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})	$\Delta\lambda$	–	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

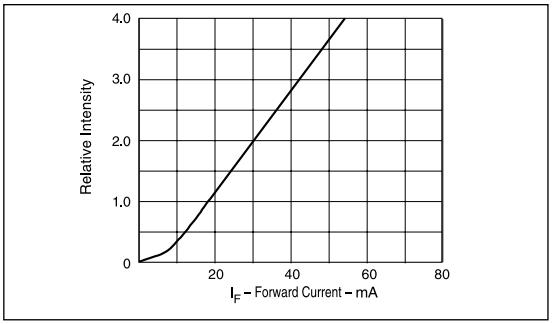


FIGURE 1. Normalized power launched versus forward current.

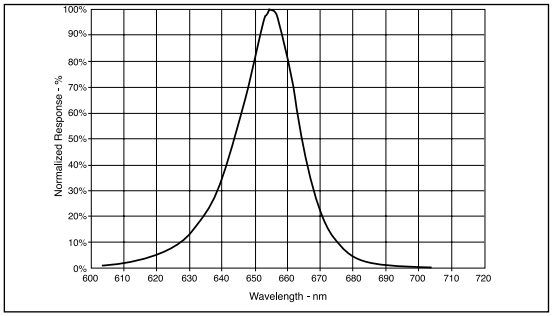


FIGURE 2. Typical spectral output versus wavelength.

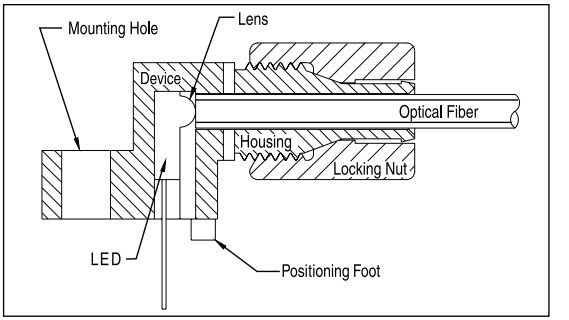
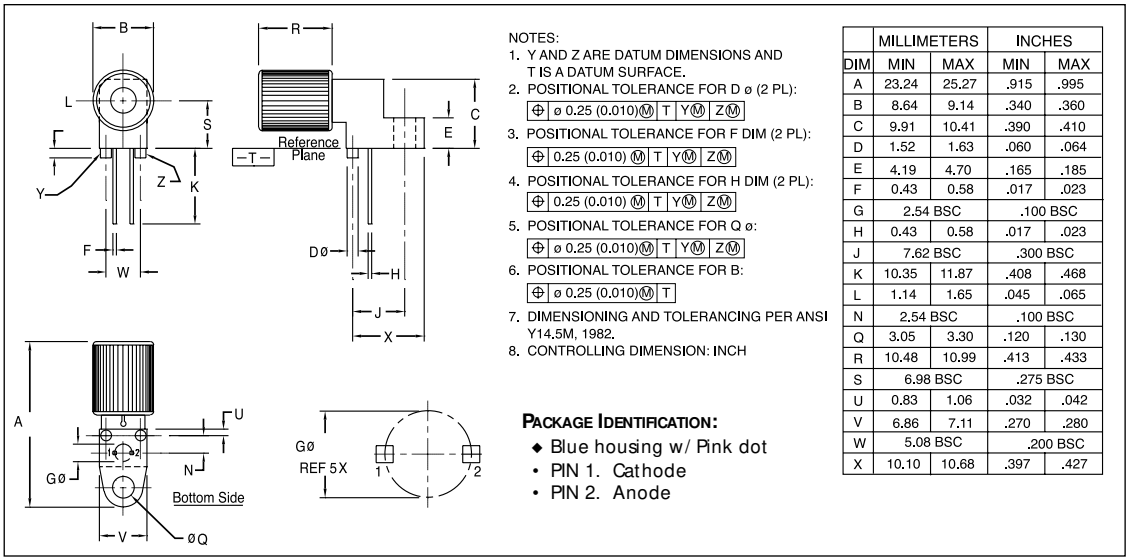


FIGURE 3. Cross-section of fiber optic device.

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.



NOTES:
1. Y AND Z ARE DATUM DIMENSIONS AND T IS A DATUM SURFACE.
2. POSITIONAL TOLERANCE FOR D ø (2 PL): ⌖ | ø 0.25 (0.010)Ⓜ | T | YⓂ | ZⓂ
3. POSITIONAL TOLERANCE FOR F DIM (2 PL): ⌖ | 0.25 (0.010) Ⓜ | T | YⓂ | ZⓂ
4. POSITIONAL TOLERANCE FOR H DIM (2 PL): ⌖ | 0.25 (0.010) Ⓜ | T | YⓂ | ZⓂ
5. POSITIONAL TOLERANCE FOR Q ø: ⌖ | ø 0.25 (0.010)Ⓜ | T | YⓂ | ZⓂ
6. POSITIONAL TOLERANCE FOR B: ⌖ | ø 0.25 (0.010)Ⓜ | T
7. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
8. CONTROLLING DIMENSION: INCH

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

	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

FIGURE 4. Case outline.