

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.

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

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 Mico-Lens for Efficient Optical Coupling
- ◆ Inexpensive Plastic Connector Housing
- ◆ Connector-Less Fiber Termination
- ◆ Light-Tight Housing Provides Interference-Free Transmission
- ◆ RoHS Compliant

MAXIMUM RATINGS

($T_A = 25^\circ\text{C}$)
 Operating and Storage Temperature Range (T_{OP} , T_{STG}).....-40°to 85°C
 Junction Temperature (T_J).....85°C
 Soldering Temperature (2mm from case bottom) (T_S) $t \leq 3$ s.....260°C
 Reverse Voltage (V_R).....5 V
 Power Dissipation (P_{TOT}) $T_A = 25^\circ\text{C}$75 mW
 De-rate Above 25°C.....1.25 mW/°C
 Forward Current, DC (I_F).....30 mA
 Surge Current (I_{FSM})
 $t \leq 100 \mu\text{s}$
 10% duty cycle.....185 mA

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
Peak Wavelength	λ_{PEAK}	–	645	–	nm
Full-Spectral Bandwidth (50% of I_{MAX})	$\Delta\lambda$	–	20	–	nm
Output Power Coupled into Plastic Fiber (1 mm core diameter). Distance Lens to Fiber $\leq .1$ mm, 1m SH4001 fiber, $I_F=20$ mA	Φ_{min}	170 -7.7	325 -4.9	450 -3.5	μW dBm
Switching Times (10% to 90% and 90% to 10%) ($I_F = 20$ mA)	t_r, t_f	–	100	–	ns
Capacitance (F=1 MHz) ($V_F = 0\text{v}$)	C_0	–	35	–	pF
Forward Voltage ($I_F = 20$ mA)	V_f	–	2.0	2.5	V

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

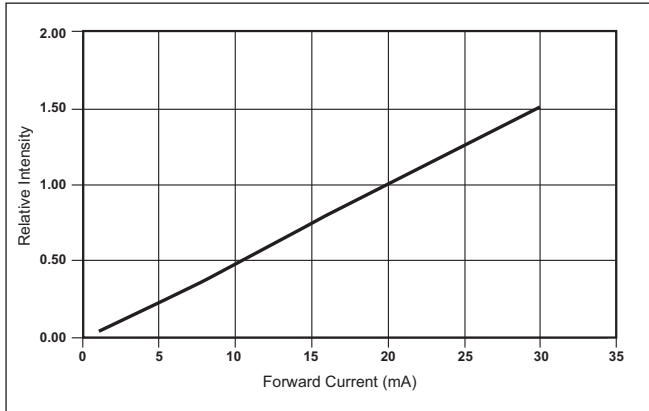


FIGURE 1. Normalized power launched versus forward current

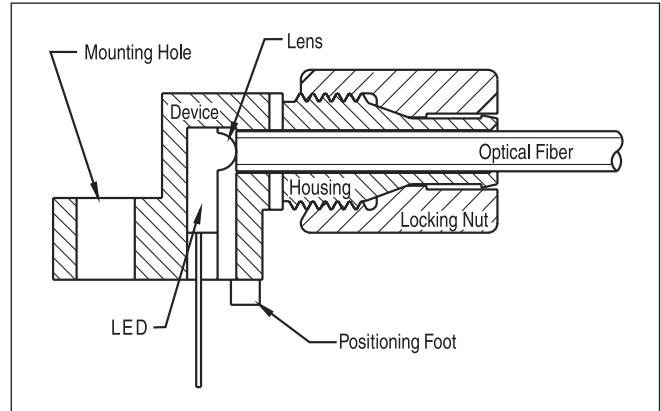


FIGURE 3. Cross-section of fiber optic device.

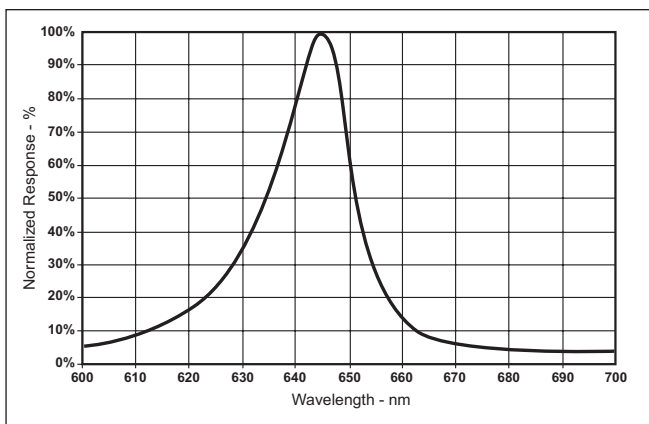


FIGURE 2. Typical spectral output versus wavelength.

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.

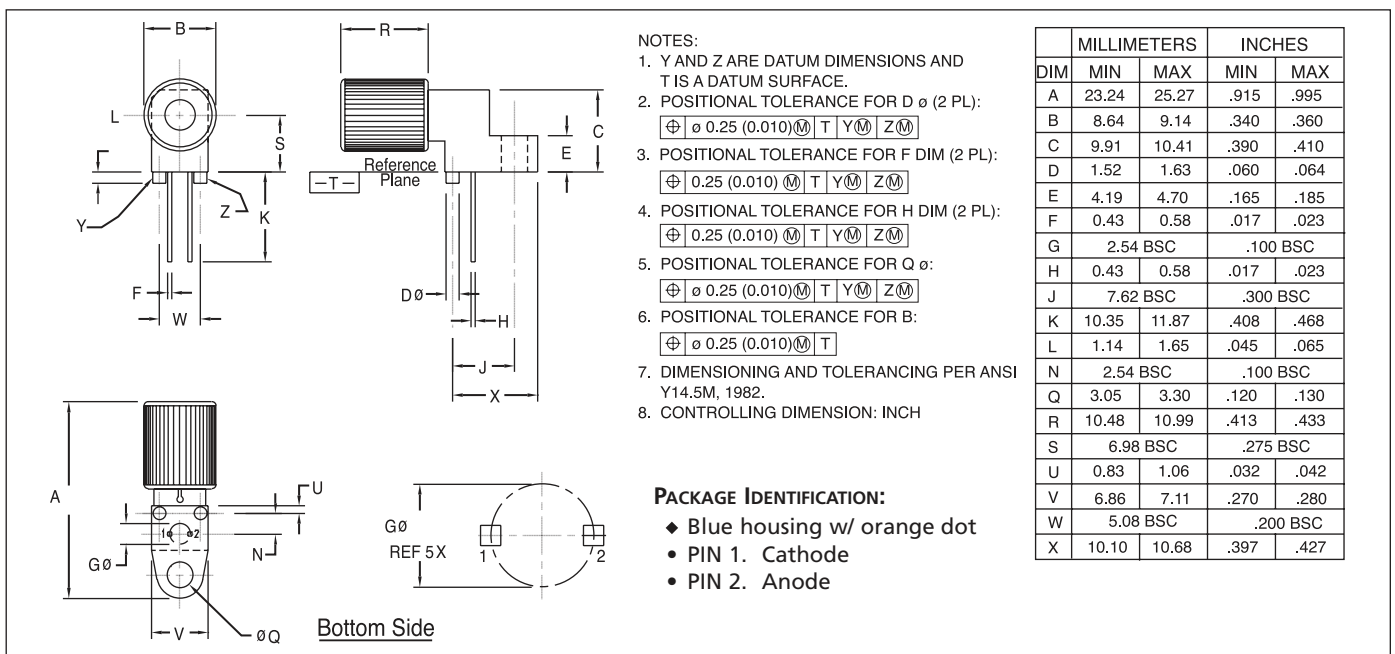


FIGURE 4. Case outline. Specifications are believed to be accurate but are subject to change. Industrial Fiber Optics assumes no responsibility for the consequences of using the information provided beyond replacement warranty for products not meeting stated specifications. Industrial Fiber Optics products are not authorized for use in life support applications without written approval from the President of Industrial Fiber Optics Corporation.

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