

DESCRIPTION

The IF-E99 is a very high-speed red LED housed in a “connector-less” style plastic fiber optic package. The output spectrum of the IF-E99 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 ensures efficient optical coupling with standard 1000 μm core plastic fiber cable.

APPLICATION HIGHLIGHTS

The fast transition times of the IF-E99 make it suitable for high-speed digital data links. Link distances in excess of 75 meters at data rates of 155 Mbps are possible using standard 1000 μm core plastic fiber and an IF-D98 photologic detector. The wide analog bandwidth permits direct modulation at RF frequencies exceeding 100 MHz. Drive circuit design for the IF-E99 requires good RF and digital design techniques, but is much simpler than required for laser diodes, making it a good low-cost solution in a variety of high frequency POF analog and digital applications.

APPLICATIONS

- PC-to-Peripheral Data Links
- Motor Controller Triggering
- Ethernet LANs
- Medical Instruments
- Automotive Electronics
- Digitized Video and HDTV
- Sonet/SDH Transmitters
- Robotics Communications
- Isolation from Lightning and Voltage Transients

FEATURES

- ◆ No Optical Design Required
- ◆ Mates with Standard 1000 μm 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°C)

Operating Temperature Range (T _{OP})	-0° to 60°C
Storage Temperature Range (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	100 mW
De-rate Above 25°C	1.33 mW/°C
Forward Current, DC (I _F)	40 mA
Surge Current (I _{FSM}) t ≤ 10 μsec	100 mA

CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Peak Wavelength	λ _{PEAK}	640	650	660	nm
Spectral Bandwidth (50% of I _{MAX})	Δλ	-	10	-	nm
Output Power Coupled into Plastic Fiber (1 mm core diameter). Lens to Fiber distance ≤ .1 mm, 1 m SH4001 fiber, I _F =20 mA	Φ	875	950	1050	μW
		-.58	-.2	.21	dBm
Switching Times (10% to 90% and 90% to 10%) (R _L =47 Ω, I _F =10 mA)	t _r , t _f	-	-	3	ns
Capacitance (V _F =0, F=1 MHz)	C ₀	-	10	-	pF
Forward Voltage (I _F =30 mA)	V _f	-	2.05	2.3	V
Cut off frequency	f _c	-	100	-	MHz

NOTES:

1. A bypass capacitor (0.1 μF) is connected to the lead at a position within 2 mm from the lead end, and a 4.7 μF capacitor is also connected nearby the power supply line.

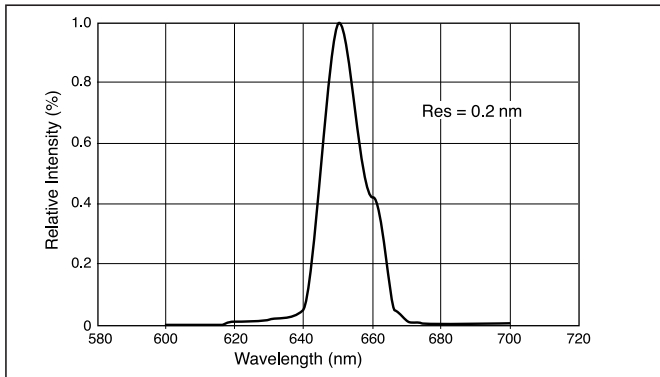


FIGURE 1. Relative intensity versus wavelength.

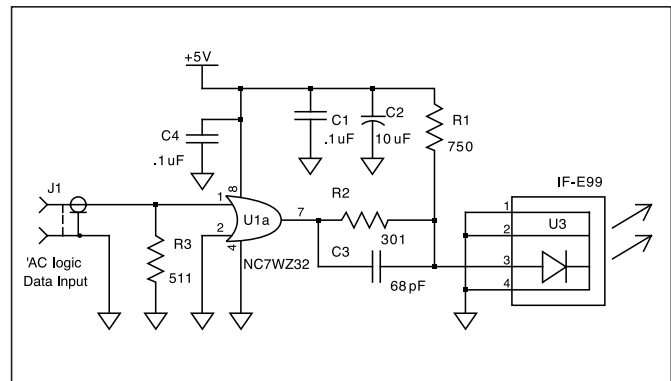


FIGURE 3. Typical interface circuit.

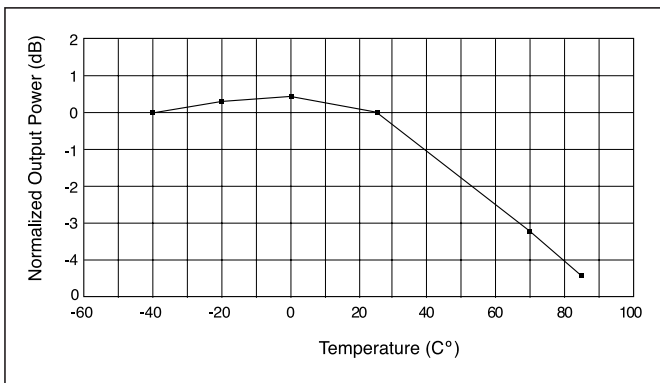


FIGURE 2. Optical Power output versus temperature ($I_F=20mA$)

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.

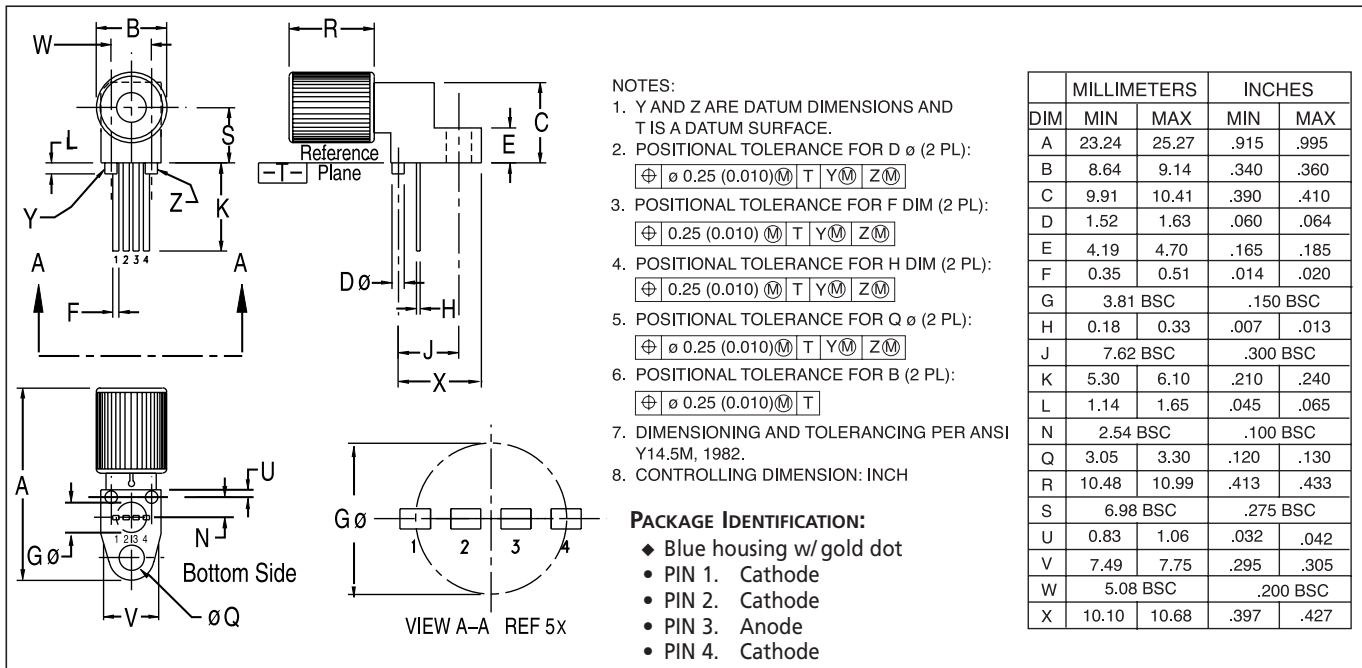


FIGURE 4. Case outline.