

XLF20-D6C-T1

Features

- ◆ Data rate: uplink 10.3125/1.25Gbps, downlink 10.3125/1.25Gbps application, support 10.3125/10.3125Gbps symmetric 10GEPON ONU, 10.3125/1.25Gbps asymmetric 10GEPON ONU and 1.25/1.25Gbps EPON ONU
- ◆ 1577nm continuous-mode EML DFB laser /1490nm continuous-mode DFB laser transmitter and 1270nm and 1310nm burst-mode APD-TIA receiver
- ◆ 10 Gigabit Small Form Factor Pluggable package with SC/UPC Connector
- ◆ 0~+70°C Operating Temperature, -40~+85°C Storage Temperature
- ◆ Single +3.3V power supply
- ◆ Digital diagnostic monitoring interface
- ◆ Digital burst RSSI function to monitor the input optical power level
- ◆ Transmitter internally AC coupled, differential lines should be terminated at the user SERDES
- ◆ LVTTTL transmitter disable control
- ◆ Very low EMI and excellent ESD protection

Application

- ◆ Symmetric 10GEPON PR30 OLT
- ◆ Asymmetric 10GEPON PRX30 OLT
- ◆ GEPON PX20 OLT

Standard

- ◆ Digital diagnostic Complies with INF-8077i
- ◆ Classlaser safety standard IEC I-60825 compliant
- ◆ Compliant with IEEE802.3av PRX30 and IEEE802.3ah PX20 specifications
- ◆ Complies with FCC 47 CFR Part 15, Class B
- ◆ Complies with FDA 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007
- ◆ RoHS compliance

Product Description

The XLF20-D6C-T1 is a combination of 10G EPON OLT and 1G EPON OLT optical transceivers in an XFP housing. The 10G bidirectional link is configured with 1270nm/1577nm optics and the 1G link is

configured with 1310nm/1490nm optics. The 1270nm and 1310nm optical burst mode receivers incorporate APD/TIA optics for maximum sensitivity. The 10G transmitter incorporates a 1577nm EML DFB laser assembly and the 1G transmitter incorporates a 1490nm DFB laser assembly. The transmitters can be controlled by the LVTTL Tx_DISABLE function and the receivers incorporate the LVTTL Rx_LOS output.

Specification

Absolute Maximum Ratings				
Parameter	Symbol	Min	Max	Unit
Storage temperature	TS	-40	+85	°C
Storage Relative Humidity	RH _S	5	90	%
Operating Relative Humidity	RH _O	5	85	%

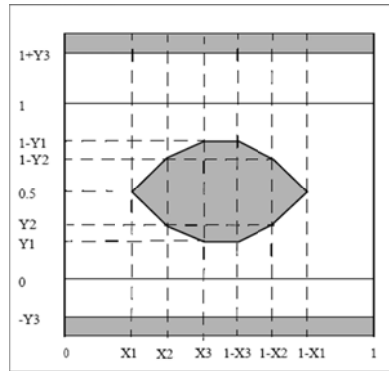
Recommended Operating Conditions					
Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature(Industry)	T _c	0		70	°C
Power Supply Voltage	V _{CC3}	3.14	3.3	3.46	V
Supply Current	I _{CC3} ⁽¹⁾			1200	mA
Power Consumption	P _w			4	W
Data Rate			TX 10.3125G/1.25G RX 10.3125G/1.25G		Gbps
Fiber Length 9 um core SMF			20		km

(1) Module uses 3.3V single power supply (Pin 6 is unconnected)

Electrical Characteristics						
Parameter	Symbol	Min	Typical	Max	Unit	Notes
10G Transmitter Differential Input Voltage		120		820	mV	
1G Transmitter Differential Input Voltage		500		2400	mV	
Input Differential Impedance	Z _{in}	90	100	110	Ω	
10G Receiver differential output Voltage		340		850	mV	
1G Receiver differential output Voltage			750		mV	
Output Differential Impedance	Z _{out}	90	100	110	Ω	
Transmit Fault (TX_Fault)	V _{oh}	2.4		V _{CC}	V	LVTTL
	V _{ol}	0		0.4	V	LVTTL
Loss of Signal (LOS)	V _{oh}	2.0		V _{CC}	V	LVTTL
	V _{ol}	0		0.8	V	LVTTL
TX Disable	V _{oh}	2.0		V _{CC}	V	LVTTL
	V _{ol}	0		0.8	V	LVTTL

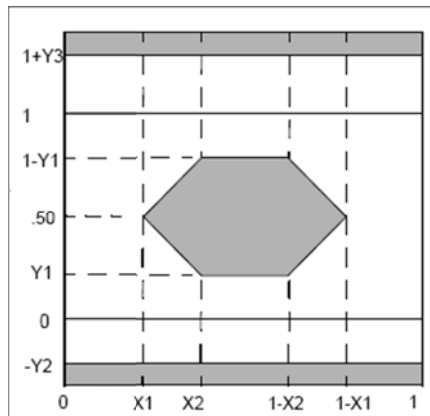
Optical transmitter Characteristics -10.3125G						
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Launched Power (avg.)	P _{out}	2		5	dBm	
Operating Wavelength Range	λ _c	1575		1580	nm	
Spectral Width	Δλ			1	nm	
Side Mode Suppression Mode	SMSR	30				
Extinction Ratio	ER	6			dB	PRBS2 ³¹ -1@ 10.3125Gbit/s
Optical Tx Output disable	P _{dis}			-39	dBm	
Output Eye Diagram	Compliant with IEEE802.3av eye masks when filtered					Figure 1
Optical transmitter Characteristics -1.25G						
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Launched Power (avg.)	P _{out}	2		7	dBm	
Operating Wavelength Range	λ _c	1480		1500	nm	
Spectral Width	Δλ			1	nm	DFB
Side Mode Suppression Mode	SMSR	30				

Extinction Ratio	ER	9			dB	PRBS2 ⁷ -1 @1.25Gbit/s
Optical Tx Output disable	P _{dis}			-39	dBm	
Output Eye Diagram	Compliant with IEEE802.3ah eye masks when filtered					Figure 2
Optical receiver Characteristics -10.3125G						
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Receiver Sensitivity	SEN			-28	dBm	Measured with BER@ 10 ⁻³ , Pattern@2 ³¹ -1, ER=6dB
Wavelength Range	λ _c	1260	1270	1280	nm	
Optical Power Input Overload	P _{in-max}	-6			dBm	
LOS	Optical Dessert	P _d		-31	dBm	
	Optical Assert	P _a	-45			
Loss Assert Time	T _a			512	ns	
Loss De-assert Time	T _d			512	ns	
Optical receiver Characteristics -1.25G						
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Receiver Sensitivity	SEN			-30	dBm	Measured with BER@ 10 ⁻¹² , Pattern@2 ⁷ -1, ER=10dB
Wavelength Range	λ _c	1260	1310	1360	nm	
Optical Power Input Overload	P _{in-max}	-6			dBm	
LOS	Optical Dessert	P _d		-31	dBm	
	Optical Assert	P _a	-45			
Loss Assert Time	T _a			512	ns	
Loss De-assert Time	T _d			512	ns	



X1	X2	X3	Y1	Y2	Y3	Unit
0.25	0.40	0.45	0.25	0.28	0.40	UI

Figure 1 10GEPON Transmitter Eye Mask Definitions



X1	X2	Y1	Y2	Y3	Unit
0.22	0.375	0.20	0.20	0.30	UI

Figure 2 GEAPON Transmitter Eye Mask Definitions

RSSI Characteristics						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Uplink Optical Signal During Time	T_{ONT}		1500		ns	
RSSI Trigger Delay	T_D	0	300		ns	
RSSI Trigger width	T_W		500		ns	
I2C Access Prohibited Time	T_p			500	μs	

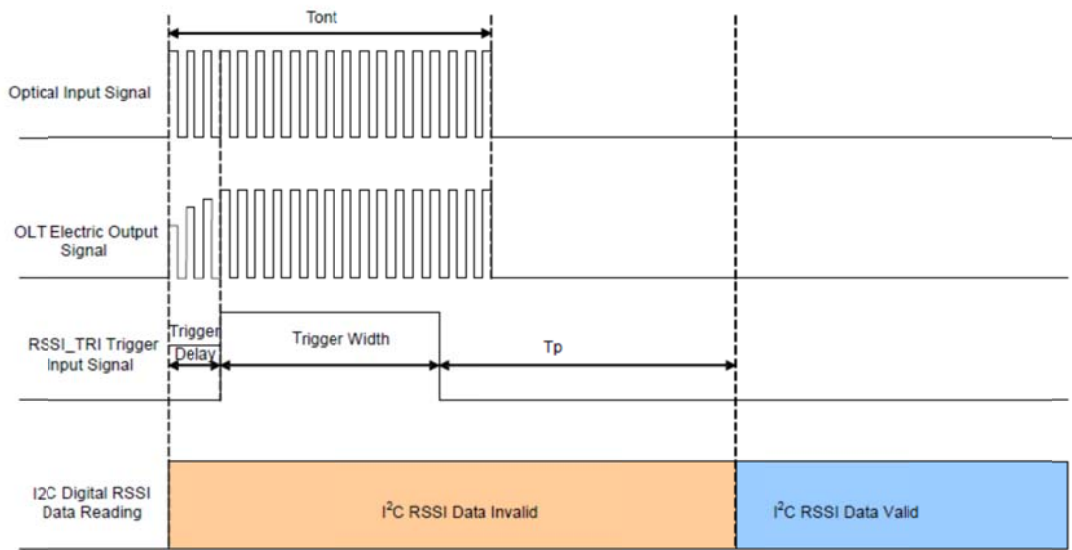


Figure 3 Timing Parameter Definitions in RSSI Trigger

Digital Diagnostic Monitoring Information

Parameter	Accuracy	Range	Calibration	Note
Temperature	$\pm 3^{\circ}\text{C}$		Internal	Shell Temperature
Voltage	$\pm 3\%$		Internal	
10G Bias Current	$\pm 10\%$		Internal	Quantization Unit $4\mu\text{A}$
10G TX Power	$\pm 3\text{dB}$		Internal	Quantization Unit $0.2\mu\text{W}$
RX Power	$\pm 3\text{dB}$		Internal	Quantization Unit $0.1\mu\text{W}$
1G Bias Current	$\pm 10\%$		Internal	Quantization Unit $4\mu\text{A}$
1G TX Power	$\pm 3\text{dB}$		Internal	Quantization Unit $0.2\mu\text{W}$

Pin Definition

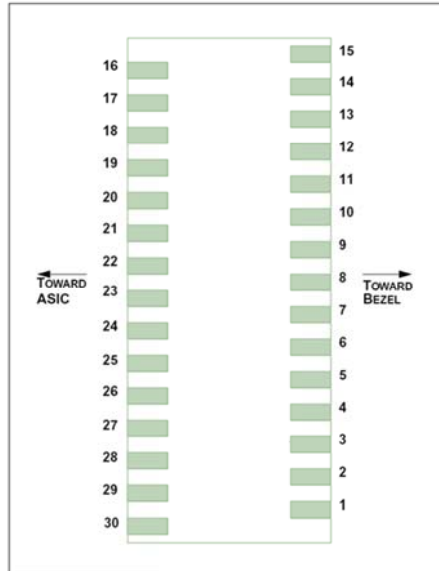
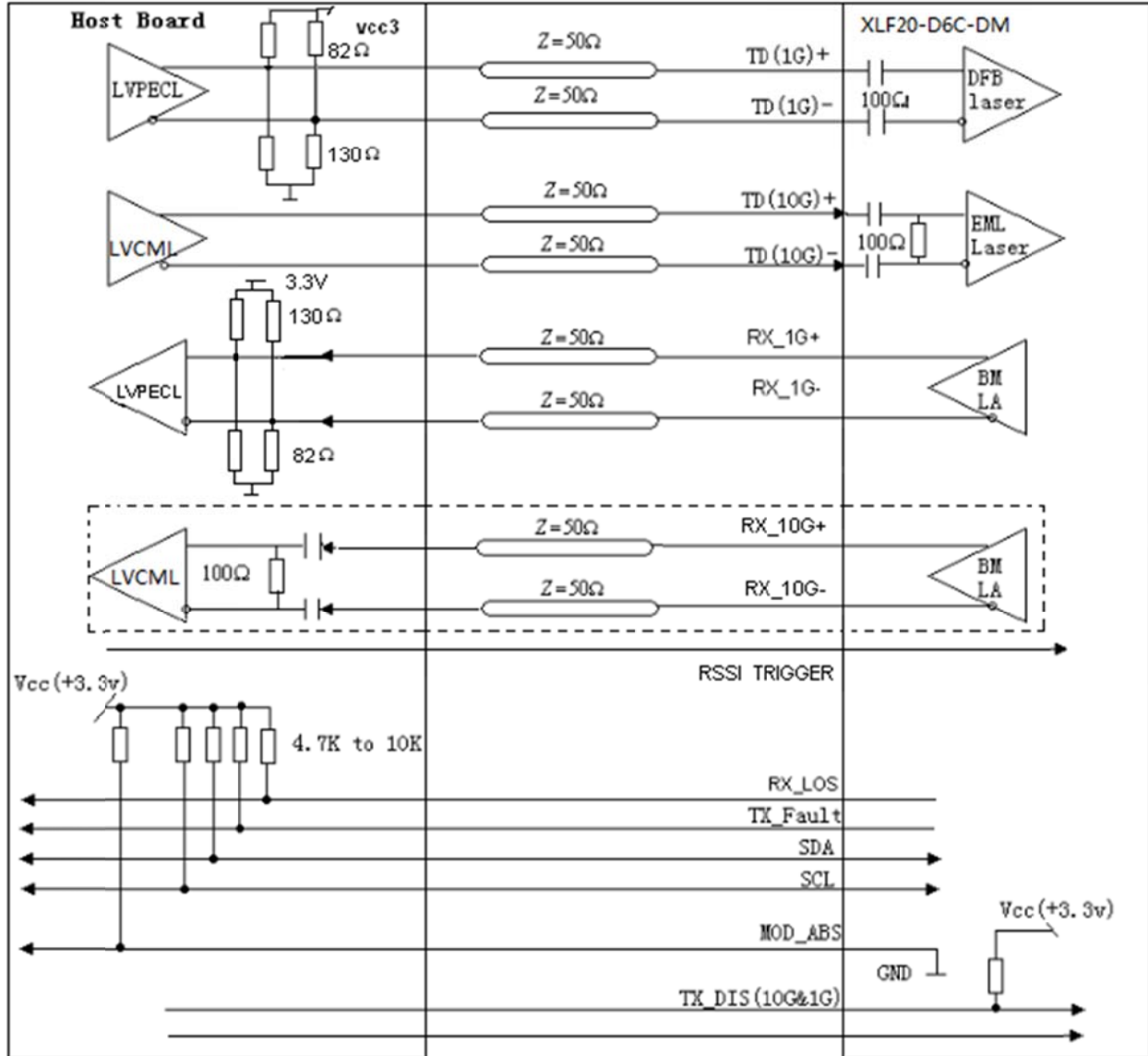


Figure 5 Pin out Drawing

Pin No	Name	Default Description	Note
1	GND	Module Ground	
2	TX-1G-P	Non-Inverted Transmit Data in	LVPECL input, AC coupled
3	TX-1G-N	Inverted Transmit Data in	LVPECL input, AC coupled
4	GND	Module Ground	
5	TX_DIS	Transmitter Disable	LVTTL Input, Low: transmitter on
6	VCC5	+5V Power Supply	Not Support
7	GND	Module Ground	
8	VCC3_TX	Transmitter 3.3V Power Supply	
9	VCC3_RX	Receiver 3.3V Power Supply	
10	SCL	The clock line	The clock line of two wire serial interface
11	SDA	The data line	The data line of two wire serial interface
12	MOD_ABS	Indicates Module is not present.	Grounded in the Module
13	RX_RateSel	RX Rate Select	Low is the 1.25Gbps, high is the 10.125 Gbps
14	RX_LOS	Loss of signal	LVTTL output
15	GND	Module Ground	
16	GND	Module Ground	
17	RD_10G_N	Inverted Received Data Out	LVCML output, DC coupled
18	RD_10G_P	Non-inverted Received Data Out	LVCML output, DC coupled
19	GND	Module Ground	
20	RD_1G_N	Inverted Received Data Out	LVPECL output, DC coupled
21	RD_1G_P	Non-inverted Received Data Out	LVPECL output, DC coupled

22	NC	Not Connect	
23	RSSI_TRIG	RSSI Trigger for Transceiver	RSSI trigger input from the host
24	NC	Not Connect	
25	NC	Not Connect	
26	NC	Not Connect	
27	GND	Module Ground	
28	TX_10G_N	Inverted Transmit Data in	LVCML input, AC coupled
29	TX_10G_P	Non-Inverted Transmit Data in	LVCML input, AC coupled
30	GND	Module Ground	

Typical application Circuit



EEPROM Serial ID Memory Contents

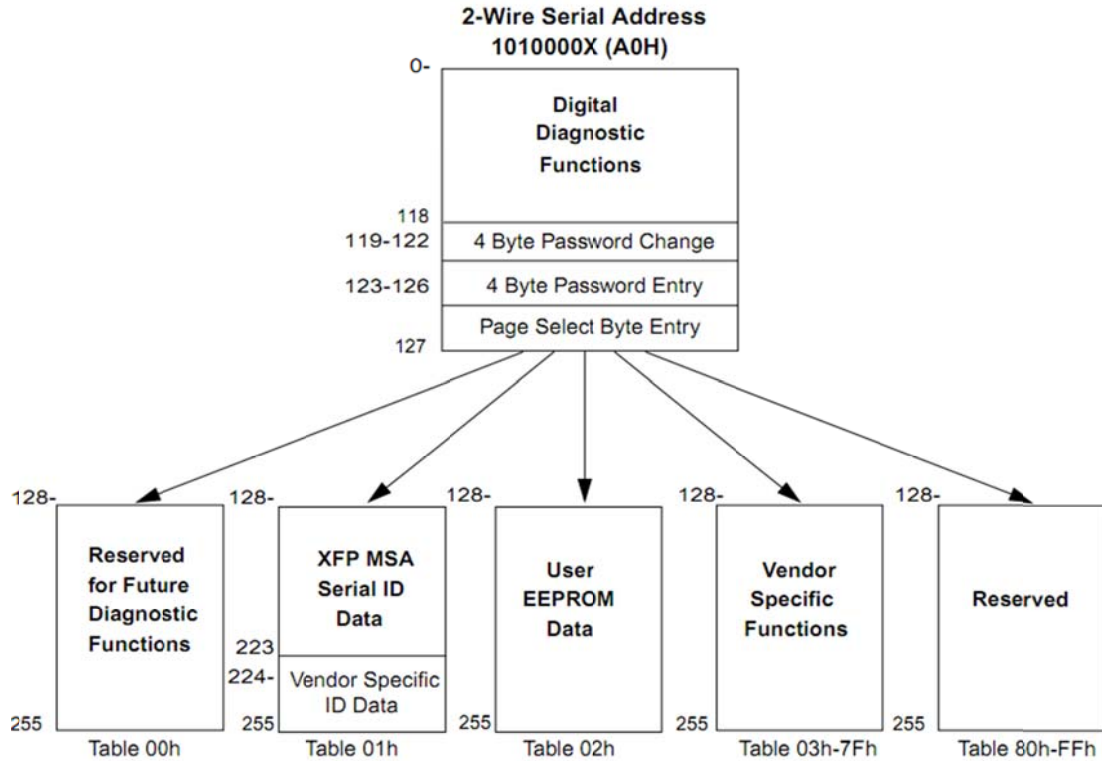


Figure 7 EEPROM Memory Map Specific Data Field Descriptions

Lower Memory Map (2-Wire Address A0h): Alarm and Warning

Thresholds

Address	Field Size(Byte)	Name of field	Description
00	1	Identifier	XFP transceiver, 06h
01	1	Signal Conditioner Control	Data Rate Control, 00h
02-03	2	Temp High Alarm	MSB at low address, 80°C
04-05	2	Temp Low Alarm	MSB at low address, -10°C
06-07	2	Temp High Warning	MSB at low address, 70°C
08-09	2	Temp Low Warning	MSB at low address, 0°C
10-11	2	3.3V Voltage High Alarm	MSB at low address, 3.6V
12-13	2	3.3V Voltage Low Alarm	MSB at low address, 3V
14-15	2	3.3V Voltage High Warning	MSB at low address, 3.5V
16-17	2	3.3V Voltage Low Warning	MSB at low address, 3.1V
18-19	2	10G Bias High Alarm	MSB at low address, 120mA

20-21	2	10G Bias Low Alarm	MSB at low address, 5mA
22-23	2	10G Bias High Warning	MSB at low address, 110mA
24-25	2	10G Bias Low Warning	MSB at low address, 10mA
26-27	2	10G TX Power High Alarm	MSB at low address, +7dBm
28-29	2	10G TX Power Low Alarm	MSB at low address, 0dBm
30-31	2	10G TX Power High Warning	MSB at low address, +5dBm
32-33	2	10G TX Power Low Warning	MSB at low address, +2dBm
34-35	2	RX Power High Alarm	MSB at low address, -4dBm
36-37	2	RX Power Low Alarm	MSB at low address, -32dBm
38-39	2	RX Power High Warning	MSB at low address, -6dBm
40-41	2	RX Power Low Warning	MSB at low address, -30dBm
42-43	2	1G Bias High Alarm	MSB at low address, 90mA
44-45	2	1G Bias Low Alarm	MSB at low address, 0mA
46-47	2	1G Bias High Warning	MSB at low address, 80mA
48-49	2	1G Bias Low Warning	MSB at low address, 0mA
50-51	2	1G TX Power High Alarm	MSB at low address, +9dBm
52-53	2	1G TX Power Low Alarm	MSB at low address, +1dBm
54-55	2	1G TX Power High Warning	MSB at low address, +7dBm
56-57	2	1G TX Power Low Warning	MSB at low address, +3dBm
58-59	2	Optional VPS Control Registers	Not Support
60-68	9	Reserved	-
69		10GEPON OLT PR30/PRX30 Flag	01h
70-71	2	BER Reporting	Not Support
72-75	4	Wavelength Control Registers	Not Support
76-79	4	FEC control Registers	Not Support
80-87	8	Latched Interrupt Flag Fields	See Table 1.1
88-95	8	Interrupt Masking Bits	See Table 1.2
96-109	14	A/D readout	See Table 1.3
110-111	2	General Control/Status Bits	See Table 1.4
112-117	6	Reserved	-
118	1	Serial Interface Read/Write Error Checking	Not Support
119-122	4	Password Change Entry Area	Location of Entry of New Optional Password
123-126	4	Password Entry Area	Location for Entry of Optional Password
127	1	Page Select Byte	Table Select

Table 1.1 Latched Interrupt Flag Fields

Data Address	Bit	Name of Field	Description
80	7	L-Temp High Alarm	Latched high Temperature alarm
80	6	L-Temp Low Alarm	Latched low Temperature alarm
80	5	L-3.3V Vcc High Alarm	Latched high Voltage alarm
80	4	L-3.3V Vcc Low Alarm	Latched low Voltage alarm
80	3	L-10G TX Bias High Alarm	Latched high 10G TX Bias alarm
80	2	L-10G TX Bias Low Alarm	Latched low 10G TX Bias alarm
80	1	L-10G TX Power High Alarm	Latched high 10G TX Power alarm
80	0	L-10G TX Power Low Alarm	Latched low 10G TX Power alarm
81	7	L-RX Power High Alarm	Latched high RX Power alarm
81	6	L-RX Power Low Alarm	Latched low RX Power alarm
81	5	L-1G TX Bias High Alarm	Latched high 1G TX Bias alarm
81	4	L-1G TX Bias Low Alarm	Latched low 1G TX Bias alarm
81	3	L-1G TX Power High Alarm	Latched high 1G TX Power alarm
81	2	L-1G TX Power Low Alarm	Latched low 1G TX Power alarm
81	1	Reserved	
81	0	Reserved	
82	7	L-Temp High Warning	Latched high Temperature warning
82	6	L-Temp Low Warning	Latched low Temperature warning
82	5	L-3.3V Vcc High Warning	Latched high Voltage warning
82	4	L-3.3V Vcc Low Warning	Latched low Voltage warning
82	3	L-10G TX Bias High Warning	Latched high 10G TX Bias warning
82	2	L-10G TX Bias Low Warning	Latched low 10G TX Bias warning
82	1	L-10G TX Power High Warning	Latched high 10G TX Power warning
82	0	L-10G TX Power Low Warning	Latched low 10G TX Power warning
83	7	L-RX Power High Warning	Latched high RX Power warning
83	6	L-RX Power Low Warning	Latched low RX Power warning
83	5	L-1G TX Bias High Warning	Latched high 1G TX Bias warning
83	4	L-1G TX Bias Low Warning	Latched low 1G TX Bias warning
83	3	L-1G TX Power High Warning	Latched high 1G TX Power warning
83	2	L-1G TX Power Low Warning	Latched low 1G TX Power warning
83	1	Reserved	
83	0	Reserved	
84	7	L-10G TX_NR	Not Support
84	6	L-10G TX_Fault	Not Support
84	5	L-10G TX CDR not Locked	Not Support

84	4	L-RX_NR	Not Support
84	3	L-RX_LOS	Not Support
84	2	L- RX CDR not Locked	Not Support
84	1	L- MOD_NR	Not Support
84	0	L- Reset Complete	Not Support
85	7	L- APD Supply Fault	Not Support
85	6	L- TEC Fault	Not Support
85	5	L- Wavelength Unlocked	Not Support
85	4-0	Reserved	
86	7	L-VCC5 High Alarm	Not Support
86	6	L-VCC5 Low Alarm	Not Support
86	5	L-VCC3 High Alarm	VCC3 High Alarm Flag
86	4	L-VCC3 Low Alarm	VCC3 Low Alarm Flag
86	3	L-VCC2 High Alarm	Not Support
86	2	L-VCC2 Low Alarm	Not Support
86	1	L-Vee5 High Alarm	Not Support
86	0	L-Vee5 Low Alarm	Not Support
87	7	L-VCC5 High Warning	Not Support
87	6	L-VCC5 Low Warning	Not Support
87	5	L-VCC3 High Warning	VCC3 High Warning Flag
87	4	L-VCC3 Low Warning	VCC3 Low Warning Flag
87	3	L-VCC2 High Warning	Not Support
87	2	L-VCC2 Low Warning	Not Support
87	1	L-Vee5 High Warning	Not Support
87	0	L-Vee5 Low Warning	Not Support

Table 1.2 Interrupt Masking Bits

Data Address	Bit	Name of Field	Description
88	7	M-Temp High Alarm	Masking high Temperature alarm
88	6	M-Temp Low Alarm	Masking low Temperature alarm
88	5	M-3.3V Vcc High Alarm	Masking high Voltage alarm
88	4	M-3.3V Vcc Low Alarm	Masking low Voltage alarm
88	3	M-10G TX Bias High Alarm	Masking high 10G TX Bias alarm
88	2	M-10G TX Bias Low Alarm	Masking low 10G TX Bias alarm
80	1	M-10G TX Power High Alarm	Masking high 10G TX Power alarm
88	0	M-10G TX Power Low Alarm	Masking low 10G TX Power alarm
89	7	M-RX Power High Alarm	Masking high RX Power alarm

89	6	M-RX Power Low Alarm	Masking low RX Power alarm
89	5	M-1G TX Bias High Alarm	Masking high 1G TX Bias alarm
89	4	M-1G TX Bias Low Alarm	Masking low 1G TX Bias alarm
89	3	M-1G TX Power High Alarm	Masking high 1G TX Power alarm
89	2	M-1G TX Power Low Alarm	Masking low 1G TX Power alarm
89	1	Reserved	
89	0	Reserved	
90	7	M-Temp High Warning	Masking high Temperature warning
90	6	M-Temp Low Warning	Masking low Temperature warning
90	5	M-3.3V Vcc High Warning	Masking high Voltage warning
90	4	M-3.3V Vcc Low Warning	Masking low Voltage warning
90	3	M-10G TX Bias High Warning	Masking high 10G TX Bias warning
90	2	M-10G TX Bias Low Warning	Masking low 10G TX Bias warning
90	1	M-10G TX Power High Warning	Masking high 10G TX Power warning
90	0	M-10G TX Power Low Warning	Masking low 10G TX Power warning
91	7	M-RX Power High Warning	Masking high RX Power warning
91	6	M-RX Power Low Warning	Masking low RX Power warning
91	5	M-1G TX Bias High Warning	Masking high 1G TX Bias warning
91	4	M-1G TX Bias Low Warning	Masking low 1G TX Bias warning
91	3	M-1G TX Power High Warning	Masking high 1G TX Power warning
91	2	M-1G TX Power Low Warning	Masking low 1G TX Power warning
91	1	Reserved	
91	0	Reserved	
92	7	M-10G TX_NR	Not Support
92	6	M-10G TX_Fault	Not Support
92	5	M-10G TX CDR not Locked	Not Support
92	4	M-RX_NR	Not Support
92	3	M-RX_LOS	Not Support
92	2	M- RX CDR not Locked	Not Support
92	1	M- MOD_NR	Not Support
92	0	M- Reset Complete	Not Support
93	7	M- APD Supply Fault	Not Support
93	6	M- TEC Fault	Not Support
93	5	M- Wavelength Unlocked	Not Support
93	4-0	Reserved	
94	7	M-VCC5 High Alarm	Not Support
94	6	M-VCC5 Low Alarm	Not Support
94	5	M-VCC3 High Alarm	Masking VCC3 High Alarm Flag
94	4	M-VCC3 Low Alarm	Masking VCC3 Low Alarm Flag

94	3	M-VCC2 High Alarm	Not Support
94	2	M-VCC2 Low Alarm	Not Support
94	1	M-Vee5 High Alarm	Not Support
94	0	M-Vee5 Low Alarm	Not Support
95	7	M-VCC5 High Warning	Not Support
95	6	M-VCC5 Low Warning	Not Support
95	5	M-VCC3 High Warning	Masking VCC3 High Warning Flag
95	4	M-VCC3 Low Warning	Masking VCC3 Low Warning Flag
95	3	M-VCC2 High Warning	Not Support
95	2	M-VCC2 Low Warning	Not Support
95	1	M-Vee5 High Warning	Not Support
95	0	M-Vee5 Low Warning	Not Support

Table 1.3 A/D readout

Data Addresses	Field Size (Byte)	Name of Field	Description	Range	Notes
96-97	2	Temperature	Internally measured module temperature, MSB at low address	-40 to 125°C	Case temperature
98-99	2	3.3V Supply Voltage	Internally measured supply voltage, MSB at low address	0V to 6.55V	
100-101 ²	2	10G TX Bias	Internally measured 10G TX Bias Current, MSB at low address	0 to 262mA	Quantization Unit 4uA
102-103 ³	2	10G TX Power	Measured 10G TX output power, MSB at low address	-37 to 11.2 dBm	Quantization Unit 0.2uW
104-105	2	RX Power	Measured RX input power, MSB at low address	-40 to 8.2 dBm	Quantization Unit 0.1uW
106-107	2	1G TX Bias	Internally measured 1G TX Bias Current, MSB at low address	0 to 262mA	Quantization Unit 4uA
108-109	2	1G TX Power	Measured 1G TX output power, MSB at low address	-37 to 11.2 dBm	Quantization Unit 0.2uW

Table 1.4 General Control/Status Bits

Data Address	Bit	Name of Field	Description
110	7	10G TX Disable State	Digital state of the 10G TX Disable Input Pin. Updated within 100msec of change on pin
110	6	Soft 10G TX Disable	Optional read/write bit that allows software disable of laser. Writing '1' disables laser. Turn on/off time is 100msec max from acknowledgement of serial byte transmission. This bit is "OR" d with the hard TX_DISABLE pin value. Note, per SFP MSA TX_DISABLE pin is default enabled unless pulled low by hardware. If Soft 10G TX Disable is not implemented, the transceiver ignores the value of this bit. Default power up value is 0
110	5	MOD_NR State	Digital state of the MOD_NR Pin. Updated within 100msec of change on pin, not support
110	4	P_Down State	Digital state of the P_Down Pin. Updated within 100msec of change on pin, not support
110	3	Soft P_Down	Optional read/write bit that allows the module to be placed in the power down mode. This is identical to the P_Down hardware pin function except that it does not initiate a system reset, not support
110	2	Interrupt	Digital state of the Interrupt output pin, not support
110	1	RX_LOS	Indicates Optical Loss of Signal (per relevant optical link standard). Updated within 100msec of change on pin
110	0	Data_Not_Ready	Indicates transceiver has achieved power up and A/D data is ready. Bit remains high until data is ready to be read at which time the device sets the bit low, not support
111	7	TX_NR State	Identifies Not Ready condition as specific to the TX path, not support
111	6	TX_Fault State	Identifies Laser fault condition (Generated by laser safety system)
111	5	TX_CDR not Locked	Identifies Loss of Lock in TX path CDR, not support
111	4	RX_NR State	Identifies Not Ready condition as specific to the RX path, not support
111	3	RX_CDR not Locked	Identifies Loss of Lock in RX path CDR, not support
111	2	Reserved	
111	1	1G TX Disable State	Digital state of the 1G TX Disable Input Pin. Updated within 100msec of change on pin
111	0	Soft 1G TX Disable	Optional read/write bit that allows software disable of laser. Writing '1' disables laser. Turn on/off time is 100msec max from acknowledgement of serial byte transmission. This bit is "OR" d with the hard TX_DISABLE pin value. Note, per SFP MSA TX_DISABLE pin is

			default enabled unless pulled low by hardware. If Soft 1G TX Disable is not implemented, the transceiver ignores the value of this bit. Default power up value is 0
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Serial ID: Data Fields – Page 01h

Address	#Bytes	Name	HEX	Description
Base ID Fields				
128	1	Identifier	06	XFP
129	1	Ext. Identifier	F0	4W Max power dissipation; without CDR; TX Ref Clock Input not Required; No CLEI in table 02h
130	8	Connector	01	SC connector
131-138	8	Transceiver	00 00 00 00 00 00 00 00	Unallocated
139	1	Encoding	80	64B/66B
140	1	BR-Min	67	10.3125Gbps
141	1	BR-Max	67	10.3125Gbps
142	1	Length(SMF)-km	14	20km
143	1	Length (E-50µm)	00	
144	1	Length (50 µm)	00	
145	1	Length (62.5 µm)	00	
146	1	Length (Copper)	00	
147	1	Device Tech	F6	Device technology (1577nm EML, Cooled transmitter, No wavelength control, APD detector)
148-163	16	Vendor name	4D 45 4E 54 45 43 48 4F 50 54 4F	"MENTECHOPTO"(ASCII character)
164	1	CDR Support	40	CDR support for 10.3Gb/s
165-167	3	Vendor OUI	00 00 00	Unspecified
168-183	16	Vendor PN	58 4C 46 32 30 2D 44 36 43 2D 54 59	"XLF20-D6C-T1"(ASCII character)
184-185	2	Vendor rev	41 30	A0
186-187	2	Wavelength	7B 3C	Nominal laser wavelength: 1577nm
188-189	2	Wavelength Tolerance	03 E8	Guaranteed range of laser wavelength (+/- value) from Nominal

				wavelength:+3/-2nm
190	1	Max Case Temp	50	80°C
191	1	CC_BASE		Check sum of byte 128-190
Extended ID Fields				
192-195	4	Power Supply	C8 00 49 00	Maximum Power Dissipation(4W)
196-211	16	Vendor SN		Serial number provided by vendor (ASCII)
212-219	8	Vendor's Date Code	"YYMMDDLL"	Vendor's manufacturing date code (ASCII)
220	1	Diagnostic Monitoring Type	80	Module Respond to FEC BER: No BER Support Received power measurement type : Average Power
221	1	Enhanced Options	40	Optional Soft Tx_Disable
222	1	Aux Monitoring	27	Auxiliary A/D Types: AUX1 is for 1G TX Bias AUX2 is for 1G TX Power See Table 1.5
223	1	CC_EXT		Check sum of bytes 192-222
Vendor Specific ID Fields				
224-255	32	Vendor Specific		Vendor Specific EEPROM

Table 1.5 Auxiliary Input Types

Value	Description of physical device
0000b	Auxiliary monitoring not implemented
0001b	APD Bias Voltage (16 bit value is Voltage in units of 10 mV)
0010b	1G TX Bias (16 bit value is Current in units of 4 uA)
0011b	TEC Current (16 bit value is Current in units of 100 uA)
0100b	10G Laser Temperature
0101b	10G Laser Wavelength
0110b	+5V Supply Voltage
0111b	1G TX Power(16 bit value is Optical Power in units of 0.2 uW)
1000b	+1.8V Supply Voltage
1001b	-5.2V Supply Voltage
1010b	+5V Supply Current

1101b	+3.3V Supply Current
1110b	+1.8V Supply Current
1111b	-5.2V Supply Current

Package Outline

Dimensions are in millimeters. (Unit: mm)

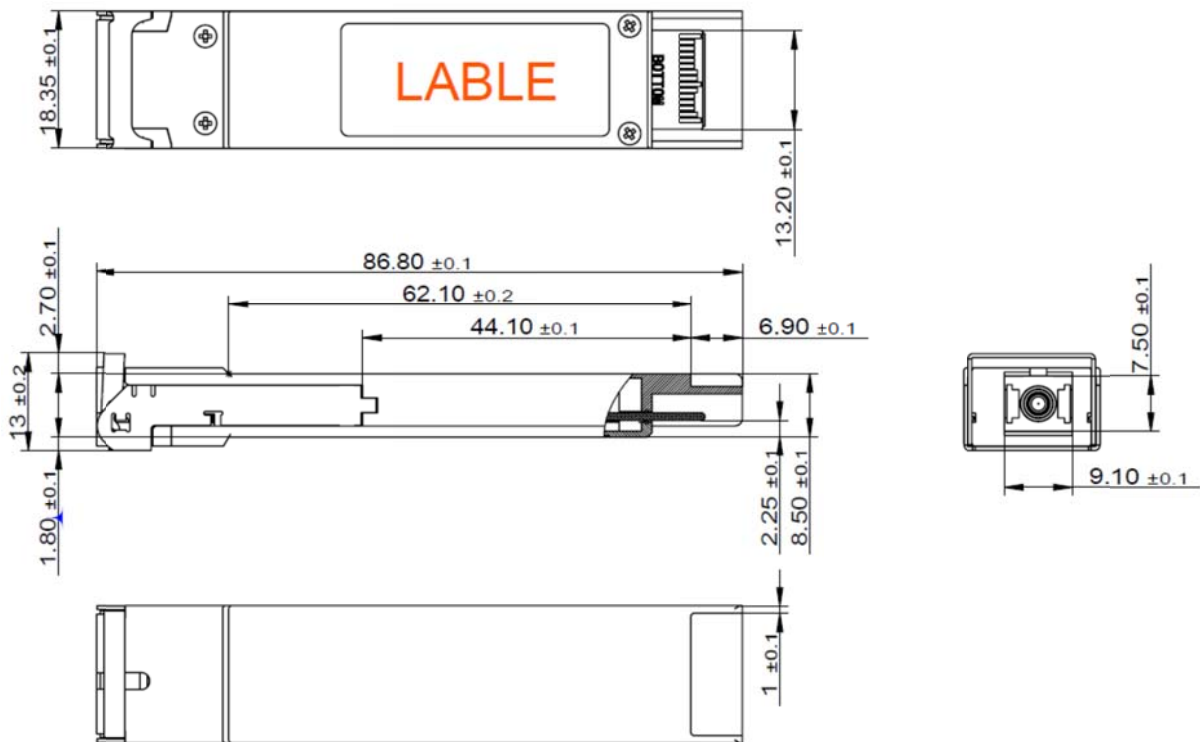


Figure 8 Package Outline

Ordering information

Part. No	Specifications								
	Package	Rate (Gbps)	Tx (nm)	Po (dBm)	Rx (nm)	Sen (dBm)	Temp (°C)	Reach (km)	DDM
XLF20-D6C-T1	XFP	1G: 1.25 10G: 10.3125	1G: 1490 10G: 1577	1G: 4.7~8 10G: 2~5	1G: 1310 10G: 1270	1G: <-30 10G: <-28	0~70	20	Y