DESCRIPTION

The IF-D95T and IF-D95OC are photologic detectors in Industrial Fiber Optics' family of low-cost, medium-frequency, short-distance fiber optic LEDs and detectors. Each LED and detector consists of a polycarbonate (PC) housing, an internal active element such as an LED or photodetector subcomponent, and a cinch nut to hold the fiber in place. The PC housing optimizes coupling between the active element and the jacketed 1000 µm plastic fiber.

The IF-D95T contains a photologic detector with a totem-pole output and the IF-D95OC is a similar detector with an open-collector option. Both versions contain an IC with a photodiode, linear amplifier, voltage regulator, and Schmitt trigger. The devices feature TTL/CMOS – compatible logic level output which can drive up to 5 TTL over supply voltages ranging from 4.5 to 16 volts.

Working with this family of fiber optics is simple: No special tools or training required. Only a sharp knife or razor blade is needed to terminate the plastic fiber. When the fiber is inserted into the LED or detector housing, tighten the cinch nut. Thereafter, the fiber can be removed simply by loosening the nut.

APPLICATIONS

- Household Appliances
- Motor Controller Triggering
- PC-to-Peripheral Links
- Medical Instruments
- Automotive Electronics
- Audio Systems
- Electronic Games
- Robotics Communications
- Reduction of Lightning and Voltage Transient Susceptablity

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
- Totem-Pole and Open Collector Output Options

■ *Inverting Output Option Available on Special Order*

MAXIMUM RATINGS

(T_A = 25°C)

Operating and Storage Temperature Range (T_{OP}, T_{STG}).....-40° to 85°C

Soldering Temperature (2 mm from case bottom) (T_S) t≤5s .....240°C

Supply Voltage, (V_S).....18 V

Voltage at Output lead (IF-95OC only) .....35 V

Sinking Current, DC (I_C).....50 mA

Source Current (I_O) (IF-95T only) .....10 mA

Power Dissipation (P_{TOT}) T_A=25°C .....100 mW

De-rate Above 25°C .....1.33 mW/°C

CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Value	Unit
Peak Sensitivity	λ_{PEAK}	800	nm
Spectral Sensitivity (S=10% of S_{MAX})	$\Delta\lambda$	400-1100	nm
Operating Voltage (max)	V_{CC}	16	V
Supply Current (max)	I_{CC}	12	mA
Light Required to Trigger V_{CC}=5 V, R_L=1k, λ=660 nm	Er (+)	1.0 (-30)	µW(dBm)
IF-D95T – High Level Output Voltage (I_{OH}= -1.0 µA)	V_{OH}	V_{CC}-2.1	V
Low Level Output Voltage (I_{OH}= 16 mA)	V_{OL}	0.34	V
Output Rise and Fall Times (f= 10.0 kHz, R_L= 10 TTL Loads) (max)	t_r, t_f	70	ns
Propagation Delay, Low-High, High-Low (f= 10.0 kHz, R_L= 10 TTL Loads)	t_{PLH}, t_{PHL}	8.0	µs
IF-D95OC – High Level Output Current (V_{OH}=30 V)	I_{OH}	100	µA
Low Level Output Voltage (I_{OL}=16 mA)	V_{OL}	0.4	V
Output Rise and Fall Times (f= 10.0 kHz, R_L=300Ω) (max)	t_r, t_f	100	ns
Propagation Delay, Low-High, High-Low (f= 10.0 kHz, R_L=300Ω)	t_{PLH}, t_{PHL}	8.0	µs

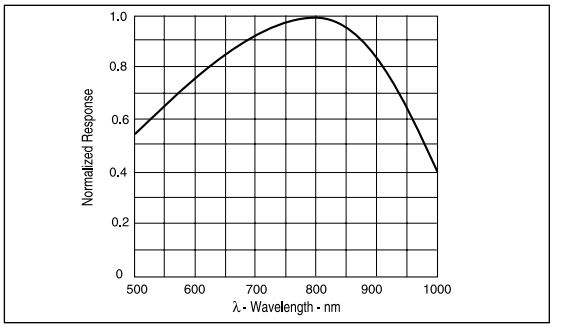


FIGURE 1. Typical detector response versus wavelength.

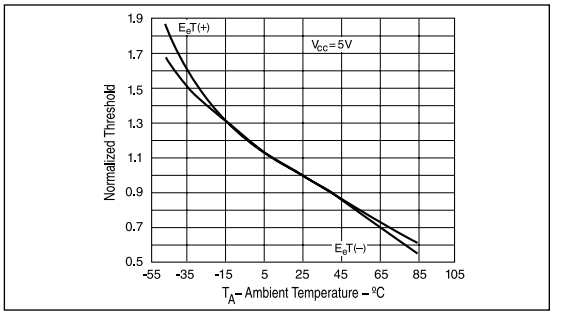


FIGURE 2. Normalized threshold irradiance vs. amb. temp.

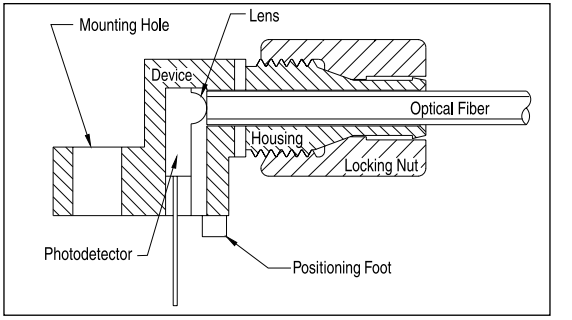
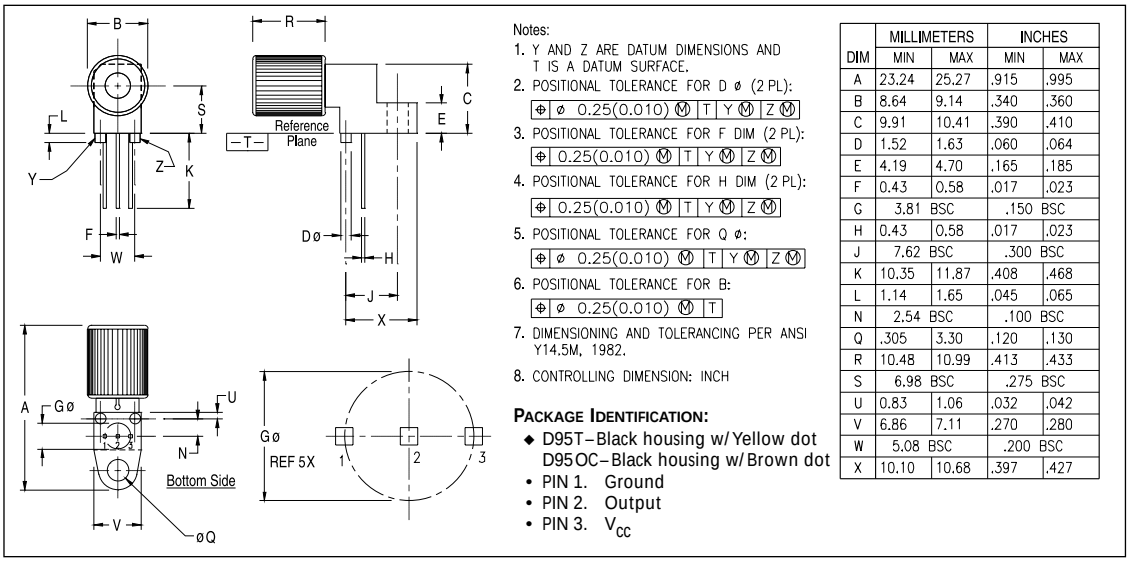


FIGURE 3. Cross-section of fiber optic device.

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:
- ◆ D95T–Black housing w/Yellow dot
  D95OC–Black housing w/Brown dot
- PIN 1. Ground
- PIN 2. Output
- PIN 3. V_{CC}

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	3.81 BSC		.150 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	.305	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.