RoHS Compliant
1310 nm Single-mode Transceiver
Small Form Pluggable (SFP+), with Diagnostic Monitoring
25GBASE Ethernet
SFP28 LR

Features

- Compliant with SFP+ MSA SFF-8431
- Compliant with SFF8472 diagnostic monitoring interface Duplex LC connector
- Single power supply 3.3V
- Hot Pluggable
- Link distance up to 10km over single mode fiber

Ordering Information

PART NUMBER	INPUT/OUTPUT	VOLTAGE	TEMPERATURE
LE38-J3S-TC-N	AC/AC	3.3V	0°C to 70 °C
LE38-J3S-TJ-N	AC/AC	3.3V	-20°C to 85 °C
LE38-J3S-TI-N	AC/AC	3.3V	-40°C to 85 °C

Diagnostics

Parameter	Range	Accuracy	Unit	Calibration
Internal Transceiver Temperature	-40 to 85	± 3	°C	Internal
Internal Transceiver Voltage	3.1 to 3.5	± 0.1	V	
Bias Current	0 to 30	± 10%	mA	
TX Power	-4 to +2	± 3	dB	
RX average Power	-12 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	0	70	°C	LE38-J3S-TC-N
	T_C	-20	85	°C	LE38-J3S-TJ-N
	T_C	-40	85	°C	LE38-J3S-TI-N
Supply Voltage	*Vcc*	3.14	3.46	V	
Supply Current	$I_{TX} + I_{RX}$		300	mA	
Power Consumption	*P*	---	1.0	W	

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Transmitter Electro-optical Characteristics

Vcc = 3.14 V to 3.46 V, T_C = 0 °C to 70 °C for LE38-J3S-TC-N
(T_C = -20 °C to 85 °C for LE38-J3S-TJ-N & T_C = -40 °C to 85 °C for LE38-J3S-TI-N)

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNITS	NOTE
Data Rate	B	25.5	25.78		Gbps	
Average Output Optical Power	P_{out}	-4	---	+2	dBm	
Extinction Ratio	ER	3.5			dB	
Center Wavelength	λ_C	1295	1310	1325	nm	
Spectral Width (-20dB)	$\Delta\lambda$	---	---	1	nm	
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	---	0.8	V	
Transmit Fault Output-High	TX_FAULT_H	2.0	---	V_{CC}	V	
TX_DISABLE Assert Time	t_off	---	---	100	μs	
TX_DISABLE Negate Time	t_on	---	---	2	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 = 3.14 V to 3.46 V, T_C = 0 °C to 70 °C for LE38-J3S-TC-N
(T_C = -20 °C to 85 °C for LE38-J3S-TJ-N & T_C = -40 °C to 85 °C for LE38-J3S-TI-N)

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNITS	NOTE
Data Rate	B	25.5	25.78		Gbps	
Receiver Sensitivity(OMA)	P_{IN}	---	---	-12	dBm	BER<5e-5
Stressed Receiver Sensitivity(OMA)	P_{IN}	---	---	-9.5	dBm	BER<5e-5
Operating Center Wavelength	λ_C	1260	---	1360	nm	
Optical Return Loss	ORL	12	---	---	dB	
Loss of Signal-Asserted	P_A	-25	---	---	dBm	
Loss of Signal-Deasserted	P_D	---	---	-12	dBm	
Differential Output Impedance	Z_d		100		Ω	
Differential Output Voltage	V_{DIFF}	300	---	800	mV	
Receiver Loss of Signal Output Voltage-Low	RX_LOS_L	0	---	0.8	V	
Receiver Loss of Signal Output Voltage-High	RX_LOS_H	2.0	---	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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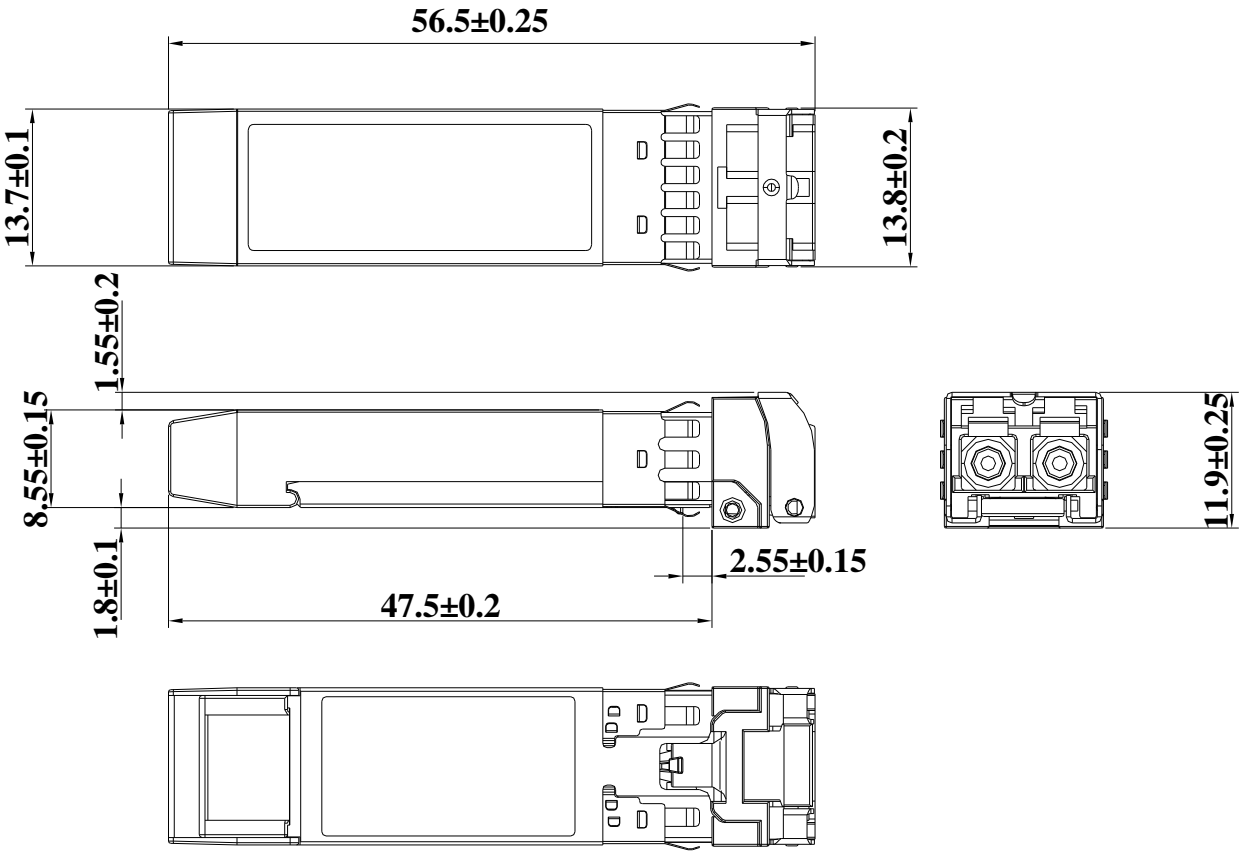
Dimensions



DIMENSIONS ARE IN MILLIMETERS

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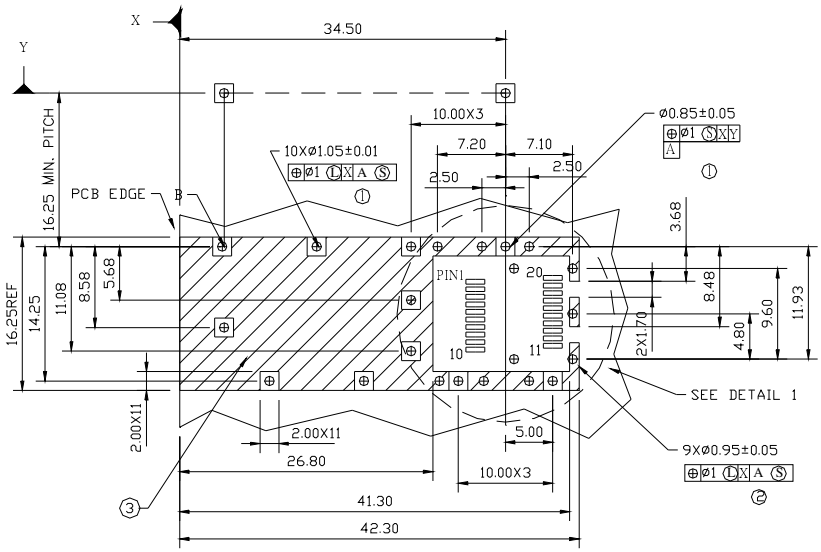
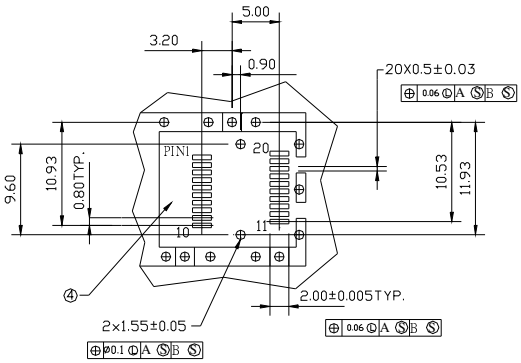
SFP host board mechanical layout





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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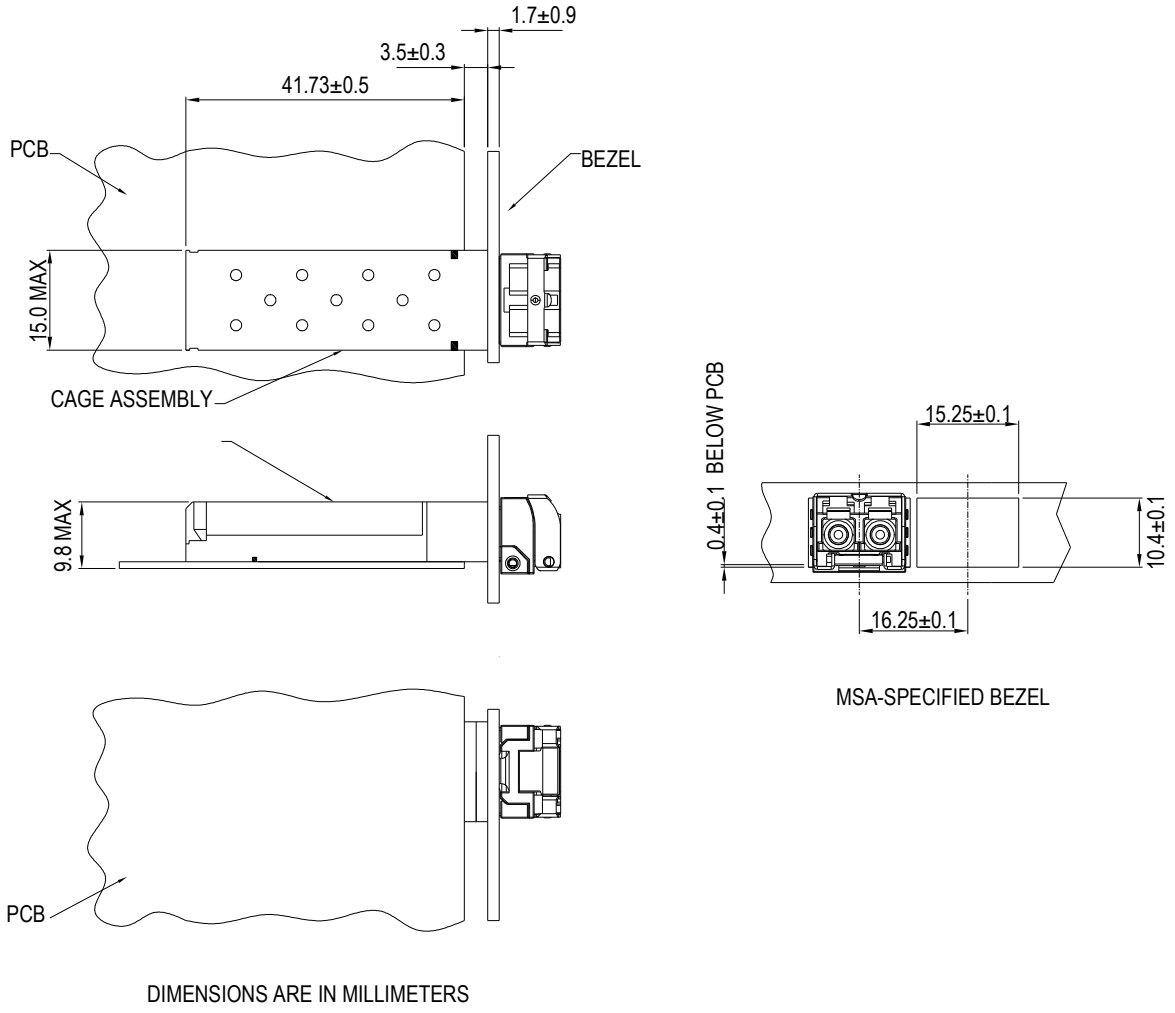
Assembly drawing



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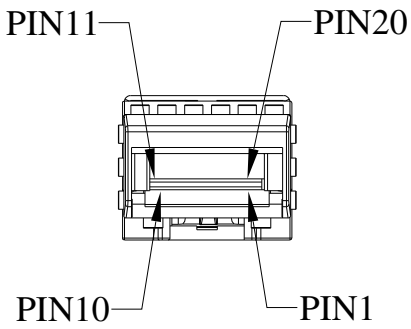
Pin Assignment

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	*RS0*	RX Rate Select, No used
8	*RX_LOS*	Receiver Loss of Signal, TTL High, open collector
9	*RS1*	TX Rate Select, No used
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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