



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



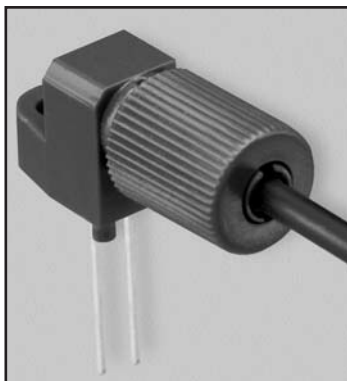
## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: [info@chipsmall.com](mailto:info@chipsmall.com) Web: [www.chipsmall.com](http://www.chipsmall.com)

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





## 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

## 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  $\mu$ m 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.

## FEATURES

- ◆ Fast Rise and Fall Times
- ◆ Mates with Standard 1000µm 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

 $(T_A = 25^\circ\text{C})$ 

Operating Temperature Range  
(T<sub>OP</sub>).....-30° to 80°C

Storage Temperature Range  
(T<sub>STG</sub>).....-40° to 80°C

Junction Temperature ( $T_J$ ) .....80°C

Soldering Temperature  
(2 mm from case bottom)  
(T<sub>S</sub>) t ≤ 5 s.....260°C

Power Dissipation  
( $P_{TOT}$ )  $T_A=25^{\circ}C$  ..... 100 mW

De-rate Above 25°C .....1.8 mW/°C

### CHARACTERISTICS (T<sub>A</sub>=25°C)

<b>Parameter</b>	<b>Symbol</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Unit</b>
Wavelength for Maximum Photosensitivity	$\lambda_{\text{PEAK}}$	–	920	–	nm
Spectral Bandwidth ( $S=10\%$ of $S_{\text{MAX}}$ )	$\Delta\lambda$	450	–	1050	nm
Rise and Fall Times (10% to 90% and 90% to 10%) ( $R_L=50 \Omega$ , $V_R=20V$ , $\lambda=850 \text{ nm}$ )	$t_r, t_f$	–	5	–	ns
Total Capacitance ( $V_R=20 V$ , $E_F=0$ , $f=1.0\text{MHz}$ )	$C_T$	–	4	–	pF
Responsivity min. @ 880 nm @ 632 nm	R	– –	0.5 0.4	– –	$\mu A/\mu W$ $\mu A/\mu W$
Reverse Dark Current ( $V_R=10 \text{ volts}$ , $E_F=0$ )	$I_D$	–	–	10	nA
Reverse Breakdown Voltage	$V_{(BR)}R$	40	–	–	V
Forward Voltage	$V_f$	–	0.7	–	V

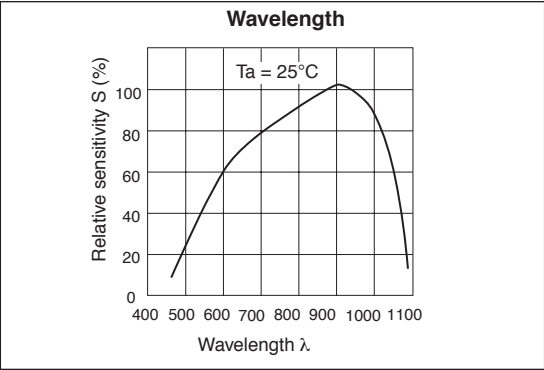


FIGURE 1. Typical detector response versus wavelength.

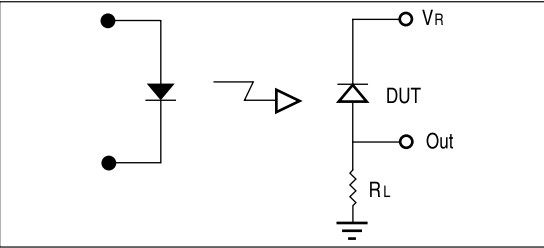


FIGURE 2. Circuit diagram for measuring rise and fall times.

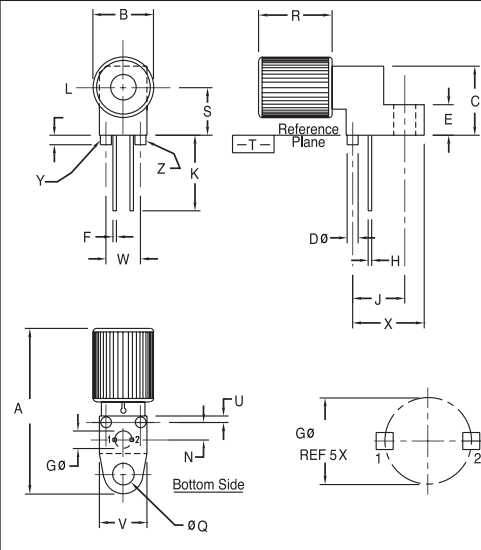


FIGURE 4. Case outline.

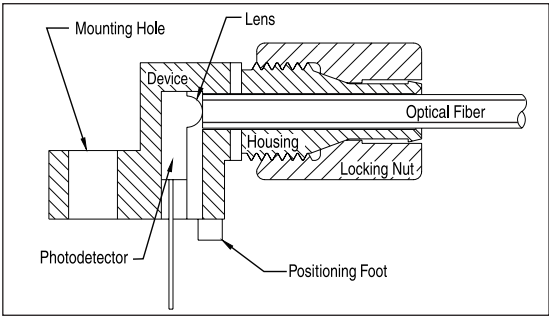


FIGURE 3. Cross-section of fiber optic device.

### 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.

#### NOTES:

1. Y AND Z ARE DATUM DIMENSIONS AND T IS A DATUM SURFACE.
2. POSITIONAL TOLERANCE FOR D  $\phi$  (2 PL):  
 $\phi 0.25 (0.010) \text{ T Y Z}$
3. POSITIONAL TOLERANCE FOR F DIM (2 PL):  
 $\phi 0.25 (0.010) \text{ T Y Z}$
4. POSITIONAL TOLERANCE FOR H DIM (2 PL):  
 $\phi 0.25 (0.010) \text{ T Y Z}$
5. POSITIONAL TOLERANCE FOR Q  $\phi$  (2 PL):  
 $\phi 0.25 (0.010) \text{ T Y Z}$
6. POSITIONAL TOLERANCE FOR B (2 PL):  
 $\phi 0.25 (0.010) \text{ T}$
7. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
8. CONTROLLING DIMENSION: INCH

#### PACKAGE IDENTIFICATION:

- ◆ Black housing w/ Orange dot
- PIN 1. Anode
- PIN 2. Cathode

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	23.24	25.27	.915	.995
B	8.64	9.14	.340	.360
C	9.91	10.41	.390	.410
D	1.52	1.63	.060	.064
E	4.19	4.70	.165	.185
F	0.43	0.58	.017	.023
G	2.54 BSC		.100 BSC	
H	0.35	0.50	.014	.020
J	7.62 BSC		.300 BSC	
K	7.00	11.87	.276	.468
L	1.14	1.65	.045	.065
N	2.54 BSC		.100 BSC	
Q	3.05	3.30	.120	.130
R	10.48	10.99	.413	.433
S	6.98 BSC		.275 BSC	
U	0.83	1.06	.032	.042
V	7.49	7.75	.295	.305
W	5.08 BSC		.200 BSC	
X	10.10	10.68	.397	.427