KEYNET systems

REPOTEC
Facilitate your Network

2/1x Fiber Channel / Gigabit Ethernet 850 nm SX SFP Transceiver
RoHS, SFF-8472 Compliant
Specification: MOD-MGSX550-D

Product Overview

The MOD-MGSX550-D of Small Form Factor Pluggable (SFP) transceiver module is specifically designed for high performance integrated duplex data link over multi mode optical fiber. The high-speed oxide VCSEL and photo diode are provided as a light source and a detector, respectively. An EEPROM contained the detailed product information and digital diagnostics function for the host equipment is accessed by the 2-wire serial CMOS EEPROM protocol. It complies with SFP MSA, SONET/SDH standards, Class 1 laser products, EN60825, and EN60950.

Features

- RoHS Compliant
- Digital Diagnostics are Internal Calibrated
- Operation Temperature: 0~70º
- 850nm oxide VCSEL
- 550m link distance(indicative only)
- Hot pluggable
- Metal enclosure, low EMI
- Single 3.3V power supply
- Low Power Dissipation

Applications

- Metro Access Rings
- Point-to-Point networking
- 2/1x Fiber Channel
- Gigabit Ethernet
- Suitable for Fast Ethernet and OC-12

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Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Storage Temperature	T_S	**-40**		**+85**	ºc	
Supply Voltage	$V_{CC}T$ $V_{CC}R$	**0**		**5.5**	V	
Relative Humidity	RH	**0**		**85**	%	

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operating Temperature	T_{OP}	**0**		**70**	ºc	
Supply Voltage	$V_{CC}T,R$	**3.1**	**3.3**	**3.5**	V	
Supply Current	$I_{TX}+I_{RX}$		**200**	**300**	mA	

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Transmitter Electro-Optical Interface (T_C = 0~70℃ ,VccT,R=3.1V<V_{CC}<3. 5V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Transmitter Differential Input Voltage	TD +/-	400		2000	mVp-p	A
Optical Output Power(62.5/125)	P_O	-9		-1	dBm	A
Optical Output Power(50/125)	P_O	-9.5		-3		
Optical Extinction Ratio	E_R	9			dB	A
Center Wavelength	λ_C	830	850	860	nm	A
Spectral Width	$\Delta\lambda$			0.85	nm	A
Optical Rise / Fall Time	t_r / t_f			150	ps	A,B
Tx_Fault - High	V_{Fault_H}	2		V_{CC}	V	A
Tx_Fault - Low	V_{Fault_L}	V_{ee}		V_{ee}+0.5	V	A
Tx_Disable - High	$V_{Disable\_H}$	2		V_{CC}	V	A
Tx_Disable - Low	$V_{Disable\_L}$	V_{ee}		V_{ee}+0.8	V	A

Notes:

A. All of data is measured at 4250Mbps , PRBS 2^7-1 ,NRZ.

B: 20%~80%

Receiver Electro-Optical Interface (T_C = 0~70℃ ,VccT,R=3.1V<V_{CC}<3. 5V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Receiver Differential Output Voltage	RD +/-	600	800		mV_{P-P}	
Receiver Overload	P_{IN}MAX	-3			dBm	A,B
Receiver Sensitivity(2.125G)	P_{IN}MIN			-18	dBm	
Receiver Sensitivity(1.25G)				-20	dBm	
Operating Center Wavelength	λ_c	770		860	nm	
Receiver LOS Assert Level	$P_{RX\_LOS\ A}$	-35			dBm	B
Receiver LOS Deassert Level	$P_{RX\_LOS\ D}$			-18.5	dBm	B
Receiver Loss of Signal Hysteresis		0.5	2		dB	B

Notes:

A. With BER better than or equal to 1×10^{-12}

B. measured in the center of the eye opening with 2^7 -1 PRBS, NRZ

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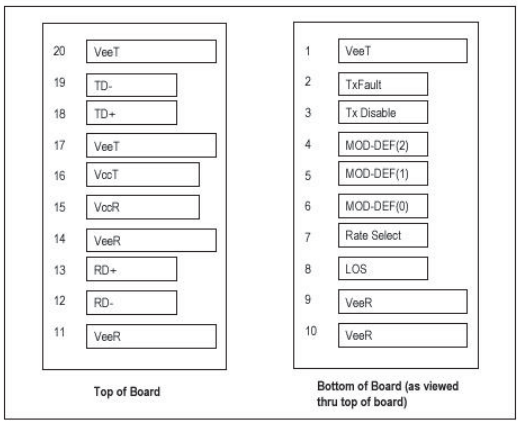
Pin Description



SFP Transceiver Electric Pad Layout

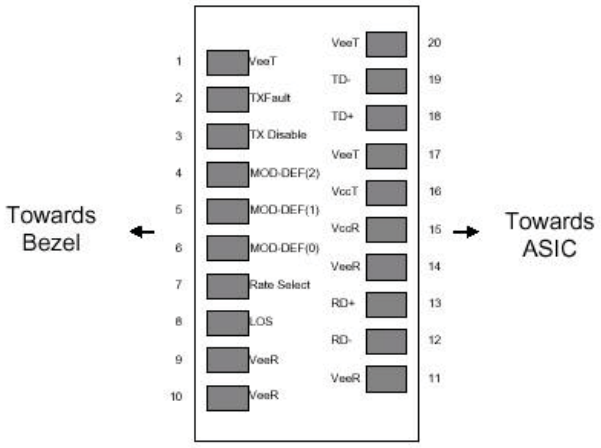


Diagram of Host Board Connector Block Pin Numbers and Names

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Pin No.	Pin Name	Function	Plug Seq.	Notes
1	$V_{ee}T$	Transmitter Ground	1	**1**
2	TX Fault	Transmitter Fault Indication	3	**2**
3	TX Disable	Transmitter Disable	3	**3**
4	MOD_DEF 2	Module Definition 2	3	**4**
5	MOD_DEF 1	Module Definition 1	3	**4**
6	MOD_DEF 0	Module Definition 0	3	**4**
7	Rate Select	Select between full or reduced receiver bandwidth	3	**5**
8	LOS	Loss of Signal	3	**6**
9	$V_{ee}R$	Receiver Ground	1	**1**
10	$V_{ee}R$	Receiver Ground	1	**1**
11	$V_{ee}R$	Receiver Ground	1	**1**
12	RD -	Inv. Receiver Data Out	3	
13	RD +	Receiver Data Out	3	
14	$V_{ee}R$	Receiver Ground	1	**1**
15	$V_{CC}R$	Receiver Power	2	
16	$V_{CC}T$	Transmitter Power	2	
17	$V_{ee}T$	Transmitter Ground	1	**1**
18	TD +	Transmitter Data In	3	
19	TD -	Inv. Transmitter Data In	3	
20	$V_{ee}T$	Transmitter Ground	1	**1**

Note:

1, Circuit ground is internally isolated from chassis ground

2, Open-Collector outputs, asserted when LD and/or APC function fail.

3, Disable when high voltage (>2.0V or Open)

4, Should be pulled up with 4.7k – 10kohms on host board to a voltage between 2.0V and 5.5V. MOD_DEF(0) pulls line low to indicate module is plugged in.

5, Low=1.25G/1.0625G, High= 2.125G

6, LOS is open collector output. Should be pulled up with 4.7k – 10kohms on host board to a voltage between 2.0V and 5.5V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

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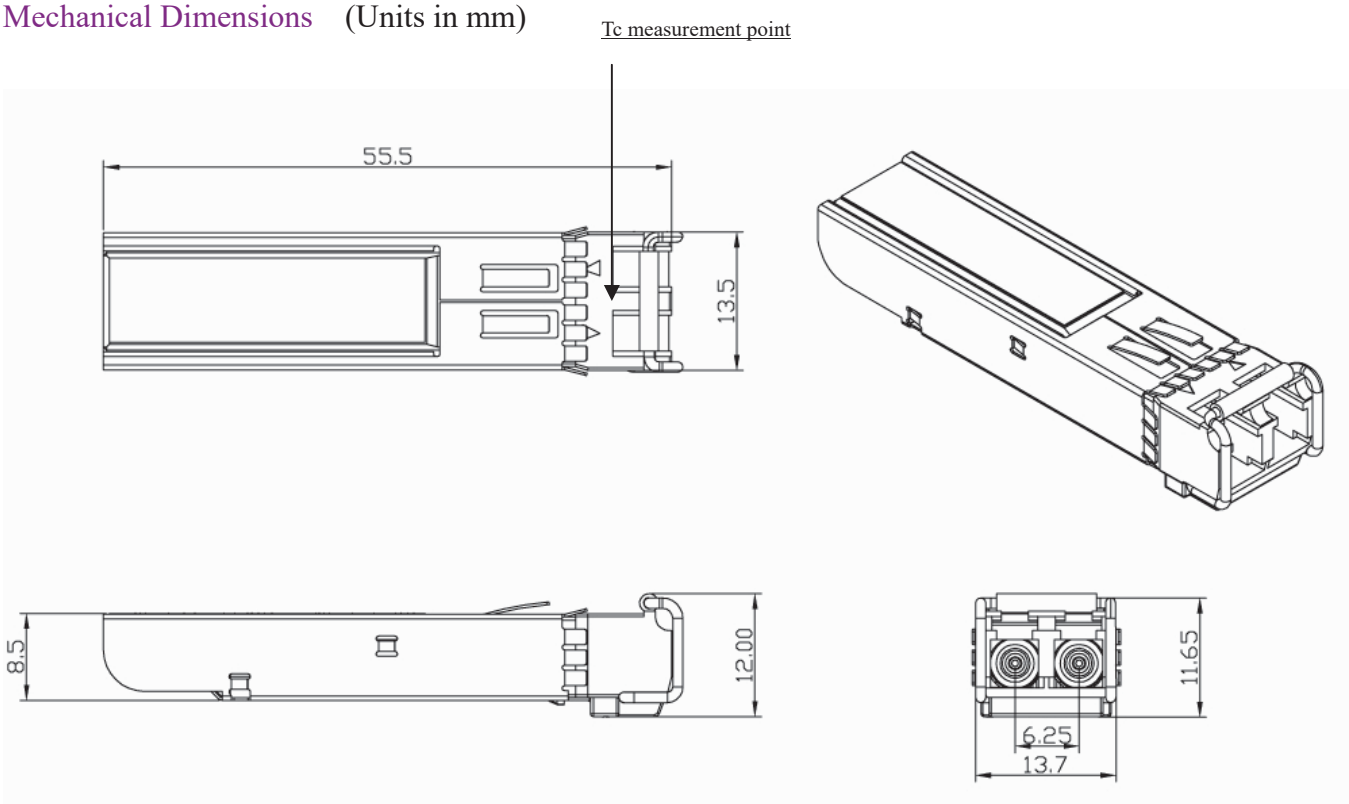
Mechanical Dimensions (Units in mm)



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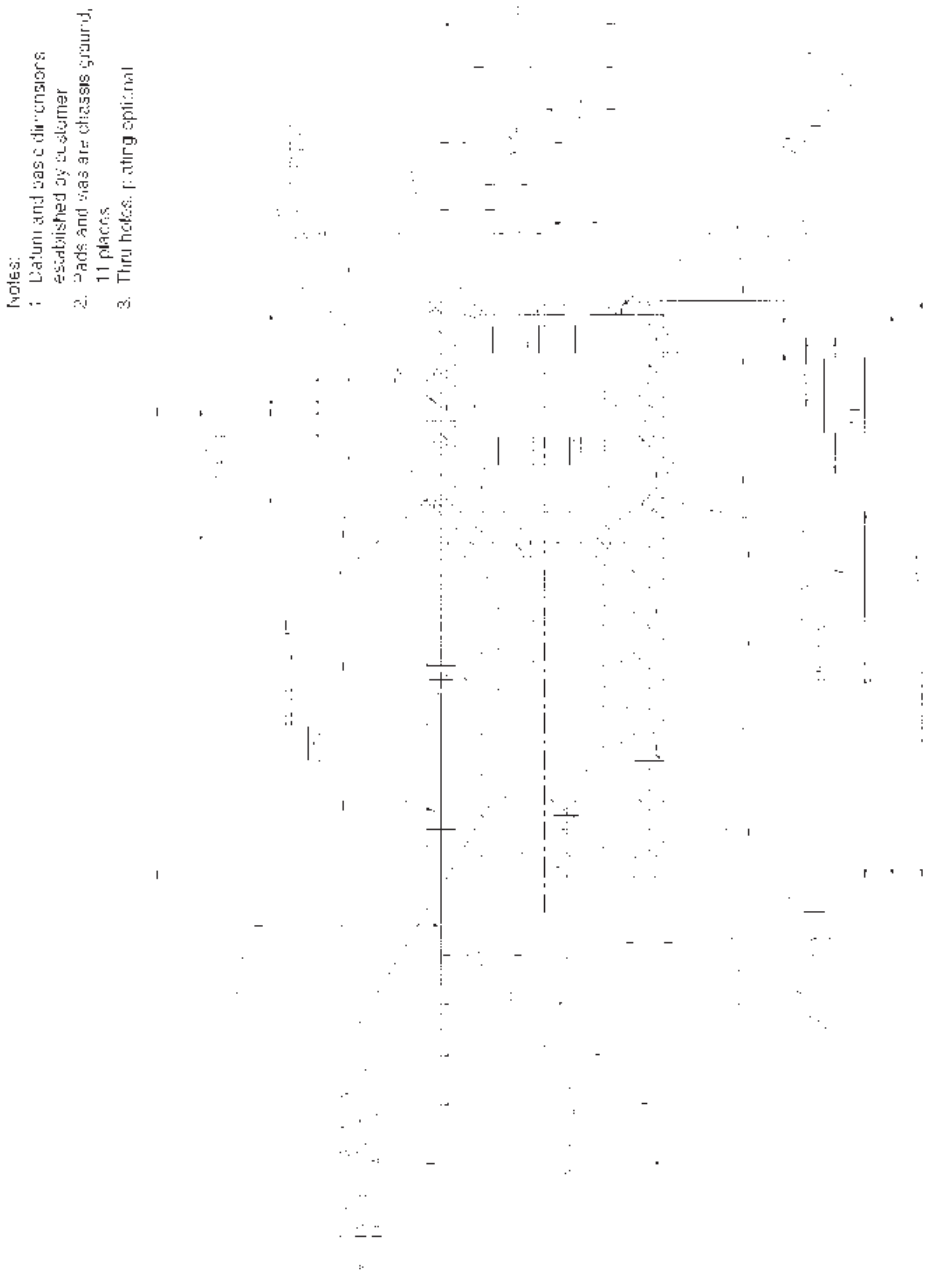
References (From SFP MSA September 14, 2000 page 11, 12, 13, and 23)

1. **SFP Host PCB layout**



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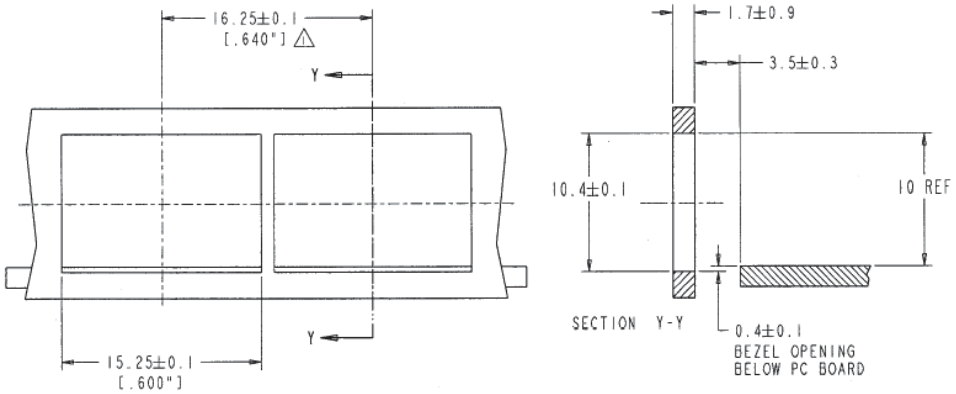

NOTES:

⚠ MINIMUM PITCH ILLUSTRATED, ENGLISH DIMENSIONS ARE FOR REFERENCE ONLY

2. NOT RECOMMENDED FOR PCI EXPANSION CARD APPLICATIONS

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2.Application Circuit

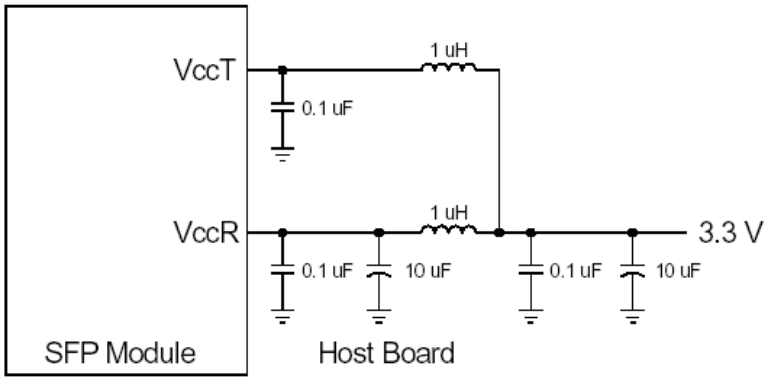

Figure 2A. Recommended Host Board Supply Filtering Network

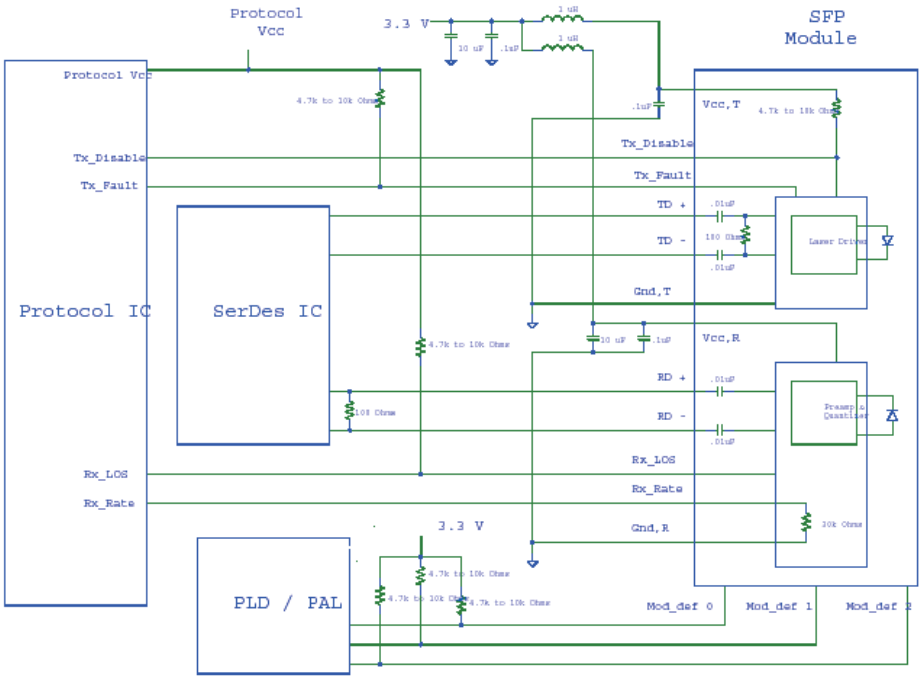

Figure 2B. Example SFP Host Board Schematic