

SP-GB-MX



Features

- Data rate 1.062 to 1.25 Gb/s
- Single 3.3 V supply
- 2km reach for 50/125 μm MMF (500 MHz•km)
3km reach for 50/125 μm MMF (1000 MHz•km)
1km reach for 62.5/125 μm MMF (500 MHz•km)
1km reach for 62.5/125 μm MMF (1000 MHz•km)
- Gigabit Ethernet IEEE 802.3z compliant
- SFP MSA SFF-8074i compliant
- Telcordia GR-468 compliant
- RoHS 5/6 compliant (Lead Exemption)
- Color coded blue bail latch : Grey

General Operating

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	V_{cc}	3.135	3.3	3.465	V
Total Current	I_{cc}	-	-	300	mA
Power Supply Rejection ^a	PSR	100	-	-	mVp-p
Operating Temperature	T_{opr}	-5	-	70	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-40	-	85	$^{\circ}\text{C}$
Data Rate GbE	DR	-	1250	-	Mbps
Data Rate FC	DR	-	1062.5	-	Mbps

a) 20Hz to 155MHz

Transmitter Specifications, Optical

Parameter	Symbol	Min	Typical	Max	Unit
Optical Power	P_{op}	-9	-5	-3	dBm
Average Launch Power of Off Tx	P_{off}	-	-	-30	dBm
Extinction Ratio (dynamic)	ER	9	-	-	dB
Eye Mask		IEEE 802.3z compliant			
Total Jitter	TJ	-	-	200	ps
Optical Rise Time ^b	t_r	-	-	260	ps
Optical Fall Time ^b	t_f	-	-	260	ps
Mean Wavelength	λ	1270	1310	1355	nm
Spectral Width (RMS)	$\Delta\lambda$	-	-	4	nm
Relative Intensity Noise	RIN	-	-	-120	dB/Hz

b) 20%-80% values

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Transmitter Specifications , Electrical

Parameter	Symbol	Min	Typical	Max	Unit
Input Differential Impedance	R_{in}	80	100	120	Ω
PECL Single Ended Data Input Swing	$V_{in, p-p}$	250	-	1200	mV
TxFault_Fault	V_{fault}	2	-	V_{CC}	V
TxFault_Normal	V_{normal}	V_{ee}	-	$V_{ee} + 0.5$	V
TxDisable_Disable	V_d	2	-	V_{CC}	V
TxDisable_Enable	V_{en}	V_{ee}	-	$V_{ee} + 0.8$	V

Receiver Specifications, Optical

Parameter	Symbol	Min	Typical	Max	Unit
Receiver Power Low ^c	$R_{sens,low}$	-	-19	-17	dBm
Receiver Power High ^c	$R_{sens,high}$	-3	-	-	dBm
Damage Threshold for Receiver	$P_{in, damage}$	6	-	-	dBm
Wavelength ^d	λ	1270	-	1355	nm
Maximum Reflectance of Receiver	RX_r	-	-	-12	dB
LOS Assert	-	-32	-	-	dBm
LOS De-assert	-	-	-	-17	dBm
LOS Hysteresis	-	0.5	-	-	dB

c) Measured at BER of 10^{-12} , PRBS of 2^7-1

d) Operational over 1200-1625 nm range

Electrical Output

Parameter	Symbol	Min	Typical	Max	Unit
PECL Single Ended Data Output Swing	$V_{out,p-p}$	185	-	800	mV
Data Output Rise Time	t_r	-	-	175	ps
Data Output Fall Time	t_f	-	-	175	ps

Timing and Electrical

Parameter	Symbol	Min	Typical	Max	Unit
Tx Disable Negate Time	t_{on}	-	-	1	ms
Tx Disable Assert Time	t_{off}	-	-	10	μ s
Time to Initialize, Including Reset of Tx Fault	t_{init}	-	-	300	ms
Tx Fault Assert Time	t_{fault}	-	-	100	μ s
Tx Disable to Reset	t_{reset}	10	-	-	μ s
LOS Assert Time	t_{loss_on}	-	-	100	μ s
LOS De-assert Time	t_{loss_off}	-	-	100	μ s
Serial ID Clock Rate	f_{serial_clock}	-	-	100	KHz
RX_LOS Voltage (high)	RX_LOS_H	2	-	V_{CC}	V
RX_LOS Voltage (low)	RX_LOS_L	-	-	0.8	V
LOS Output Voltage-Fault	$V_{LOS\ fault}$	2	-	V_{CC}	V
LOS Output Voltage-Normal	$V_{LOS\ normal}$	V_{ee}	-	$V_{ee} + 0.5$	V
MOD_DEF (0:2)-High	V_h	2	-	V_{CC}	V
MOD_DEF (0:2)-Low	V_l	V_{ee}	-	$V_{ee} + 0.55$	V

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EEPROM Serial ID				
Name of Field	Description of Field	Address	Hex	ASCII
Vendor Name	SFP Vendor name (ASCII)	20	4C	L
		21	55	U
		22	4D	M
		23	49	I
		24	4E	N
		25	45	E
		26	4E	N
		27	54	T
		28	4F	O
		29	49	I
		30	43	C
Vendor OUI	IEEE vendor OUI code for LuminentOIC Inc.	37	00	
		38	06	
		39	B5	
Vendor PN	Part number in ASCII, e.g. SP-GB-MX-CNA	40	53	S
		41	50	P
		42	47	G
		43	48	B
		44	4D	M
		45	58	X
		46	43	C
		47	4E	N
48	41	A		

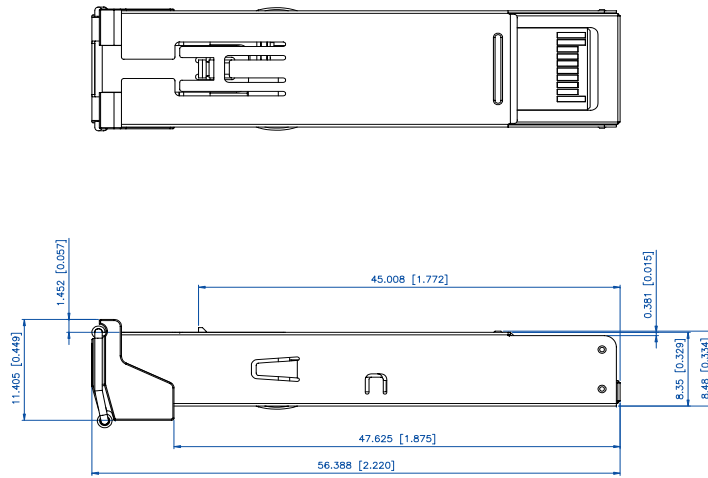
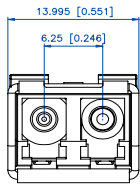
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Pinout Definitions

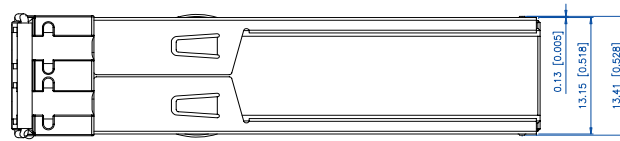
Pin	Function	Notes
1	V _{ee} T	TX GND
2	TX_FAULT	Open Collector
3	TX_DISABLE	Internally Pulled High
4	MOD_DEF2	Serial Data Input
5	MOD_DEF1	Serial Clock Input
6	MOD_DEFO	Internally Grounded
7	NC	Not Connected
8	LOS	Open Collector
9	V _{ee} R	RX Ground
10	V _{ee} R	RX Ground
11	V _{ee} R	RX Ground
12	RXD-	RX Data Negative
13	RXD+	RX Data Positive
14	V _{ee} R	RX GND
15	V _{CC} R	RX Power
16	V _{CC} T	TX Power
17	V _{ee} T	TX GND
18	TXD+	TX Data Positive
19	TXD-	TX Data Negative
20	V _{ee} T	TX GND

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Outline Drawing

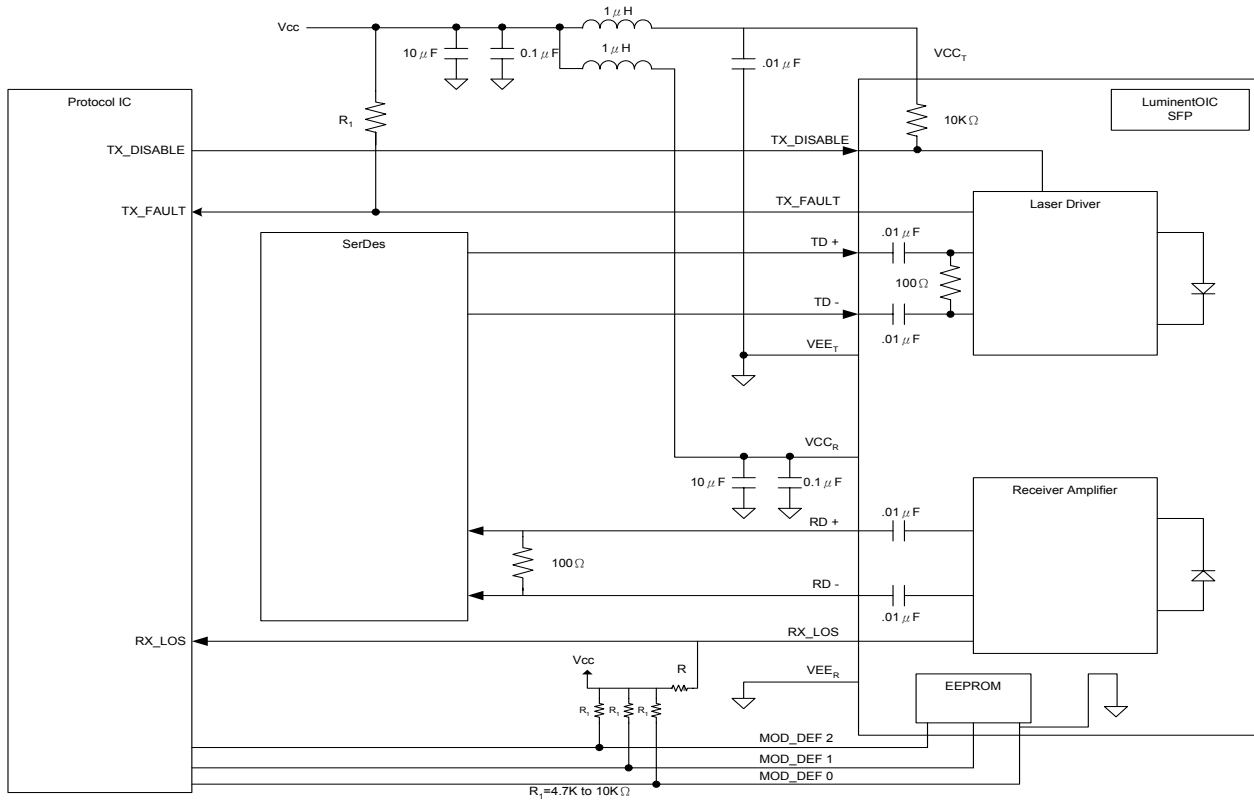


Units in mm(inch)



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Suggested Transceiver interface



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Ordering Information

Available Options:
SP-GB-MX-CNA

Part numbering Definition:

SP-GB-MX - Temperature Diagnostic Revision

- SP = Small Form Pluggable
GB = 1.25G
MX = IEEE 802.3z multimode
- Operating Temperature
C = Commerical (-5 to 70)
- N = No Digital Diagnostic
- Design Revision

Warnings:

Handling Precautions: This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

Legal Notes:

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