

## 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

## 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  $\mu\text{m}$  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.

## 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  $\mu\text{m}$  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

## MAXIMUM RATINGS

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

Operating and Storage Temperature Range ( $T_{\text{OP}}, T_{\text{STG}}$ )	.....-40° to 85°C
Junction Temperature ( $T_J$ )	.....85°C
Soldering Temperature (2 mm from case bottom) ( $T_S$ ) $t \leq 5\text{s}$	.....240°C
Reverse Voltage ( $V_R$ )	.....5 V
Power Dissipation ( $P_{\text{TOT}}$ ) $T_A=25^\circ\text{C}$	.....60 mW
De-rate Above 25°C	.....1.1 mW/°C
Forward Current, DC ( $I_F$ )	.....35 mA
Surge Current ( $I_{\text{FSM}}$ ) $t \leq 10\ \mu\text{s}$	.....150 mA

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
Peak Wavelength	$\lambda_{\text{PEAK}}$	650	660	670	nm
Spectral Bandwidth (50% of $I_{\text{MAX}}$ )	$\Delta\lambda$	-	20	-	nm
Output Power Coupled into Plastic Fiber (1 mm core diameter), Distance Lens to Fiber $\leq 0.1\text{ mm}$ , 1 m SH4001 fiber, $I_F=20\text{ mA}$	$\Phi_{\text{min}}$	125 -9.0	200 -7.0	300 -5.2	$\mu\text{W}$ dBm
Switching Times (10% to 90% and 90% to 10%) ( $I_F=20\text{ mA}$ )	$t_{\text{r}}, t_{\text{f}}$	-	.1	-	$\mu\text{s}$
Capacitance ( $f=1\text{ MHz}$ )	$C_0$	-	30	-	pF
Forward Voltage ( $I_F=20\text{ mA}$ )	$V_f$	-	-	1.8	V
Temperature Coefficient, $\lambda_{\text{PEAK}}$	$\text{TC}_{\lambda}$		0.2		nm/K

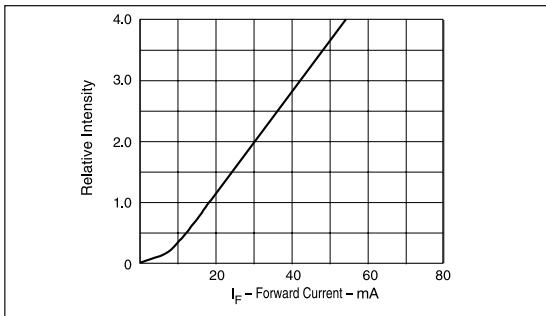


FIGURE 1. Normalized power launched versus forward current.

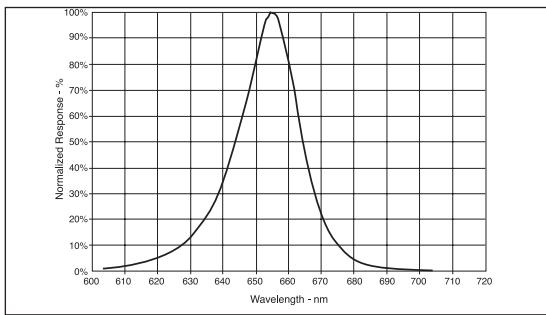


FIGURE 2. Typical spectral output versus wavelength.

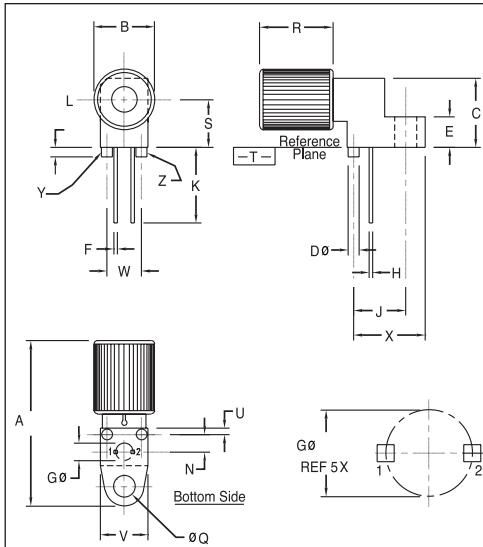
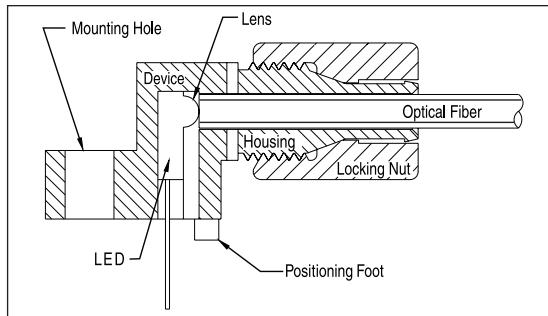


FIGURE 4. Case outline.



**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.

	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	0.43	0.58	.017	.023
J	7.62	BSC	.300	BSC
K	10.35	11.87	.408	.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	6.86	7.11	.270	.280
W	5.08	BSC	.200	BSC
X	10.10	10.68	.397	.427

#### PACKAGE IDENTIFICATION:

- ◆ Blue housing w/ Pink dot
- PIN 1. Cathode
- PIN 2. Anode