

DESCRIPTION

The IF-D91 is a high-speed photodiode detector housed in a “connector-less” style plastic fiber optic package. Optical response of the IF-D91 extends from 400 to 1100 nm, making it compatible with a wide range of visible and near-infrared LED and laser diode sources. This includes 650 nm visible red LEDs used for optimum transmission in PMMA plastic optic fiber. The detector package features an internal micro-lens and a precision-molded PBT housing to ensure efficient optical coupling with standard 1000 μm core plastic fiber cable.

APPLICATION HIGHLIGHTS

The fast response times of the IF-D91 make it suitable for high-speed digital data links. When used with an appropriate LED or laser diode source the IF-D91 is capable of 100 Mbps data rates. The IF-D91 also can be used in analog video links with bandwidths up to 70 MHz. The integrated design of the IF-D91 provides simple, cost-effective implementation in a variety of analog and digital applications.

APPLICATIONS

- ▶ High-Speed Digital Data Links
- ▶ Local Area Networks
- ▶ Motor Controller Triggering
- ▶ Video Links
- ▶ Medical Instruments
- ▶ Automotive Electronics
- ▶ Robotics Communications
- ▶ EMC/EMI Signal Isolation
- ▶ Fiber Optic Modems

FEATURES

- ◆ Fast Rise and Fall Times
- ◆ Mates with Standard 1000 μm Core Jacketed Plastic Fiber Optic Cable
- ◆ No Optical Design Required
- ◆ Inexpensive Plastic Connector Housing
- ◆ Internal Micro-Lens for Efficient Optical Coupling
- ◆ Connector-Less Fiber Termination
- ◆ Light-Tight Housing provides Interference Free Transmission
- ◆ RoHS Compliant

MAXIMUM RATINGS

(T_A=25°C)

Operating and Storage Temperature Range (T_{OP}, T_{STG}).....-40° to 85°C

Junction Temperature (T_J)85°C

Soldering Temperature (2 mm from case bottom) (T_S) t ≤ 5s240°C

Power Dissipation (P_{TOT}) T_A=25°C100 mW

De-rate Above 25°C1.33 mW/°C

CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Min	Typ	Max	Unit
Wavelength for Maximum Photosensitivity	λ _{PEAK}	-	880	-	nm
Spectral Bandwidth (S=10% of S _{MAX})	Δλ	400	-	1100	nm
Rise and Fall Times (10% to 90% and 90% to 10%) (R _L =50 Ω, V _R =20V, λ=850 nm)	t _r , t _f	-	5	-	ns
Total Capacitance (V _R =20 V, E _E =0, f=1.0MHz)	C _T	-	4	-	pF
Responsivity min. @ 880 nm @ 632 nm	R	-	.4 .2	-	μA/μW μA/μW
Reverse Dark Current (V _R =30 volts, E _E =0)	I _D	-	-	60	nA
Reverse Breakdown Voltage	V _{(BR)R}	60	-	-	V
Forward Voltage	V _f	-	1.2	-	V

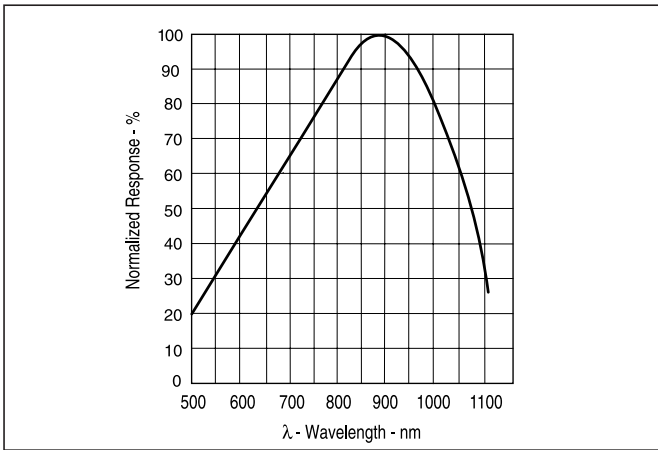


FIGURE 1. Typical detector response versus wavelength.

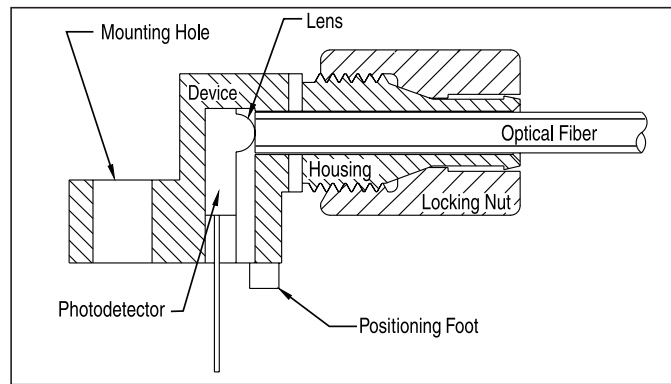


FIGURE 3. Cross-section of fiber optic device.

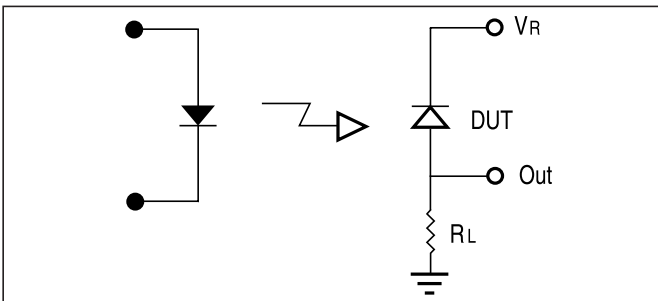


FIGURE 2. Circuit diagram for measuring rise and fall times.

FIBER TERMINATION INSTRUCTIONS

1. Cut off the ends of the optical fiber with a single-edge razor blade or sharp knife. Try to obtain a precise 90-degree angle (square).
2. Insert the fiber through the locking nut and into the connector until the core tip seats against the internal micro-lens.
3. Screw the connector locking nut down to a snug fit, locking the fiber in place.

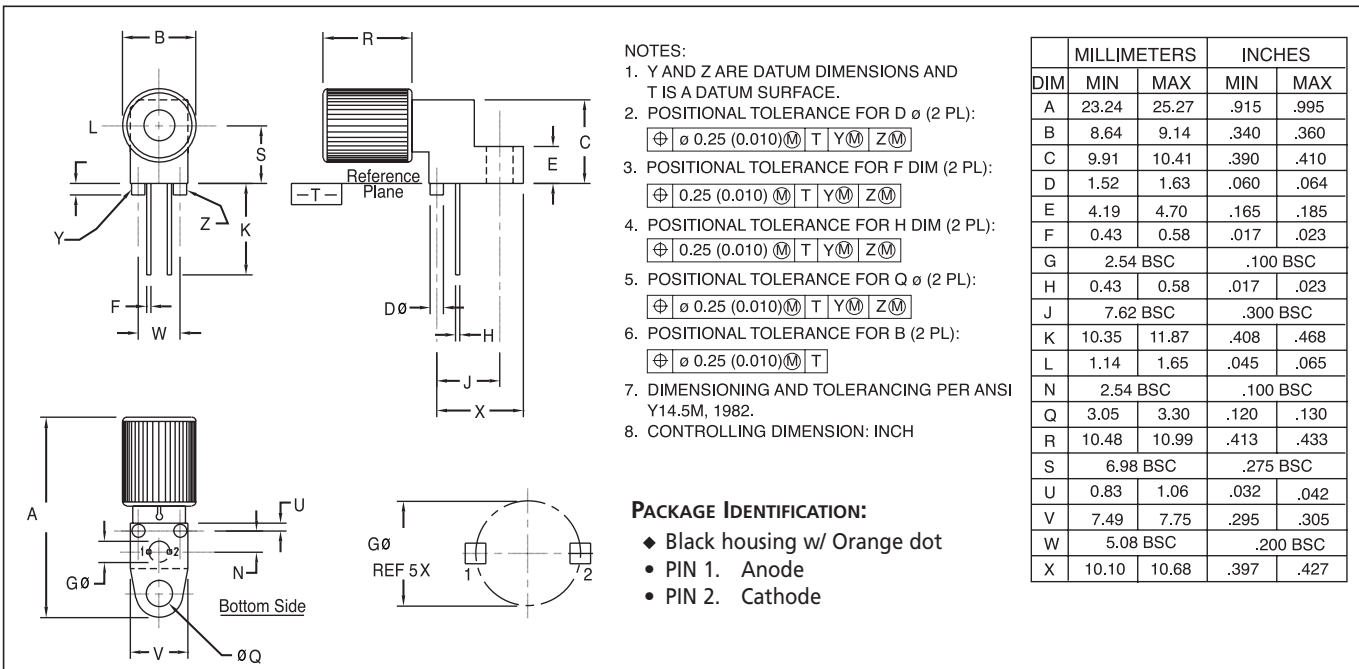


FIGURE 4. Case outline.