1.25G SFP LX Transceiver

Overview

The Wave2Wave 1.25G SFP LX Transceiver is a compact, hot-pluggable optical module designed for Gigabit Ethernet and Fiber Channel applications requiring reliable long-reach performance. Built to the SFP MSA standard and operating at 1310 nm, it delivers up to 20 km transmission on single-mode fiber with stable optical output and efficient power consumption. The module integrates full digital diagnostics (DDM), ensuring real-time monitoring of key operating parameters for improved network visibility and operational reliability. Engineered for consistent performance from 0°C to 70°C, it offers a dependable and cost-effective solution for access networks, enterprise connectivity, and industrial-grade Gigabit links.



Features & Benefits

- Supports 1.25 Gb/s GE and 1.063 Gb/s FC applications with SFP MSA compliance.
- 1310 nm FP laser with duplex LC interface delivers up to 20 km SMF reach.
- Hot-pluggable design with built-in digital diagnostics (DDM) for real-time monitoring.
- Operates on a single 3.3V power supply with low power consumption.
- RoHS compliant and certified Class 1 laser for safe, standards-based operation.

Applications

- Gigabit Ethernet (1.25G)
- Fiber Channel (1.063G)
- Enterprise and campus networks
- Access and metro edge connectivity
- Security, industrial, and embedded networking systems

Ordering information

Part Number	Transmitter	Output Power	Receiver	Sensitivity	Reach	Temp	DDM	RoHS
77-S010-LX	1310nm FP	-11~ -3dBm	PIN	< -24dBm	20km	0 ~ 70ºC	Available	Compliant

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Storage Temperature	Ts	-40		85	ºC	1
Relative Humidity	Rh	5		95	%	
Supply Voltage	Vcc	-0.5		4.0	V	

NOTES:

1. Ambient temperature

Recommended Operating Conditions						
Parameter	**Symbol**	**Min.**	**Typical**	**Max.**	**Unit**	**Notes**
Data Rate	DR		1.25		Gb/s	1
	DR		1.062		Gb/s	2
Bit Error Rate	BER			10^{-12}		
Operating Temperature	Tc	0		70	ºC	3
Relativity Humidity	RH	5		95	%	
Supply Current	ICC		175	300	mA	5
Input Voltage	VCC	3.14	3.3	3.46	V	

NOTES:

2. IEEE 802.3
3. FC-PI-2 Rev 5
4. Case temperature
5. For electrical power interface

Transmitter Optical Characteristics						
Parameter	**Symbol**	**Min.**	**Typical**	**Max.**	**Unit**	**Notes**
Output Optical Power	PTX	-11		-3	dBm	1
Optical Center Wavelength	λc	1270		1355	nm	
Optical Modulation Amplitude	OMA	174			μW	2
Extinction Ratio	ER	9			dB	
Tx Disabled Power	PTX_DIS			-45	dBm	
Spectral Width (RMS)	Δλ			3	nm	
Optical Rise/Fall Time (20%-80%)	tr/tf		150	260	ps	
Transmitter dispersion penalty	TDP			3.3	dB	
Relative Intensity Noise	RIN			-120	dB/Hz	
Generated Jitter (peak to peak)	GJPP			0.15	UI	
Optical Return Loss Tolerance	ORL			12	dB	
Output Eye	Compliant with IEEE802.3z standard					

NOTES:

1. Class 1 Product
2. Equivalent extinction ratio specification for FC

Receiver Optical Characteristics						
Parameter	**Symbol**	**Min.**	**Typical**	**Max.**	**Unit**	**Notes**
Receiver Overload	POL	-3			dBm	
Optical Center Wavelength	λC	1260		1360	nm	
Receiver Sensitivity				-24	dBm	
OMA Rx Sensitivity	SOMA			-22	dBm	
Optical Return Loss	TORL	12			dB	
Receiver Reflectance	RREFL			-12	dB	
Generated Jitter (peak to peak)	RJp−p			0.15	UI	
LOS Assert	LOS-A	-35			dBm	
LOS De-Assert	LOS-D			-27	dBm	
LOS Hysteresis	LOS-H	0.5			dB	

Transceiver Electrical Characteristics							
Parameter		**Symbol**	**Min.**	**Typical**	**Max.**	**Unit**	**Notes**
Transmitter							
Input differential impedance		RIN		100		Ω	
Single ended data input swing		VIN_PP	250		1200	mV	
Transmit disable voltage		VD	VCC-1.3		VCC	V	
Transmit enable voltage		VEN	VEE		VEE+0.8	V	
Transmit disable assert time					10	*μs*	
Receiver							
Single ended data output swing		VOUT PP	300		800	mV	
Data output rise/fall time (20%-80%)		tr/tf			300	*PS*	
RX_LOS	Loss of signal (LOS)	VOH	VCC-0.5		VCC_HOST	V	
	Normal Operation	VOL	VEE		VEE+0.5	V	

Pin Description			
Pin	**Name**	**Description**	**Notes**
1	VEET	Transmitter ground (common with receiver ground)	1
2	TX_FAULT	Transmitter Fault. Not supported	
3	TX_DISABLE	Transmitter Disable. Laser output disabled on high or open	2
4	MOD_DEF(2)	Module Definition 2. Data line for serial ID	3

Pin Description (continued)			
Pin	**Name**	**Description**	**Notes**
5	MOD_DEF(1)	Module Definition 1. Clock line for serial ID	3
6	MOD_DEF(0)	Module Definition 0. Grounded within the module	3
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation	4
9	VEER	Receiver ground (common with transmitter ground)	1
10	VEER	Receiver ground (common with transmitter ground)	1
11	VEER	Receiver ground (common with transmitter ground)	1
12	RD-	Receiver Inverted DATA out. AC coupled	
13	RD+	Receiver Non-inverted DATA out. AC coupled	
14	VEER	Receiver ground (common with transmitter ground)	1
15	VCCR	Receiver power supply	
16	VCCT	Transmitter power supply	
17	VEET	Transmitter ground (common with receiver ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC coupled	
19	TD-	Transmitter Inverted DATA in. AC coupled	
20	VEET	Transmitter ground (common with receiver ground)	1

NOTES:

1. Circuit ground is isolated from chassis ground
2. Disabled: TDIS>2Vor open, Enabled: TDIS<0.8V
3. Should Be pulled up with 4.7k –10k ohm on host board to a voltage between 2V and 3.6V
4. LOS is open collector output

