

## XFP 10G Duplex 850nm 300m LC Transceivers

### TX8511A-CN(IN)

#### FEATURES

- XFI Loopback Mode
- Supports 9.95Gb/s to 11.3Gb/s bit rates
- Power dissipation <1.5W
- Uncooled 850nm VCSEL laser
- Duplex LC receptacle optical interface compliant
- Single +3.3V power supply
- Hot-pluggable XFP footprint
- Maximum link length 300m over OM3 MM Fiber
- No Reference Clock required
- Operating temperature range:
  - Standard: 0°C~+70°C
  - Industrial: -40 ~ +85°C
- RoHS Compliant
- Built-in digital diagnostic functions
- Standard bail release mechanism

#### APPLICATIONS

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

#### ORDERING INFORMATION

Part Number	Form Factor	Data Rate	Media	Distance (km)	Wavelength (nm)	Temperature (°C)
TX8511A-CN	XFP	10Gb/s	MMF	0.3	850	0~70
TX8511A-IN						-40~85

## 1. ABSOLUTE MAXIMUM PARAMETERS

Parameter	Symbol	Min.	Typ.	Max.	Unit.	Ref.
Storage temperature	TS	-40		85	°C	
Power Supply Voltage	Vcc	-0.5		+4	V	
Relative Humidity	RH	5		95	%	

## 2. RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min.	Typ.	Max.	Unit.	Ref.
Operating Case Temperature	Standard	0		+70	°C	
	Industrial	-40		+85	°C	
Power Supply Voltage	Vcc	3.13	3.30	3.47	V	
Power Supply Current	Icc			640	mA	
Data Rate			10.3	11.3	Gbps	
Fiber Length 50µm core MMF		-	300	-	m	

## 3. ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit.	Ref.
Transmitter differential input voltage		120		1000	mV	
Receiver differential output Voltage		600	650	800	mV	
Input differential impedance	R		100		Ω	
Transmit Disable Assert Time			10		us	
Transmit Fault (TX_Fault)	Voh	2		Vcc	V	LVTT L
	Vol	0		0.8	V	LVTT L
Loss of Signal (LOS)	Voh	Vcc-0.5		Vcc	V	LVTT L
	Vol	0		0.5	V	LVTT

						L
TX Disable	Vih	2		Vcc	V	LVTT L
	Vil	0		0.8	V	LVTT L

#### 4. OPTICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit.	Ref.
<b>Transmitter</b>						
Launched Power (avg.)	Pout	-6		-1	dBm	
Operating Wavelength Range	$\lambda_c$	840	850	860	nm	
Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Extinction Ratio	ER	3	5		dB	2
Relative Intensity Noise	RIN			-128	dBc/Hz	
Optical Rise/Fall Time	Tris/Tfall		40		PS	3
Transmitter and Dispersion Penalty	TDP			3.9	dBm	
Output Eye Diagram	Complies with IEEE802.3z eye masks when filtered					
<b>Receiver</b>						
Receiver Sensitivity	S			-10	dBm	4
Wavelength Range	$\lambda_c$	840		860	nm	
Optical Power Input Overload	Pin-max	+0.5			dBm	4
Receiver Reflectance	R			-12	dB	
LOS	Optical De-assert	Pd		-12	dBm	4
	Optical Assert	Pa	-30			
LOS hysteresis		0.5		5	dB	5

1. The supply current is XFP module' s working current
2. For the measurements, the device was driven with 10Gbps data pattern with 2<sup>31</sup>-1 PRBS payload.
3. Optical transition time is the time interval required for the rising or falling edge of an optical pulse to transition between the 20% and 80% amplitudes relative to the logical 1 and 0 levels
4. Measured with a PRBS 2<sup>31</sup>-1 test pattern, @10Gbps, ER=3dB, BER<1E-12
5. The LOS Hysteresis minimizes 'chatter' on the output line. In principle, Hysteresis alone

does not guarantee chatter-free operation.

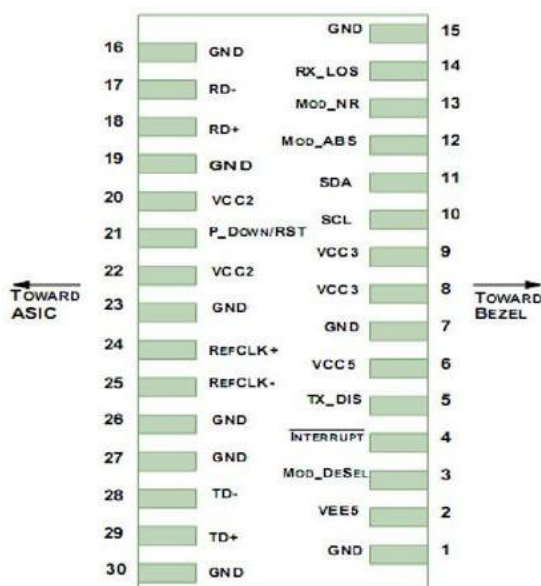
## 5. PIN DESCRIPTIONS

PIN	Symbol	Description	Ref.
1	GND	Module Ground	1
2	VEE5	Optional –5.2 Power Supply – Not required	
3	Mod-Desel	Module De-select; When held low allows the module to respond to 2-wire serial interface commands	
4	Interrupt	Interrupt (bar); Indicates presence of an important condition which can be read over the serial 2-wire interface	2
5	TX_DIS	Transmitter Disable; Transmitter laser source turned off	
6	VCC5	+5 Power Supply	
7	GND	Module Ground	1
8	VCC3	+3.3V Power Supply	
9	VCC3	+3.3V Power Supply	
10	SCL	Serial 2-wire interface clock	2
11	SDA	Serial 2-wire interface data line	2
12	Mod_Abs	Module Absent; Indicates module is not present. Grounded in the module.	2
13	Mod_NR	Module Not Ready; XGIGA defines it as a logical OR between RX_LOS and Loss of Lock in TX/RX.	2
14	RX_LOS	Receiver Loss of Signal indicator	2
15	GND	Module Ground	1
16	GND	Module Ground	1
17	RD-	Receiver inverted data output	
18	RD+	Receiver non-inverted data output	
19	GND	Module Ground	1
20	VCC2	+1.8V Power Supply – Not required	
21	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	

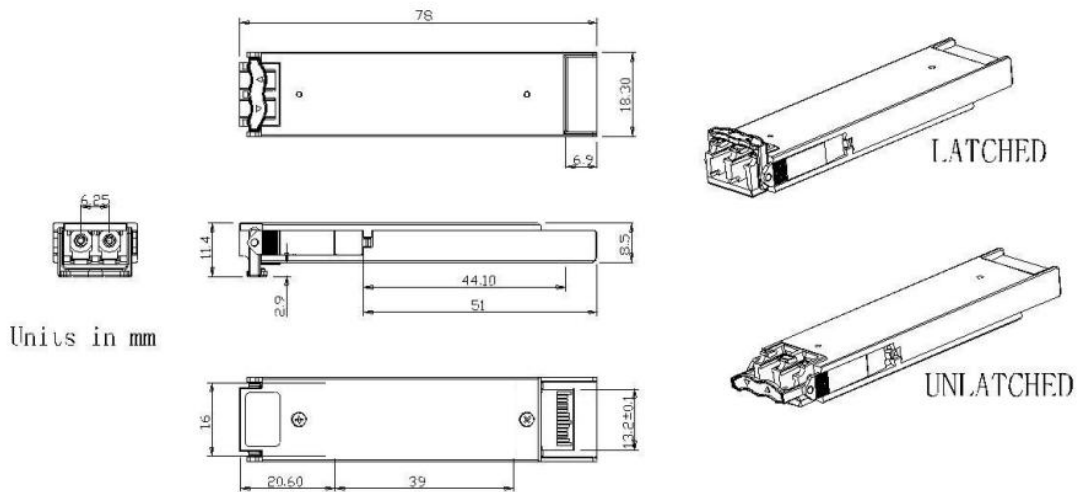
		module	
22	VCC2	including the 2-wire serial interface, equivalent to a power cycle. +1.8V Power Supply – Not required	
23	GND	Module Ground	1
24	RefCLK+	Reference Clock non-inverted input, AC coupled on the host board – Not required	3
25	RefCLK-	Reference Clock inverted input, AC coupled on the host board – Not required	3
26	GND	Module Ground	1
27	GND	Module Ground	1
28	TD-	Transmitter inverted data input	
29	TD+	Transmitter non-inverted data input	
30	GND	Module Ground	1

1. Module circuit ground is isolated from module chassis ground within the module
2. Open collector; should be pulled up with 4.7k - 10kohms on host board to a voltage between 3.15V and 3.6V.
3. A Reference Clock input is not required by the AC-XF-8G10-01. If present, it will be ignored

## 6. PIN DIAGRAM



## 7. MECHANICAL SPECIFICATION



## 8. LABEL DIAGRAM



**TX8511S-CN**

**XFP 10G Duplex 850nm 300m LC**

Class 1 Laser  
MADE IN CHINA

S/N: ??????????



X.XX.XX.XXX



**TX8511S-IN**

**XFP 10G Duplex 850nm 300m LC**

Class 1 Laser  
MADE IN CHINA

S/N: ??????????



X.XX.XX.XXX