4 CABLING
QUALITY PRODUCTS FOR A CONNECTED WORLD

plusoptic
Fibre Connectivity. It's What We Do.

Product Specification

1.25Gbps BiDi LC 10Km SFP Transceiver
BISFP-D-10-PLU / BISFP-D-10-PLUI*

Product Features

- Up to 1.25Gbps data links

- 10Km with 9/125µm SMF *1

- 1310nm FP /1490nm PIN laser *1

- Simplex LC Connector

- Hot-pluggable SFP footprint

- Single 3. 3V power supply

- Operating temperature: Refer to *1

- RoHS

Applications

- 1.25Gbps 1000Base-LX

*1

PART NUMBER	TX/RX	DISTANCE	LASER	TEMPERATURE
BISFP-D-10-PLU	1490/1310nm	10Km	DFB/PIN	COM 0~70°C
BISFP-D-10-PLUI	1490/1310nm	10Km	DFB/PIN	IND -40~85°C

*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

1. Product Description

The BISFP-D-10-PLU/ BISFP-D-10-PLUI SFPs are small form factor pluggable (SFP) transceivers compatible with multi-sourcing agreement (MSA). It is suitable for single-mode fiber (SMF) communications in 1.25Gbps Ethernet and 1G/2G Fiber Channel.

2. Regulatory Compliance

Plusoptic transceivers are Class 1 Laser Products comply with FDA regulations. Meet Class 1 eye safety requirements of EN 60825 and the electrical safety requirements of EN 60950.

3. Absolute Maximum Ratings

Parameter		Symbol	Min.	Max.	Unit
Supply Voltage		V_{CC}	-0.5	3.6	V
Storage Temperature		T_S	-40	85	°C
BISFP-D-10-PLU	Operating Case Temperature	T_C	0	70	°C
BISFP-D-10-PLUI	Operating Case Temperature	T_C	-40	85	°C

4. Recommended Operating Conditions

Parameter		Symbol	Min.	Typical	Max.	Unit
BISFP-D-10-PLU	Operating Case Temperature	T_C	0		70	°C
BISFP-D-10-PLUI	Operating Case Temperature	T_C	-40		85	°C
Power Supply Voltage		V_{CC}	3.15	3.3	3.45	V
Power Supply Current		I_{CC}			300	mA
Data Rate				1.25		GBps
Max Link Length on 9/125µm SMF		Lmax		10		km

5. Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter					
Centre Wavelength	λ_c	1480	1490	1500	nm
Spectral Width (-20dB)	σ			1	nm
Average Output Power	Pout	-9		-3	dBm
Extinction Ratio	ER	9			dB
Optical Rise/Fall Time	tr/tf			2	ns
Receiver					
Centre Wavelength	λ_c	1300	1310	1320	nm
Receiver Sensitivity	P_{IN}			-23	dBm
Receiver Overload	P_{MAX}	1			dBm
LOS De-Assert	LOS_D			-30	dBm
LOS Assert	LOS_A	-35			dBm
LOS Hysteresis		0.5		4.5	dB

6. Electrical Characteristics

Parameter	Symbol	Min.	Typical	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

7. Pin Descriptions
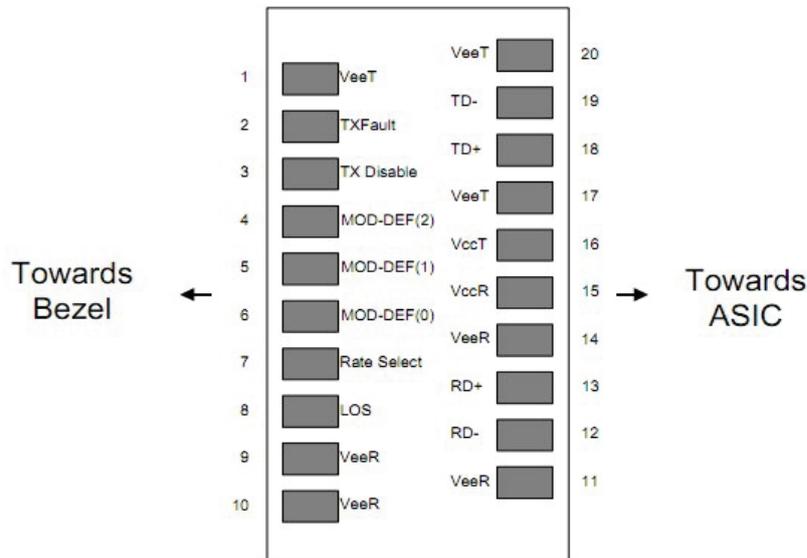
Diagram of Host Board Connector Block Pin Numbers and Names

Pin	Symbol	Description	Ref.
1	VEET	Transmitter Ground (Common with Receiver Ground)	6.1
2	TFAULT	Transmitter Fault. Not supported.	
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	6.2
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	6.3
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	6.3
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	6.3
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	6.4
9	VEER	Receiver Ground (Common with Transmitter Ground)	6.1
10	VEER	Receiver Ground (Common with Transmitter Ground)	6.1
11	VEER	Receiver Ground (Common with Transmitter Ground)	6.1
12	RD-	Receiver Inverted DATA out. AC Coupled.	
13	RD+	Receiver Non-inverted DATA out. AC Coupled.	
14	VEER	Receiver Ground (Common with Transmitter Ground)	6.1
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	6.1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VEET	Transmitter Ground (Common with Receiver Ground)	6.1

4 CABLING — QUALITY PRODUCTS FOR A CONNECTED WORLD

plusoptic — Fibre Connectivity. It's What We Do.

Notes:

6.1 Circuit ground is internally isolated from chassis ground.

6.2 Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.

6.3 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.

6.4 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.

8. EEPROM & DDM THRESHOLD

8.1 EEPROM

2 wire address 1010000X (A0hex)

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

8.2 DDM THRESHOLD

CLSFPGEBD141310D-L/I

		Low Alarm	Low Warn	High Warn	High Alarm
Temp	BISFP-D-10-PLUI	-45°C	-40°C	85°C	90°C
Temp	BISFP-D-10-PLU	-5°C	0°C	70°C	75°C
Voltage		3V	3.1V	3.6V	3.7V
Tx Bias BISFP-D-10-PLU		3mA	4mA	70mA	75mA
Tx Bias BISFP-D-10-PLUI		3mA	4mA	125mA	130mA
Tx Power		-13.5dBm	-9.5dBm	-1dBm	1dBm
Rx Power		-23dBm	-19dBm	-3dBm	1dBm

9. Recommend Circuit
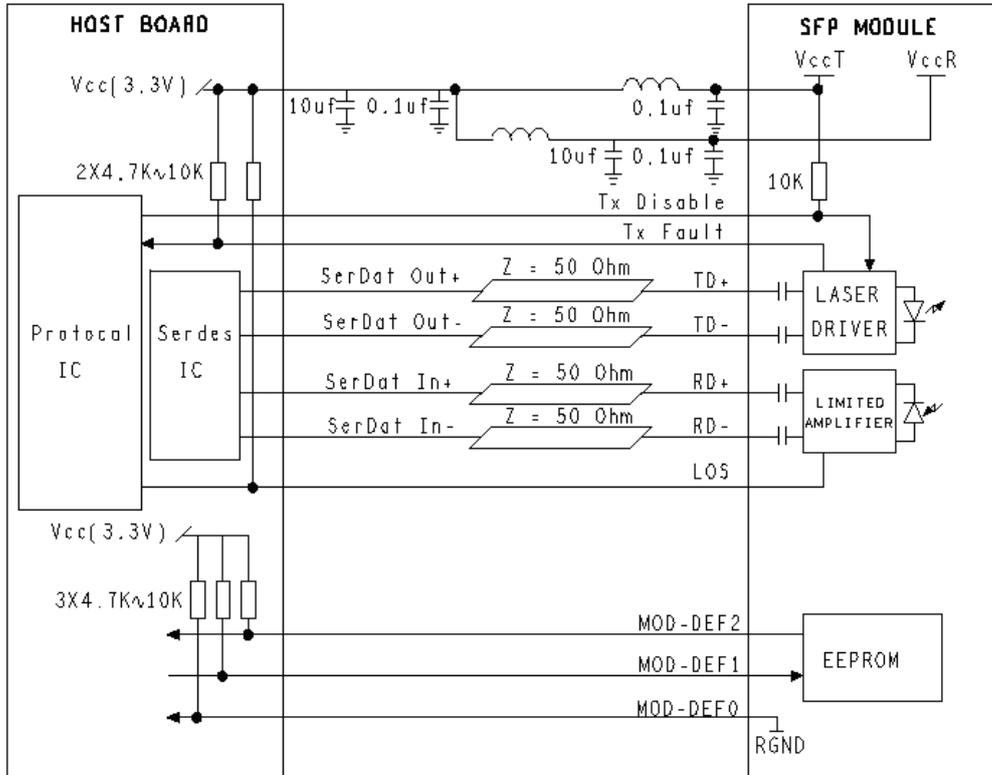
10. Mechanical Specifications
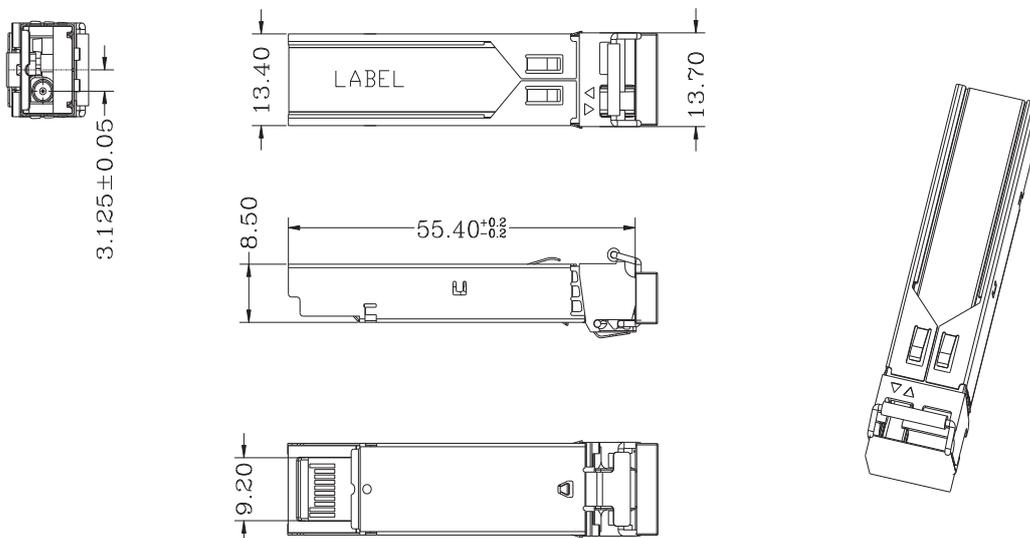
Units in mm
Tolerance without indication is ±0.1mm

Ordering Information

Part No.	Data Rate	DDM	TX/RX	Fiber Type	Dist.	Temp.	Optical Interface
BISFP-D-10-PLU	1.25Gbps	yes	1490nm/ 1310nm	SMF	10km	0~70°C	BiDi LC
BISFP-D-10-PLUI	1.25Gbps	yes	1490nm/ 1310nm	SMF	10km	-40~85°C	BiDi LC

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-550M-MMD-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	LNV	LNV	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	HIR	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		