

## GLC-LH-SMD-IL

1.25GBd SFP (Small Form Pluggable) Long Wavelength (1310nm) Transceiver

### PRODUCT FEATURES

- Compliant with IEEE 802.3z Gigabit Ethernet and 1000BASE-LX
- Compliant with SFP MSA
- Hot-pluggable SFP footprint
- 1310nm Fabry-Perot laser transmitter
- Duplex LC connector
- Built-in digital diagnostic functions
- Up to 10km on 9/125um SMF
- Single power supply 3.3V
- RoHS Compliance
- Class 1 laser product complies with EN 60825-1
- Operating temperature range: 0°C to 85°C

### APPLICATIONS

- 1.25 GBd Gigabit Ethernet
- 1.063 GBd Fiber Channel

### General Specifications

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Data Rate	DR		1.25 1.062		GBd	IEEE 802.3 FC-PI-2 Rev 5
Bit Error Rate	BER			10 <sup>-12</sup>		
Operating Temperature	T <sub>OP</sub>	0		85	°C	Case temperature
Storage Temperature	T <sub>STO</sub>	-40		85	°C	Ambient temperature
Supply Current	I <sub>S</sub>		175	300	mA	For electrical power inter face
Input Voltage	V <sub>CC</sub>	3	3.3	3.6	V	
Maximum Voltage	V <sub>MAX</sub>	-0.5		4	V	For electrical power inter face

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### Optical Characteristics - Transmitter

$V_{CC}=3V$  to  $3.6V$ ,  $T_C=0^{\circ}C$  to  $85^{\circ}C$

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Output Optical Power	$P_{TX}$	-9.5		3	dBm	Class 1 Product
Optical Center Wavelength	$\lambda_C$	1270		1360	nm	
Optical Modulation Amplitude	OMA	174			uW	Equivalent extinction ratio specification for FC
Extinction Ratio	ER	9			dB	
Spectral Width (RMS)	$\lambda$			3	nm	
Optical Rise/Fall Time (20% - 80%)	$T_{RF\_IN}$		150	260	ps	
Relative Intensity Noise	RIN			-120	dB/Hz	
Deterministic Jitter Contribution	TX_ DJ		20	60	ps	
Total Jitter Contribution	TX_ TJ		50	120	ps	

### Optical Characteristics - Receiver

$V_{CC}=3V$  to  $3.6V$ ,  $T_C=0^{\circ}C$  to  $85^{\circ}C$

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Optical Receiver Power	$P_{RX}$			0	dBm	Average
Optical Center Wavelength	$\lambda_C$	1265		1600	nm	
Receiver Sensitivity @ 1.063GBd	$R_{X\_SEN1}$			-22	dBm	FC-PI-2 Rev.5
Receiver Sensitivity @ 1.25GBd	$R_{X\_SEN2}$			-22	dBm	IEEE 802.3
Stressed Rx Sens @ 1.25GBd				-14.5	dBm	IEEE 802.3
Optical Return Loss	ORL	12			dB	
Receiver Electrical 3dB Upper cutoff frequency				1500	MHz	
Loss of Signal-Asserted	$P_{LOS\_A}$	-30			dBm	
Loss of Signal-Deasserted	$P_{LOS\_D}$			-22	dBm	
Loss of Signal-Hysteresis		0.5			dB	

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### Electrical Characteristics - Transmitter

$V_{CC}=3V$  to  $3.6V$ ,  $T_c=0^{\circ}C$  to  $85^{\circ}C$

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Input differential impedance	$R_{IN}$		100		$\Omega$	Non condensing
Single ended data input swing	$V_{IN\_PP}$	250		1200	mV	
Transmit disable voltage	$V_D$	$V_{CC}-1.3$		$V_{CC}$	V	
Transmit enable voltage	$V_{EN}$	$V_{EE}$		$V_{EE}+0.8$	V	
Transmit disable assert time				10	us	

### Electrical Characteristics - Receiver

$V_{CC}=3V$  to  $3.6V$ ,  $T_c=0^{\circ}C$  to  $85^{\circ}C$

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Single ended data output swing	$V_{OUT\_PP}$	300	400	800	mV	
Data output rise/fall time (20%-80%)	$T_R$			300	ps	
LOS Fault	$V_{LOS\_Fault}$	$V_{CC}-0.5$		$V_{CC\_HOST}$	V	
LOS Normal	$V_{LOS\_normal}$	$V_{EE}$		$V_{EE}+0.5$	V	