

SFP-1G-LX20-PLU/SFP-1G-LX20-PLUi

1.25G/2.12Gbps 1310nm Single-mode SFP Transceiver

PRODUCT FEATURES

- Up to 2.25Gb/s data links
- Up to 20km on 9/125µm SMF
- 1310nm FP laser
- Hot-pluggable SFP footprint
- Duplex LC/UPC type pluggable optical interface
- Single 3.3V power supply
- RoHS compliant and lead-free
- Support Digital Diagnostic Monitoring interface (DDM)
- Case operating temperature

Commercial: 0°C to +70°C (SFP-1G-LX20-PLU)

Industrial: -40°C to +85°C (SFP-1G-LX20-PLUi)

APPLICATIONS

- Switch to Switch Interface
- 1.25Gbps 1000Base-LX
- 1G/2G Fiber Channel
- Switched Backplane Applications
- Router/Server Interface
- Other Optical Links

*This spec sheet is also for other vendor compatible units with the last 3 digits of the part number varying based on vendor code. Please see the last page of this specification sheet for a list of vendor codes

PRODUCT DESCRIPTION

The CLSFP13GELX20/I are small form factor pluggable (SFP) transceiver compatible with multi-sourcing agreement (MSA). It is suitable for single-mode fiber (SMF) communications in 1.25Gbps Ethernet and 1G/2G Fiber Channel.

Ordering information

Product part Number	Data Rate (Mbps)	Media	DDM	Wavelength (nm)	Transmission Distance(km)	Temperature Range (Tcase) (°C)	
SFP-1G-LX20-PLU	1250	SMF	yes	1310	20	0~70	commercial
SFP-1G-LX20-PLUi	1250	SMF	yes	1310	20	-40~85	industrial

Regulatory Compliance

Plusoptic transceivers are Class 1 Laser Products and comply with FDA regulations. Meet Class 1 eye safety requirements of EN 60825 and the electrical safety requirements of EN

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Supply Voltage	Vcc	-0.5	3.6	V
Storage Temperature	Ts	-40	85	°C
Operating Case Temperature	Tc	Refer to Ordering information		

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Power Supply Voltage	Vcc	3.15	3.3	3.45	V
Power Supply Current	Icc			250	mA
Data Rate			1.25	2.125	GBps
Max Link Length on 9/125µm SMF	Lmax		20		km
Operating Case Temperature	Tc	Refer to Ordering information			

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Transmitter					
Centre Wavelength	λ_c	1260	1310	1360	nm
Spectral Width (RMS)	σ			4	nm
Average Output Power	Pout	-9		-3	dBm
Extinction Ratio	ER	9			dB
Optical Rise/Fall Time	tr/tf			1	ns
Receiver					
Centre Wavelength	λ_c	1200	1310	1600	nm
Receiver Sensitivity	Pin			-23	dBm
Receiver Overload	Pmax	1		0.8	dBm
LOS De-Assert	LOS _D	1		-27	dBm
LOS Assert	LOS _A	-29			dBm
LOS Hysteresis		0.5		4.5	dB

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Transmitter					
Input Differential Impedance	Zin	90	100	110	Ω
Data Input Swing Differential	Vin	500		2400	mV
Tx-Dis Disable	Vd	2.0		Vcc	V
Tx-Dis Enable	Ven	0		0.8	V
Tx-Fault (Fault)		2.0		Vcc+0.3	V
Tx-Fault (Normal)		0		0.8	V
Receiver					
Data Output Swing Differential	Vout	370		2000	mV
Rx-Los Fault	Vlf	2.0		Vcc+0.3	V
Rx-Los Normal	Vln	0		0+0.8	V

Pin Description

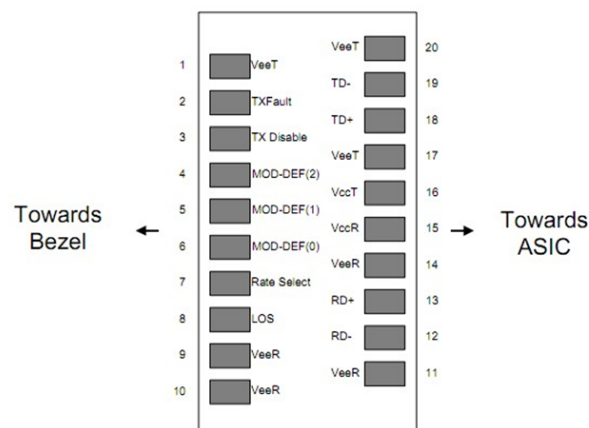


Diagram of Host Board Connector Block Pin Numbers and Names

Pin	Symbol	Name/Description	Note Ref.
1	V _{EET}	Transmitter Ground (Common with Receiver Ground)	1
2	T _{FAULT}	Transmitter Fault. Not supported	
3	T _{DIS}	Transmitter Disable. Laser output disabled on high or open.	2
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	3
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	V _{EER}	Receiver Ground (Common with Transmitter Ground)	1
10	V _{EER}	Receiver Ground (Common with Transmitter Ground)	1
11	V _{EER}	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	V _{EER}	Receiver Ground (Common with Transmitter Ground)	1
15	V _{CCR}	Receiver Power Supply	
16	V _{CCT}	Transmitter Power Supply	
17	V _{EET}	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	V _{EET}	Transmitter Ground (Common with Receiver Ground)	1

Notes:

1. Circuit ground is internally isolated from chassis ground.
2. Laser output disabled on T_{DIS} >2.0V or open, enabled on T_{DIS} <0.8V.
3. Should be pulled up with 4.7k - 10kohms on host board to a voltage between 2.0V and 3.6V. MOD_DEF (0) pulls line low to indicate module is plugged in.
4. LOS is open collector output should be pulled up with 4.7k - 10kohms on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

EEPROM

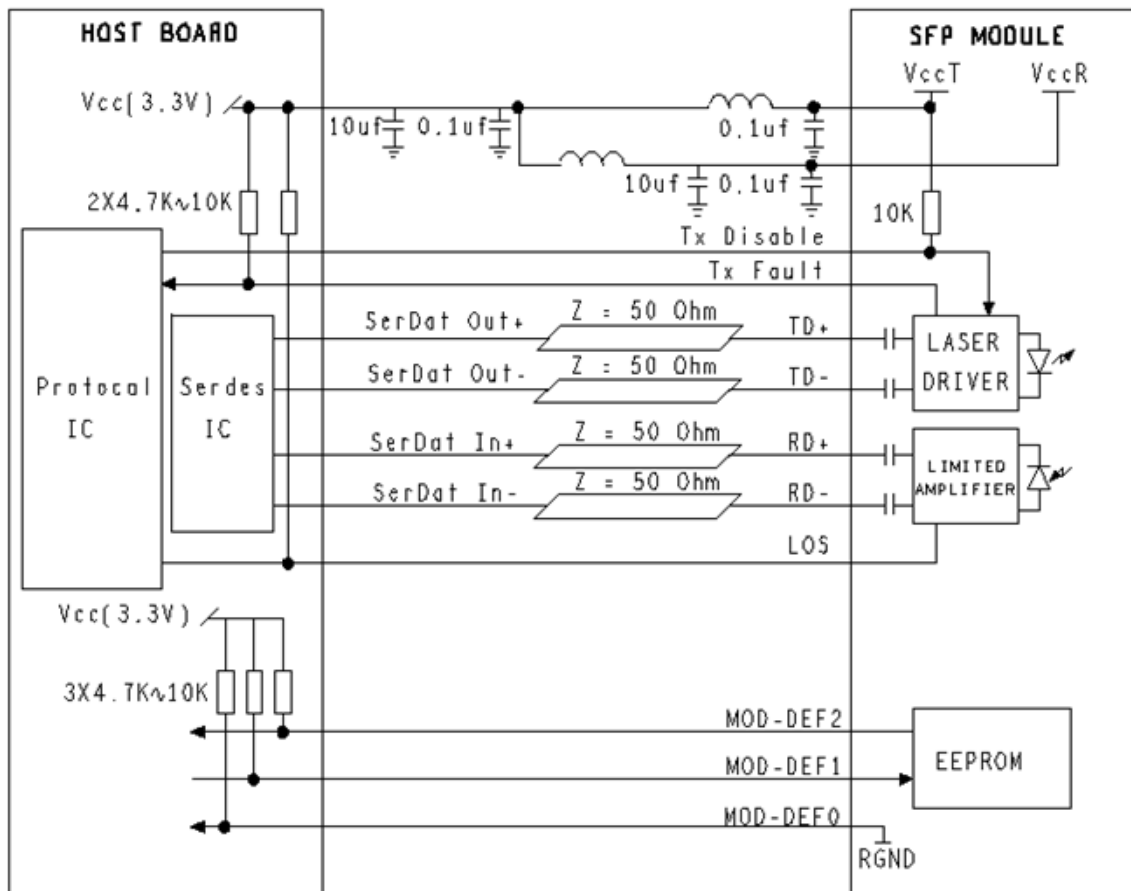
2 wire address 1010000X (A0h)

0~95
Serial ID Defined by SFP MSA (96 bytes)
96~127
Vendor Specific (32 bytes)
128~255
Reserved (128 bytes)

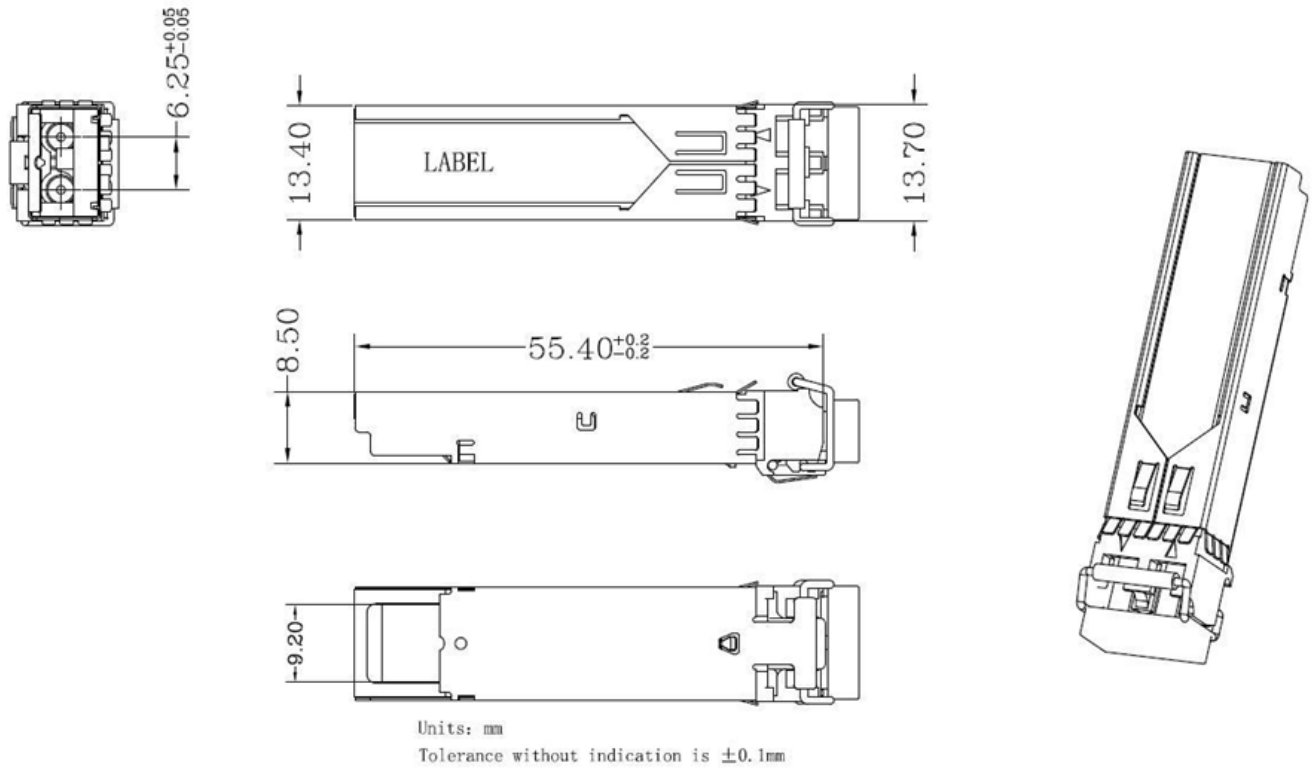
DDM THRESHOLD

Parameter	Low Alarm	Low Warn	High Warn	High Alarm
Temperature SFP-1G-LX20-PLUi	-45°C	-40°C	85°C	90°C
Temperature SFP-1G-LX20-PLU	-5°C	0°C	70°C	75°C
Voltage	3V	3.1V	3.6V	3.7V
TX Bias SFP-1G-LX20-PLU	3mA	4mA	70mA	75mA
TX Bias SFP-1G-LX20-PLUi	3mA	4mA	125mA	130mA
Tx Power	-13.5dBm	-9.5dBm	-1dBm	1dBm
Rx Power	-23dBm	-19dBm	-3dBm	1dBm

k #



Mechanical Specification



Ordering Information

When ordering, to choose the vendor you require such as Cisco, HP, Juniper etc you need to replace the 'XXX' at the end of each SKU with the relevant 3 digit vendor code, for instance if you wanted a Cisco Multimode 1.25Gb SFP then the SKU would read SFP-1G-SX-CIS.

VENDOR	CODE	VENDOR	CODE	VENDOR	CODE	VENDOR	CODE
3com	3CO	Cyan	CYN	Huawei	HUA	PlusOptic	PLU
Adtran	ADT	Compaq	COM	IBM	IBM	Q-logic	QLO
Alcatel-Lucent	ALC	Dell	DEL	Intel	INT	QNA	QNA
Allied Telesis	ATE	Delta	DTA	JDS Uniphase	JDS	RAD	RAD
Allnet	ALL	D-LINK	DLI	Juniper	JUN	Redback	RED
Arista Networks	ARI	EMC	EMC	LVN	LVN	Riverstone	RIV
Aruba Networks	ARU	EMU	EMU	Linksys	LIN	Silicom	SIL
Asante	ASA	Enterasys	ENT	Marconi	MAR	Smartoptic	SMO
Avago	AVA	Extreme	EXT	McAfee	McA	SMC	SMC
Avaya	AVY	F5 Networks	F5	Meraki	MER	Solarflare	SLF
Black Box	BLK	Finisar	FIN	Milan Techn	MIL	Sun	SUN
Blade	BLA	Fluke	FLU	Moxa	MOX	SuperMicro	SUP
Bluecoat	BLU	Force 10	F10	NetAPP	NAP	Telco	TEL
Broadcom	BRD	Fortinet	FOR	Netgear	NET	TP-Link	TPL
Brocade	BRO	Foundry	FOU	Nortel	NOR	Transition	TRA
Calix	CAL	Fujitsu	FUJ	Packeteer	PKT	Trendnet	TRE
Ceragon Networks	CRN	Gigamon	GIG	PacketLight	PKL	Voltaire	VOL
Check Point	CHE	H3C	H3C	Palo Alto	PAL	WGD	WGD
CHL	CHL	Hirschmann	HIR	Penguin	PEN	WES	WES
Ciena	CIE	HP	HP	Perle	PER	ZTE	ZTE
Cisco	CIS	HP ProCurve	HPP	PicoLight	PIC	ZYXEL	ZYX
Citrix	CIX	Huawei	HUA	Planet	PLA		