1310 nm Single-mode Transceiver
Small Form Pluggable (SFP), with Diagnostic Monitoring
2500Base Ethernet

Features

- RoHS compliant
- 2500Base Ethernet application
- SFF8472 diagnostic monitoring interface
- Duplex LC connector
- Single power supply 3.3V
- Hot Pluggable
- Class 1 laser product complies with EN 60825-1

Ordering Information

PART NUMBER	INPUT/OUTPUT	TEMPERATURE	DISTANCE
LS38-F3S-TC-N-EB	AC/AC	0°C to 70 °C	20KM
LS38-F3S-TI-N-EB	AC/AC	-40°C to 85 °C	20KM

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Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNITS	NOTE
Storage Temperature	T_S	–40	85	°C	
Supply Voltage	*Vcc*	–0.5	4.0	V	
Input Voltage	V_{IN}	–0.5	*Vcc*	V	

Recommended Operating Conditions

PARAMETER	SYMBOL	MIN	MAX	UNITS	NOTE
Case operating Temperature	T_C	0 -40	70 85	°C	
Bit rate	*B*		3125	Mbps	
Supply Voltage	*Vcc*	3.135	3.465	V	
Supply Current	$I_{TX} + I_{RX}$	---	300	mA	
Transmit distance	*D*		20	km	G.652 SMF
Dispersion penalty	*DP*		1	dB	
Humidity (without dew)	*RH*	5	95	*% RH*	

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Transmitter Electro-optical Characteristics

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNITS	NOTE
Output Optical Power	P_{out}	–5	---	0	dBm	
Extinction Ratio	ER	6	---	---	dB	
Center Wavelength	λ_C	1260	1310	1360	nm	
Spectral Width (-20dB)	$\Delta\lambda$	---	---	1.0	nm	
Max. P_{out} TX-DISABLE Asserted	P_{OFF}	---	---	–35	dBm	
Differential Input Voltage	V_{DIFF}	300	---	2000	mV	
Transmit Fault Output-Low	TX_FAULT_L	0.0	---	0.5	V	
Transmit Fault Output-High	TX_FAULT_H	2.4	---	V_{CC}	V	
TX_DISABLE Assert Time	*t_off*	---	---	10	μs	
TX_DISABLE Negate Time	*t_on*	---	---	1	ms	
Time to initialize, include reset of TX_FAULT	*t_init*	---	---	300	ms	
TX_FAULT from fault to assertion	*t_fault*	---	---	100	μs	
TX_DISABLE time to start reset	*t_reset*	10	---	---	μs	

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Receiver Electro-optical Characteristics

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNITS	NOTE
Optical Input Power-maximum	P_{IN}	0	---	---	dBm	BER < 10^{-12}
Receiver Sensitivity	P_{IN}	---	---	-16	dBm	BER < 10^{-12}
Operating Center Wavelength	λ_C	1260	---	1360	nm	
Loss of Signal-Asserted	P_A	–16	---	---	dBm	
Loss of Signal-Deasserted	P_D	---	---	–35	dBm	
Differential Output Voltage	V_{DIFF}	400	---	1000	mV	
Receiver Loss of Signal Output Voltage-Low	RX_LOS_L	0	---	0.5	V	
Receiver Loss of Signal Output Voltage-High	RX_LOS_H	2.4	---	V_{CC}	V	
Receiver Loss of Signal Assert Time (off to on)	t_{A,RX_LOS}	---	---	100	μs	
Receiver Loss of Signal Assert Time (on to off)	t_{D,RX_LOS}	---	---	100	μs	

Diagnostics

Parameter	Range	Accuracy	Unit	Calibration
Temperature	-40 to 85	± 3	^{o}C	Internal
Voltage	3.1 to 3.5	± 0.1	V	
Bias Current	0 to 90	± 10%	mA	
TX Power	-5 to 0	± 3 dB	dBm	
RX Power	-16 to 0	± 3 dB	dBm	

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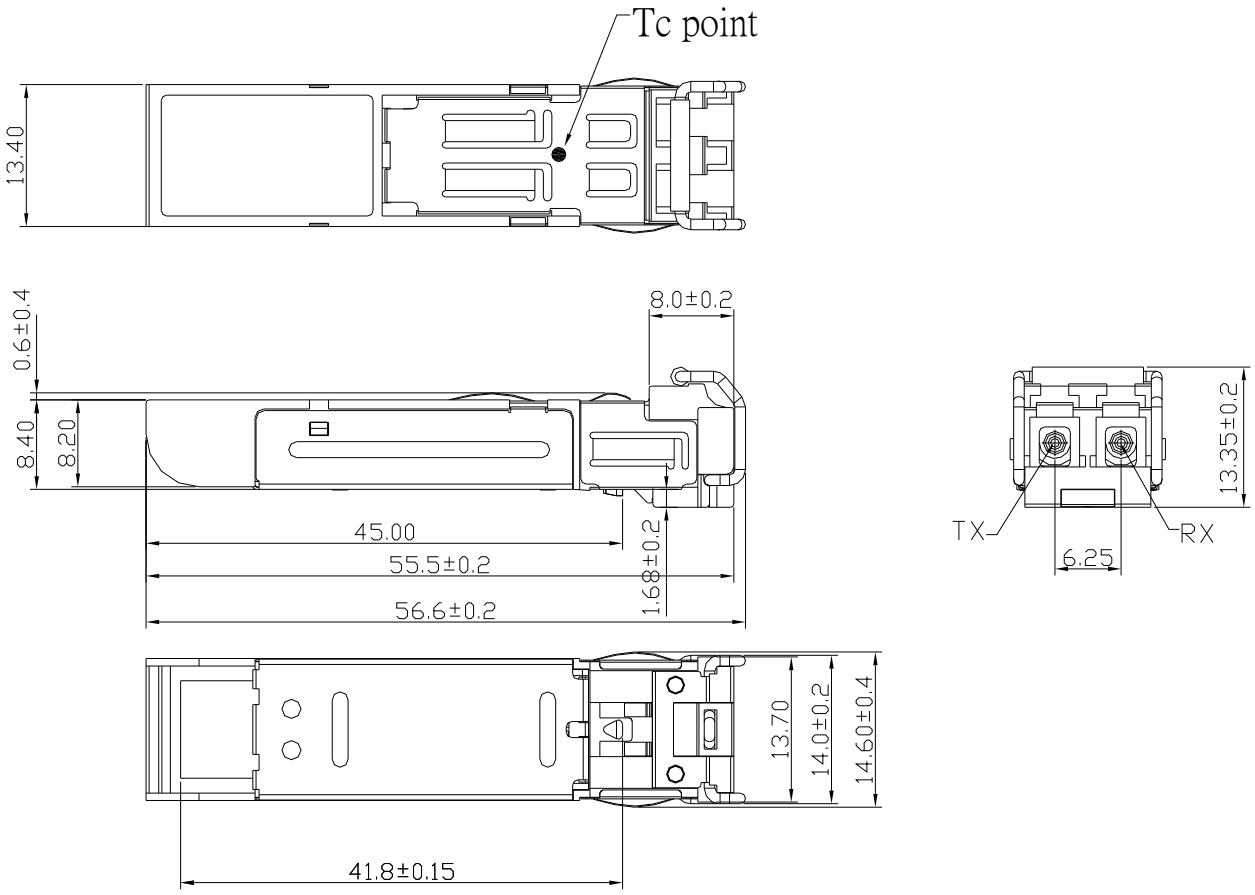
Dimensions



DIMENSIONS ARE IN MILLIMETERS

ALL DIMENSIONS ARE ± 0.1mm UNLESS OTHERWISE SPECIFIED

Unit: mm

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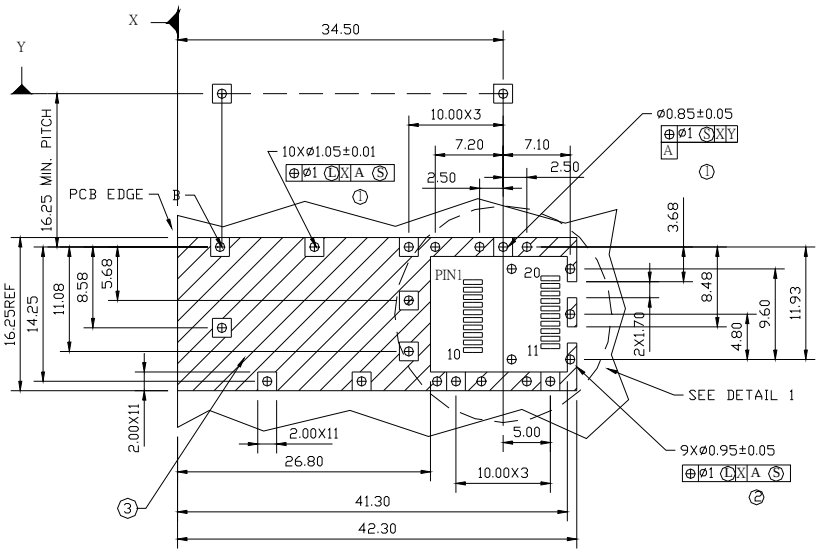
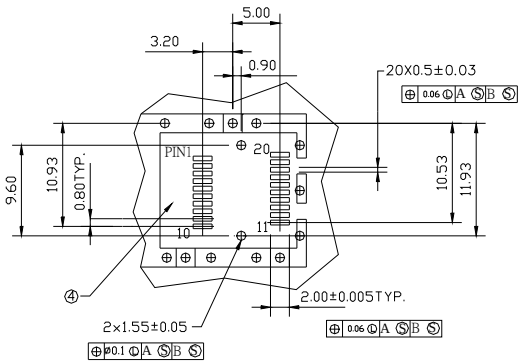
SFP host board mechanical layout





DETAIL 1

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

Unit: mm

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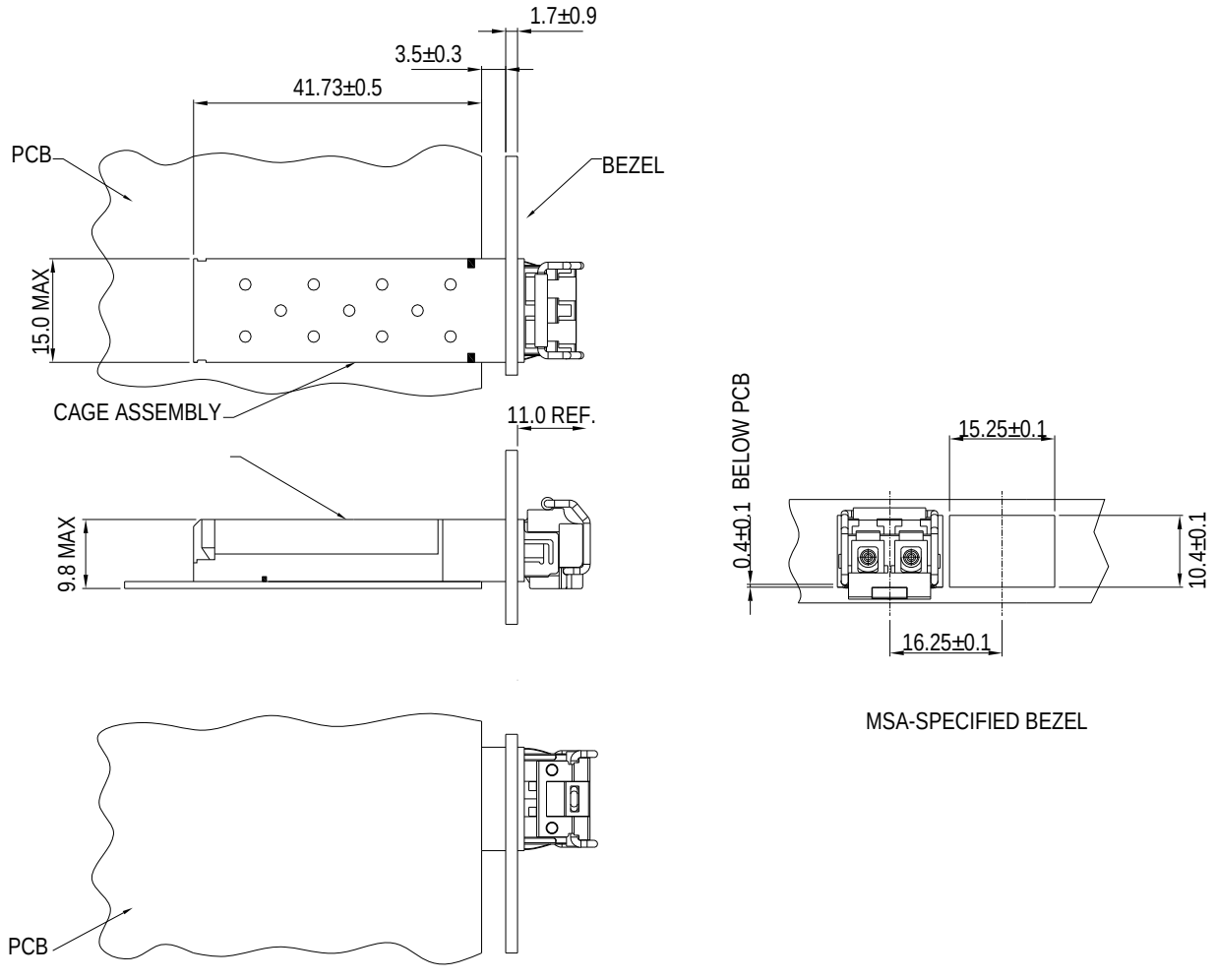
Assembly drawing



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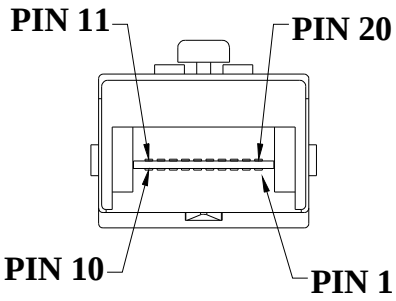
Pin Assignment

Pin-Out



Pin	Signal Name	Description
1	T_{GND}	Transmit Ground
2	*TX_FAULT*	Transmit Fault
3	*TX_DISABLE*	Transmit Disable
4	*MOD_DEF (2)*	SDA Serial Data Signal
5	*MOD_DEF (1)*	SCL Serial Clock Signal
6	*MOD_DEF (0)*	TTL Low
7	*RATE SELECT*	Open Circuit
8	*RX_LOS*	Receiver Loss of Signal, TTL High, open collector
9	R_{GND}	Receiver Ground
10	R_{GND}	Receiver Ground
11	R_{GND}	Receiver Ground
12	*RX–*	Receive Data Bar, Differential , ac coupled
13	*RX+*	Receive Data, Differential , ac coupled
14	R_{GND}	Receiver Ground
15	V_{CCR}	Receiver Power Supply
16	V_{CCT}	Transmitter Power Supply
17	T_{GND}	Transmitter Ground
18	*TX+*	Transmit Data, Differential , ac coupled
19	*TX–*	Transmit Data Bar, Differential , ac coupled
20	T_{GND}	Transmitter Ground

Note : All information contained in this document is subject to change without notice.

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