SFP-1SM-SC-80

FES 1.25G SFP 80kmTransceiver

Overview:

The **FES** SFP-1SM-SC-80 is Multi-sourced SFP package with single SC/PC receptacle; Single mode single fiber bi-directional transmission Up to 10~120Km with 9/125μm SMF; AC coupled for Rx and Tx side Two temperature ranges: 0°C to +70°C for commercial level,-40°C to +85°C for industrial level; Operates at data rate 1.25Gbps Complies with MIL-STD-883/GR-468

Technical Specifications:

Header :
Brand : FES **Product Line : Forever Engineering Systems Pvt. Ltd.**
Networking
o Type :1.25SFP transceiver module o Form Factor :Plug-in module o Connectivity Technology :Wired o Data Link Protocol :1 Gigabit o Data Transfer Rate : up to 1.25 GBps o Optical Wave Length/component:1310/1550 nm o Max Transfer Distance :up to 80 km o Media Type : Single Mode Fibre(SMF) o Receiver Sensitivity (dBm) : -26
Features:
○ Multi-sourced SFP package with single SC/PC receptacle ○ Single mode single fiber bi-directional transmission Up to 10~120Km with 9/125μm SMF ○ AC coupled for Rx and Tx side ○ Two temperature ranges: 0°C to +70°C for commercial level, ○ -40°C to +85°C for industrial level; ○ Operates at data rate 1.25Gbps ○ Complies with MIL-STD-883/GR-468
Applications :
○ 1X fiber channel ○ Video monitor system ○ Telecommunication system

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Environmental Parameters
o Operating Temperature : 0 to 70°C (-40~85 Industrial)
o Humidity Range Operating :10 - 85%

Compatibility
○ ALL MAKES Supported

Absolute Maximum Ratings :

Parameter	Symbol		Min	Max	Unit
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			lc		1520	1550	1580	nm
					1280	1310	1340	
					1470	1490	1510	
Spectral width			Δl	FP@RMS	-	2	4	nm
				DFB@-20dB FWHM	-	-	1	
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

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Input Differential Impedance	Rin		100		Ω
Data Input Swing Differential	Vin	300		1200	mV
Optical Modulation Amplitude	OMA	174			μW
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 ΔDJ		20	56.5	ps
Total Jitter Contribution	TX ΔTJ		50	119	ps

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

Parameter			Symbol		Min.	Typ	Max.	Unit
Wavelength Range			lc		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)	1
2	TFAULT	Transmitter Fault.	2
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	3

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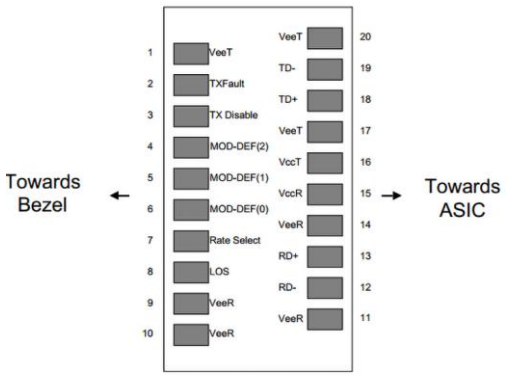
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	4
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	4
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	4
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	5
9	VEER	Receiver Ground (Common with Transmitter Ground)	1
10	VEER	Receiver Ground (Common with Transmitter Ground)	1
11	VEER	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	VEER	Receiver Ground (Common with Transmitter Ground)	1
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	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	VEET	Transmitter Ground (Common with Receiver Ground)	1

Notes:

1. Circuit ground is internally isolated from chassis ground.
2. TFAULTis 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.
3. 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, theoutput is pulled to 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

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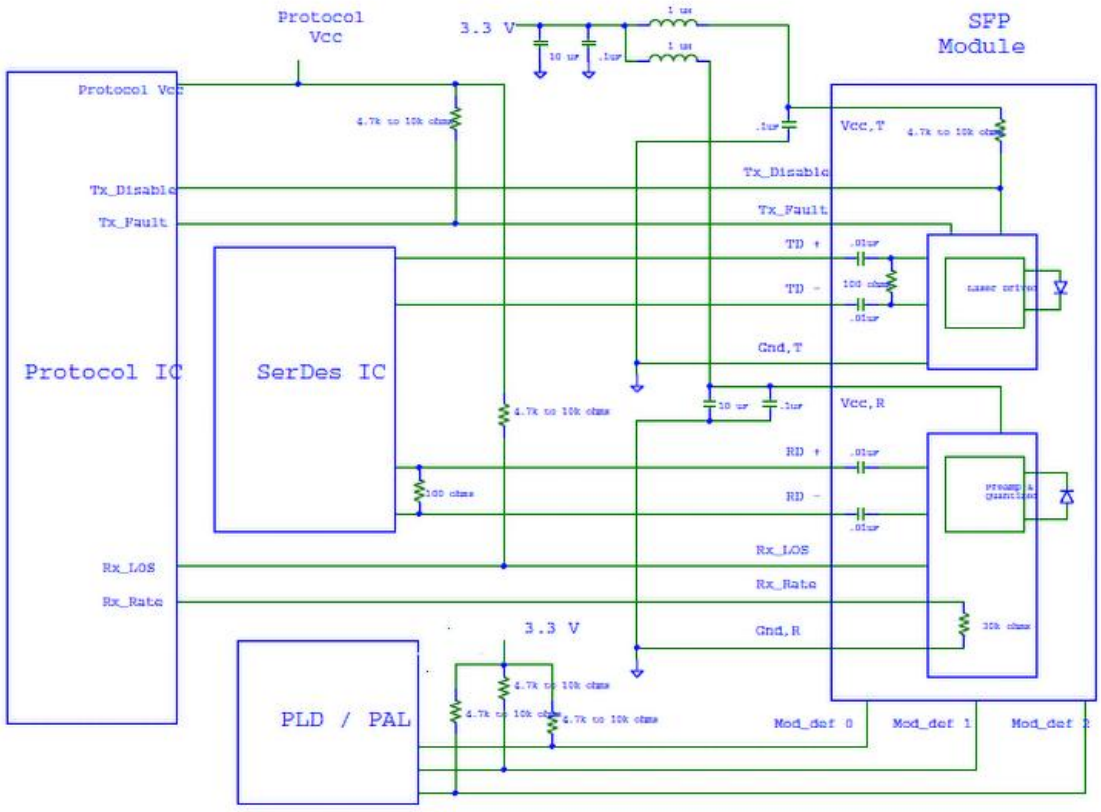

Figure 2 Example SFP Host Board Schematic

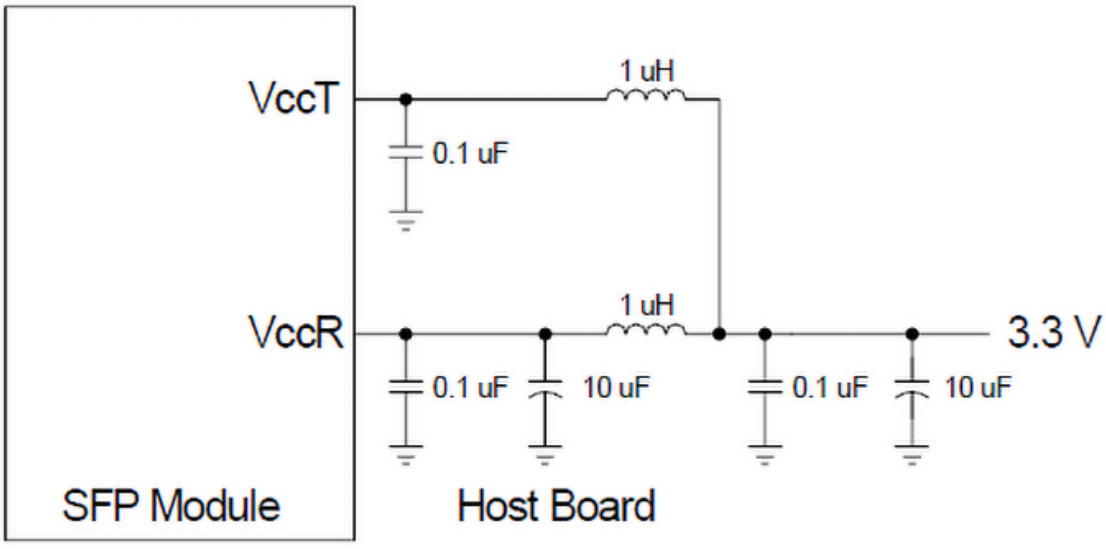

Figure 3 Recommended Host Board Supply Filtering Network

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

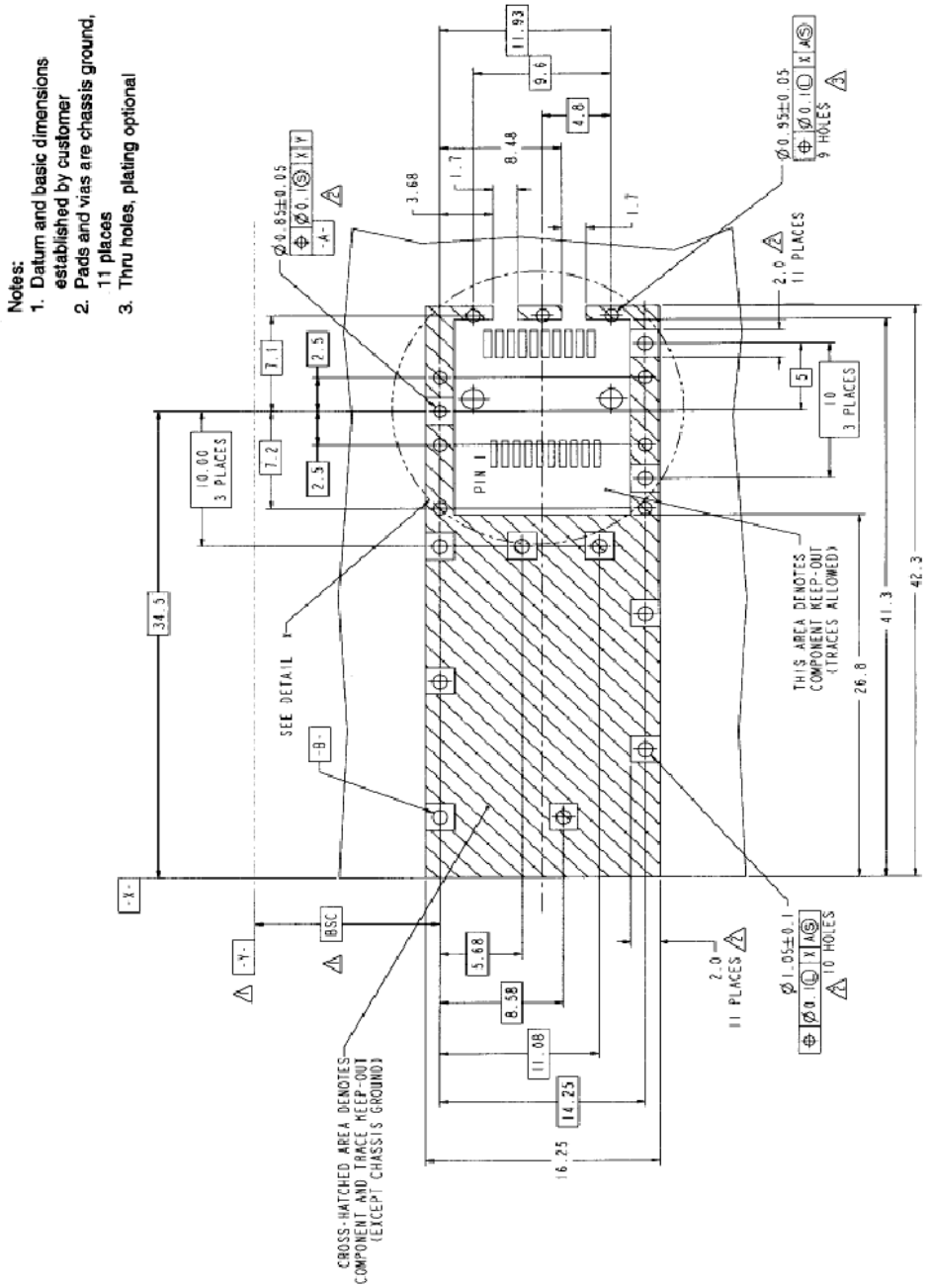

Figure 4 SFP Host Board Mechanical Layout

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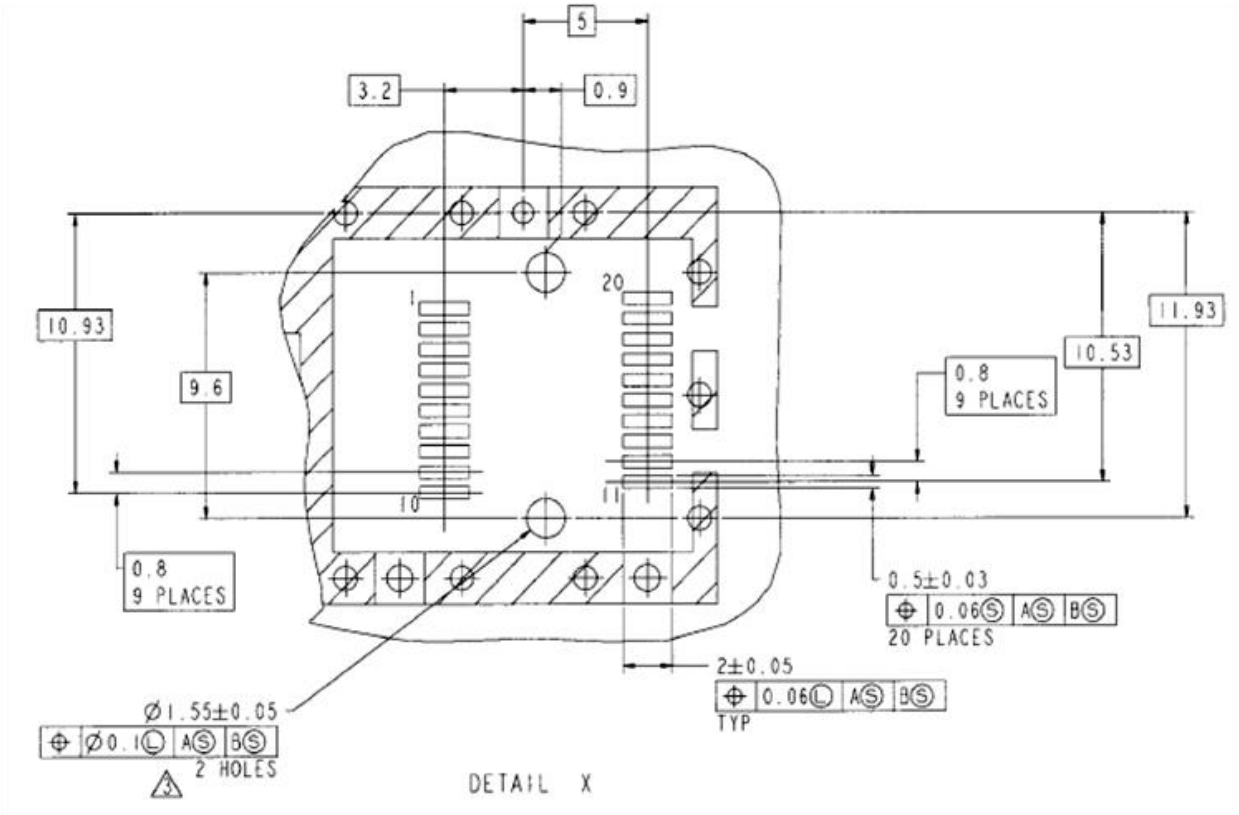
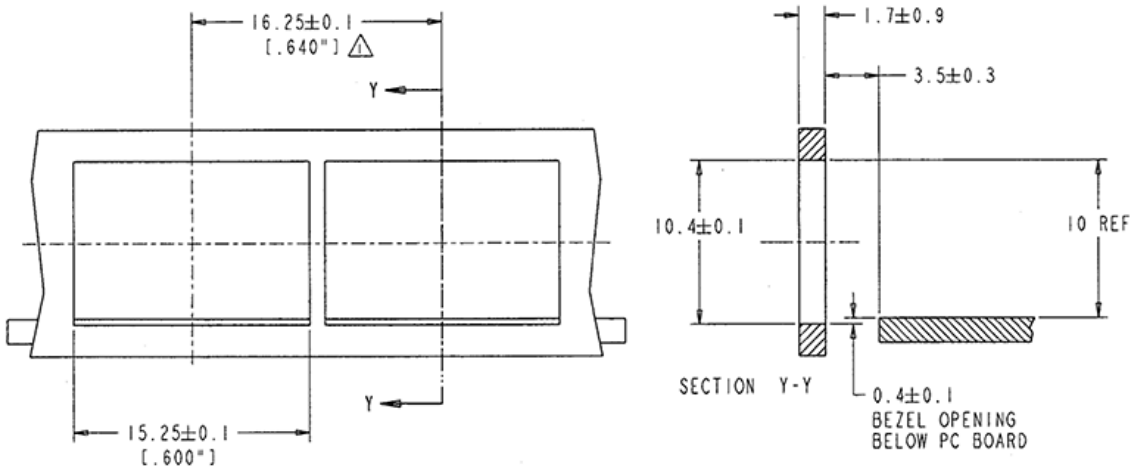


Figure 5 SFP Host Board Mechanical Layout (Cont.)



NOTES:

1. MINIMUM PITCH ILLUSTRATED, ENGLISH DIMENSIONS ARE FOR REFERENCE ONLY
2. NOT RECOMMENDED FOR PCI EXPANSION CARD APPLICATIONS

Figure 6 Recommended Bezel Design