**Description**

The IF-D91 is the photodiode in Industrial Fiber Optics’ family of low-cost, medium-frequency, short-distance fiber optic LEDs and detectors. Each device consists of a polycarbonate (PC) housing which retains the internal active element such as an LED or photodetector subcomponent, and a cinch nut to hold the fiber in place. The PC assembly optimizes coupling between the active element and jacketed 1000µm plastic fiber.

Working with this family of fiber optics requires no special tools or training. Only a sharp knife or razor blade is needed to terminate the plastic fiber. When the fiber is inserted in the LED or detector housing, the cinch nut is tightened. Thereafter, the fiber can be removed simply by loosening the nut.

**Applications**

- Household Appliances
- Motor Controller Triggering
- PC-to-Peripheral Links
- Medical Instruments
- Automotive Electronics
- Audio Systems
- Electronic Games
- Robotics Communications

**Maximum Ratings** 

\(T_A = 25 \degree C\)

- Operating and Storage Temperature Range \(T_{OP}, T_{STG}\) \(-40^\circ\) to \(85^\circ C\)
- Junction Temperature \(T_j\) \(85^\circ C\)
- Soldering Temperature \((2 \text{ mm from case bottom}) (T_S) t \leq 5 \text{s} \) \(240^\circ C\)
- Power Dissipation \(P_{TOT} \) \(T_A = 25^\circ C\) \(100 \text{ mW}\)
- De-rate Above \(25^\circ C\) \(1.33 \text{ mW/}^\circ C\)

**Characteristics \((T_A = 25^\circ C)\)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength for Maximum Photosensitivity</td>
<td>(A_{PEAK})</td>
<td>880</td>
<td>nm</td>
</tr>
<tr>
<td>Spectral Bandwidth ((S=10% \text{ of } S_{MAX}))</td>
<td>(\Delta A)</td>
<td>400-1100</td>
<td>nm</td>
</tr>
<tr>
<td>Rise and Fall Times ((10% \text{ to } 90% \text{ and } 90% \text{ to } 10%) (R_L = 50 \Omega, V_R = 20 V, \lambda = 850 \text{ nm})</td>
<td>(t_r, t_f)</td>
<td>5</td>
<td>ns</td>
</tr>
<tr>
<td>Total Capacitance</td>
<td>(C_T)</td>
<td>4</td>
<td>pF</td>
</tr>
<tr>
<td>Responsivity min. @ 860 nm @ 632 nm</td>
<td>(R)</td>
<td>.4</td>
<td>(\mu A/\mu W)</td>
</tr>
<tr>
<td>Reverse Dark Current ((V_R = 30 \text{ volts, } E_C = 0))</td>
<td>(I_D)</td>
<td>&lt;60</td>
<td>nA</td>
</tr>
<tr>
<td>Reverse Breakdown Voltage</td>
<td>(V_{BR})</td>
<td>60</td>
<td>V</td>
</tr>
</tbody>
</table>

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Industrial Fiber Optics, Inc.
**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.