84Mb/s Duplex Fibers SFP Optical Transceiver

Applications

- Applied to optical fiber transmission systems,such as SDH/PDH and digital video optical terminal devices with bit rate up to 84Mbps

Features

- Up to 84Mb/s data rate
- Single mode and Multi-mode
- Module integrates receive and transmit circuits of two parts
- All-metal shell and the shell with plastic end plug form, LC receptacle.
- Hot-pluggable
- Metropolitan area network
- Single +3.3V power supply
- Standard PECL data output and input with signal detect indication
- High quality 1310nm MQW-FP LD or 1550nm DFB LD/850nm VCSEL LD
- Commercial level and Industrial level products for customers
- Compliant with SFP MSA
- ROHS compliance

Specifications

Absolute Maximum Ratings						
Parameters	Symbol	Min	Type	Max	unit	
Storage temperature (°C)	Ts	-40		+85	°C	
Supply voltage(V)	Vcc	-0.5		3.63	V	
Relative Humidity	R_H	5		95	%	
Recommended Operating Conditions						
Case Operating Temperature Range (°C)	T_C	-40		+85	°C	Industrial level
	T_C	0		70	°C	Commercial level
Supply voltage(V)	Vcc	+3.135	+3.3	+3.465	V	
Data rate			84		Mb/s	
Transceiver Electrical Characteristics		**Top=23°C@3.3v supply voltage**				
Module Supply Current	I_{CC}			200	mA	
Inrush Current	I_{RUSH}			30	mA	
Input differential impedance	R_{in}		100		Ω	
Transmitter Single Ended Input Voltage (TD±)	V_{in}	100		1200	mV	
Transmit Fault(TX_Fault)	V_{OH}	2.0		3.3	V	
LOSS of Signal (LOS)	V_{OL}	0		0.8	V	

Parameters	Symbol	Min	Typ	Max	Unit	Remark
Transmit Disable Input Low	V_{IL}	0		0.8	V	
Transmit Disable Input High	V_{IH}	2.4		3.3	V	
Receiver Single Ended Output Voltage (RD±)	V_{out}	200		800	mV	
Optical transmitter Characteristics		**Top=23°C@3.3v supply voltage**				
Center Wavelength	λ	1260	1310	1360	nm	FP
		1540	1550	1560	nm	DFB
		830	850	870	nm	VCSEL
Optical Power	P_0	See the Optical Parameters Table below				
Optical Rise Time	T_r		120	150	ps	
Optical Fall Time	T_f		120	150	ps	
Extinction Ratio	Ext	8.2			dB	
Spectral Width (-20dB)	Δλ			4	nm	FP-LD,RMS
	Δλ			1	nm	DFB-LD,-20dB
Eye Mask	Compliant with Eye Mask Defined in IEEE 802.3					
Optical receiver Characteristics		**Top=23°C@3.3v supply voltage**				
Center Wavelength	λ	1100		1650	nm	
Receive Optical Sensitivity	Sen	See the Optical Parameters Table below				
LOS output (TTL high level）	V_{LOS}	2			V	
Receiver Overload	P_{inMAX}	-3			dBm	
LOS Assert	P_{LOS_A}	-45			dBm	
LOS Deassert	P_{LOS_D}			-38	dBm	
LOS Hysteresis	P_H	0.5	2	4	dB	$10\log(V_{DE\text{-}ASSERT}/V_{ASSERT})$

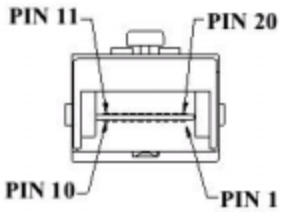
Optical Parameters Table

Data rate\LD\Wavelength and mode\Optical output power\Sensitivity\Reach

Data rate	LD	Wavelength （nm） mode	Optical output power P0 （dBm）	Sensitivity （dBm）	Reach (km)
84Mb/s	1310nm FP	SM 1310nm	≥-14	≤-34	20km
	1310nm FP	SM 1310nm	≥-12	≤-35	40km
	1310nm FP	SM 1310nm	≥-6	≤-36	60km
	1550nm DFB	SM 1310nm	≥-8	≤-36	80km
	1550nm DFB	SM 1310nm	≥-3	≤-37	100km
	1550nm DFB	SM 1310nm	≥-2	≤-37	120km
	1310nm FP	MM 1310nm	≥-18	≤-33	5km
	850nm VCSEL	MM 850nm	≥-14	≤-27	2km

Pin Arrangement

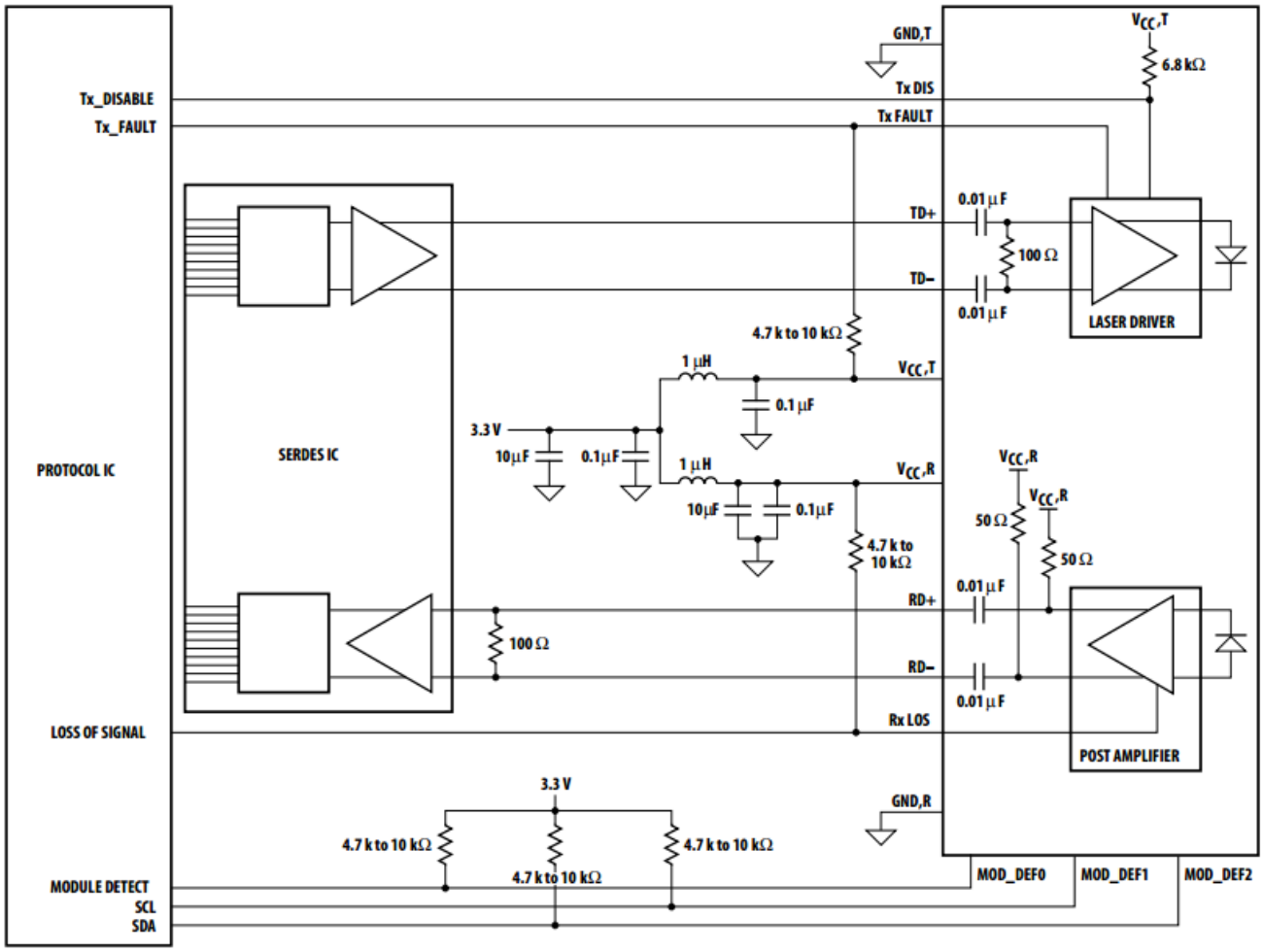
20 VEET	1 VEET
19 TD-	2 TX Fault
18 TD+	3 TX Disable
17 VEET	4 MOD_DEF(2)
16 VCCT	5 MOD_DEF(1)
15 VCCR	6 MOD_DEF(0)
14 VEER	7 Rate Select
13 RD+	8 LOS
12 RD-	9 VEER
11 VEER	10 VEER



Pin Definitions

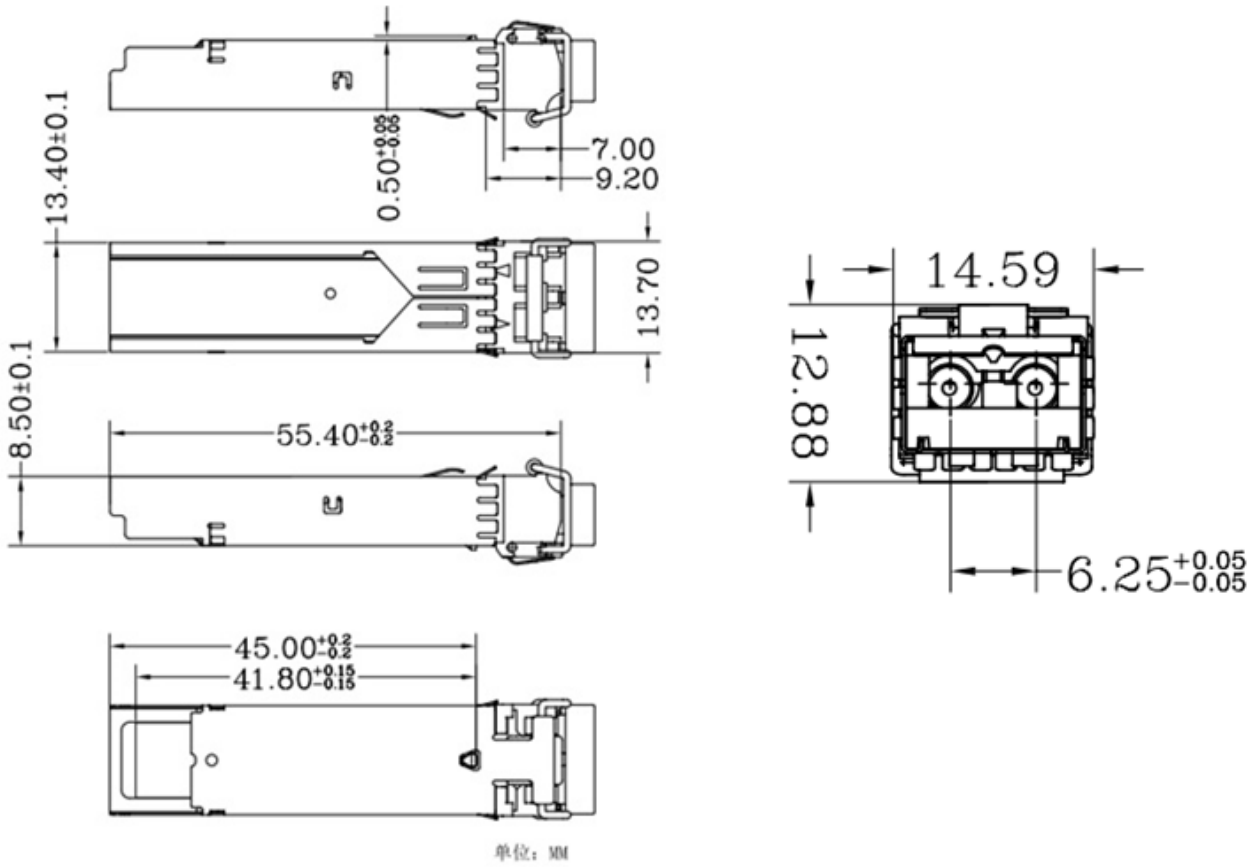
Pin	Name	Function/Description
1	VeeT	Transmitter Ground
2	TX Fault	Transmitter Fault Indication
3	TX Disable	Transmitter Disable-Module disables on high or open
4	MOD-DEF2	Module Definition 2-Two wire serial ID interface
5	MOD-DEF1	Module Definition 1-Two wire serial ID interface
6	MOD-DEF0	Module Definition 0-Two wire serial ID interface
7	Rate Select	Not Connected
8	LOS	Loss of Signal
9	VeeR	Receiver Ground
10	VeeR	Receiver Ground
11	Veer	Receiver Ground
12	RD-	Inverse Received Data out
13	RD+	Received Data out
14	VeeR	Receiver Ground
15	VccR	Receiver Power —— +3.3V
16	VccT	Transmitter Power —— +3.3 V
17	VeeT	Transmitter Ground
18	TD+	Transmitter Data In
19	TD-	Inverse Transmitter Data In
20	VeeT	Transmitter Ground

SFP Recommended Application Configuration

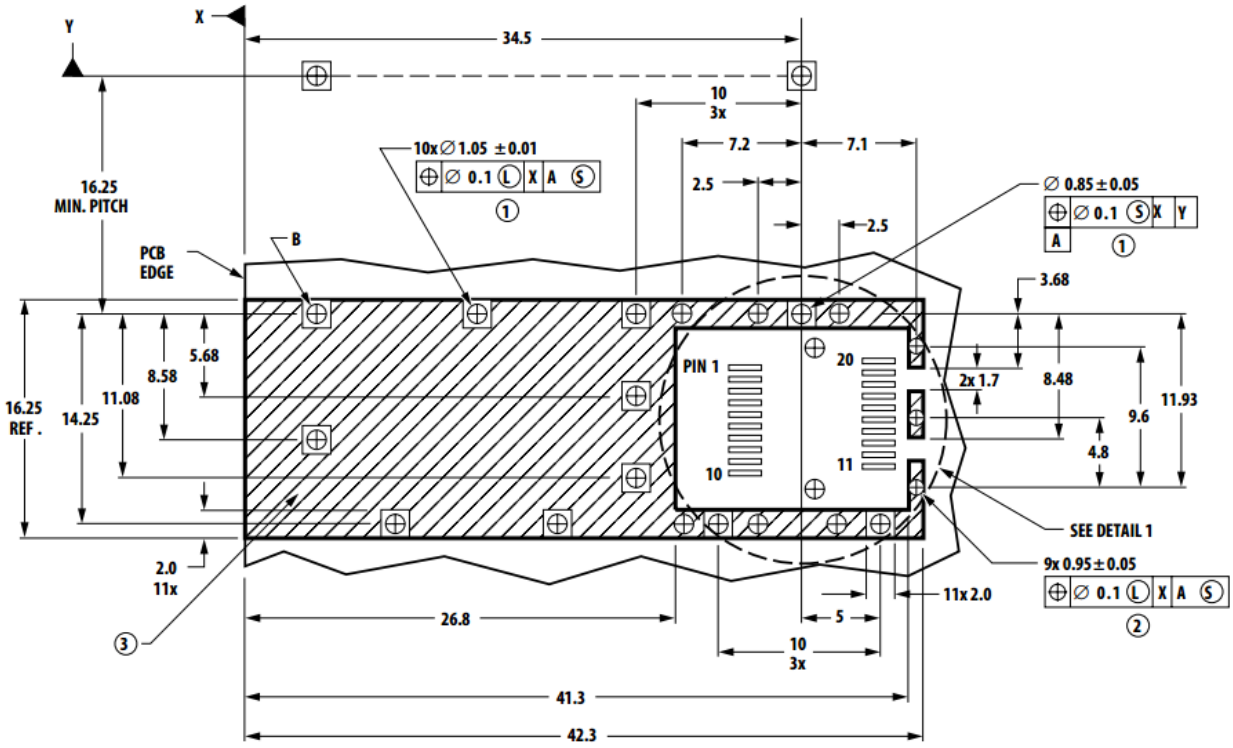


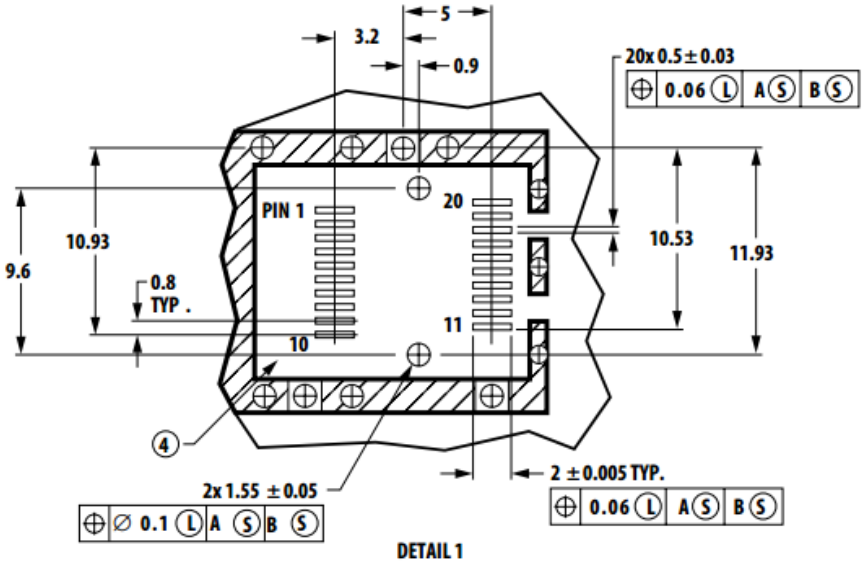
SFP Mechanical Dimensions

SFP Duplex-LC



SFP Host Board Mechanical Layout





LEGEND

1. PADS AND VIAS ARE CHASSIS GROUND
2. THROUGH HOLES, PLATING OPTIONAL
3. HATCHED AREA DENOTES COMPONENT AND TRACE KEEPOUT (EXCEPT CHASSIS GROUND)
4. AREA DENOTES COMPONENT KEEPOUT (TRACES ALLOWED)

DIMENSIONS ARE IN MILLIMETERS

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