

Part No. 08IFE96

Plastic Fiber Optic Red LED

IF-E96



DESCRIPTION

The IF-E96 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 a GaAlAs die which peaks at 660 nm, one of the optimal 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-E96 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-E96 can achieve data rates of 5 Mbps. Fast transition times and low attenuation make the IF-E96 an excellent device selection for low cost analog and digital data links 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 Micro-Lens for Efficient Optical Coupling
- ◆ Inexpensive Plastic Connector Housing
- ◆ Connector-Less Fiber Termination
- ◆ Light-Tight Housing Provides Interference-Free Transmission

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 ≤ 5 s 240°C
- Reverse Voltage (V_R) 5 V
- Power Dissipation (P_{TOT}) T_A = 25°C 60 mW
- De-rate Above 25°C 1.1 mW/°C
- Forward Current, DC (I_F) 35 mA
- Surge Current (I_{FSM}) t ≤ 10 μs 150 mA

CHARACTERISTICS (T_A = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Peak Wavelength	λ _{PEAK}	650	660	670	nm
Spectral Bandwidth (50% of I _{MAX})	Δλ	-	20	-	nm
Output Power Coupled into Plastic Fiber (1 mm core diameter). Distance Lens to Fiber ≤ 0.1 mm, 1 m SH4001 fiber. I _F = 20 mA	Φ _{min}	125 -9.0	200 -7.0	300 -5.2	μW dBm
Switching Times (10% to 90% and 90% to 10%) (I _F = 20 mA)	t _r , t _f	-	.1	-	μs
Capacitance (F = 1 MHz)	C ₀	-	30	-	pF
Forward Voltage (I _F = 20 mA)	V _f	-	-	1.8	V
Temperature Coefficient, λ _{PEAK}	TC _λ		0.2		nm/K

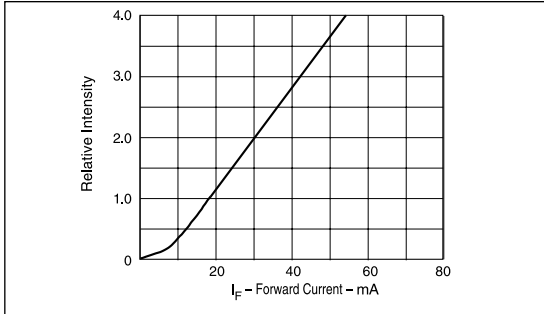


FIGURE 1. Normalized power launched versus forward current.

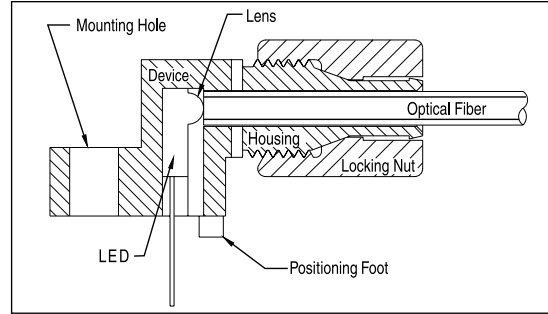


FIGURE 3. Cross-section of fiber optic device.

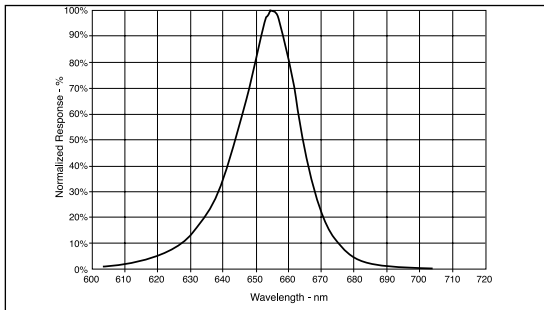


FIGURE 2. Typical spectral output versus wavelength.

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.

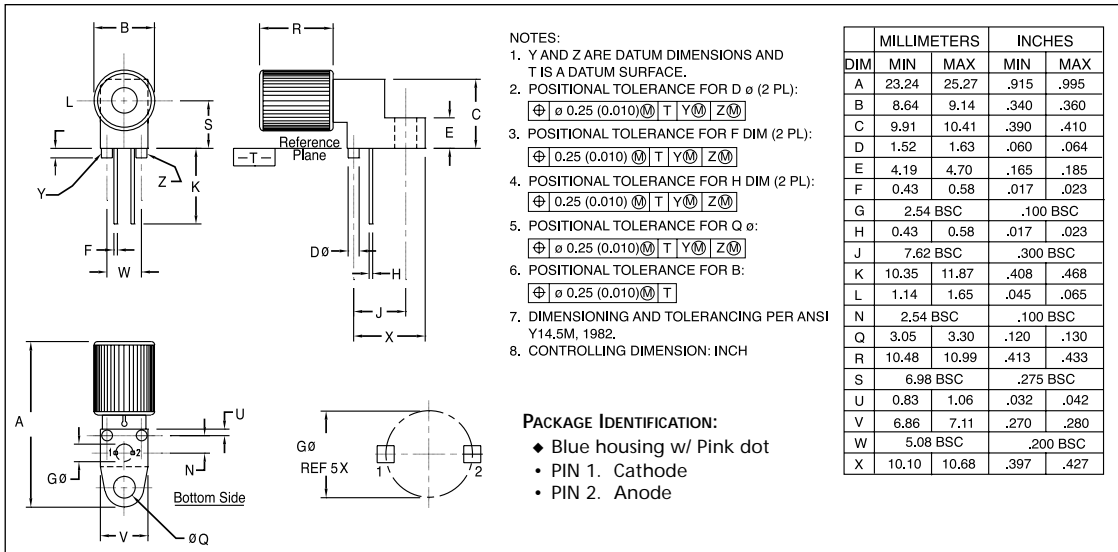


FIGURE 4. Case outline.