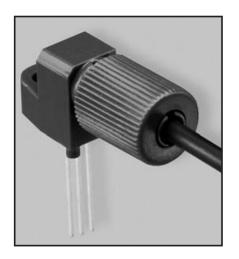
1/22/08



APPLICATIONS

- ➤ Digital Data Links
- ➤ PC-to-Peripheral Links
- ➤ Process Control
- ➤ Household Appliances
- ➤ Motor Controller Triggering
- ➤ Electronic Games
- ➤ Medical Instruments
- ➤ Automotive Electronics
- ➤ Robotics Communications
- ➤ EMC/EMI Signal Isolation

DESCRIPTION

The IF-D95T and IF-D95OC are high-sensitivity photologic detectors housed in "connector-less" style plastic fiber optic packages. The detector contains an IC with a photodiode, linear amplifier, and Schmitt trigger logic circuit. The IF-D95T features a TTL/CMOS compatible totem-pole output, while the IF-D95OC has an open-collector output. The devices can drive up to 5 TTL loads over supply voltages ranging from 4.5 to 16 Volts. Optical response extends from 400 to 1100 nm, making them compatible with a wide range of visible and near infrared LED and laser diode sources. The detector package features an internal micro-lens and a precision-molded PBT housing to ensure efficient optical coupling with standard $1000\,\mu m$ core plastic fiber cable.

APPLICATION HIGHLIGHTS

The IF-D95T and IF-D95OC are suitable for digital data links at rates up to 125 kbps. A Schmitt trigger improves noise immunity and TTL/CMOS logic compatibility greatly simplifies interfacing with existing digital circuits. The integrated design of the IF-D95 provides a total, cost-effective solution in a variety of digital applications.

FEATURES

- ◆ Integrated Photodetector, Amplifier and Schmitt Trigger
- Mates with Standard 1000 μm Core Jacketed Plastic Fiber Optic Cable
- ◆ No Optical Design Required
- ◆ Inexpensive But Rugged Plastic Connector Housing
- ◆ Internal Micro-Lens for Efficient Optical Coupling
- ◆ Connector-Less Fiber Termination
- ◆ Light-Tight Housing Provides Interference-Free Transmission
- ◆ High Optical Sensitivity
- ◆ "Active Low" Output Options Available as Special Order
- ◆ RoHS Compliant

Maximum Ratings

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

Operating and Storage Temperature Range (T _{OP} , T _{STG})40° to 85°	С
Soldering Temperature (2 mm from case bottom) $(T_S) t \le 5s$	С
Supply Voltage, (V _S)16	V
Voltage at Output lead (IF-95OC only)30	V
Sinking Current, DC (I _C)50 m	A
Source Current (I _O) (IF-95T only)10 m	A
Power Dissipation (P_{TOT}) T_A =25°C100 mV	N

De-rate Above 25°C2.50 mW/°C

CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Min	Тур	Max	Unit
Peak Sensitivity	$\lambda_{ ext{PEAK}}$	_	800	_	nm
Spectral Sensitivity (S=10% of S _{MAX})	Δλ	400	-	1100	nm
Operating Voltage	V_{CC}	4.5	-	16	V
Supply Current	I_{CC}	-	-	6	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 μ A)	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)	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 =360Ω)	t _r , t _f	_	_	100	ns
Propagation Delay, Low-High, High-Low (f= 10.0 kHz, R_L =360 Ω)	t _{PLH} , t _{PHL}	_	6.0	_	μs

Plastic Fiber Optic Photologic Detectors

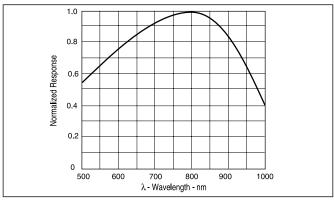


FIGURE 1. Typical detector response versus wavelength.

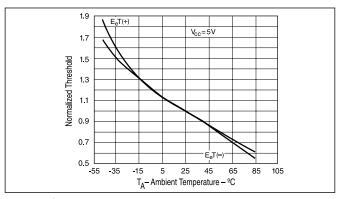


FIGURE 2. Normalized threshold irradiance vs. amb. temp.

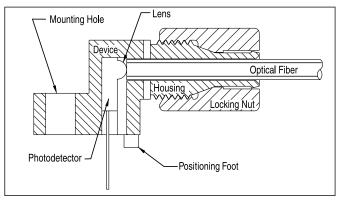
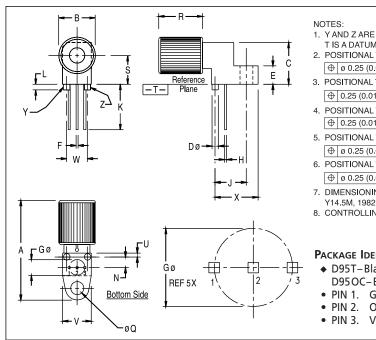


FIGURE 3. Cross-section of fiber optic device.

FIBER TERMINATION INSTRUCTIONS

- 1. Cut off the ends of the optical fiber with a singleedge 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
- 3. Screw the connector locking nut down to a snug fit, locking the fiber in place.



- 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)M T YM ZM
- 3. POSITIONAL TOLERANCE FOR F DIM (2 PL): ⊕ 0.25 (0.010) M T YM ZM
- 4. POSITIONAL TOLERANCE FOR H DIM (2 PL):
- ⊕ 0.25 (0.010) M T YM ZM 5. POSITIONAL TOLERANCE FOR Q Ø:
- ⊕ ø 0.25 (0.010)M T YM ZM 6. POSITIONAL TOLERANCE FOR B:
- ⊕ ø 0.25 (0.010)M T 7. DIMENSIONING AND TOLERANCING PER ANSI
- 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}

	MILLIMETERS		INCI	HES	
DIM	MIN	MAX	MIN	MAX	
Α	23.24	25.27	.915	.995	
В	8.64	9.14	.340	.360	
O	9.91	10.41	.390	.410	
D	1.52	1.63	.060	.064	
Е	4.19	4.70	.165	.185	
F	0.43	0.58	.017	.023	
G	3.81 BSC		.150 BSC		
Н	0.43	0.58	.017	.023	
J	7.62 BSC		.300 BSC		
K	10.35	11.87	.408	.468	
Г	1.14	1.65	.045	.065	
Ν	2.54 BSC		100 BSC		
Ø	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	
٧	6.86	7.11	.270	.280	
W	5.08 BSC		.20	0 BSC	
Χ	10.10	10.68	.397	.427	

FIGURE 4. Case outline.