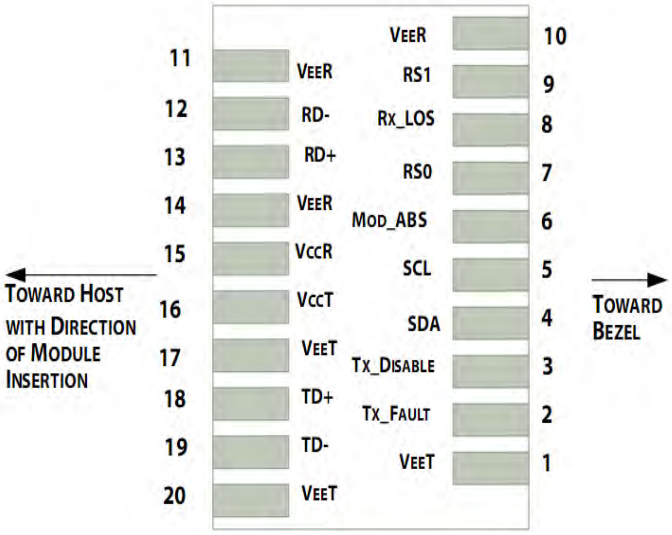
IV. Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	NOTE
Supply Voltage	VccT,VccR	3.14	3.3	3.46	V	
Supply Current	Icc			300	mA	
Transmitter						
Differential data input swing	Vin,pp	50		900	mV	1
Single ended input voltage tolerance	VinT	-0.3		4.0	V	
Receiver						
Differential data output swing	Vout,pp	300		850	mV	2
Single-ended output voltage		-0.3		4.0	V	

Notes:

1. AC coupled internally. Self-biasing 100Ω differential input.
2. AC coupled with 100Ω differential output impedance.

V. Pin Assignment

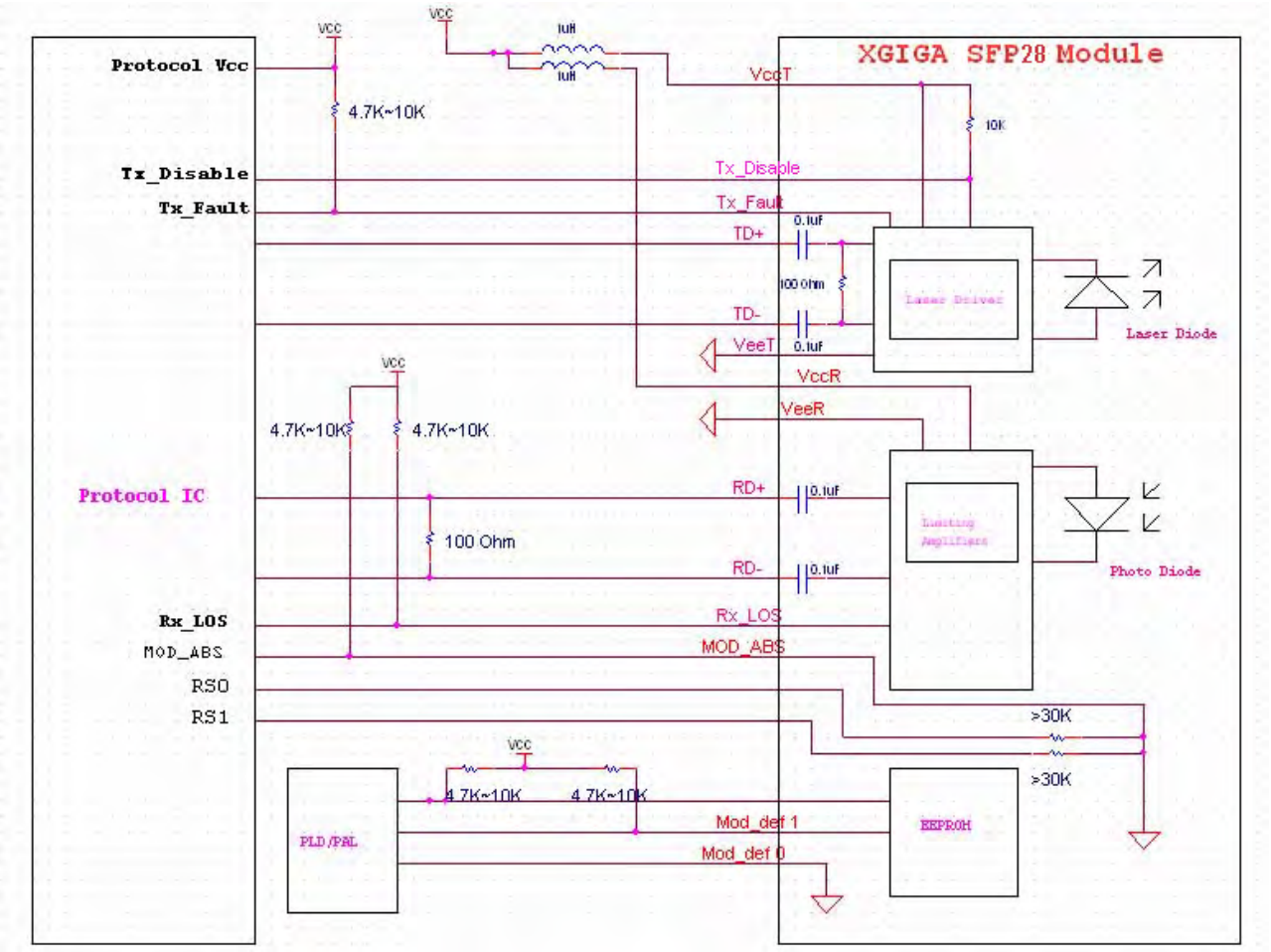


Pin	Symbol	Name/Description	NOTE
1	V_{EET}	Transmitter Ground (Common with Receiver Ground)	1
2	T_{FAULT}	Transmitter Fault.	2
3	T_{DIS}	Transmitter Disable. Laser output disabled on high or open.	3
4	SDA	2-wire Serial Interface Data Line	4
5	SCL	2-wire Serial Interface Clock Line	4
6	MOD_ABS	Module Absent. Grounded within the module	4
7	RS0	Rate Select 0	5
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	6
9	RS1	No connection required	1
10	V_{EER}	Receiver Ground (Common with Transmitter Ground)	1
11	V_{EER}	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out. AC Coupled	
13	RD+	Receiver Non-inverted DATA out. AC Coupled	
14	V_{EER}	Receiver Ground (Common with Transmitter Ground)	1
15	V_{CCR}	Receiver Power Supply	
16	V_{CCT}	Transmitter Power Supply	
17	V_{EET}	Transmitter Ground (Common with Receiver Ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	V_{EET}	Transmitter Ground (Common with Receiver Ground)	1

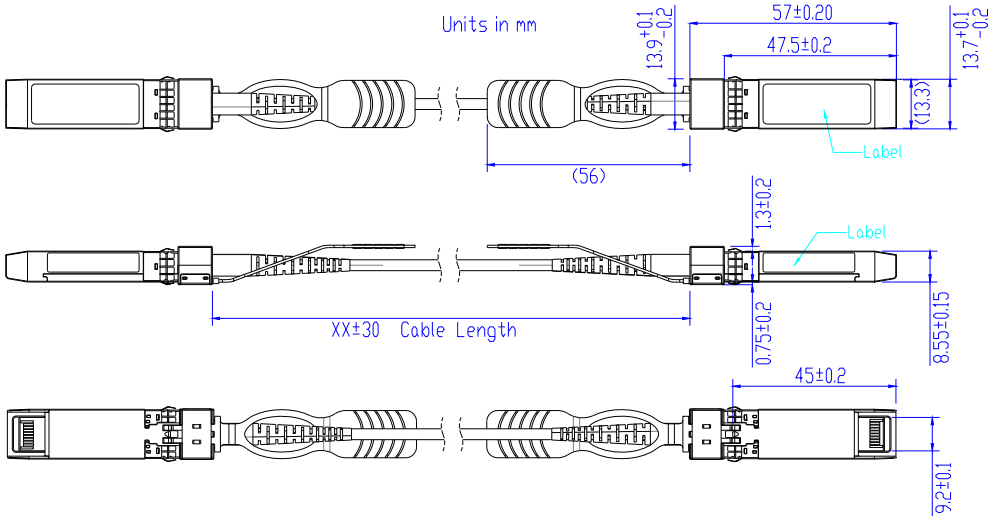
Notes:

1. Circuit ground is internally isolated from chassis ground.
2. T_{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 T_{DIS} >2.0V or open, enabled on T_{DIS} <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.

VI. Host - Transceiver Interface Block Diagram



VII. Outline Dimensions



Appendix A. Document Revision

Version No.	Date	Description
Preliminary	2018-02-05	Preliminary datasheet