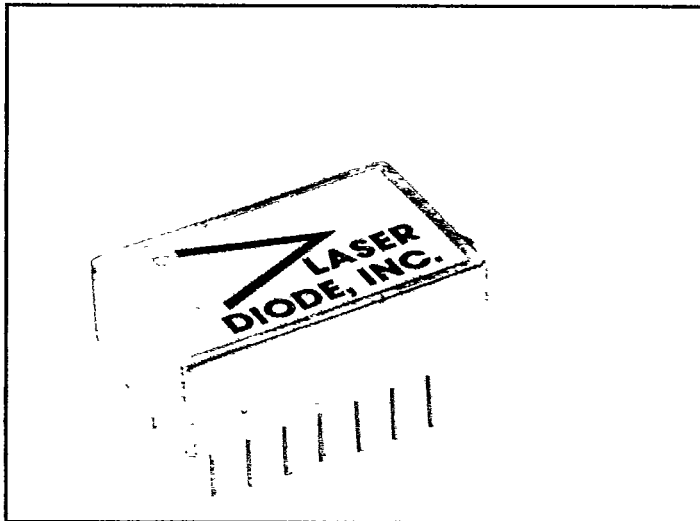


# PINFET OPTICAL RECEIVER



## FEATURES:

- ▶ InGaAs PIN Detector
- ▶ Low Capacitance 0.5pf
- ▶ Low Dark Current 5nA
- ▶ High Spectral Responsivity
- ▶ Low Noise GaAs FET
- ▶ 1300 & 1550nm Operation
- ▶ Transimpedance Circuit Design
- ▶ Wide Dynamic Range >25dB
- ▶ Military Qualified Packages Available

## DESCRIPTION:

The LDPF pinfet is a fiber optic receiver module for use in long wavelength systems. The receiver utilizes a transimpedance circuit configuration for wide dynamic range and low noise. The LDPF incorporates a high performance InGaAs PIN photo diode having an optical response from 1100nm to 1600nm. The detector is coupled to a low noise GaAs MESFET front end hybrid

preamplifier for excellent sensitivity and wide dynamic range. Other versions of the pinfet include a 1000MHz unit for high speed applications, a silicon version for avionics data bus work and a wide dynamic range design (>40dB) for local loop applications. Application notes are available upon request.

## PERFORMANCE SPECIFICATIONS (T=25°C)

Model No.	Bandwidth (MHz)	Suggested NRZ Data Rate (Mbps)	Sensitivity <sup>(1)</sup> (dBm)		Transimpedance (kohms)	N.E.P. (dbm/√Hz)
			Min.	Typ.		
LDPF 0012	12	16	-50	-52	600	-95
LDPF 0024	24	34	-47	-49	330	-94
LDPF 0032	32	45	-45	-47	200	-92
LDPF 0065	65	90	-42	-44	75	-90
LDPF 0120	120	168	-38	-40	32	-88
LDPF 0250	250 <sup>(2)</sup>	350	-33	-35	5	-84

### NOTES:

<sup>(1)</sup> Receiver sensitivity is quoted as the average optical power in dBm at 1300nm and T<sub>a</sub>=25°C for 10<sup>-9</sup> BER and is calculated from measured noise power at the pinfet output. Noise filter bandwidth equals pinfet bandwidth.

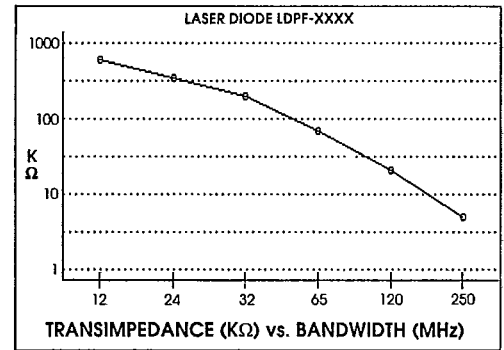
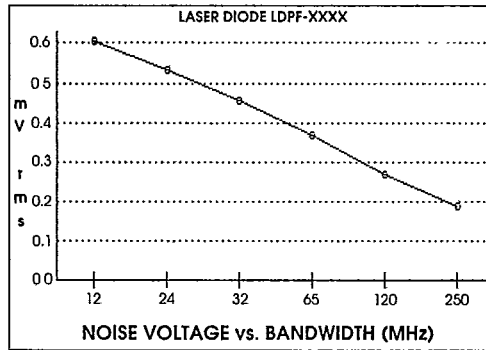
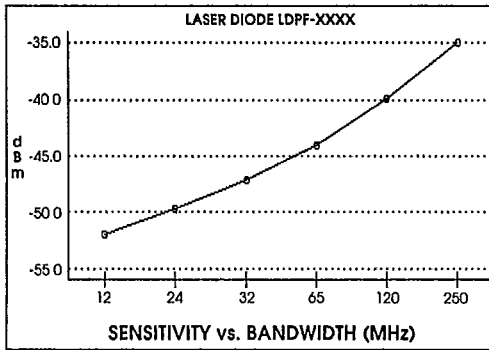
<sup>(2)</sup> Pinfets utilizing a GaAs IC to achieve bandwidths up to 1000MHZ are available.

	Min.	Typ.	Max.	Units
Dark Current		5	20	nA
Detector Capacitance		0.5		pF
Dynamic Range	25	30		dB
Spectral Responsivity	$\lambda=1300\text{nm}$ $\lambda=1550\text{nm}$	.75 .85	.85 .95	A/W
Load Impedance	1			kohm
Power Supply Current	+5 Volts -5 Volts		35 10	mA mA
Fiber <sup>(1)</sup>	Core: 50	Cladding: 125	Buffer: 900	$\mu\text{m}$

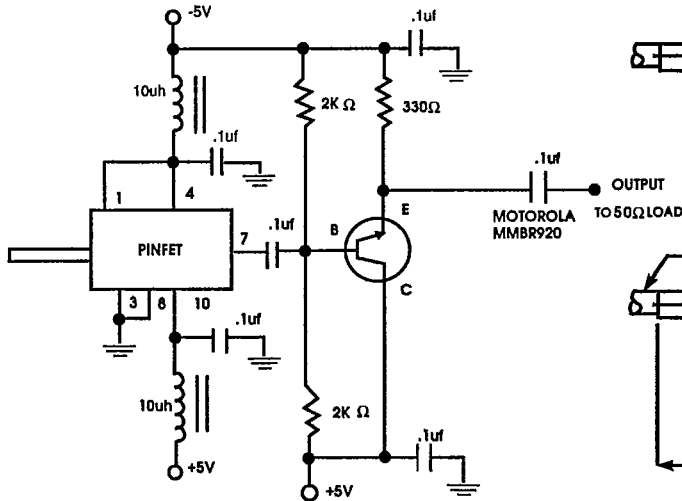
Notes: <sup>(1)</sup> Other fiber pigtails are available as an option.

**Absolute Maximum Ratings:**

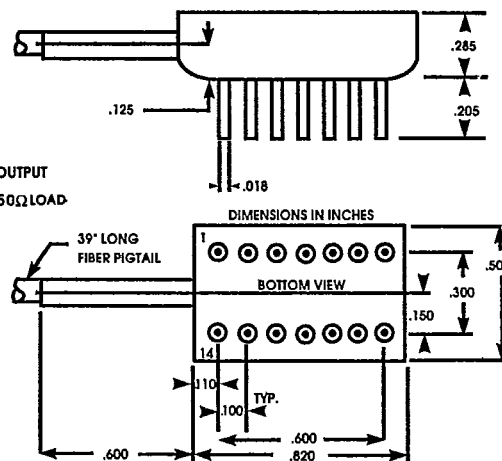
Operating Temperature	-40		+65	°C
Storage Temperature	-40		+85	°C
Lead Soldering Time (at 260°C)			10	secs.
Positive Supply			+7	volts
Negative Supply			-7	volts
Photodiode Bias			-20	volts



**RECOMMENDED PINFET OUTPUT INTERFACE CIRCUIT**



**MECHANICAL DIMENSIONS**



**PIN ASSIGNMENT**

PIN	FUNCTION
1	-5V DET. BIAS
2	NC
3	GND
4	-5V V <sub>EE</sub>
5	NC
6	NC
7	OUTPUT
8	GND
9	NC
10	+5V V <sub>CC</sub>
11	NC
12	NC
13	NC
14	NC

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