Data Controls

RoHS Compliant
1310 nm Single-mode Transceiver
Small Form Pluggable (SFP+), with Diagnostic Monitoring
10G BASE-LW/LR 10G Ethernet, 1200-SM-LL-L 10G Fiber channel

Features

- Compliant with 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	VOLTAGE	TEMPERATURE	Distance
JD1310-SFP-LC.S10	3.3V	-25°C to 85 °C	10km

Diagnostics

Parameter	Range	Accuracy	Unit	Calibration
Internal Transceiver Temperature	-40 to 95	± 3	°C	Internal
Internal Transceiver Voltage	3.1 to 3.5	± 0.1	V	
Bias Current	0 to 120	± 10%	%	
TX Power	-9 to +2	± 3	dB	
RX average Power	-16 to 0	± 3	dB	

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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	-25	85	°C	
Supply Voltage	*Vcc*	3.1	3.5	V	
Supply Current	$I_{TX} + I_{RX}$		350	mA	
Power Consumption	*P*	---	1.25	W	

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Transmitter Electro-optical Characteristics for

***Vcc* = 3.1 V to 3.5 V, T_C = -10 °C to 70 °C & T_C = -25 °C to 85 °C**

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNITS	NOTE
Data Rate	*B*		10.3125		Gbps	
Output Optical Power	P_{out}	–6	---	0.5	dBm	
Optical Modulation Amplitude	*OMA*	-5.2			dBm	
Extinction Ratio	*ER*	3.5			dB	
Center Wavelength	λ_C	1290	1310	1330	nm	
Spectrum Width	$\Delta\ \lambda$			1	nm	
Side mode Suppression ratio	SSR_{min}	30			dB	
Transmitter and Dispersion Penalty	*TDP*			3.2	dB	
Relative Intensity Noise	*RIN*	---	---	–128	dB/Hz	
Output Eye			Compliant with IEEE802.3ae			
Max. P_{out} TX-DISABLE Asserted	P_{OFF}	---	---	–35	dBm	
Differential Input Impedance	Z_d		100		Ω	
Differential Input Voltage Swing	V_{DIFF}	180		700	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

***Vcc* = 3.1 V to 3.5 V, T_C = -10 °C to 70 °C & T_C = -25 °C to 85 °C**

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNITS	NOTE
Data Rate	*B*		10.3125		Gbps	
Optical Input Power-maximum	P_{IN}	0.5	---	---	dBm	BER < 10^{-12}
Receiver Sensitivity	P_{IN}	---	---	-14.4	dBm	BER < 10^{-12}
Receiver Sensitivity(OMA)	P_{IN}	---	---	-12.6	dBm	BER < 10^{-12}
Stressed Receiver Sensitivity(OMA)	P_{IN}	---	---	-10.3	dBm	BER < 10^{-12}
Operating Center Wavelength	λ_C	1260	---	1355	nm	
Optical Return Loss	*ORL*	12	---	---	dB	
Loss of Signal-Asserted	P_A	-30	---	---	dBm	
Loss of Signal-Deasserted	P_D	---	---	-17	dBm	
Differential Output Impedance	Z_d	---	100	---	Ω	
Differential Output Voltage	V_{DIFF}	350	---	850	mV	
Receiver Loss of Signal Output Voltage-Low	*RX_LOS*	0	---	0.5	V	
Receiver Loss of Signal Output Voltage-High	*RX_LOS*	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	

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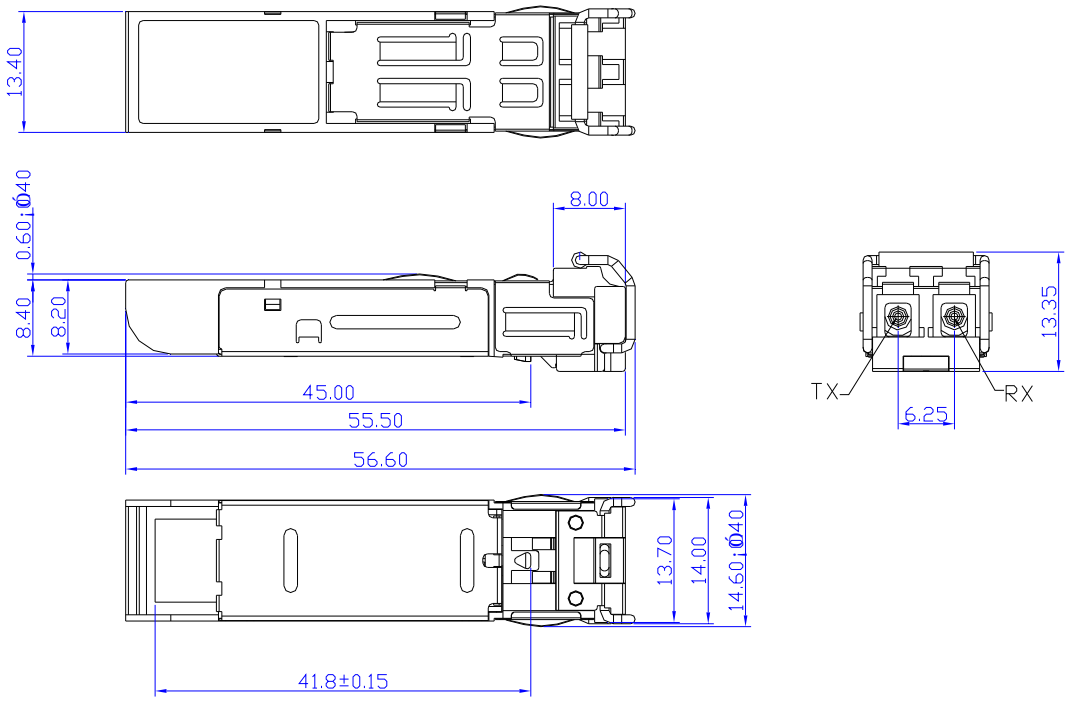
Dimensions



DIMENSIONS ARE IN MILLIMETERS

ALL DIMENSIONS ARE ± 0.2mm UNLESS OTHERWISE SPECIFIED

Unit: mm

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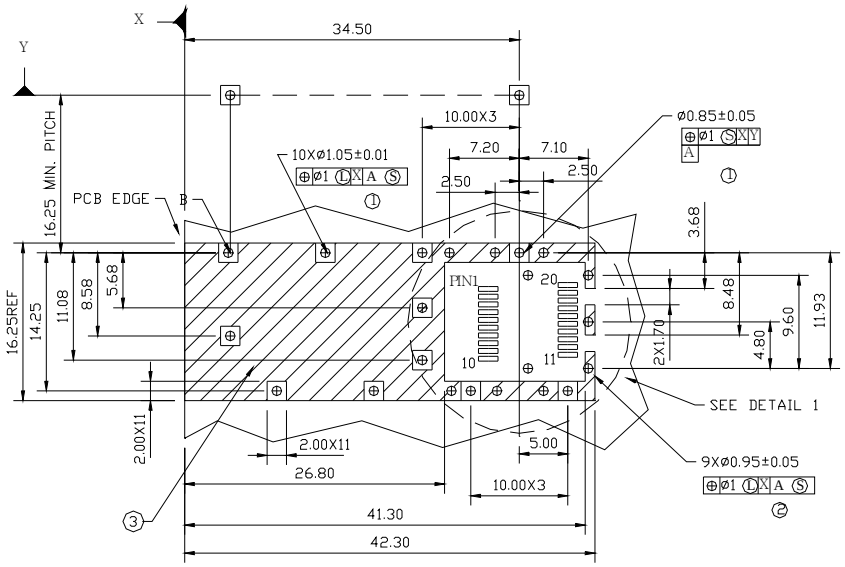
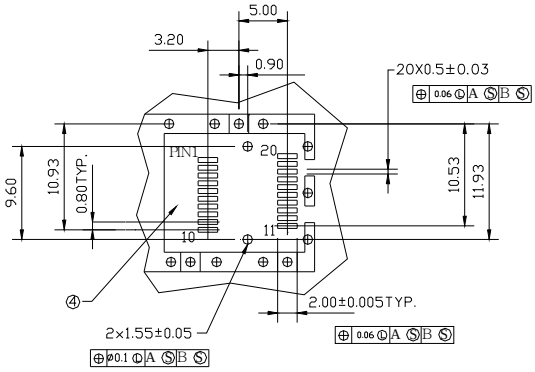
SFP host board mechanical layout





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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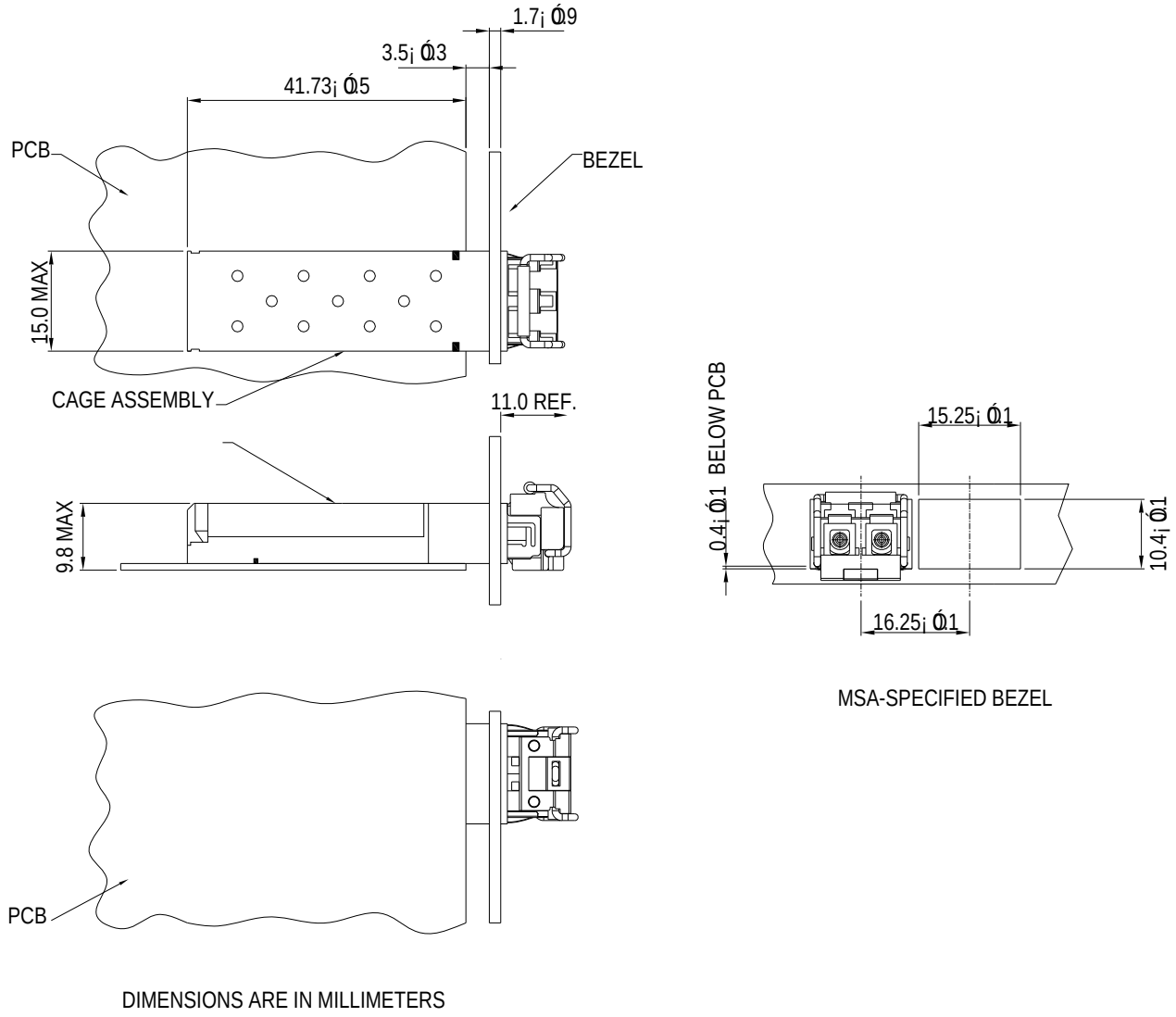
Assembly drawing



Unit: mm

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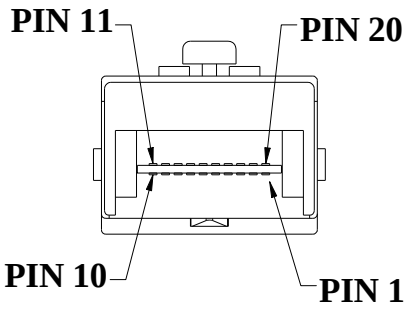
Pin Assignment

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	*RS0*	RX Rate Select
8	*RX_LOS*	Receiver Loss of Signal, TTL High, open collector
9	*RS1*	TX Rate Select
10	R_{GND}	Receiver Ground
11	R_{GND}	Receiver Ground
12	*RX–*	Receive Data out Bar, ac coupled
13	*RX+*	Receive Data out, 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 in, ac coupled
19	*TX–*	Transmit Data in Bar, ac coupled
20	T_{GND}	Transmitter Ground

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Eye Safety Mark

The LS3 series single-mode transceiver is a class 1 laser product. It complies with EN 60825-1 and FDA 21 CFR 1040.10 and 1040.11. In order to meet laser safety requirements the transceiver shall be operated within the Absolute Maximum Ratings.

Caution
All adjustments have been done at the factory before the shipment of the devices. No maintenance and user serviceable part is required. Tampering with and modifying the performance of the device will result in voided product warranty.

Required Mark

Class 1 Laser Product
Complies with
21 CFR 1040.10 and 1040.11

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

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