
1.25G 20KM SC 1310/1550nm Single mode single fiber BIDI SFP

Applications

1X fiber channel

Video monitor system

Telecommunication system

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
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Storage Temperature	TS		-40	+85	?
Operating Temperature	TOP	Commercial level	-20	+70	?
		industrial level	-40	85	
Supply Voltage	VCC		-0.5	+4.5	V
Voltage on Any Pin	VIN		0	VCC	V
Soldering Temperature ,Time	-			260?, 10 S	?,S

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ	Max.	Unit	
Ambient Temperature	TAMB	Commercial level	0	-	70	?
		industrial level	-40		85	
Power Supply Voltage	V CC-VEE	3	3.3	3.6	V	

Operating Conditions

1 Transmitter ?T=25?, Vcc=3~3.6V (+3.3V)?

Parameter			Symbol	Min.	Typ	Max.	Unit	
Center Wavelength			SC	1520	1550	1580	nm	
				1280	1310	1340		
				1470	1490	1510		
Spectral width			?l	FP@RMS	2	4	nm	
				DFB@-20dB	-	1		
				FWHM				
Output Power	0~20km	1.25G	1310 FP	Po	-9	-	-3	dBm
			14/15 DFB		-15	-	-3	
	40km	1.25G	14/15 DFB		-9	-	-3	
			1310 DFB		-5	-	-0	
	60km	1.25G	14/15 DFB		-5	-	0	
	80km	1.25G	14/15 DFB		-3	-	2	
100~120km	1.25G	14/150 DFB	0	-	3			
Extinction Ratio			ER	9		-	dB	
Supply Current			ICCT	-		150	mA	
Input Differential Impedance			Rin		100		?	
Data Input Swing Differential			Vin	300		1200	mV	
Optical Modulation Amplitude			OMA	174			?W	
Transmit Disable Voltage			VD	2.0		Vcc	V	
Transmit Enable Voltage			VEN	0		0.8	V	
Transmit Disable Assert Time						10	us	
Optical Rise/Fall Time			1.25G	Tr/ Tf (20-80%)		150	260	ps
Deterministic Jitter Contribution			TX ?DJ		20	56.5	ps	
Total Jitter Contribution			TX ?TJ		50	119	ps	

2 Receiver ?T=25?, Vcc=3~3.6V (+3.3V)

Parameter	Symbol	Min.	Typ	Max.	Unit
Wavelength Range	SC	1520	1550	1580	nm
		1280	1310	1340	
		1470	1490	1510	

Sensitivity	20km	1.25G	Pin	PMIN	-	-	-21	dBm
	40/60km	1.25G	Pin		-	-	-24	
	80km	1.25G	Pin		-	-	-26	
	100km	1.25G	APD				-30	
	120km	1.25G	APD				-32	
MAX. Input Power (Saturation)			PMAX		-3	-	-	
Signal Detect Assert			PA		-	-	-24	
Signal Detect De-assert			PD		-45	-	-	
Signal Detect Hysteresis			PHYS		1	-	4	
Supply Current			ICCR		-	-	150	mA
Data Output Swing Differential			Vout		400	-	1000	mV
Signal Detect Voltage - High			VSDHC		2.0	-	VCC	V
Signal Detect Voltage - Low			VSDL		0	-	0.8	

Notes:

switch from a high state to a low state.

1) Value of output power and sensitivity can be customized according to the demand

Pin Assignment

Pin	Descriptions	Pin	Descriptions
1	VEET	Transmitter Ground (Common with Receiver Ground)	
2	TFAULT	Transmitter Fault.	
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	
9	VEER	Receiver Ground (Common with Transmitter Ground)	
10	VEER	Receiver Ground (Common with Transmitter Ground)	
11	VEER	Receiver Ground (Common with Transmitter Ground)	
12	RD-	Receiver Inverted DATA out. AC Coupled	
13	RD+	Receiver Non-inverted DATA out. AC Coupled	
14	VEER	Receiver Ground (Common with Transmitter Ground)	
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VEET	Transmitter Ground (Common with Receiver Ground)	

Notes:

1. Circuit ground is internally isolated from chassis ground.

2. TFAULT is an open collector/drain output, which should be pulled up with a 4.7k – 10k Ohms resistor on

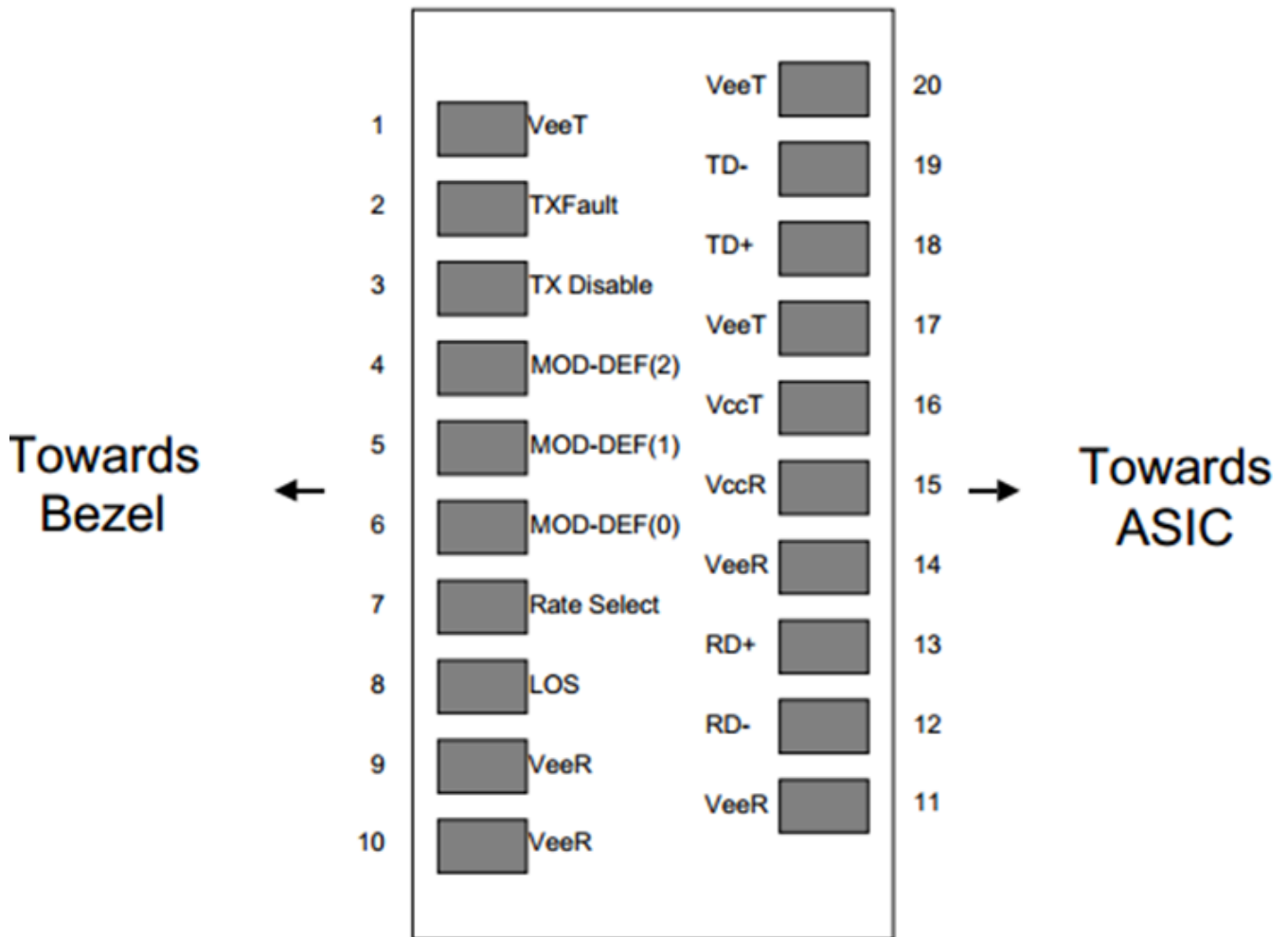
the host board if intended for use. Pull up voltage should be between 2.0V to $V_{cc} + 0.3V$. A high output indicates a transmitter fault caused by either the TX bias current or the TX output power exceeding the preset alarm thresholds. A low output indicates normal operation. In the low state, the output is pulled to $<0.8V$.

3. Laser output disabled on $TDIS > 2.0V$ or open, enabled on $TDIS < 0.8V$.

4. Should be pulled up with 4.7k - 10 kohms on host board to a voltage between 2.0V and 3.6V.

MOD_DEF(0) pulls line low to indicate module is plugged in.

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



Pinout of Connector Block on Host Board

Ordering Information

7.1 Example

SFP 35 24 -F 1 1SC-20

Sign	Mean	Description				
SFP	Module type	SFP=Single fiber SFP transceiver				
35	Center wave	35=1310tx/1550rx	53=1550tx/1310rx	45=1490tx/1550rx	54=1550tx/1490rx	
24	Transmitter Rate	03=155M	03=622M	24=1.25G	48=2.5G	60=3.125G
F	Laser type	F=FP		D=DFB	C=CWDM	V=VCSEL
1	Operating T	1=0~+70?		2=-40~+85?		
2	DDMI	1=NO DDM		2=DDMI		
SC	Connector	SC=SC		LC=LC		
20	Distance	022=220M		055=550M	5=5KM	10=10KM
		20=20KM		40=40KM	80=80KM	100=100KM

Part No.	Wavelength	Connector	Temp.	TX Power (dBm)	RX Sens (Max.) (dBm)	Distance
SFP3524-F11SC-20	T 1310FP/R 1550	SC	-20 to 70	-9 to-3	-21	20km
SFP5324-D11SC-20	T 1550DFB/R 1310	SC	-20 to 70	-15 to-3	-21	
SFP5324-D11SC-40	T 1550DFB/R 1310	SC	-20 to 70	-9 to-3	-24	40km
SFP3524-D11SC-40	T 1310DFB/R 1550	SC	-20 to 70	-5to-0	-24	
SFP5424-D11SC-80	T 1550DFB/R 1310	SC	-20 to 70	-3 to2	-26	80km
SFP4524-D11SC-80	T 1490DFB/R 1550	SC	-20 to 70	-3 to2	-26	

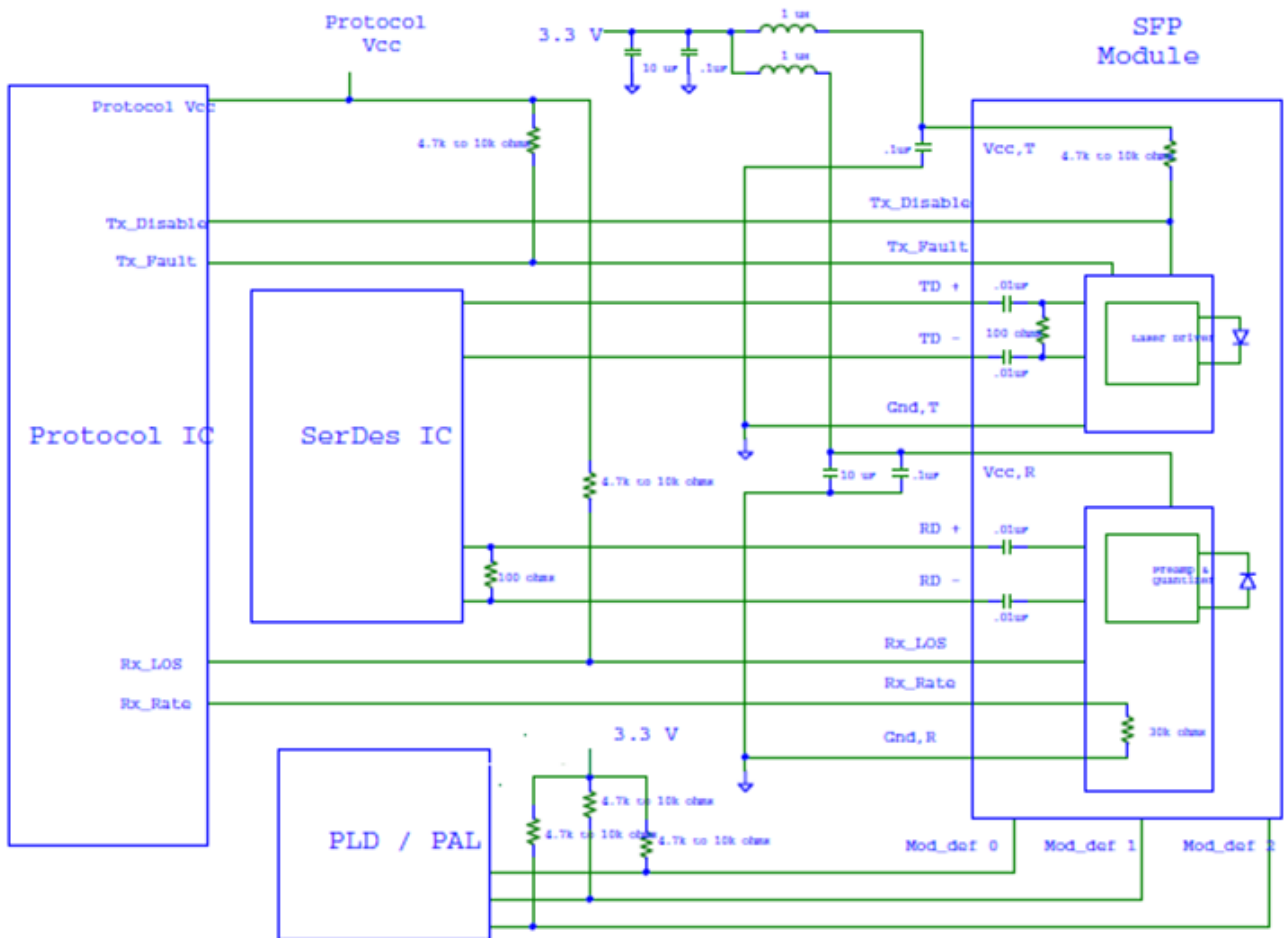


Figure 2 Example SFP Host Board Schematic

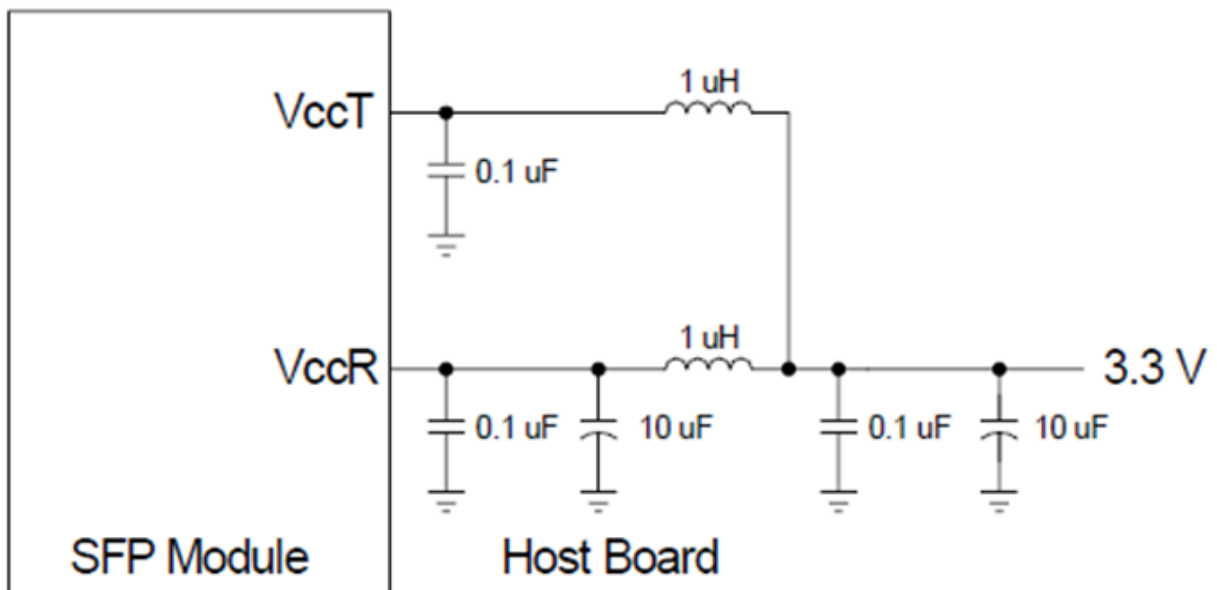


Figure 3 Recommended Host Board Supply Filtering Network

Small Form-factor Pluggable (SFP) Transceiver MultiSource Agreement (MSA)

Figure 4 SFP Host Board Mechanical Layout

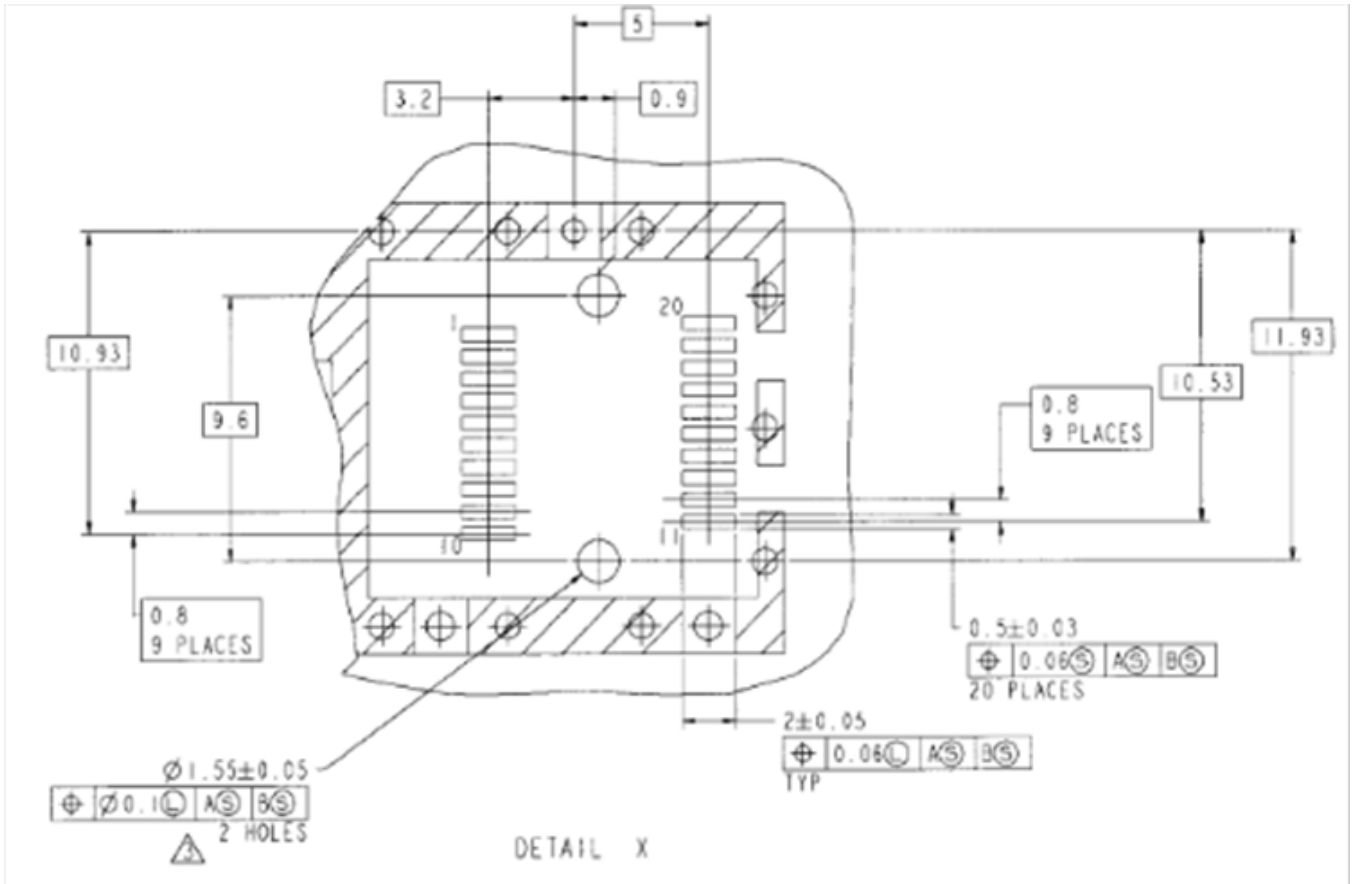
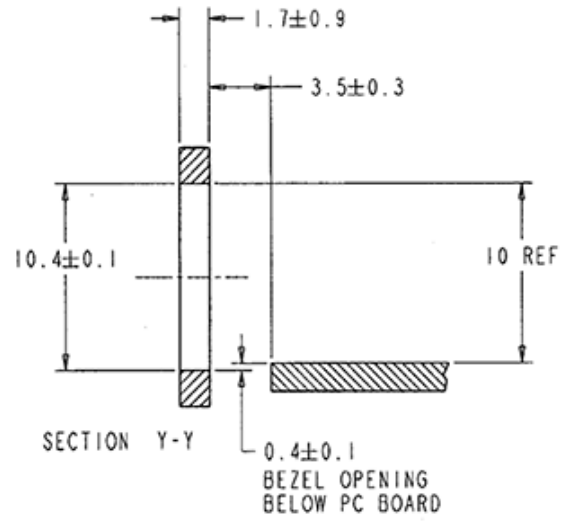
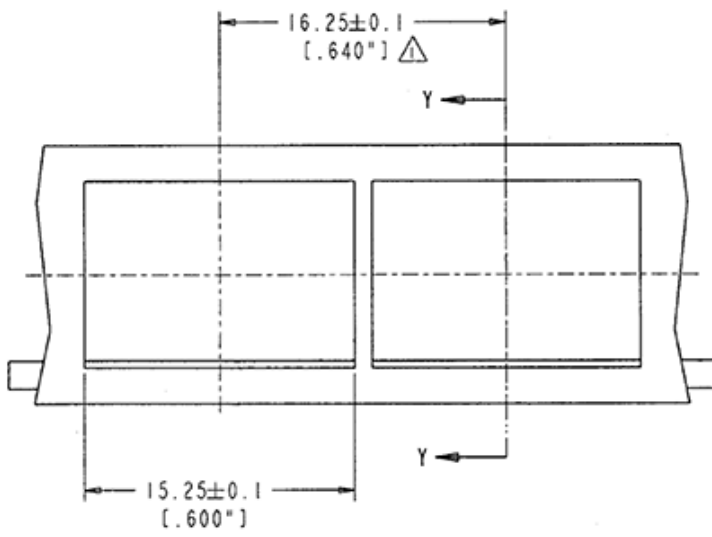


Figure 5 SFP Host Board Mechanical Layout (Cont.)



NOTES:

\triangle MINIMUM PITCH ILLUSTRATED, ENGLISH DIMENSIONS ARE FOR REFERENCE ONLY

2. NOT RECOMMENDED FOR PCI EXPANSION CARD APPLICATIONS