



产品规格书

Product Specification Sheet

TOP-SFP-8.5G-SR

RoHS Compliant 8.5Gb/s SFP+ 850nm 300m Optical Transceiver



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PRODUCT FEATURES

- Hot pluggable
- Optical interface compliant to IEEE 802.3ae
- Up to 300m on 50/125um MMF(2000MHZ.KM)
- 850nm VCSEL transmitter, PIN photo-detector
- SFP MSA package with duplex LC connector
- Low power consumption
- Very low EMI and excellent ESD protection
- +3.3V single power supply
- Cost effective SFP+ solution, enables higher port densities and greater bandwidth
- Operating case temperature: 0 to 70 °C

APPLICATIONS

- 10G Base-SR/SW
- 10G Fiber Channel
- Other optical links

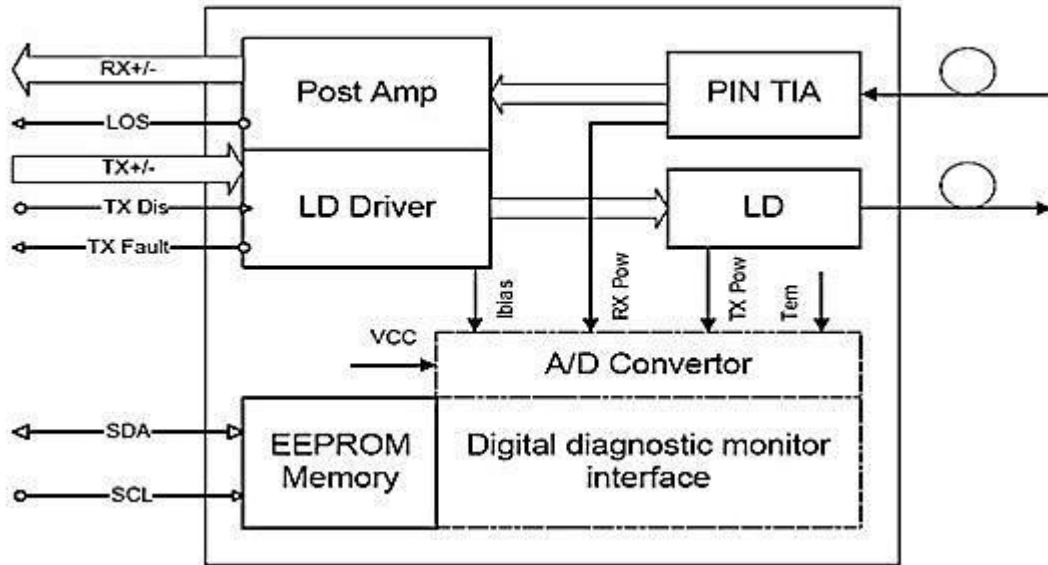
PRODUCT DESCRIPTIONS

TOP-SFP-8.5G-SR optical transceivers are designed for 10Gb/s serial optical interfaces for data communications with multimode fiber (MMF). The transceiver can support 1.25Gb/s to 11.1Gb/s.

The transceiver designs are optimized for high performance and cost effective to supply customers the best solutions for data-com and storage applications.



FUNCTIONAL DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Max.	Unit	Note
Supply Voltage	Vcc	-0.5	4.0	V	
Storage Temperature		-40	85	°C	
Relative Humidity			85	%	

Note: Stress in excess of the maximum absolute ratings can cause permanent damage to the module

GERERAL OPERATING CHARACTERISTICS

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Data Rate	Ethernet		8.5		Gb/s	
	Fiber Channel					
Supply Voltage	Vcc	3.13	3.3	3.47	V	
	Vcc				V	
Supply Current	Icc _s				mA	
	Icc _o			300	mA	
Operating Case Temp.	Tc	0		70	°C	

**ELECTRICAL INPUT/OUTPUT CHARACTERISTICS**● **Transmitter**

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Diff. input voltage swing		120		820	mVpp	1
Tx Disable input	H	VIH	2.0	Vcc+0.3	V	
	L	VIL	0	0.8		
Tx Fault output	H	VOH	2.0	Vcc+0.3	V	2
	L	VOL	0	0.8		
Input Diff. Impedance	Zin		100		Ω	

● **Receiver**

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Diff. output voltage swing		340	650	800	mVpp	3
Rx LOS Output	H	VOH	2.0	Vcc+0.3	V	2
	L	VOL	0	0.8		

Note 1) TD+/- are internally AC coupled with 100Ω differential termination inside the module.

Note 2) Tx Fault and Rx LOS are open collector outputs, which should be pulled up with 4.7k to 10kΩ resistors on the host board. Pull up voltage between 2.0V and Vcc+0.3V.

Note 3) RD+/- outputs are internally AC coupled, and should be terminated with 100Ω (differential) at the user SERDES.

OPTICAL CHARACTERISTICS● **Transmitter**

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Operating Wavelength			850		nm	
Ave. output power (Enabled)	Po	-6		-1	dBm	1
Extinction Ratio	ER	3.5			dB	1
RMS spectral width	Δλ			0.45	nm	
Rise/Fall time (20%~80%)	Tr/Tf			45	ps	2
Optical modulation amplitude	OMA			-2.8	dBm	
Dispersion penalty				3.9	dB	
Output Optical Eye			IEEE 802.3-2005 Compliant			

● **Receiver**

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Operating Wavelength		840		860	nm	
Sensitivity	Psen			-12	dBm	3
Min. overload	Pimax	-1			dBm	
LOS Assert	Pa	-24			dBm	
LOS De-assert	Pd			-13	dBm	
LOS Hysteresis	Pd-Pa	0.5		4	dB	

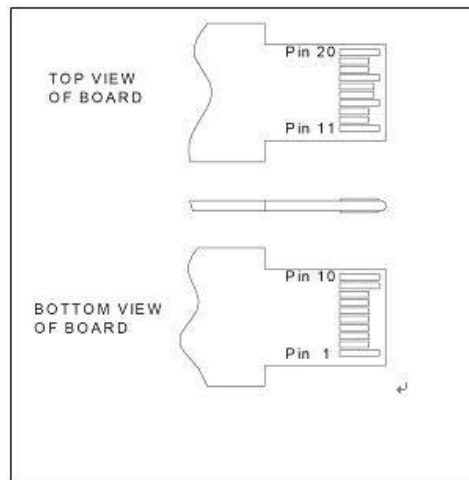
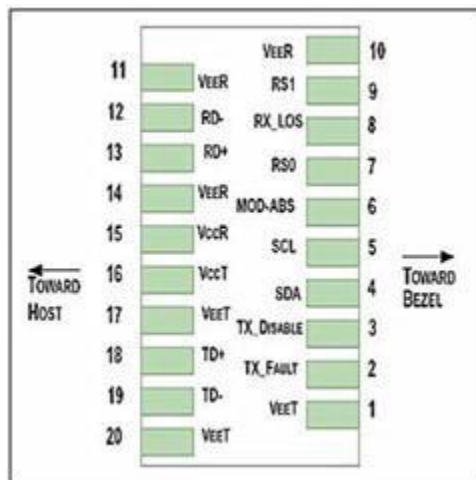


Note 1) Measured at 8.5b/s with PRBS 231 – 1 NRZ test pattern. Note 2) 20%~80%
 Note 3) Under the ER worst case, measured at 8.5 Gb/s with PRBS 231 - 1 NRZ test pattern for BER < 1x10-12

PIN

Pi	Symbol	Name/Descriptio
1	VEET [1]	Transmitter Ground
2	Tx_FAULT [2]	Transmitter Fault
3	Tx_DIS [3]	Transmitter Disable. Laser output disabled on high or open
4	SDA [2]	2-wire Serial Interface Data Line
5	SCL [2]	2-wire Serial Interface Clock Line
6	MOD_ABS [4]	Module Absent. Grounded within the module
7	RS0 [5]	Rate Select 0
8	RX_LOS [2]	Loss of Signal indication. Logic 0 indicates normal operation
9	RS1 [5]	Rate Select 1
10	VEER [1]	Receiver Ground
11	VEER [1]	Receiver Ground
12	RD-	Receiver Inverted DATA out. AC Coupled
13	RD+	Receiver DATA out. AC Coupled
14	VEER [1]	Receiver Ground
15	VCCR	Receiver Power Supply
16	VCCT	Transmitter Power Supply
17	VEET [1]	Transmitter Ground
18	TD+	Transmitter DATA in. AC Coupled
19	TD-	Transmitter Inverted DATA in. AC Coupled
20	VEET [1]	Transmitter Ground

DEFINITIONS AND FUNCTIONS

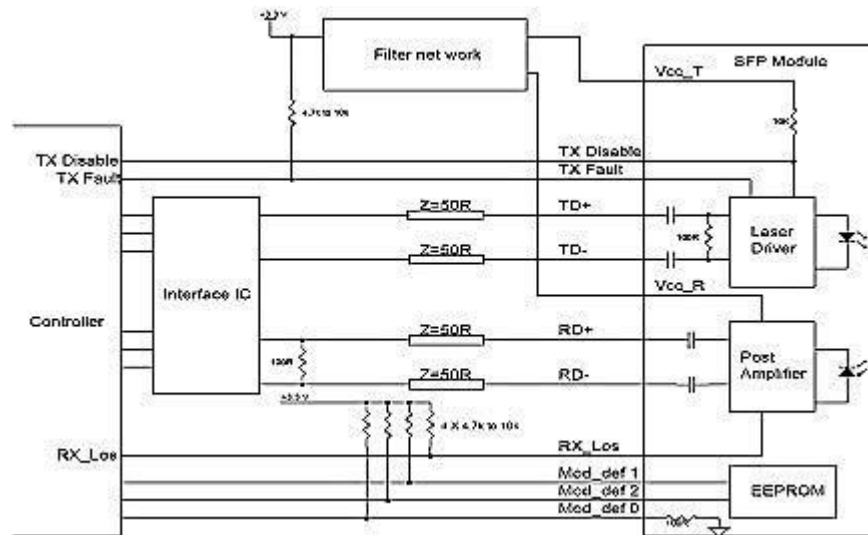




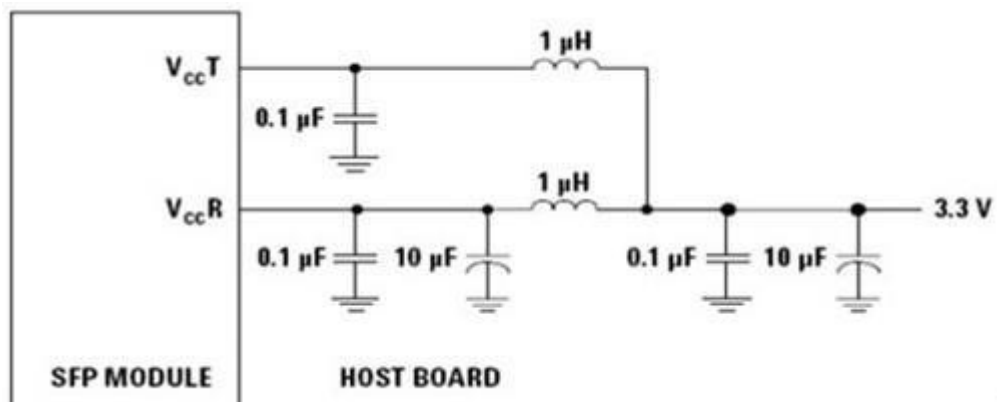
Notes:

- [1] Module circuit ground is isolated from module chassis ground within the module.
- [2].should be pulled up with 4.7k – 10k ohms on host board to a voltage between 3.15V and 3.6V.
- [3]Tx_Disable is an input contact with a 4.7 kΩ to 10 kΩ pullup to VccT inside the module.
- [4]Mod_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull this contact up to Vcc_Host with a resistor in the range 4.7 kΩ to 10 kΩ. Mod_ABS is asserted “High” when the SFP+ module is physically absent from a host slot.
- [5] RS0 and RS1 are module inputs and are pulled low to VeeT with > 30 kΩ resistors in the module.

TYPICAL INTERFACE CIRCUIT



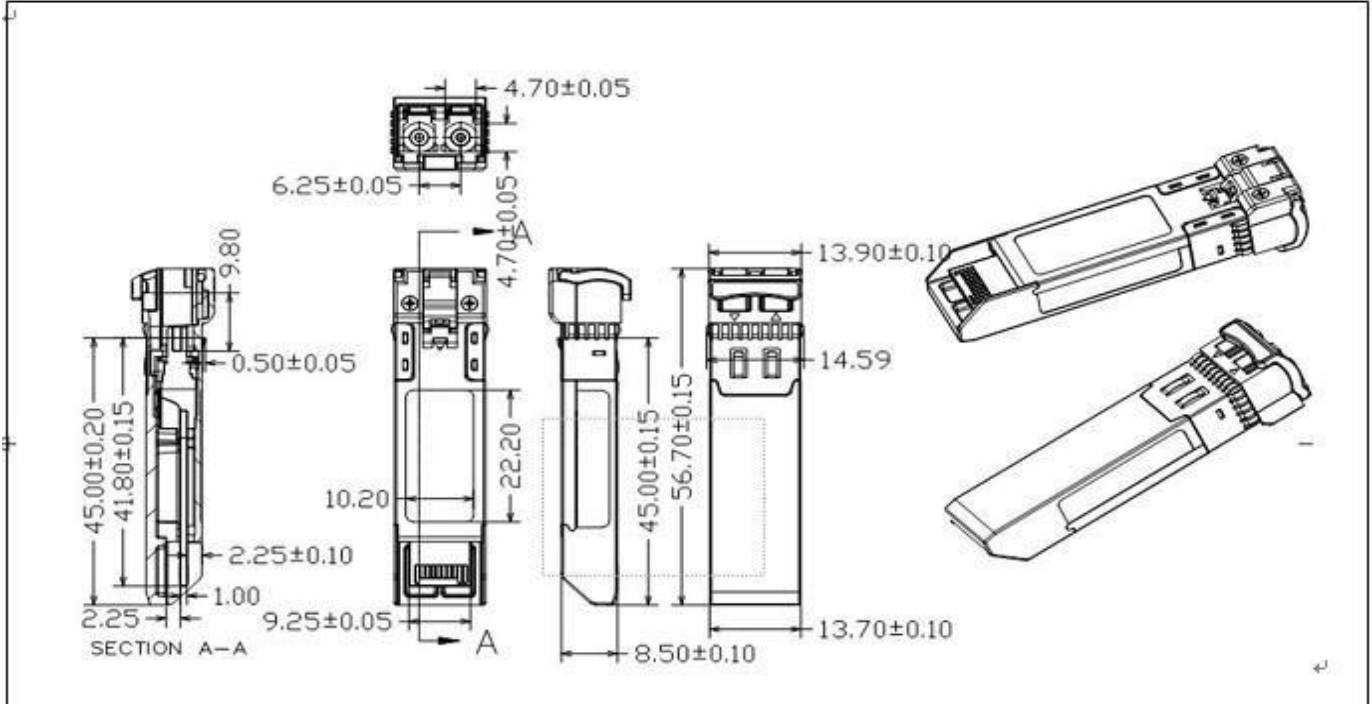
Recommended power supply filter



Note: Inductors with DC resistance of less than 1Ω should be used in order 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 inrush current of no more than 30 mA greater than the steady state value



PACKAGE DIMENSIONS



ORDERING INFORMATION

Part Number	Description
TOP-SFP-8.5G-SR	SFP+ PLUS,8.5Gbps, 850nm, 300M, 0~70°C, with DDM



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