



DESCRIPTION

The IF-E98 is a high-speed red LED housed in a “connector-less” style plastic fiber optic package. The output spectrum of the IF-E98 is produced by a GaAlAs die that peaks at a wavelength of 650 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 ensure efficient optical coupling with standard 1000 μ m core plastic fiber cable.

APPLICATION HIGHLIGHTS

The fast transition times of the IF-E98 make it suitable for medium-speed analog and digital data links. Link distances in excess of 75 meters at data rates of 50 Mbps are possible using standard 1000 μ m core plastic fiber when matched to an IF-D97 photo-logic detector. The drive circuit is simpler than required for laser diodes, making the IF-E98 a good low-cost alternative in a variety of analog and digital applications.

APPLICATIONS

- PC-to-Peripheral Data Links
- Motor Controller Triggering
- Local Area Networks
- Medical Instruments
- Automotive Electronics
- Digitized Video
- Electronic Games
- Robotics Communications
- Isolation from Lightning and Voltage Transients

FEATURES

- ◆ No Optical Design Required
- ◆ Mates with Standard 1000 μ m Core Jacketed Plastic Fiber Cable
- ◆ Internal Micro-lens for Efficient Coupling
- ◆ Inexpensive Plastic Connector Housing
- ◆ Connector-Less Fiber Termination and Connection
- ◆ Interference-Free Transmission from Light-Tight Housing
- ◆ Excellent Linearity
- ◆ Visible Light Output
- ◆ 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
(2 mm from case bottom)
(T_S) $t \leq 5$ s240°C
Reverse Voltage (V_R).....5 V
Power Dissipation
(P_{TOT}) $T_A=25^\circ\text{C}$ 100 mW
De-rate Above 25°C1.75 mW/°C
Forward Current, DC (I_F)40 mA
Surge Current (I_{FSM})
 $t \leq 10$ μ sec.....100 mA

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
Peak Wavelength	λ_{PEAK}	640	650	660	nm
Spectral Bandwidth (50% of I_{MAX})	$\Delta\lambda$	—	20	—	nm
Output Power Coupled into Plastic Fiber (1 mm core diameter). Lens to Fiber Distance ≤ 0.1 mm, 1 m SH4001 fiber, $I_F=20$ mA	Φ_{min}	275 -5.6	350 -4.6	425 -3.7	μ W dBm
Switching Times (10% to 90% and 90% to 10%) ($R_L=47$ Ω , $I_F=30$ mA)	t_r, t_f	—	—	8	ns
Forward Voltage ($I_F=20$ mA)	V_f	—	1.9	2.3	V

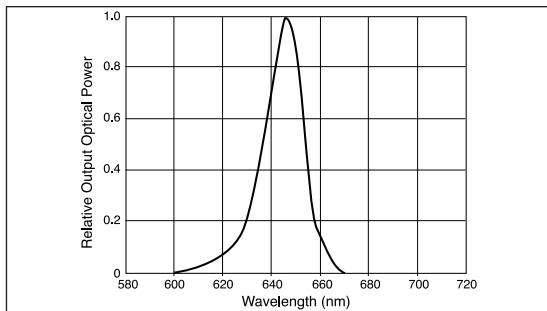


FIGURE 1. Typical spectral output versus wavelength.

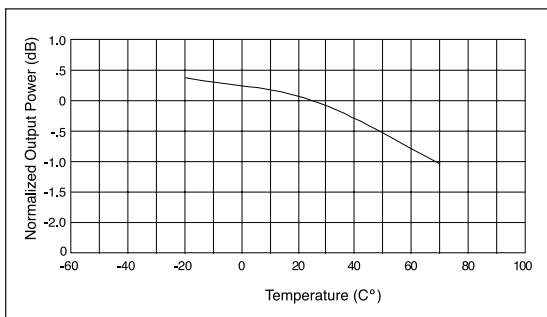


FIGURE 2. Output power versus temperature.

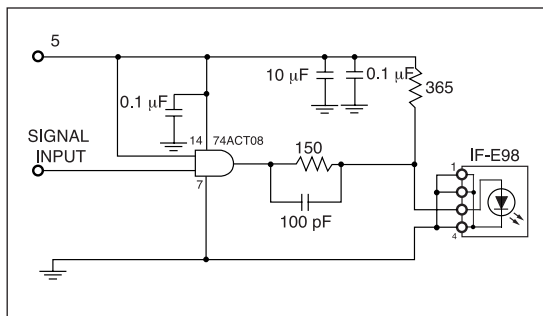
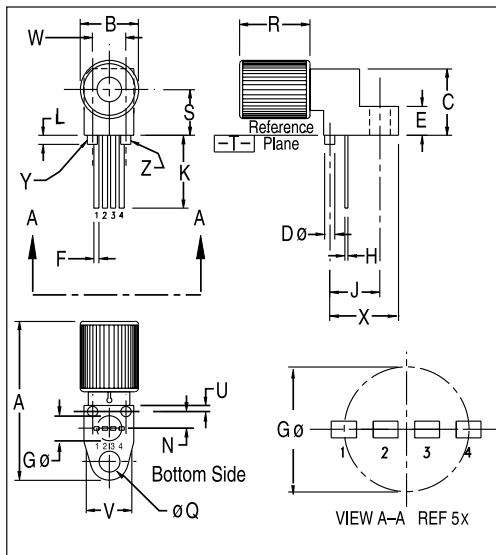


FIGURE 3. Typical interface circuit. ($I_F = 30 \text{ mA}$)

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 ϕ (2 PL):
 $\phi \pm 0.25 (0.010) \text{ T } Y \text{ Z}$
3. POSITIONAL TOLERANCE FOR F DIM (2 PL):
 $\phi \pm 0.25 (0.010) \text{ T } Y \text{ Z}$
4. POSITIONAL TOLERANCE FOR H DIM (2 PL):
 $\phi \pm 0.25 (0.010) \text{ T } Y \text{ Z}$
5. POSITIONAL TOLERANCE FOR Q ϕ (2 PL):
 $\phi \pm 0.25 (0.010) \text{ T } Y \text{ Z}$
6. POSITIONAL TOLERANCE FOR B (2 PL):
 $\phi \pm 0.25 (0.010) \text{ T}$
7. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
8. CONTROLLING DIMENSION: INCH

PACKAGE IDENTIFICATION:

- ◆ Blue housing w/ silver dot
- PIN 1. Cathode
- PIN 2. Cathode
- PIN 3. Anode
- PIN 4. Cathode

	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	0.35	0.51	.014	.020
G	3.81 BSC		.150 BSC	
H	0.18	0.33	.007	.013
J	7.62 BSC		.300 BSC	
K	2.04	2.84	.080	.112
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	7.49	7.75	.295	.305
W	5.08 BSC		.200 BSC	
X	10.10	10.68	.397	.427

FIGURE 4. Case outline.