

# 10 Gb/s Butterfly Coplanar Surface-Mount PIN-TIA Receiver

## Features

- Up to 10.7Gb/s data-rate capability
- Surface mount MSA compliant
- 3dBm typical overload
- -19dBm typical sensitivity
- Low capacitance high speed InGaAs PIN with TIA
- 4kΩ differential electrical gain



XGBF-R96-40

## Applications

- VSR,SR and IR applications up to 10.7Gb/s.
- SONET and 10Gb/s Ethernet transponders
- Other application

## Description

The XGBF-R96-40 receiver integrates a 10Gb/s PIN and a low noise preamplifier, a connectorized single-mode fibre pigtail and hermetic metal package with coplanar output, Optimized for VSR, SR,and IR applications, most notably, high gain,3.3V power supply, and low power consumption.

## Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	T <sub>s</sub>	°C	-40	85
Photodiode Bias Voltage	V <sub>PD</sub>		-0.5	20
TIA Supply Voltage	V <sub>CC</sub>		-0.5	4
Optical Input Power	P <sub>in</sub>	dBm	-	6
Lead solder temperature	-	°C	-	260
Lead solder duration	-	S	-	20
Fiber yield strength	-	kgf	-	1
Fiber bend radius	-	mm	30	-
ESD-susceptibility,all pin1	-	V	-	500

**Note1:**Based on human-body model of R=1500Ωand C=100pf, In general, ESD precautions should be taken to avoid damage to device.

## Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Case Operating Temperature Range	T <sub>c</sub>	°C	-5	25	75
Power Supply Voltage	V <sub>cc</sub>	V	3.1	3.3	3.5
Photodiode Bias Voltage	V <sub>PD</sub>	V	4.0	5	12

## Specifications (tested under recommended operating conditions ,unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Test condition	
<b>Electrical Characteristics</b>							
-3dB Bandwidth	BW	GHz	7.5	8.5	-	P <sub>IN</sub> =-20dBm, from 130MHz	
Low Frequency Cut-off	f <sub>low</sub>	kHz	-	24	52		
Transimpedance	Z <sub>t</sub>	Ω	-	2000	-	Single-ended, p-p, f=100MHz	
Max. Output Swing	V <sub>outp</sub> -V <sub>outn</sub>	mVp-p	-	330	-	For I <sub>IN</sub> > 0.1mA <sub>p-p</sub>	
Output Impedance	R <sub>o</sub>	Ω	-	50	-	Single-ended	
TIA Supply Current	I <sub>cc</sub>	mA	43	55	73	No loads	
<b>Optical Characteristics</b>							
Optical wavelength	λ	nm	1280	1550	1610		
Optical Return Loss	ORL	dBm	35	-	-		
Overload	P <sub>s</sub>	dBm	0	1	-		
Sensitivity	S	dBm	-18	-19	-	25°C	NRZ, ER=10dB, 9.95328Gb/s, PRBS 2 <sup>31</sup> -1, BER=10 <sup>-12</sup>
			-17	-18	-	75 °C	
Responsivity	R	A/W	0.8	0.9	-	λ=1550nm	

## Pin Description

Pin	Symbol	Description	Pin	Symbol	Description
1	GND	Case ground	10	OUT_P	Data output
2	V <sub>PD</sub>	Photodiode Bias	11	GND	Case ground
3	NC	No Connection	12	GND	Case ground
4	NC	No Connection	13	NC	No Connection
5	NC	No Connection	14	V <sub>cc</sub>	TIA Bias(3.3V)
6	GND	Case ground	15	NC	No Connection
7	GND	Case ground	16	NC	No Connection
8	OUT_N	Data output	17	GND	Case ground
9	GND	Case ground			

### Package Outline

