HFD3033

Silicon PIN Photodiode

FEATURES

- Fiber optic PIN photodiode
- Plastic TO-18 style cap
- Low capacitance
- High speed: 1.2 ns typical
- High responsivity: 0.33 A/W typical

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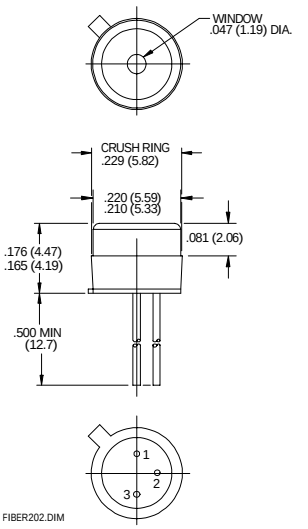
DESCRIPTION

The HFD3033 is a PIN photodiode designed for high-speed use in fiber optic receivers. It provides efficient response when used with 50/125 through 100/140 micron fiber optic cables at wavelengths betwen 650 and 950 nanometers. Light is collected using a 600 micron microlens mounted on the detector surface. The metal case of the HFD3033 is electrically connected to the cathode terminal.

The HFD3033 is designed to be used with fiber optic receptacles which align its optical axis with the axis of the optical fiber. This is accomplished by referencing the precision outside diameter of the window can.

The HFD3033 is also available in special active device receptacles, electrically isolated from their receptacles to improve sensitivity. The receptacle acts as a shield to improve the sensitivity/dark current specifications of the connectorized device.

OUTLINE DIMENSIONS in inches (mm)



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Pinout

1. Anode
2. Cathode
3. Not connected

Notes

1 Glass microlens is 0.024 in. diameter mounted on a 0.0065 in. diameter active area.

2 Nominal spacing between inside window and top of microlens is 0.012 in..

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ELECTRO-OPTICAL CHARACTERISTICS (T_C = 25°C unless otherwise stated)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Flux Responsivity	R	0.30	0.33		A/W	λp = 850 nm, 50 µm fiber core
Dark Current	I_D		0.05	1.5	nA	V_R = 30 V
Response Time	t_R		1.2	3	ns	V_R = 3.5 V (10-90%)
	t_F		1.2	3	ns	V_R = 3.5 V (90-10%)
Total Capacitance	C		1.5		pF	V_R = 5 V
Field of View	FoV		32		Degrees	

ABSOLUTE MAXIMUM RATINGS

(25°C Free-Air Temperature unless otherwise noted)

Storage temperature	-40 to +100°C
Operating temperature	-40 to +100°C
Lead solder temperature	260°C, 10 s
Reverse voltage	50 V

Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational section of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods of time may affect reliability.

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ORDER GUIDE

Description	Catalog Listing
Standard PIN photodiode, TO-18 case	HFD3033-002

This package is also available in special interface receptacles for interfacing to standard fiber optic cables.

CAUTION

The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product.

FIBER INTERFACE

Honeywell detectors are designed to interface with multimode fibers with sizes (core/cladding diameters) ranging from 50/125 to 200/230 microns. Honeywell performs final tests using 50/125 micron core fiber. The fiber chosen by the end user will depend upon a number of application issues (distance, link budget, cable attenuation, splice attenuation, and safety margin). The 50/125 and 62.5/125 micron fibers have the advantages of high bandwidth and low cost, making them ideal for higher bandwidth installations. The use of 100/140 and 200/230 micron core fibers results in greater power being coupled by the transmitter, making it easier to splice or connect in bulkhead areas. Optical cables can be purchased from a number of sources.

Fig. 1 Relative Response vs Polar Angle

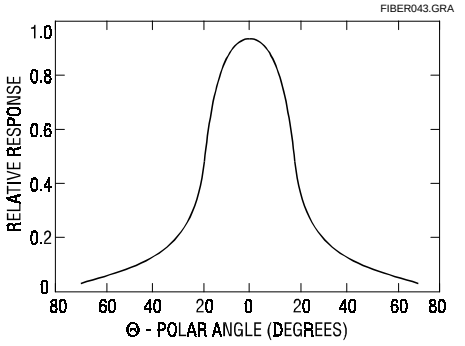


Fig. 2 Spectral Responsivity

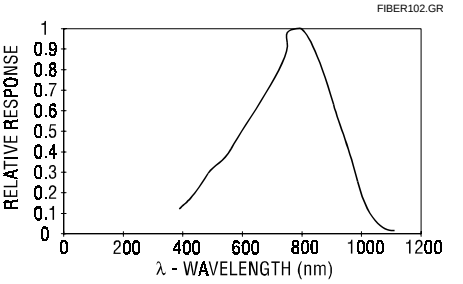


Fig. 3 Relative Responsivity vs Temperature

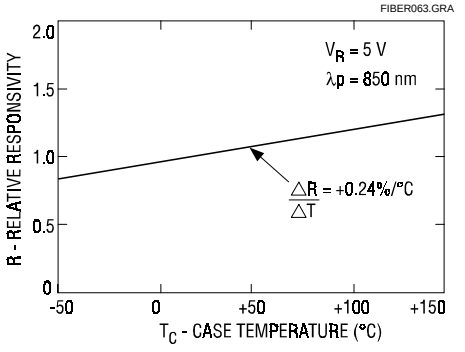
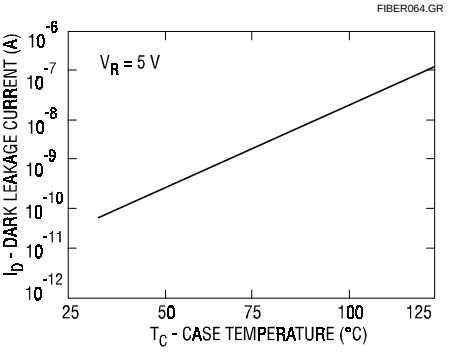


Fig. 4 Dark Leakage Current vs Temperature



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