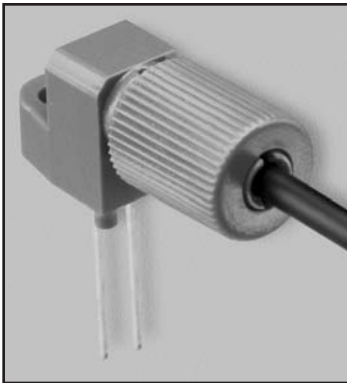




DESCRIPTION

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
- ◆ 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_{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_{FSM}) $t \leq 10 \mu\text{s}$	150 mA

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

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

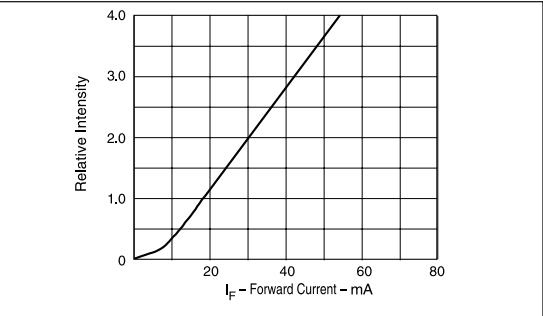


FIGURE 1. Normalized power launched versus forward current.

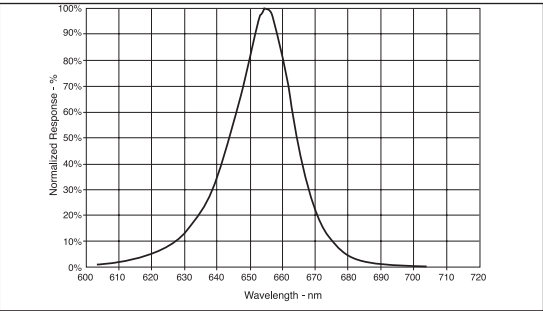


FIGURE 2. Typical spectral output versus wavelength.

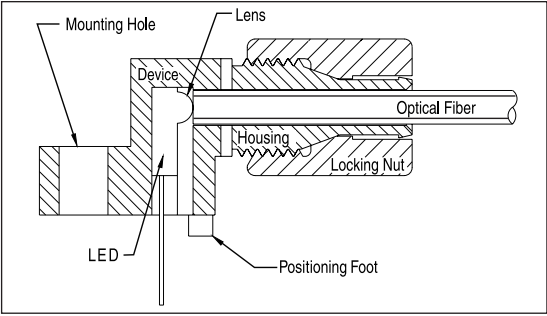
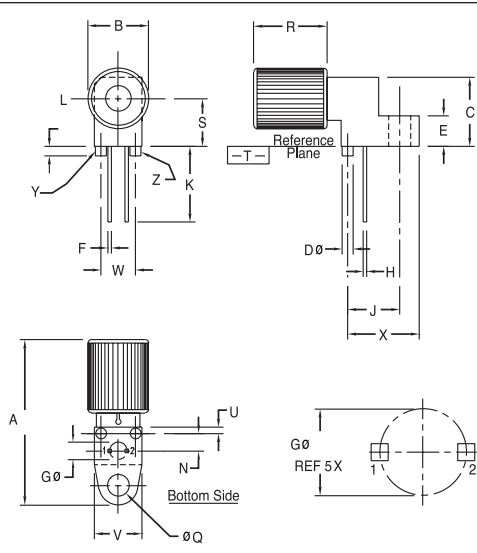


FIGURE 3. Cross-section of fiber optic device.

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):
 $\Phi \ 0.25 \ (0.010) \ \text{T} \ \text{Y} \ \text{Z} \ \text{T}$
 3. POSITIONAL TOLERANCE FOR F DIM (2 PL):
 $\Phi \ 0.25 \ (0.010) \ \text{T} \ \text{Y} \ \text{Z} \ \text{T}$
 4. POSITIONAL TOLERANCE FOR H DIM (2 PL):
 $\Phi \ 0.25 \ (0.010) \ \text{T} \ \text{Y} \ \text{Z} \ \text{T}$
 5. POSITIONAL TOLERANCE FOR Q Ø:
 $\Phi \ 0.25 \ (0.010) \ \text{T} \ \text{Y} \ \text{Z} \ \text{T}$
 6. POSITIONAL TOLERANCE FOR B:
 $\Phi \ 0.25 \ (0.010) \ \text{T}$
 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

DIM	MILLIMETERS		INCHES	
	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.