



RoHS compliant
TX-1310/RX-1270 nm Single-mode Bi-directional,
SMF 30km without Host FEC / 40km with Host FEC
SFP LC Simplex Connector, 25G Ethernet/CPRI



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 30km without host FEC /40km with host FEC over single mode fiber

Ordering Information

PART NUMBER	TX/RX	TEMPERATURE	LD Type	Distance
LG38-J3M-TC-B31	1310/1270	0°C to 70 °C	1310 DFB	30km without host FEC
LG38-J3M-TJ-B31	1310/1270	-20°C to 85 °C	1310 DFB	40km with host FEC
LG38-J3M-TI-B31	1310/1270	-40°C to 85 °C	1310 DFB	

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 80	± 10%	mA	
TX Power	0 to +6	± 3	dBm	
RX average Power	-18 to -6	± 3	dBm	



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Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN	MAX	UNITS	NOTE
Storage Temperature	T_S	-40	85	°C	
Storage Humidity Range	RH	5	85	%	
Supply Voltage	V_{CC}	-0.5	4.0	V	
Input Voltage	V_{IN}	-0.5	V_{CC}	V	

Recommended Operating Conditions

PARAMETER	SYMBOL	MIN	MAX	UNITS	NOTE
Case operating Temperature	T_C	0	70	°C	-20~85°C for LG38-J3M-TJ-B31 -40~85°C for LG38-J3M-TI-B31
Operating Humidity Range (non-condensation)	RH	5	85	%	
Supply Voltage	V_{CC}	3.14	3.46	V	
Supply Current	$I_{TX} + I_{RX}$		300	mA	
Power Consumption	P	---	1.5	W	



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Transmitter Electro-optical Characteristics

$V_{CC} = 3.1 \text{ V to } 3.5 \text{ V}$, $T_C = 0^\circ\text{C to } 70^\circ\text{C}$

($T_C = -20^\circ\text{C to } 85^\circ\text{C}$ for LG38-J3M-TJ-B31 & $T_C = -40^\circ\text{C to } 85^\circ\text{C}$ for LG38-J3M-TI-B31)

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNITS	NOTE
Bit Rate	B	24	25.78	26.5	Gbps	
Output Optical Power	P_{out}	0	---	+6	dBm	Average
Extinction Ratio	ER	3.5	---	---	dB	
Center Wavelength	λ_C	1300	1310	1320	nm	
Spectral Width (-20dB)	$\Delta\lambda$	---	---	1	nm	
Side Mode Suppression Ratio	$SMSR$	30			dB	
Relative Intensity Noise	RIN_{20}	---	---	-130	dB/Hz	
Max. P_{out} TX-DISABLE Asserted	P_{OFF}	---	---	-45	dBm	
Differential Input Voltage	V_{DIFF}	180		850	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}	---	---	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}	---	---	1	ms	
TX_DISABLE time to start reset	t_{reset}	10	---	---	μs	



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Receiver Electro-optical Characteristics

$V_{CC} = 3.1\text{ V to } 3.5\text{ V}$, $T_C = 0^\circ\text{C to } 70^\circ\text{C}$

($T_C = -20^\circ\text{C to } 85^\circ\text{C}$ for LG38-J3M-TJ-B31 & $T_C = -40^\circ\text{C to } 85^\circ\text{C}$ for LG38-J3M-TI-B31)

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNITS	NOTE
Data Rate	B	24	25.78	26.5	Gbps	
Receiver Sensitivity(OMA)	P_{IN}	---	---	-13	dBm	BER=10e-12
Receiver Sensitivity(OMA)	P_{IN}	---	---	-18	dBm	BER=5e-5
Operating Center Wavelength	λ_C	1260	---	1280	nm	
Optical Return Loss	ORL	14	---	---	dB	
Loss of signal -Deasserted	P_D	---	---	-18	dBm	
Loss of signal -Asserted	P_A	-30	---	---	dBm	
Differential Output Voltage	V_{DIFF}	300	---	800	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	

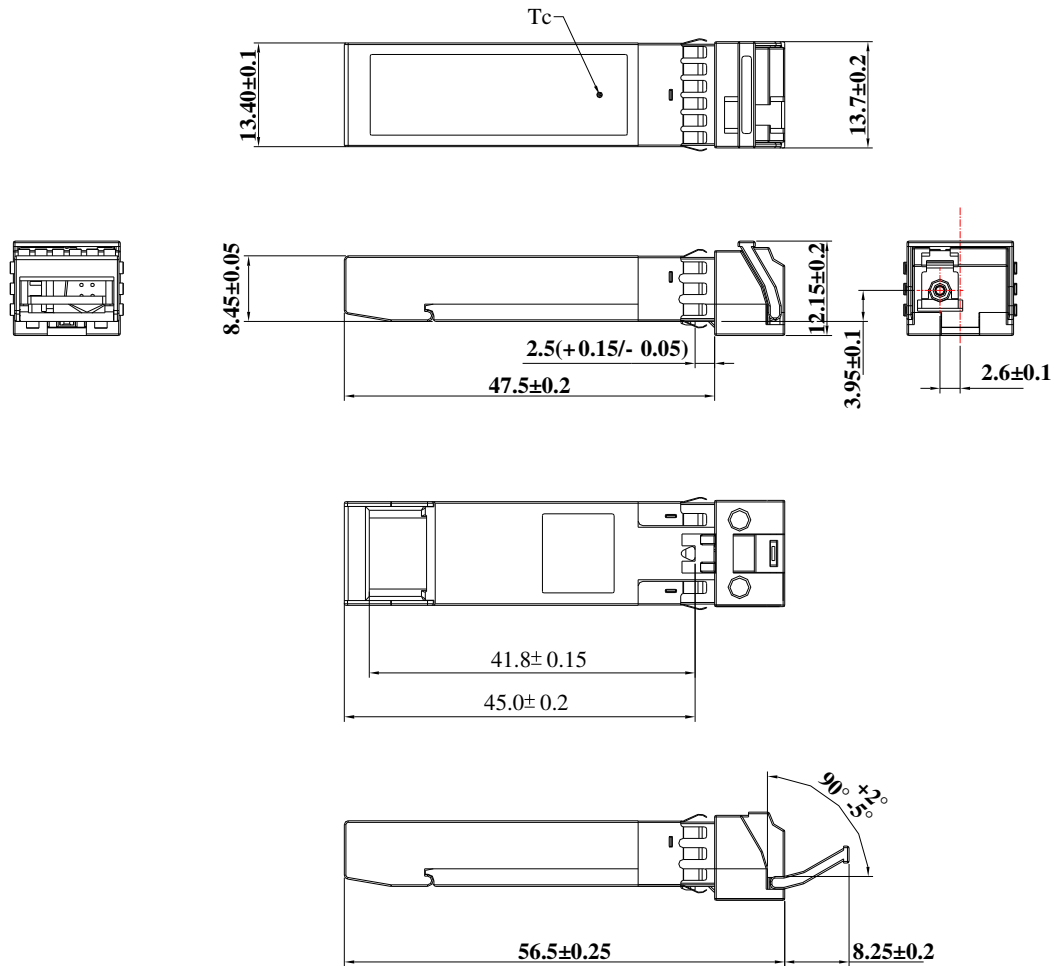
I2C Electrical Characteristics

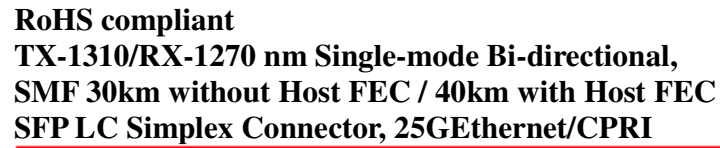
PARAMETER	SYMBOL	MIN	TYP.	MAX	UNITS	NOTE
High-Level Input Voltage SDA, SCL	V_{IH}	$0.7 \cdot V_{CC}$	---	$V_{CC} + 0.3$	V	
Low-Level Input Voltage SDA, SCL	V_{IL}	-0.3	---	$0.3 \cdot V_{CC}$	V	
SCL Clock Frequency	fSCL	0	---	400	kHz	
Serial Interface Clock Holdoff "Clock Stretching"	T_clock_hold	---	---	500	μs	



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Dimensions



[illegible]

- 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)

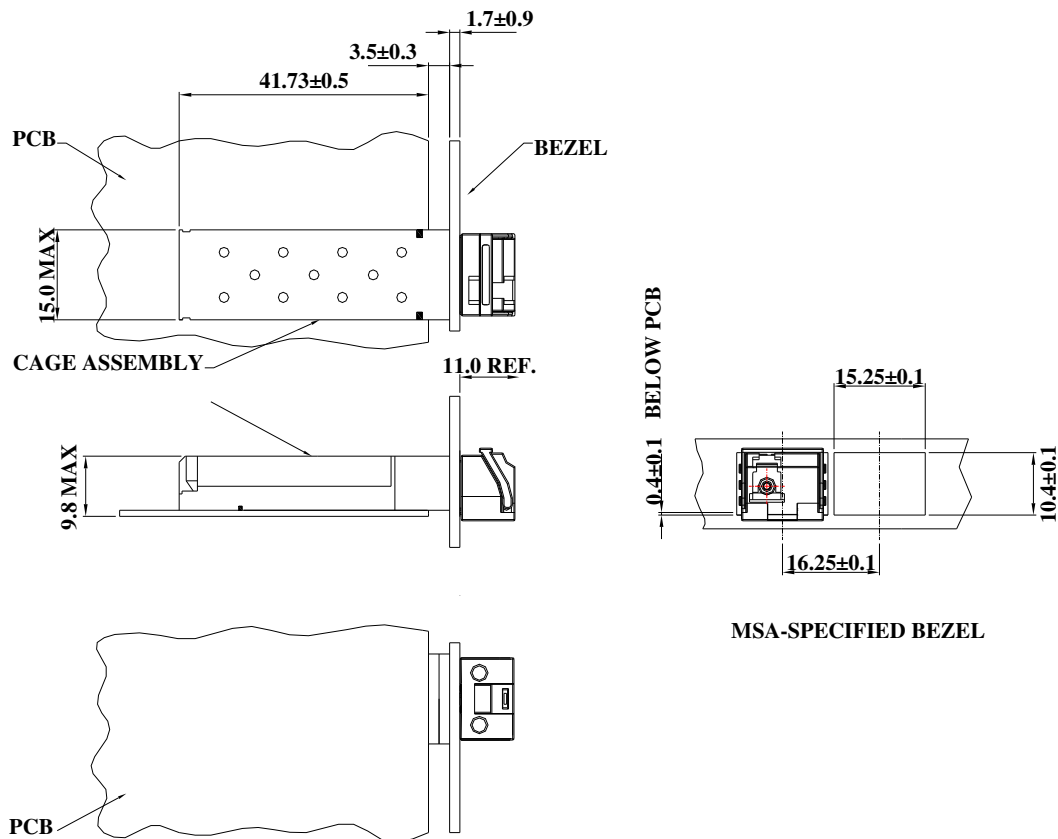
DIMENSIONS ARE IN MILLIMETERS

Unit: mm



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Assembly drawing



DIMENSIONS ARE IN MILLIMETERS

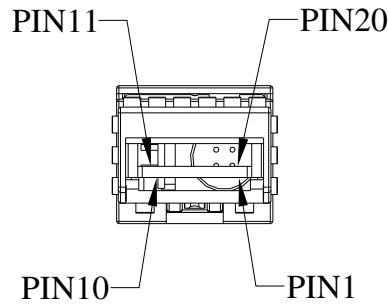
Unit: mm



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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	SDA	SDA Serial Data Signal
5	SCL	SCL Serial Clock Signal
6	MOD_ABS	Internal connected to ground
7	$RS0$	Rate select 0, not used
8	RX_LOS	Receiver Loss of Signal, LVTTTL High, open collector
9	$RS1$	Rate select 1, not used
10	R_{GND}	Receiver Ground
11	R_{GND}	Receiver Ground
12	$RX-$	Receive Data Bar, ac coupled
13	$RX+$	Receive Data, 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, ac coupled
19	$TX-$	Transmit Data Bar, ac coupled
20	T_{GND}	Transmitter Ground

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