**DESCRIPTION**

The IF-E96E is a low-cost, high-speed, visible red LED housed in a “connector-less” style plastic fiber optic package. The output spectrum is produced by an AlGaInP die which peaks at 645 nm, one of the optical transmission windows of PMMA plastic optical fiber. The device package features an internal micro-lens and a precision-molded PBT housing to maximize optical coupling into standard 1000 µm core plastic fiber cable.

**APPLICATION HIGHLIGHTS**

The performance/price ratio of the IF-E96E is particularly attractive for high volume design applications. The visible red output has low attenuation in PMMA plastic fiber and aids in troubleshooting installations. When used with an IF-D96 photologic detector the IF-E96E can achieve data rates of 5 Mbps. Fast transition times and low attenuation make the IF-E96E an excellent device selection for low cost analog and digital data link up to 75 meters.

**FEATURES**

- High Performance at Low Cost
- Visible Red Output Aids Troubleshooting
- Low Transmission Loss with PMMA Plastic Fiber
- Fast Transition Times
- Mates with Standard 1000 µm Core Jacketed Plastic Fiber Cable
- No Optical Design Required
- Internal Micro-Lens for Efficient Optical Coupling
- Inexpensive Plastic Connector Housing
- Connector-Less Fiber Termination
- Light-Tight Housing Provides Interference-Free Transmission
- RoHS Compliant

**APPLICATIONS**

- Low Cost Analog and Digital Data Links
- Automotive Electronics
- Digitized Audio
- Medical Instruments
- PC-to-Peripheral Data Links
- Robotics Communications
- Motor Controller Triggering
- EMC/EMI Signal Isolation
- Local Area Networks
- Intra-System Links: Board-to-Board, Rack-to-Rack

**MAXIMUM RATINGS**

\( T_A = 25^\circ C \)

- Operating and Storage Temperature Range: \(-40^\circ C \) to \( 85^\circ C \)
- Junction Temperature: \( T_J \leq 85^\circ C \)
- Soldering Temperature: \( 260^\circ C \) (3 s)
- Reverse Voltage: \( V_R \leq 5 \) V
- Power Dissipation: \( 75 \) mW
- De-rate Above \( 25^\circ C \): \( 1.25 \) mW/°C
- Forward Current, DC: \( I_F \leq 20 \) mA
- Surge Current: \( I_{FSM} \leq 30 \) mA
- Switching Time (10% to 90% and 90% to 10%): \( t_r, t_f \leq 100 \) ns
- Capacitance: \( C_0 \leq 35 \) pF
- Forward Voltage: \( V_F \leq 2.5 \) V

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Wavelength</td>
<td>( \lambda_{PK} )</td>
<td>645</td>
<td>-</td>
<td>nm</td>
<td></td>
</tr>
<tr>
<td>Full-Spectral Bandwidth (50% of ( I_{MAX} ))</td>
<td>( \Delta \lambda )</td>
<td>20</td>
<td>-</td>
<td>nm</td>
<td></td>
</tr>
<tr>
<td>Output Power Coupled into Plastic Fiber (1 mm core diameter, Distance Lens to Fiber ( 0.1 ) mm, 1m SH4001 fiber, ( I_F = 20 ) mA)</td>
<td>( \Phi_{MIN} )</td>
<td>170</td>
<td>-7.7</td>
<td>450</td>
<td>µW dBm</td>
</tr>
<tr>
<td>Switching Times (10% to 90% and 90% to 10%)</td>
<td>( t_r, t_f )</td>
<td>100</td>
<td>-</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Capacitance (( F = 1 ) MHz, ( V_F = 0 ) V)</td>
<td>( C_0 )</td>
<td>35</td>
<td>-</td>
<td>pF</td>
<td></td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>( V_F )</td>
<td>2.0</td>
<td>2.5</td>
<td>V</td>
<td></td>
</tr>
</tbody>
</table>

**CAUTION:** The IF E96E is ESD sensitive. To minimize risk of damage observe appropriate precautions during handling and processing.
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.

NOTE: To avoid degraded device life due to package stress, do not bend or form leads outside the orientation shown on drawing.