

DIGITAL FIBER OPTIC RECEIVER



FEATURES:

- ▶ Data Rates 52 / 155 Mb/s
- ▶ 1.3 μm and 1.55 μm Operation
- ▶ Transimpedance Design
- ▶ +/- 5 Volt Operation
- ▶ 20 Pin Multisourced Package
- ▶ PECL Data Compatible
- ▶ SONET & SDH Pin Compatible

DESCRIPTION:

The RT-1554 Series is a line of compact high performance receivers used in singlemode fiber communications. The units use advanced hybrid technology to integrate a full function optical receiver which delivers the demanding performance required of telecommunications and high end data communications applications. The receiver incorporates a high reliability planar InGaAs PIN photo diode integrated in a receptacle subassembly with a low noise GaAs transimpedance preamplifier IC. This approach provides optimal sensitivity and dynamic range along with enhanced reliability due to low component count. The front end is followed by multiple stages of gain to amplify the low level signal from the transimpedance output to a 1 volt peak to peak voltage level. These gain stages are designed for stable predictable performance over a wide temperature range. Signal level control is implemented with limiting amplifiers. The design of these amplifiers is such that the limiting condition is achieved predictably without signal degradation. The final stage is a comparator which provides the final stage of gain and outputs a buffered differential PECL compatible digital signal.

The PECL output signal is 10 KH compatible for simple board level interface to standard PECL IC's. The receiver requires standard power supply values of +5 and -5.2 volts. Single +5 volt operation is available. Complementary low optical power alarms (flags) are provided which trigger logic output levels when the optical input drops below the preset level. The units are packaged in hermetically sealed 20 pin kovar packages with an integral FC/PC, ST/PC connectors or a 50/125 μm pigtail.

RECEIVER PERFORMANCE @ $T_A = 25^\circ\text{C}$

PARAMETER	Symbol	Min	Typ	Max	Units
NRZ Data Rate (1)	DR	10		200	Mbps
Maximum Optical Input (2)	Pi(max)	-3	-0		dBm
Power Supply, (3)					
-5.2 +/-0.25 Volts	-I			10	mA
+5.0 +/-0.25 Volts	+I		150	200	mA

Notes: (1) Receivers with higher data rates are available.
 (2) Maximum average optical input to maintain a BER = 10^{-10} .
 (3) Receivers operating on a single power supply are available. Consult the Sales Department.

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RECEIVER PERFORMANCE @ $T_A = 25^\circ\text{C}$

SENSITIVITY (4)	Symbol	Min	Typ	Max	Units
RT-1554-052 (52 Mb/s NRZ)	Sen	-41	-43		dBm
RT-1554-155 (155 Mb/s NRZ)	Sen	-35	-37		dBm
Sensitivity Variation (5)	Δ Sen		1		dB

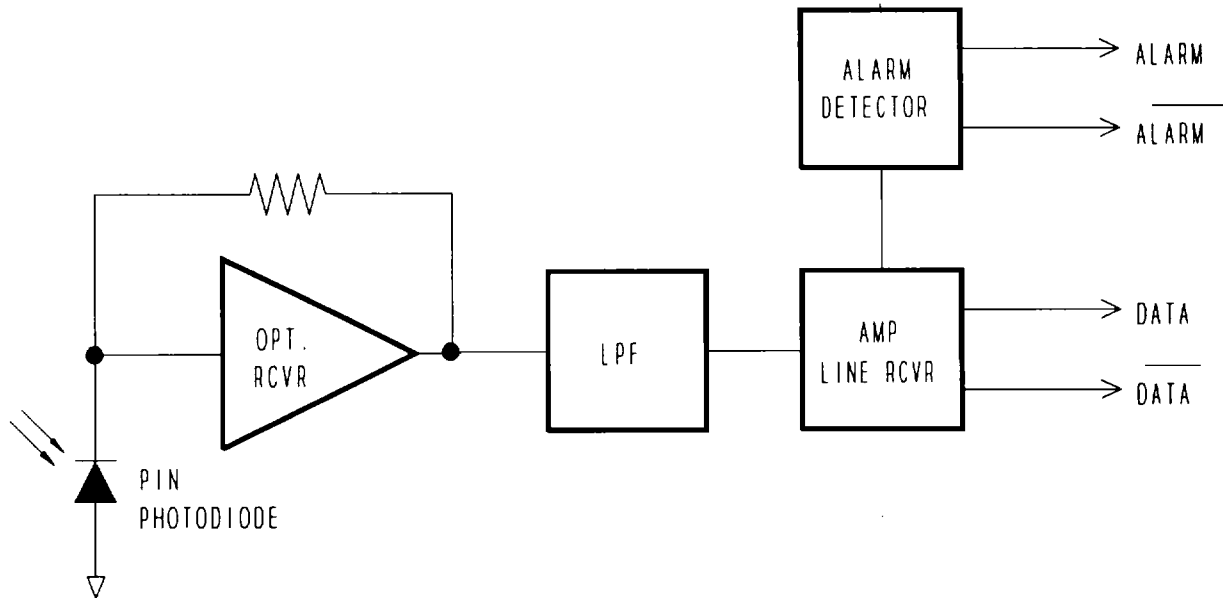
Notes: (4) Minimum average optical power required to maintain a BER = 10^{-10} .

(5) This parameter measures the maximum degradation of sensitivity over the temperature range of -40 to 85°C from the value at 25°C .

MECHANICAL/ENVIRONMENTAL

Operating Temperature	-40 to $+85^\circ\text{C}$
Storage Temperature	-40 to $+85^\circ\text{C}$
Optical Interface	1 meter $50/125\mu\text{m}$ fiber pigtail with FC/PC. or FC/PC connector receptacle or ST connector receptacle
Dimensions	33.02 (l) x 16.13 (w) x 9.14 (h) millimeters

BLOCK DIAGRAM



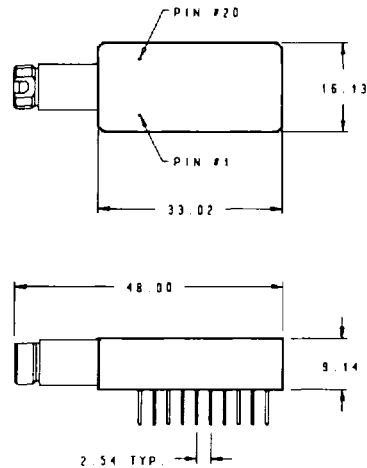
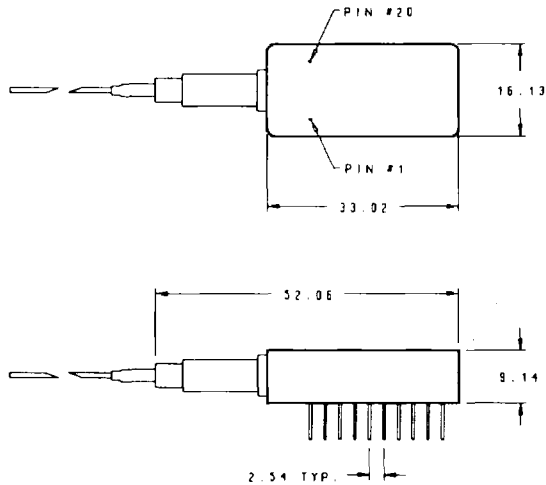
PIN DESCRIPTIONS

Optical Power Alarms(Flags)

-Differential PECL alarms which are triggered when the average optical input drops to the minimum sensitivity level. The alarms remain active until the optical power increases above minimum sensitivity level. Hysteresis is employed.

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PACKAGE SCHEMATIC AND PINOUT



PIN #	DESCRIPTION
1,2,3,4,5	NO USER CONNECTION
6,8,13,15	GROUND
16,17,18	NO USER CONNECTION
7	DATA (+)
9	DATA (-)
10	-5.2 volts
11	+5.0 volts
12	ALARM (FLAG) (+) ¹
14	ALARM (FLAG) (-)
19,20	NO USER CONNECTION

Notes:1) Output goes to a logic low level when signal is present.

ORDERING INFORMATION

RT-1554-052-FC Digital RX, 52 Mb/s, FC/PC Receptacle
 RT-1554-052-ST Digital RX, 52 Mb/s, ST/PC Receptacle
 RT-1554-052-PT Digital RX, 52 Mb/s, Pigtail (1 meter) with FC/PC connector
 RT-1554-155-FC Digital RX, 155 Mb/s, FC/PC Receptacle
 RT-1554-155-ST Digital RX, 155 Mb/s, ST Receptacle
 RT-1554-155-PT Digital RX, 155 Mb/s, Pigtail (1 meter) with FC/PC connector

Laser Diode Inc. reserves the right to make changes at any time as deemed necessary to improve the design and to supply the best possible product.

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