

AFBR-57R6ALZ-C

Avago® AFBR-57R6ALZ Compatible TAA 4.25GBase-SX SFP Transceiver (MMF, 850nm, 550m, LC, DOM, -40 to 85C)

Features:

- INF-8074 and SFF-8472 Compliance
- Duplex LC Connector
- Multi-mode Fiber
- Industrial Temperature -40 to 85 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free



Applications:

- 4.25GBase Ethernet

Product Description

This Avago® SFP transceiver provides 4GBase-SW Fibre Channel throughput up to 550m over multi-mode fiber (MMF) using a wavelength of 850nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Avago® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S.-made or designated country end products.")



Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Storage Temperature	Tstg	-40		85	°C	1
Maximum Supply Voltage	Vcc	-0.5		3.6	V	
Operating Relative Humidity	RH			85	%	
Operating Case Temperature	Tc	-40		85	°C	
Power Supply Voltage	Vcc	3.14		3.46	V	
Power Supply Current	Icc			300	mA	
Surge Current	Isurge			30	mA	
Data Rate		1.25		4.25	Gbps	
50µm Core Diameter MMF OM3 2000MHz-km	L			550	m	
50µm Core Diameter MMF OM4 4700MHz-km	L			700	m	

Notes:

- Exceeding any one of these values may destroy the device immediately.

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter							
Differential Data Input Swing		VIN	180		850	mVp-p	1
Input Impedance (Differential)		ZIN		100		Ω	2
Tx_Disable	High		2		Vcc	V	
	Low				0.8		
Tx_Fault	High		2		Vcc+0.3	V	3
	Low				0.8		4
Receiver							
CML Differential Outputs		VOUT	300		850	mVp-p	1
Rx_LOS	LOS	VOH	2		Vcc+0.3	V	
	Normal	VOL			0.8		
MOD_DEF(0.2)		VOH	2			V	5
		VOL			0.8		

Notes:

- AC coupled inputs.
- RIN>100kΩ @DC.
- Io=400uA, Host_Vcc.
- Io=-4.0mA.

- With serial ID.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λ_C	840	850	860	nm	
Spectral Width (RMS)	$\Delta\lambda$			0.45	nm	
Average Output Power	POUT	-6		-1	dBm	1
Extinction Ratio	ER	3.5			dB	
Tx_Disable Assert Time	t_off			10	us	
Tx_Disable Negate Time	t_on			1	ms	
Transmitter Dispersion Penalty	TDP			3.9	dB	
Output Optical Eye	IEEE 802.3-2005 Compliant					
Receiver						
Center Wavelength	λ_C	840		860	nm	
Receiver Sensitivity	Pmin			-15	dBm	2
Receiver Overload	Pmax	-1			dBm	2
Return Loss	ORL			-12	dB	
LOS De-Assert	LOSD			-16	dBm	
LOS Assert	LOSA	-30			dBm	
LOS Hysteresis	LOSH	0.5		6	dB	

Notes:

- Average power figures are informative only, per IEEE802.3ae.
- Measured at the BER less than $1E^{-12}$, back-to-back. The measure pattern is PRBS 2^7-1 .

Pin Descriptions

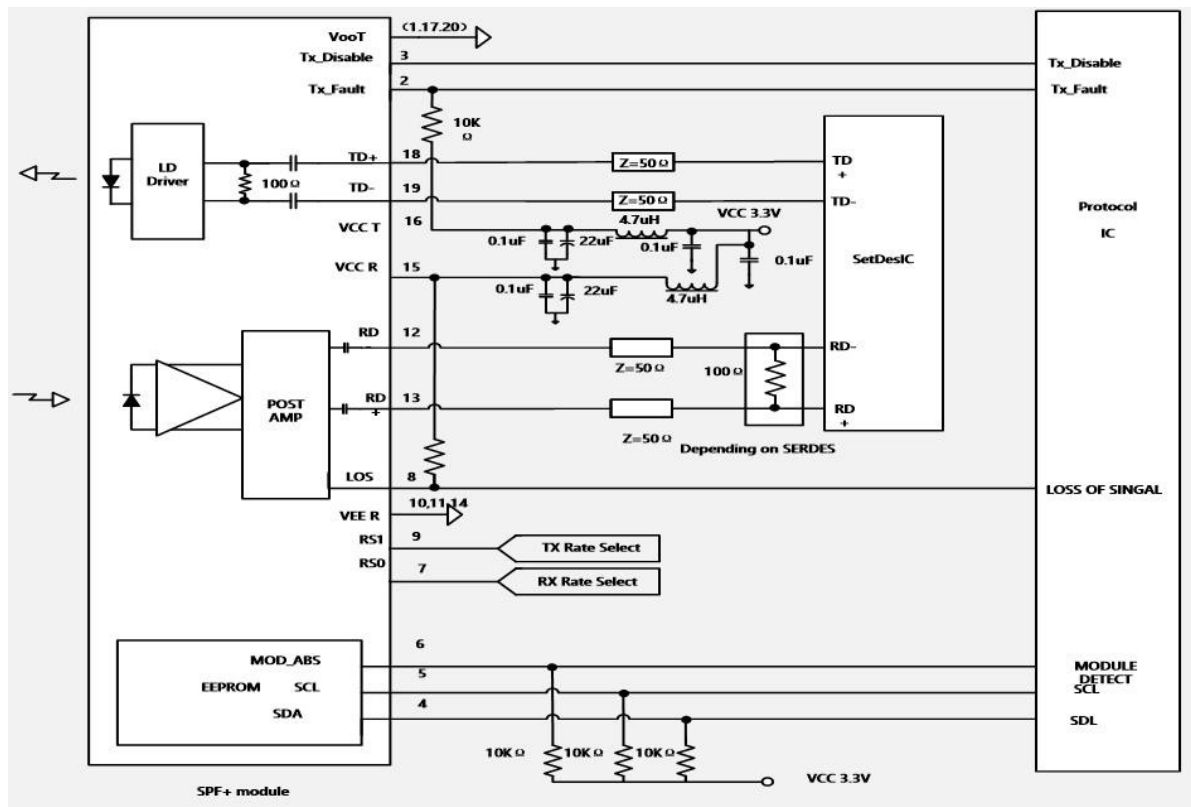
Pin	Symbol	Name/Description	Plug Seq.	Notes
1	VeeT	Transmitter Ground.	1	5
2	Tx_Fault	Transmitter Fault Indication.	3	1
3	Tx_Disable	Transmitter Disable.	3	2, module disables on “high” or “open”
4	SDA	Transmitter Disable.	3	3, 2-wire serial ID interface
5	SCL	Module Definition 2.	3	3, 2-wire serial ID interface
6	MOD_ABS	Module Definition 1.	3	3
7	RS0	Rx Rate Select (LVTTL).	3	Not used
8	LOS	Loss of Signal.	3	4
9	RS1	Tx Rate Select (LVTTL).	1	Not used
10	VeeR	Receiver Ground.	1	5
11	VeeR	Receiver Ground.	1	5
12	RD-	Inverted Received Data Out.	3	6
13	RD+	Received Data Out.	3	6
14	VeeR	Receiver Ground.	1	5
15	VccR	Receiver Power.	2	7, 3.3V ± 5%
16	VccT	Transmitter Power.	2	7, 3.3V ± 5%
17	VeeT	Transmitter Ground.	1	5
18	TD+	Transmit Data In.	3	8
19	TD-	Inverted Transmit Data In.	3	8
20	VeeT	Transmitter Ground.	1	5

Notes:

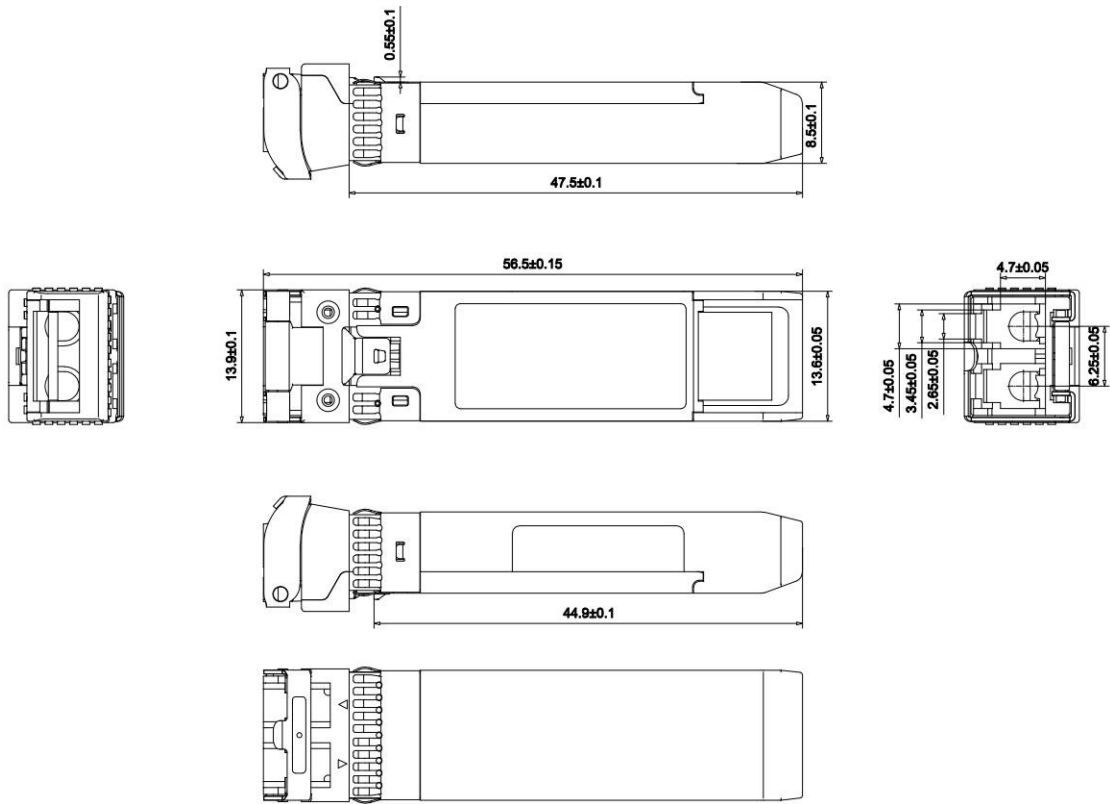
1. Tx_Fault is an open collector/drain output that should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board. Pull-up voltage between 2.0V and VccT/R+0.3V. When “high,” output indicates a laser fault of some kind. “Low” indicates normal operation. In the “low” state, the output will be pulled to <0.8V.
2. Tx_Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7kΩ to 10kΩ resistor. It states are:
Low (0V-0.8V): Transmitter On
(>0.8V, <2.0V): Undefined
High (2.0V–3.465V): Transmitter Disabled
Open: Transmitter Disabled.
3. Modulation absent. Connected to the VeeT or VeeR in the module.
4. LOS (Loss of Signal) is an open collector/drain output that should be pulled up with a 4.7kΩ to 10kΩ resistor. Pull-up voltage between 2.0V and VccT/R+0.3V. When “high,” this output indicates the received optical power is below the worst-case receiver sensitivity (as defined by the standard in use). “Low” indicates normal operation. In the “low” state, the output will be pulled to <0.8V.

5. VeeR and VeeT may be internally connected within the SFP module.
6. RD-/+ . These are the differential receiver outputs. They are AC-coupled, 100 differential lines which should be terminated with 100 (differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board. The voltage swing on these lines will be between 400mV and 2000mV differential (200mV–1000mV single-ended) when properly terminated.
7. VccR and VccT are the receiver and transmitter power supplies. They are defined as $3.3V \pm 5\%$ at the SFP connector pin. Maximum supply current is 300mA. Recommended host board power supply filtering is shown below. Inductors with DC resistance of less than 1Ω should be used to maintain the required voltage at the SFP input pin with 3.3V supply voltage. When the recommended supply-filtering network is used, hot-plugging of the SFP transceiver module will result in an in-rush current of no more than 30mA greater than the steady state value. VccR and VccT may be internally connected within the SFP transceiver module.
8. TD-/+ . These are the differential transmitter inputs. They are AC-coupled, differential lines with 100 differential terminations inside the module.

Recommended Circuit Schematic



Mechanical Specifications



About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.



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