Lightem 10G DWDM 50GHz XFP Duplex LC Transceiver 40km
LXFPSDW50xxx40

FEATURES

- 50GHz channel spacing DWDM
- Up to 11.1Gbps Data Links
- Maximum link length of 40km on SMF
- Power dissipation < 2.5W
- Cooled DWDM EML transmitter (50GHz), PIN photo-detector
- Metal enclosure, for lower EMI
- 2-wire interface with integrated Digital Diagnostic monitoring
- Hot-pluggable XFP footprint
- No Reference Clock required
- Single 3.3V power supply
- Standard Operating Range: 0°C to 70°C Operating temperature
- Optional Industrial grade: -40°C to 85°C Operating temperature

APPLICATIONS

- 10GBASE-ER
- 10G SONET/SDH, OTU2/2e

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	-	+4	V	
Signal Input Voltage		Vcc-0.3	-	Vcc+0.3	V	

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Case Operating Temperature	Tcase	-5	-	+70	°C	Commercial grade
	Tcase	-40	-	+85	°C	Industrial grade
Power Supply Voltage	VCC	3.14	3.3	3.47	V	
Power Supply Current	ICC	-	-	490	mA	
Data Rate	BR		10.3125		Gbps	
Transmission Distance	TD		-	40	km	
Coupled Fiber			Singlemode Fiber			SMF

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ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit	Note
Supply Voltage 1.8v supply	Vcc2	1.71		1.89	V	
Supply Voltage 3.3v supply	Vcc3	3.13		3.47	V	
Supply Current 1.8v Supply	Icc2			180	mA	
Supply Current 3.3v Supply	Icc3			640	mA	
Module total power	p			2.5	W	1
Transmitter						
Input differential impedance	RIN		100		Ω	2
Differential data input swing	Vin, pp	120		820	mV	
Transmit disable voltage	VD	2.0		Vcc	V	3
Transmit enable volatage	Ven	GND		GND+0.8	V	
Receiver						
Differential data out swing	Vout, pp	3.40	650	850	mV	4
LOS Fault	VLOS fault	Vcc - 0.5		Vcc Host	V	5
LOS Normal	VLOS norm	GND		GND+0.5	V	5

Notes:

1. Maximum total power value is specified across the full temperature and voltage range.
2. After internal AC coupling.
3. Or open circuit.
4. Into 100 ohms differential termination.
5. These are unfiltered 20-80% values

OPTICAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit	Note
Transmitter						
Average Launch Power	POUT	-1		4	dBm	1
Optical Wavelength	λc	λc-0.05		λc+0.05	nm	
Optical Wavelength Spacing			50		GHz	
Optical Extinction Ratio	ER	8.2			dB	
Output Eye Mask	Compliant with IEEE 802.3aq					
Receiver						
Receiver Sensitivity				-16.5	dBm	2
Input Saturation Power (Overload)	Sen	0.5			dBm	
Wavelength Range	Psat	1260		1610	nm	
LOS De -Assert	λC			-18	dBm	
LOS Assert	LOSD	-32			dBm	
LOS Hysteresis		0.5			dB	

Notes:

1. Corresponds to approximately 04 nm.
2. Measured with BER<10-12@10.3Gbps, 231 – 1 PRBS..

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PIN DESCRIPTION

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-1396-10D. If present, it will be ignored.

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PIN OUT OF CONNECTOR BLACK ON HOST BOARD

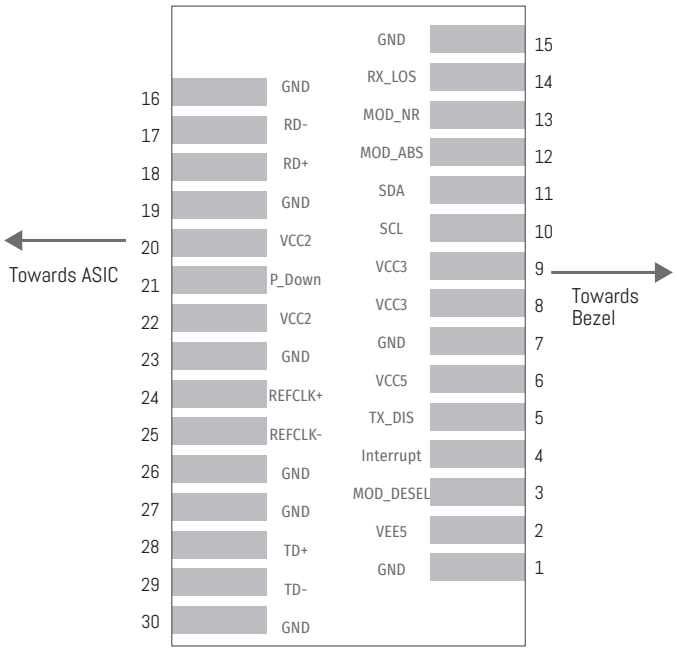
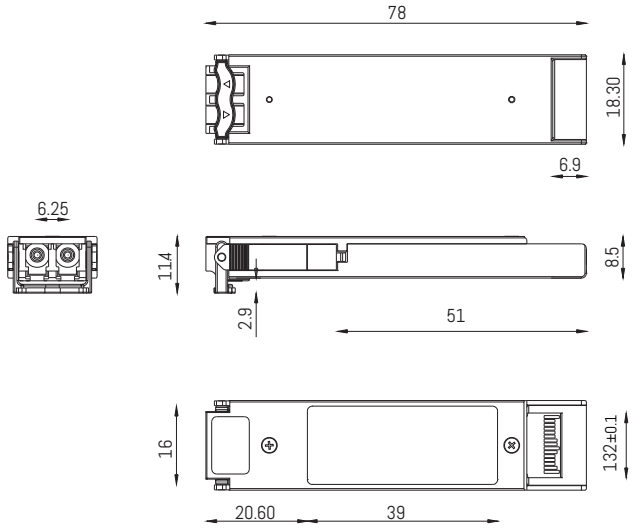
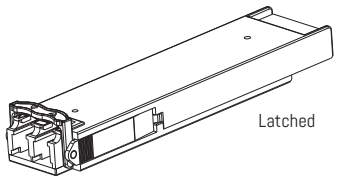
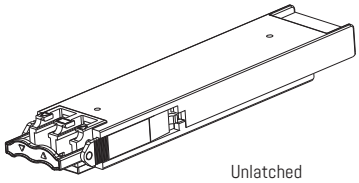


Diagram of Host Board Connector Block Pin Numbers and Name

MECHANICAL DIMENSIONS







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CHANNEL SELECTION

Channel	Wavelength(nm)	Frequency (THz)	Channel	Wavelength(nm)	Frequency (THz)
C17	1563.86	191.70	C39	1546.12	193.90
H17	1563.45	191.75	H39	1545.72	193.95
C18	1563.05	191.80	C40	1545.32	194.00
H18	1562.64	191.85	H40	1544.92	194.05
C19	1562.23	191.90	C41	1544.53	194.10
H19	1561.83	191.95	H41	1544.13	194.15
C20	1561.42	192.00	C42	1543.73	194.20
H20	1561.01	192.05	H42	1543.33	194.25
C21	1560.61	192.10	C43	1542.94	194.30
H21	1560.20	192.15	H43	1542.54	194.35
C22	1559.79	192.20	C44	1542.14	194.40
H22	1559.39	192.25	H44	1541.75	194.45
C23	1558.98	192.30	C45	1541.35	194.50
H23	1558.58	192.35	H45	1540.95	194.55
C24	1558.17	192.40	C46	1540.56	194.60
H24	1557.77	192.45	H46	1540.16	194.65
C25	1557.36	192.50	C47	1539.77	194.70
H25	1556.96	192.55	H47	1539.37	194.75
C26	1556.55	192.60	C48	1538.98	194.80
H26	1556.15	192.65	H48	1538.58	194.85
C27	1555.75	192.70	C49	1538.19	194.90
H27	1555.34	192.75	H49	1537.79	194.95
C28	1554.94	192.80	C50	1537.40	195.00
H28	1554.54	192.85	H50	1537.00	195.05
C29	1554.13	192.90	C51	1536.61	195.10
H29	1553.73	192.95	H51	1536.22	195.15
C30	1553.33	193.00	C52	1535.82	195.20
H30	1552.93	193.05	H52	1535.43	195.25
C31	1552.52	193.10	C53	1535.04	195.30
H31	1552.12	193.15	H53	1534.64	195.35
C32	1551.72	193.20	C54	1534.25	195.40
H32	1551.32	193.25	H54	1533.86	195.45
C33	1550.92	193.30	C55	1533.47	195.50
H33	1550.52	193.35	H55	1533.07	195.55
C34	1550.12	193.40	C56	1532.68	195.60
H34	1549.72	193.45	H56	1532.29	195.65
C35	1549.32	193.50	C57	1531.90	195.70
H35	1548.91	193.55	H57	1531.51	195.75
C36	1548.51	193.60	C58	1531.12	195.80
H36	1548.11	193.65	H58	1530.72	195.85
C37	1547.72	193.70	C59	1530.33	195.90
H37	1547.32	193.75	H59	1529.94	195.95
C38	1546.92	193.80	C60	1529.55	196.00
H38	1546.52	193.85	H60	1529.16	196.05
Non ITU	Peak wavelength between 1528.77nm-1563.86		C61	1528.77	196.10

ORDERING INFORMATION

PN	
LXFPSDW50xxx40-x	Lightem 10G DWDM 50GHz XFP Duplex LC SM Chxx 40km
xxx-	Channel
	C17/H17-C61/H61
x-	I - optional industrial grade
eg LXFPSDW50H3740-I	Lightem 10G DWDM 50GHz XFP Duplex LC SM ChH37 40km Industrial grade