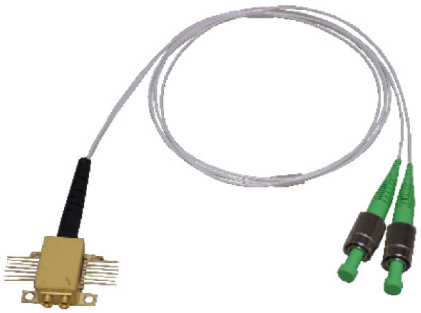
BPR-23-D



23 GHz Balanced PhotoReceiver, Differential Output

The Optilab BPR-23-D series is a balanced 23 GHz linear photoreceiver with a differential output. It features differential gain of up to 5000 Ω and has a high Common Mode Rejection Ratio (CMRR). The BPR-23-D is ideal for digital system operating up to 43 Gbit/s or for analog transmission of RF over Fiber beyond 23 GHz. It contains a dual-surface-coupled coplanar waveguide PIN-photodiode (PD) array on a single chip and has a linear Trans-Impedance Amplifier (TIA) within a 14-pin mini-DIL package. The TIA provides a differential output voltage swing of up to 700 mVpp, therefore, the receiver is well suited for OC-768/STM-256 system operating up to 43 Gbit/s or for analog applications where balanced input PDs are needed. Excellent electrical and optical phase propagation is achieved by a total skew of lower than 2 ps between the balanced signal paths.

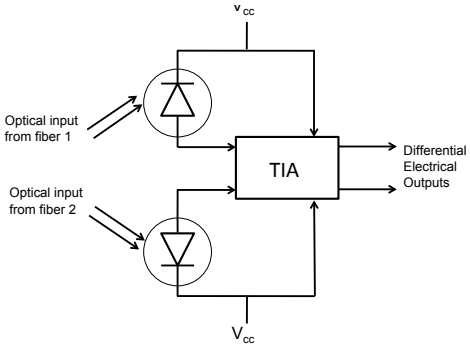
Features

- Dual optical input,
- Differential RF output
- Balanced, symmetrical PIN diode array
- Near ideal matching response
- Linear TIA with integrated VGA
- High CMRR
- Very low skew
- 14 pin mini-DIL package
- Dual GPPO connectors
- Single 3.3 V power supply

Applications

- Balanced linear receiver up to 23 GHz
- 43 Gbit/s DQPSK communication systems
- Transponder and line card designs
- OC-768 / STM-256 systems
- Low noise linear transmission system

Functional Diagram



23 GHz Balanced PhotoReceiver, Digital

OPTIONS

BPR-23-D-X

x Optical Connector:
FC/APC or LC/APC

TECHNICAL INFO

For technical info and support:

sales@optilab.com

www.optilab.com

PHONE

Contact Optilab at:

1-888-553-3888 (toll-free)
1-602-343-1496 (direct, int'l)

Optilab, LLC
Phoenix, AZ, USA

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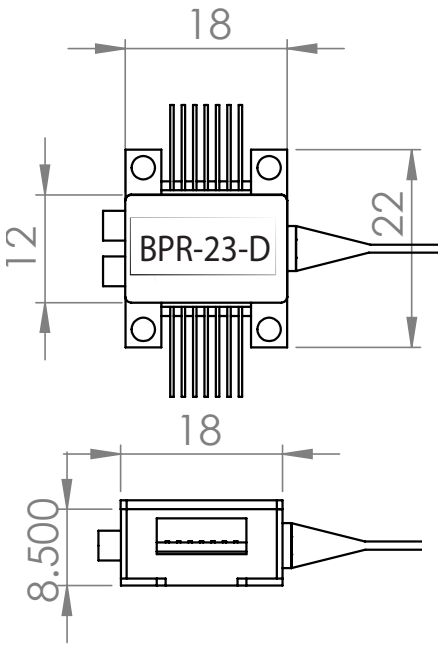
General Specifications	
Optimized Operating Wavelength	1280 nm to 1620 nm
Optical Input Level	-15 to +4 dBm
S21 3 dB Bandwidth	23 GHz typ.
Dark Current @ 25° C, 5 V	5 nA typ., 200 nA max.
Conversion Gain	1500 V/W typ., 1300 V/W min
Imbalance of Conversion Gain	0.6 dB typ., 1.3 dB max.
Optical Return Loss	30 dB typ.
Optical PDL @1550 nm	0.5 dB max.
PD Reverse Bias Voltage	3.3 V
Power Supply	3.3 V typ.
On-Chip Dissipation	275 mW typ.
Supply Current	87 mA typ., 93 mA max.
Output Return Loss	10 dB @ 11 GHz 7 dB @ 22.5 GHz
Differential Output Range	200 mVpp to 700 mVpp
Impedance	50 Ω
Coupling	DC
Differential Voltage Swing	700 mV max.
Pulse Width	22 ps typ., 25 ps max.
Skew	1 ps typ. 25 ps max
Equivalent Input Noise Density	100 pA/√Hz max.
Mechanical Specifications	
Operating Temperature	0 °C to +75 °C
Storage Temperature	-40 °C to +85 °C
Operating Humidity	85% max
Power Consumption	275 mW typ., 307 mW max.
Housing Dimension	18 mm x 22 mm x 8.5 mm
Fiber Connector	FC/APC or LC/APC
Optical Fiber	SMF-28
Package Type	14 pin butterfly package
Absolute Maximum Ratings	
PD Reverse Bias Voltage	4.5 V
Input Optical Power	6 mW
Maxium Current	93 mA
Continuous Input Current	-1.5 mA to 5 mA
ESD, Input and Output Pins	1000 V min.
ESD, All Other Pins	2000 V min.
Latch up	Class 2 min.
Humidity	85%

23 GHz Balanced PhotoReceiver, Differential Output

BPR-23-D Mechanical Drawing



14-pin Butterfly Package

Pin	Value	Note
1, 5, 10, 14	V_{CC}	Filtered +3.3 V
2	V_{CC}	For Max. Bandwidth
3	V_{CC}	For Max. Bandwidth
4	OA	Output Amplitude Adjust
6, 9	GND	Ground
7, 8	VPD	Photodiode Cathode Connection
11	GC	Grain Control
12	MC	Mode Control
13	PKD	Peak Detector Output

Pinout Assignment

S21 Frequency Response