



# Product Specification

## 10Gbps XFP BIDI Transceiver

### PLXFP10GBD27XXD

### PLXFP10GBD33XXD

V20140812

### Product Features

- | 9.95Gbps to 11.1Gbps data links
- | 2km to 60km with 9/125μm SMF \*1
- | WDM 1270/1330nm DFB laser
- | **Simplex LC Connector**
- | Hot-pluggable SFP+ footprint
- | Single 3.3V power supply
- | Operating temperature: -5°C to 75°C
- | RoHS
- | Digital Diagnostic Monitor (DDM)
- | Power Consumption :1.5W~2.5W\*1

### Applications

- √ 10GBASE Ethernet
- √ 10G FC
- √ OC192 / STM64

\*1 Notice

PART NUMBER	DISTANCE	LASER	Power Consumption
PLXFP10GBD2704D	2KM	DFB/PIN	1.5W
PLXFP10GBD3304D	2KM	DFB/PIN	1.5W
PLXFP10GBD2710D	10KM	DFB/PIN	1.5W
PLXFP10GBD3310D	10KM	DFB/PIN	1.5W
PLXFP10GBD2720D	20KM	DFB/PIN	1.5W



PLXFP10GBD3320D	20KM	DFB/PIN	1.5W
PLXFP10GBD2740D	40KM	DFB/PIN	1.5W
PLXFP10GBD3340D	40KM	DFB/PIN	1.5W
PLXFP10GBD2760D	60KM	DFB/APD	2.5W
PLXFP10GBD3360D	60KM	DFB/APD	2.5W

## 1. Product Description

The PLXFP10GBD27XXD/ PLXFP10GBD33XXD is a 10Gbps enhanced small form factor pluggable XFP transceiver compatible with SDH OC192/STM64, 10G BASE Ethernet, 10G FC. It is suitable for Single-mode fiber (SMF) communications in 10Gbps Ethernet/FC/SDH

PART NUMBER	CLASP COLOR
PLXFP10GBD27XXD	BLUE
PLXFP10GBD33XXD	GREEN

## 2. Regulatory Compliance

TINOUT 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 <sub>cc</sub>	-0.5	4	V
Storage Temperature	T <sub>s</sub>	-40	85	°C
Operating Case Temperature	T <sub>c</sub>	-5	75	°C

## 4. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	T <sub>c</sub>	-5		75	°C
Power Supply Voltage	V <sub>cc</sub>	3.15	3.3	3.45	V
Power Supply Current	I <sub>cc</sub>			400	mA
Data Rate			10		GBps
Max Link Length on	L <sub>max</sub>	Ref. *1 Notice			



9/125μm SMF		
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## 5. Optical Characteristics

Parameter		Symbol	Min.	Typical	Max.	Unit
<b>Transmitter</b>						
PLXFP10GBD27XXD Centre Wavelength		$\lambda_c$	1260	1270	1280	nm
PLXFP10GBD33XXD Centre Wavelength		$\lambda_c$	1320	1330	1340	nm
Spectral Width (RMS)		$\sigma$			3	nm
Average Output Power	PLXFP10GBD2704D PLXFP10GBD3304D PLXFP10GBD2710D PLXFP10GBD3310D	P <sub>out</sub>	-4		5	dBm
	PLXFP10GBD2720D PLXFP10GBD3320D	P <sub>out</sub>	-4		5	dBm
	PLXFP10GBD2740D PLXFP10GBD3340D	P <sub>out</sub>	-1		5	dBm
	PLXFP10GBD2760D PLXFP10GBD3360D	P <sub>out</sub>	1		5	dBm
Extinction Ratio		ER	3.5			dB
Average Launch Power of Off Transmitter		P <sub>off</sub>			-30	dBm
<b>Receiver</b>						
PLXFP10GBD2720D Centre Wavelength		$\lambda_c$	1320	1330	1340	nm
PLXFP10GBD3320D Centre Wavelength		$\lambda_c$	1260	1270	1280	nm
Receiver Sensitivity	PLXFP10GBD2704D PLXFP10GBD3304D	P <sub>IN</sub>			-8	dBm
	PLXFP10GBD2710D PLXFP10GBD3310D	P <sub>IN</sub>			-14	dBm
	PLXFP10GBD2720D PLXFP10GBD3320D	P <sub>IN</sub>			-14	dBm
	PLXFP10GBD2740D PLXFP10GBD3340D	P <sub>IN</sub>			-15	dBm
	PLXFP10GBD2760D PLXFP10GBD3360D	P <sub>IN</sub>			-20	dBm
	Receiver Overload	PLXFP10GBD2704D PLXFP10GBD3304D PLXFP10GBD2710D PLXFP10GBD3310D PLXFP10GBD2720D	P <sub>max</sub>	5		

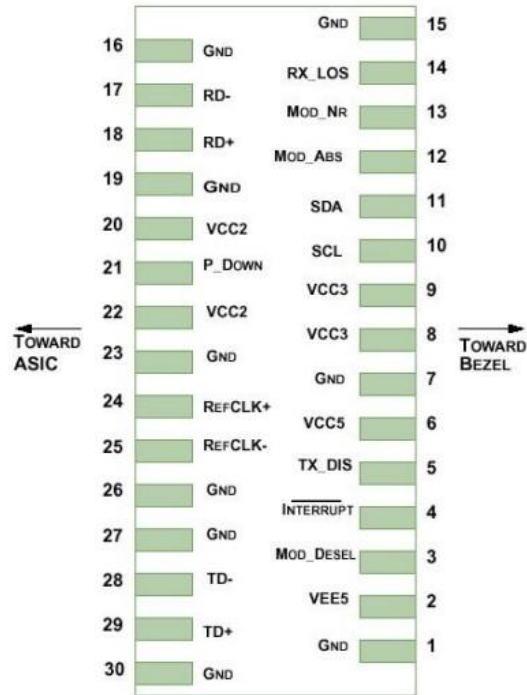


	PLXFP10GBD3320D				
	PLXFP10GBD2740D				
	PLXFP10GBD3340D				
	PLXFP10GBD2760D	Pmax	-7		dBm
	PLXFP10GBD3360D				
LOS De-Assert	LOS <sub>D</sub>			-25	dBm
LOS Assert	LOS <sub>A</sub>	-29			dBm
LOS Hysteresis		0.5			dB

## 6. Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
<b>Transmitter</b>					
Input Differential Impedance	Z <sub>in</sub>	90	100	110	Ω
Data Input Swing Differential	V <sub>in</sub>	200		700	mV
Tx-Dis Disable	V <sub>d</sub>	2.0		V <sub>cc</sub>	V
Tx-Dis Enable	V <sub>en</sub>	0		0.8	V
<b>Receiver</b>					
Data Output Swing Differential	V <sub>out</sub>	300		800	mV
Rx-Los Fault	V <sub>lf</sub>	-0.5		V <sub>ccHOST</sub>	V
Rx-Los Normal	V <sub>ln</sub>	0		0+0.8	V
Output rise and fall time	Tr, Tf			38	ps

## 7. Pin Descriptions



Pin	Symbol	Description	Ref.
1	GND	Module Ground	
2	VEE5	Optional Power Supply	
3	Mod-Desel		
4	Interrupt		
5	Tx-Dis	Transmitter Disable	
6	VCC5	+5V Power Supply	
7	GND	Module Ground	
8	VCC3	+3.3V Power Supply	
9	VCC3	+3.3V Power Supply	
10	SCL	Serial 2wire interface clock	
11	SDA	Serial 2wire interface data line	
12	Mod-Abs	Module Absent	
13	Mod-NR	Module Not Ready	
14	Rx-Los	Receiver Loss of Signal indicator	
15	GND	Module Ground	
16	GND	Module Ground	
17	RD-	Receiver Inverted data output	
18	RD+	Receiver non-Inverted data output	
19	GND	Module Ground	
20	VCC2	+1.8V Power Supply	
21	P-Down/RST		
22	VCC2	+1.8V Power Supply	
23	GND	Module Ground	



24	Ref CLK+		
25	Ref CLK-		
26	GND	Module Ground	
27	GND	Module Ground	
28	TD-	Transmitter Inverted data input	
29	TD+	Transmitter non-Inverted data input	
30	GND	Module Ground	

## 8. EEPROM & DDM THRESHOLD

### 8.1 EEPROM

**TABLE (00h)**

Reserved for diagnostics functions
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**TABLE (01h) EEPROM Serial ID Memory Contents**

Add.	Size (Bytes)	Name of Field	Hex	Description
<b>BASE ID FIELDS</b>				
128	1	Identifier	06	XFP
129	1	Ext. Identifier	50	TX Ref Clock Input Not Required; Power Consumption Max 2.5W
130	1	Connector	07	LC
131-138	8	Transceiver	44 40 00 00 C0 00 00 00	Transmitter Code
139	1	Encoding	F0	64B/66B, 8B/10B, SONET, NRZ
140	1	BR, Min	63	9.9Gbps
141	1	BR, Min	6F	11.1Gbps
142	1	Length (9um) km	XX	XXkm
143	1	Length (E-50um) m	00	
144	1	Length (50um) m	00	
145	1	Length (62.5um) m	00	
146	1	Length (Copper)	00	
147	1	Device Tech	40	1310nm DFB
148-163	16	Vendor Name	43 2D 4C 49 47 48 54 20 20 20 20 20 20 20 20 20	TINOUT * CUSTOM available
164	1	CDR Support	F8	9.9~11.1Gbps
165-167	3	Vendor OUI	00 00 00	* CUSTOM available
168-183	16	Vendor PN	xx xx xx xx xx xx xx xx	* CUSTOM available



			xx xx xx xx xx xx xx xx	
184-185	2	Vendor Rev	30 31	01
186-187	2	Wavelength	63 38/ 67 E8	1270nm/1330nm
188-189	2	Wavelength Tolerance	07 D0	10nm
190	1	Max Case Temp	4B	75 °C
191	1	CC-BASE		
<b>EXTENDED ID FIELDS</b>				
192-195	4	Power Supply	64	Max Power Consumption 2W
			78	Max Power Consumption in Power Down Mode is 1.2W
			04	Max Current by 3.3V is 400mA
			00	
196-211	16	Vendor SN	43 4C xx xx xx xx xx xx xx xx xx xx 20 20 20 20 20	SN of Transceiver (ASCII). Exp. "PLXXXXXXXXXX"
212-219	8	Date Code	xx xx xx xx xx xx 20 20	YY/MM/DD Exp. 120727
220	1	Diagnostic Monitoring	08	Average Power
221	1	Enhanced Options	40	Optional Soft TX_DISABLE implemented;
222	1	Aux Monitoring	00	
223	1	CC_EXT	checksum	Checksum for Extended ID
<b>VENDOR SPECIFIC ID FIELDS</b>				
224-255	32	Vendor Specific	FF FF FF.....	Depends on Customer Info

**8.1 DDM THRESHOLD**

PLXFP10GBD2704D/PLXFP10GBD3304D

	Low Alarm	Low Warn	High Warn	High Alarm
Temperature	-13°C	-8°C	85°C	88°C
Voltage	2.9V	3V	3.6V	3.7V
Tx Bias	15mA	20mA	80mA	85mA
Tx Power	-6dBm	-5dBm	5dBm	6dBm
Rx Power	-10dBm	-8dBm	5dBm	6dBm

PLXFP10GBD2710D/PLXFP10GBD3310D

PLXFP10GBD2720D/PLXFP10GBD3320D

	Low Alarm	Low Warn	High Warn	High Alarm
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Temperature	-13°C	-8°C	85°C	88°C
Voltage	2.9V	3V	3.6V	3.7V
Tx Bias	15mA	20mA	80mA	85mA
Tx Power	-8dBm	-7dBm	5dBm	6dBm
Rx Power	-18dBm	-15dBm	5dBm	6dBm

PLXFP10GBD2740D/PLXFP10GBD3340D

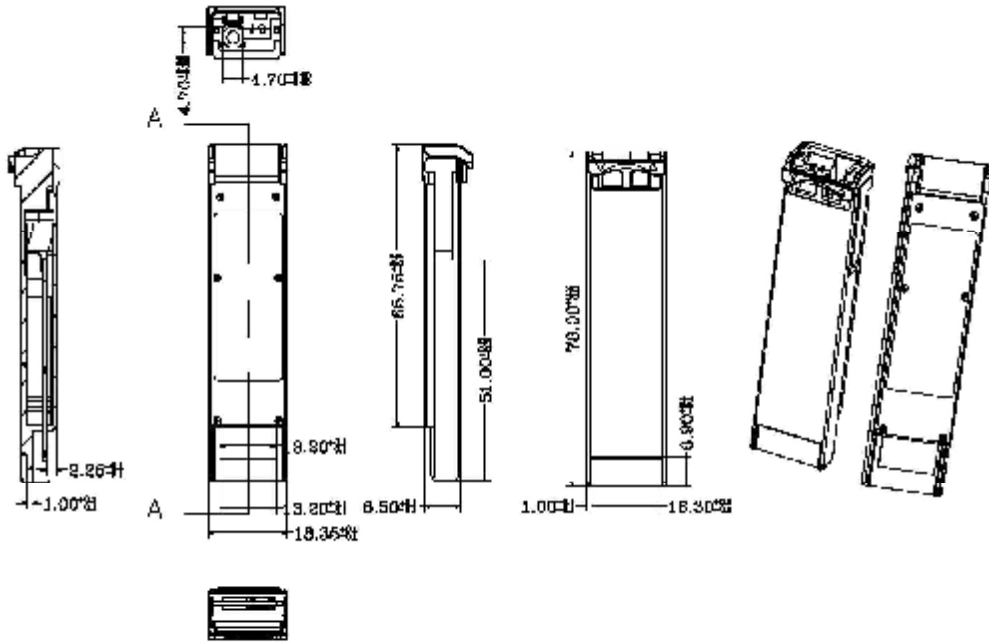
	<b>Low Alarm</b>	<b>Low Warn</b>	<b>High Warn</b>	<b>High Alarm</b>
Temperature	-13°C	-8°C	85°C	88°C
Voltage	2.9V	3V	3.6V	3.7V
Tx Bias	15mA	20mA	80mA	85mA
Tx Power	-5dBm	-3dBm	5dBm	6dBm
Rx Power	-18dBm	-16dBm	5dBm	6dBm

PLXFP10GBD2760D/PLXFP10GBD3360D

	<b>Low Alarm</b>	<b>Low Warn</b>	<b>High Warn</b>	<b>High Alarm</b>
Temperature	-13°C	-8°C	85°C	88°C
Voltage	2.9V	3V	3.6V	3.7V
Tx Bias	15mA	20mA	80mA	85mA
Tx Power	-1dBm	0dBm	5dBm	6dBm
Rx Power	-20dBm	-18dBm	-7dBm	-6dBm

## 9. Mechanical Specifications





## 10. LABEL

TINOUT offers label OEM design and print.  
 Label barcode supports code128 and 2D barcode  
 SIZE: 30mm\*10mm



## Ordering Information



Part No.	Data Rate	DDM	Wave	Fiber Type	Dist.	Temp.	Optical Interface
PLXFP10GBD2704D	9.95Gbps ~11.1Gbps	yes	1270nm	SMF	2km	-5~70°C	BiDi LC
PLXFP10GBD3304D	9.95Gbps ~11.1Gbps	yes	1330nm	SMF	2km	-5~70°C	BiDi LC
PLXFP10GBD2710D	9.95Gbps ~11.1Gbps	yes	1270nm	SMF	10km	-5~75°C	BiDi LC
PLXFP10GBD3310D	9.95Gbps ~11.1Gbps	yes	1330nm	SMF	10km	-5~75°C	BiDi LC
PLXFP10GBD2720D	9.95Gbps ~11.1Gbps	yes	1270nm	SMF	20km	-5~75°C	BiDi LC
PLXFP10GBD3320D	9.95Gbps ~11.1Gbps	yes	1330nm	SMF	20km	-5~75°C	BiDi LC
PLXFP10GBD2740D	9.95Gbps ~11.1Gbps	yes	1270nm	SMF	40km	-5~75°C	BiDi LC
PLXFP10GBD3340D	9.95Gbps ~11.1Gbps	yes	1330nm	SMF	40km	-5~75°C	BiDi LC
PLXFP10GBD2760D	9.95Gbps ~11.1Gbps	yes	1270nm	SMF	60km	-5~75°C	BiDi LC
PLXFP10GBD3360D	9.95Gbps ~11.1Gbps	yes	1330nm	SMF	60km	-5~75°C	BiDi LC

## VERSION UPDATE:

VERSION NO.	DATE	UPDATED INFORMATION
V20131010	20131010	1. NEW PUBLISHED

## NOTICE:

TINOUT reserves the right to make changes to this product in this specification without notice, in order to improve product performance.

## CONTACT:

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