Lightem 10G XFP Duplex LC Transceiver 850nm Multimode 300m LXFPM8503-SR

FEATURES

- Up to 11.1Gbps Data Links
- Maximum link length of 300M on 2000MHz/km MMF
- Power dissipation < 2W
- 850nm VCSEL transmitter, PIN photo-detector
- Metal enclosure, for lower EMI
- Integrated Digital Diagnostic monitoring
- XFI Loopback Mode
- No Reference Clock required
- Compliant with SFP+ MSA with LC connector
- Single 3.3V power supply
- Operating Range: 0°C to 70°C Operating temperature

APPLICATIONS

- 10GBASE-SR/SW 10G Ethernet
- 1200-Mx-SN-I 10G Fiber Channel

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Storage Temperature	Ts	-40	-	85	°C	
Relative Humidity	RH	5	-	95	%	
Power Supply Voltage	VCC	-0.3	-	+3.6	V	
Signal Input Voltage		Vcc-0.3	-	Vcc+0.3	V	

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit	Note
Supply Voltage	Vcc3	3.13		3.45	V	
Supply Current	Icc3			600	mA	
Module total power				2	W	1
Transmitter						
Industrial differential impedance	R_m		100		Ω	2
Differential data input swing	Vin. pp	120		1000	mV	
Transmit disable voltage	V_D	2.0		Vcc	V	3
Transmit enable volatage	V_{en}	GND		GND+0.8	V	
Transmit disable assert time				10	us	
Receiver						
Differential data output swing	Vout. pp	600	650	800	mV	4
Data output rise time	t_r			40	ps	5
Data output fall time	t_f			40	ps	5
LOS Fault	VLOS fault	Vcc -0.5		VccHost	V	6
LOS Normal	VLOS norm	GND		GND+0.5	V	6

TELECOM/DATACOM SYSTEM

Notes:

1. Connected directly to TX data input pins. AC coupled thereafter.
2. Or open circuit.
3. Into 100 ohms differential termination.
4. 20 – 80 %.
5. Loss Of Signal is LVTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.

OPTICAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit	Note
Transmitter						
Average Launch Power	POUT	-6		-1.0	dBm	1
Optical Wavelength	λ	840	850	860	nm	
Optical Extinction Ratio	ER	3.0			dB	
Output Eye Mask			Compliant with IEEE 802.3aq			
Receiver						
Receiver Sensitivity	Sen			-10	dBm	2
Input Saturation Power (Overload)	Psat	0.5			dBm	
Wavelength Range	λC	840		860	nm	
LOS De -Assert	LOSD			-12	dBm	
LOS Assert	LOSA	-30			dBm	
LOS Hysteresis		0.5			dB	
Maximum Supported Distance						
OM1 62.5/125um 500MHz.km	Lmax			33	m	
OM2 50/125um 500MHz.km	Lmax			82	m	
OM3 50/125um 2000MHz.km	Lmax			300	m	

Notes:

1. Class 1 Laser Safety per FDA/CDRH and IEC-825-1 regulation
2. Measured with a PRBS 2^{31}-1 test pattern, @ 10.3125Gb/s, BER<10^{-12}

TELECOM/DATACOM SYSTEM

PIN DESCRIPTION

Optional –5.2 Power Supply – Not required

Pin	Symbol	Symbol	Name /Description	NOTE
1		GND	Module Ground	1
2		VEE5	Optional –5.2 Power Supply – Not required	
3	LVTTL-I	Mod-Desel	Module De-select; When held low allows the module to respond to 2-wire serial interface commands	
4	LVTTL-O	Interrupt	Interrupt (bar); Indicates presence of an important condition which can be read over the serial	2
			2-wire interface	
5	LVTTL-I	TX_DIS	Transmitter Disable; Transmitter laser source turned off	
6		VCC5	+5 Power Supply – Not required	
7		GND	Module Ground	1
8		VCC3	+3.3V Power Supply	
9		VCC3	+3.3V Power Supply	
10	LVTTL-I	SCL	Serial 2-wire interface clock	
11	LVTTL-I/O	SDA	Serial 2-wire interface data line	2
12	LVTTL-O	Mod_Abs	Module Absent; Indicates module is not present. Grounded in the module.	2
13	LVTTL-O	Mod_NR	Module Not Ready; XGIGA's defines it as a logical OR between RX_LOS and Loss of Lock in TX/RX.	2
14	LVTTL-O	RX_LOS	Receiver Loss of Signal indicator	2
15		GND	Module Ground	1
16		GND	Module Ground	1
17	CML-O	RD-	Receiver inverted data output	
18	CML-O	RD+	Receiver non-inverted data output	
19		GND	Module Ground	1
20		VCC2	+1.8V Power Supply – Not required	
21	LVTTL-I	P_Down/RST	Power Down; When high, places the module in the low power stand-by mode and on the falling edge	
			of P_Down initiates a module reset	
			Reset; The falling edge initiates a complete reset of the module includingthe 2-wire serial interface,	
			equivalent to a power cycle.	
22		VCC2	+1.8V Power Supply – Not required	
23		GND	Module Ground	1
24	PECL-I	RefCLK+	Reference Clock non-inverted input, AC coupled on the host board – Not required	3
25	PECL-I	RefCLK-	Reference Clock inverted input, AC coupled on the host board – Not required	3
26		GND	Module Ground	1
27		GND	Module Ground	1
28	CML-I	TD-	Transmitter inverted data input	
29	CML-I	TD+	Transmitter non-inverted data input	
30		GND	Module Ground	1

Notes:

1. Module circuit ground is isolated from module chassis ground within the module.
2. Open collector; should be pulled up with 4.7kΩ – 10kΩ on host board to a voltage between 3.15V and 3.6V.
3. A Reference Clock input is not required by the XGXF-8596-02D. If present, it will be ignored.

TELECOM/DATACOM SYSTEM

PIN OUT OF CONNECTOR BLACK ON HOST BOARD

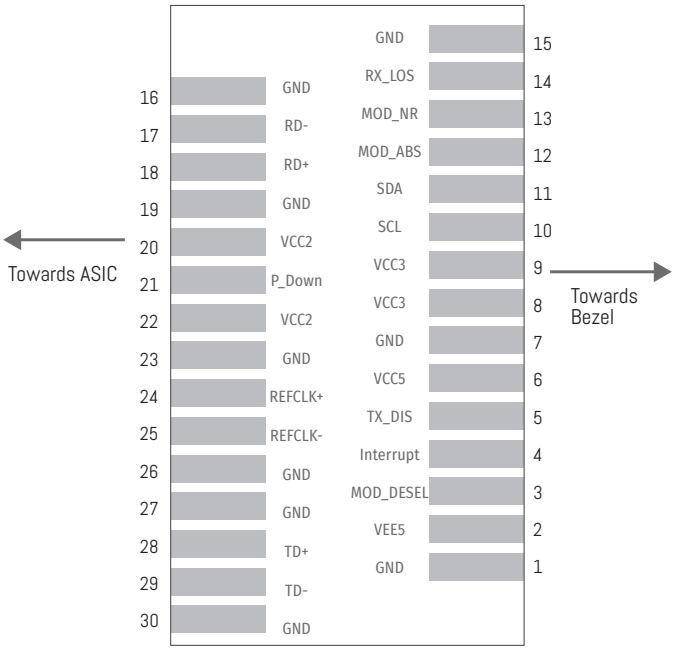
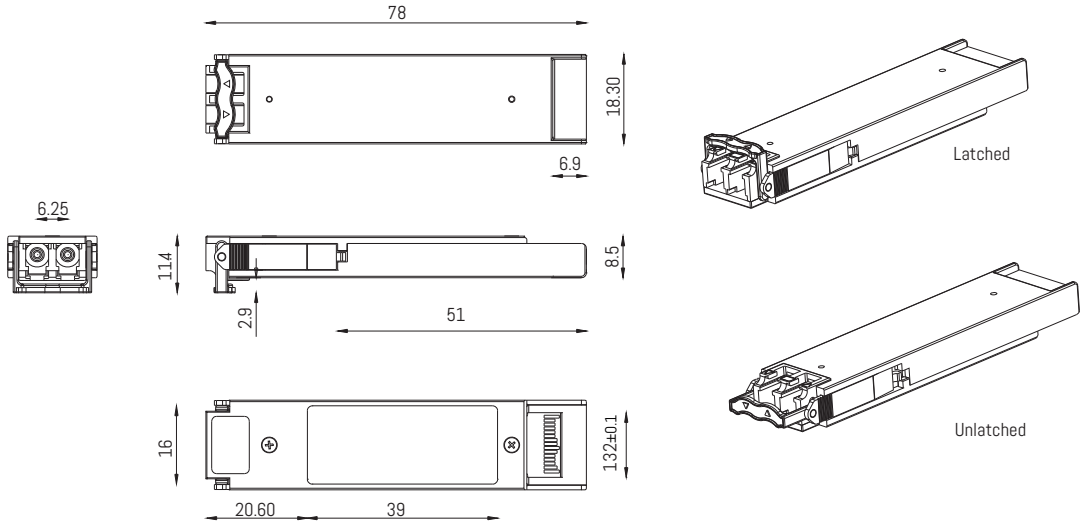


Diagram of Host Board Connector Block Pin Numbers and Name

MECHANICAL DIMENSIONS



ORDERING INFORMATION

PN	Description
LXFPM8503-SR	Lightem 10G XFP Duplex LC MM 850nm 300m