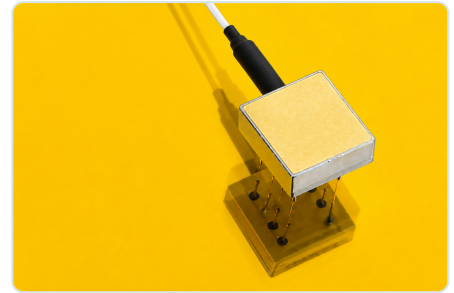


PIN-FET Optical Receiver Modules

High-sensitivity InGaAs PIN-FET hybrid receivers with wide dynamic range for high-speed optical links



PRODUCT OVERVIEW

The Laser Diode Incorporated PIN-FET provides an excellent solution for optical receiver systems that require both high sensitivity and wide dynamic range. Applications include telecommunications line-terminating equipment or repeaters and optical sensor systems. Indium Gallium Arsenide (InGaAs) PIN photodiode with high responsivity between wavelengths of 1100 nm and 1650 nm (higher wavelengths also available). The detector is mounted directly onto a hybrid circuit assembly for optimum signal performance. In addition, low-noise MESFETs are used in the amplifier stages to further enhance device performance. The fiber pigtail is actively aligned with the detector and soldered in place to provide a highly stable coupling mechanism.

KEY FEATURES

- Response wavelength range
- High sensitivity
- Wide Dynamic Range
- High reliability

APPLICATIONS

- Optic test
- Optical fiber transmission system
- Fiber-optic sensor

ABSOLUTE MAXIMUM RATINGS

T = 25°C unless otherwise noted

PARAMETER	SYMBOL	MIN	MAX	UNIT
Storage Temperature Range	T _s	-40	+85	°C
Case Operating Temperature Range	T _c	-20	+70	°C
Positive Power Supply Voltage	V _{CC+}	—	5.5	V
Negative Power Supply Voltage	V _{CC-}	—	-5.5	V
PD Reverse Bias	V _{PD}	—	15	V
Soldering Temperature	S _{Temp}	—	260	°C
Soldering Time at 260°C	S _{Time}	—	10	s

COMMON CHARACTERISTICS

T = 25°C — quick reference; full detail with test notes on page 2

PARAMETER	SYMBOL	MODEL A	MODEL B	UNIT
Operating Wavelength (Min–Max)	λ _p	1100 – 1650		nm
–3 dB Bandwidth (Typ)	BW	4	12	MHz
Responsivity (Typ)	R _e	0.95	0.57	V/μW
Sensitivity (Typ / Max)	S	–56 / –51	–52 / –48	dBm
Transimpedance (Typ)	R _z	1000K	600K	Ω
Output Noise, rms (Typ / Max)	V _{N(rms)}	0.5 / 0.8	0.3 / 0.5	mV
Dynamic Range (Typ)	D	25		dB

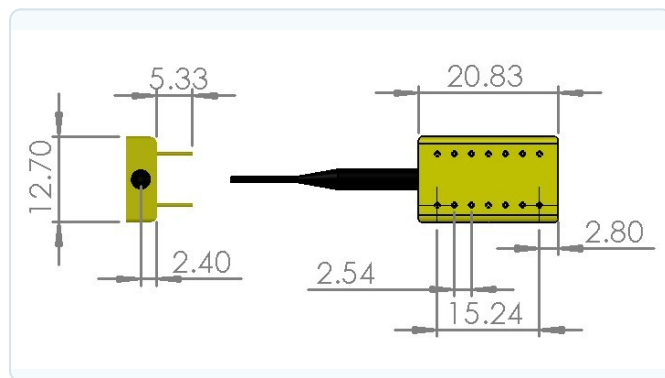
MAXER PHOTONICS

208, BIC Building, Vitoria-Gasteiz,
Basque Country Technology Park
Álava, Spain

www.maxerphotonics.com
Sales@maxerphotonics.com

ELECTRICAL & OPTICAL CHARACTERISTICS*T = 25°C unless otherwise noted*

PARAMETER	MODEL	SYMBOL	MIN	TYP	MAX	UNIT	NOTE
Operating Wavelength	—	λ_p	1100	—	1650	nm	—
–3 dB Bandwidth	Model A	BW	—	4	—	MHz	$\lambda=1310$ nm, $P_o=30$ dBm
–3 dB Bandwidth	Model B	BW	—	12	—	MHz	$\lambda=1310$ nm, $P_o=30$ dBm
Responsivity	Model A	Re	—	0.95	—	V/ μ W	$\lambda=1310$ nm
Responsivity	Model B	Re	—	0.57	—	V/ μ W	$\lambda=1310$ nm
Sensitivity	Model A	S	—	–56	–51	dBm	$\lambda=1310$ nm, NRZ 8 Mb/s, PRBR= $2^{23}-1$, BER= 10^{-9}
Sensitivity	Model B	S	—	–52	–48	dBm	$\lambda=1310$ nm, NRZ 8 Mb/s, PRBR= $2^{23}-1$, BER= 10^{-9}
Transimpedance	Model A	Rz	—	1000K	—	Ω	—
Transimpedance	Model B	Rz	—	600K	—	Ω	—
Output Noise (rms)	Model A	$V_{N(rms)}$	—	0.5	0.8	mV	$V_{PD}=5V$, $V_{CC}=5V$
Output Noise (rms)	Model B	$V_{N(rms)}$	—	0.3	0.5	mV	$V_{PD}=5V$, $V_{CC}=5V$
Dynamic Range	—	D	—	25	—	dB	—

PACKAGE DIMENSIONS & PIN CONNECTIONS*All dimensions in millimeters (mm) — drawing not to scale for reproduction*

PIN	DESCRIPTION	PIN	DESCRIPTION
1	Power –5V	8	Ground
2	NC	9	NC
3	Ground	10	Power +5V
4	Power –5V	11	NC
5	Ground	12	NC
6	NC	13	NC
7	Output	14	NC

ORDERING INFORMATION

PF / ① – ② – ③ – ④ – ⑤ – ⑥

① BANDWIDTH	② FIBER TYPE	③ FIBER DIAMETER	④ FIBER LENGTH	⑤ ⑥ CONNECTOR
Model A	P : PMF	2 : 250 μ m	1 : 0.8 m	0 : Bare Fiber
Model B	S : SMF	9 : 900 μ m	2 : 1.0 m	FA : FC/APC
—	—	—	X : XX	SA : SC/APC