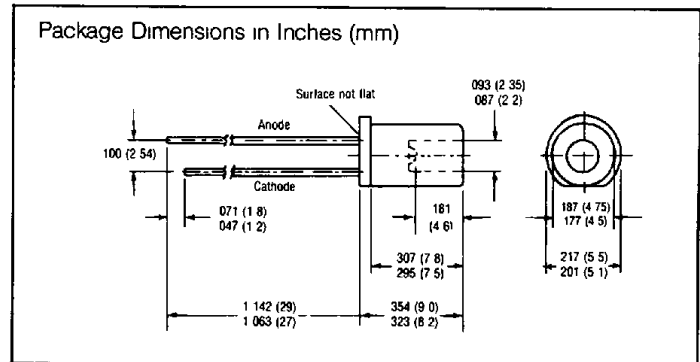
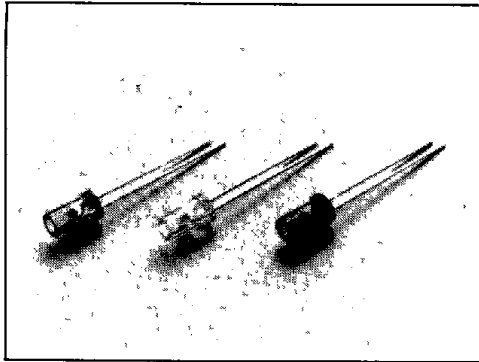


SIEMENS**SFH450/750/751****PLASTIC FIBER OPTIC
TRANSMITTER DIODE**

T-41-07

Preliminary Data Sheet**FEATURES**

- 2.3 mm Aperture Holds 1000 Micron Plastic Fiber
- No Fiber Stripping Required
- SFH450 – Infrared, Light Grey Plastic Package
- SFH750 – Visible Red, Red Plastic Package
- SFH751 – Visible Green, Green Plastic Package
- High Reliability
- Long Life Time
- Fast Switching Times
- Molded Microlens for Efficient Coupling

DESCRIPTION

The SFH450 is a gallium arsenide (GaAs) infrared emitter. The SFH750 is a gallium arsenide phosphide (GaAsP), visible red emitter; the SFH751 is a gallium phosphide (GaP) visible green emitter. These three devices form a new family of low cost fiber optic components designed for short distance data transmission using 1000 micron core plastic fiber. The devices come in a 5 mm (T1 $\frac{3}{4}$) plastic package featuring a tubular aperture which is wide enough to accommodate fiber and cladding. A microlens on the bottom of the aperture improves the light coupling efficiency into an inserted plastic fiber.

Typical applications include automotive wiring, isolation interconnects, medical equipment, robotics, electronic games, and copy machines.

Maximum Ratings

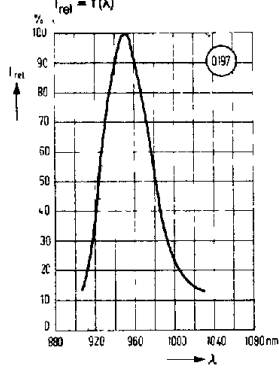
	SFH450	SFH750	SFH751	
Operating and Storage Temperature				T
Junction Temperature		-55 to +100		T _J
Soldering Temperature (Distance from solder to package = 2 mm)		100		
Dip Soldering Time t ≤ 5 sec				T _S
Reverse Voltage V _R	260	260	260	
Forward Current (DC) I _F	5	5	5	V
Surge Current (t ≤ 10 μs, D = 0) I _{FS}	130	75	45	mA
Power Dissipation P _{tot}	3.5	1.5	1	A
Thermal Resistance Junction/Air R _{thJA}	210	150	150	mW
	350	500	500	K/W

Electrical Characteristics (T_{amb} = 25°C)

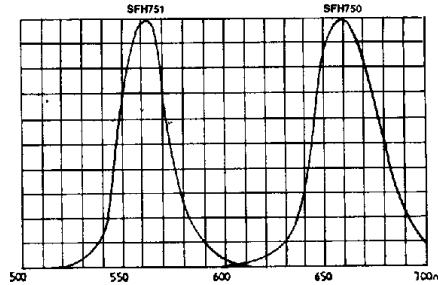
	SFH450	SFH750	SFH751	
Wavelength λ	950 ± 20	660 ± 15	560 ± 15	nm
Spectral Bandwidth Δλ	55	35	25	nm
Switching Times				
t _{ON} (10 – 90%)	1	0.12	0.5	μsec
t _{OFF} (90 – 10%)	1	0.05	0.2	μsec
Capacitance C ₀	40	40	11	pF
Forward Voltage V _F				
I _F = 100 mA	1.3 (≤ 1.5)			V
I _F = 10 mA		1.6 (≤ 2.0)	2.0 (≤ 2.6)	V
Coupling Characteristics into a 1000 Micron Core Plastic Fiber (ESKA EH4001) Distance Fiber to Lens ≤ 0.1 mm, polished ends (I _F = 10 mA)	P _{in}	90	9	3 μW

T-41-07

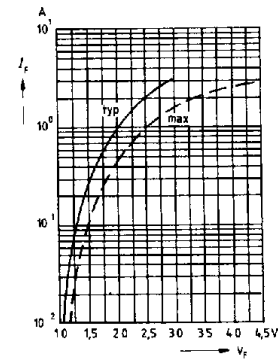
SFH450
Relative spectral emission
 $I_{rel} = f(\lambda)$



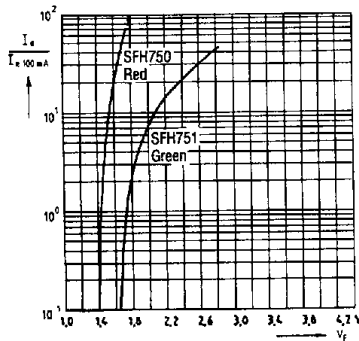
SFH750/751
Relative spectral emission
 $I_{rel} = f(\lambda)$



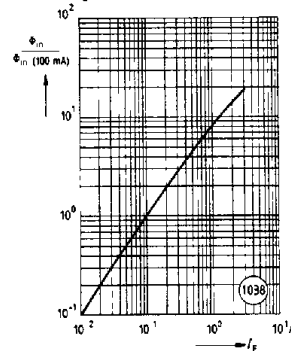
SFH450
Forward current $I_F = f(V_F)$



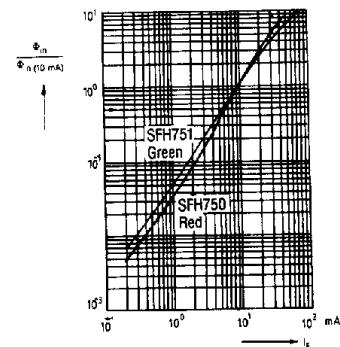
SFH750/751
Forward current $I_F = f(V_F)$



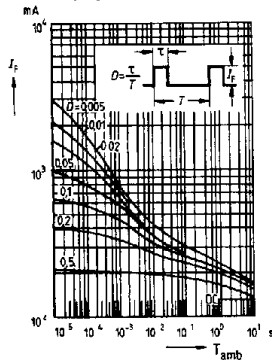
SFH450
Radiant intensity
 $I_{e,rel} = f(I_F)$ ($\tau = 5 \mu s$, $T = 5 ms$)



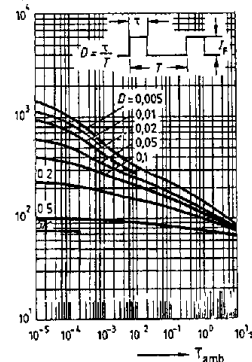
SFH750/751
Radiant intensity
 $I_{e,rel} = f(I_F)$ ($\tau = 5 \mu s$, $T = 5 ms$)



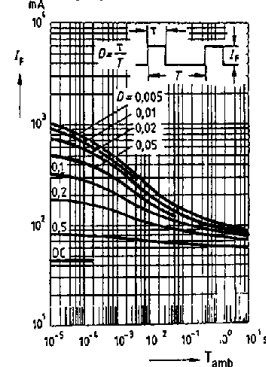
SFH450
Permissible pulse load
 $I_F = f(t)$, $T_{amb} = 25^\circ C$
Duty Cycle $D = \text{Parameter}$



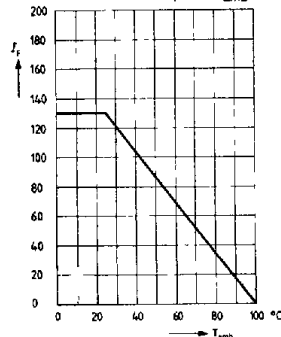
SFH750
Permissible pulse load
 $I_F = f(t)$, $T_{amb} = 25^\circ C$
Duty Cycle $D = \text{Parameter}$



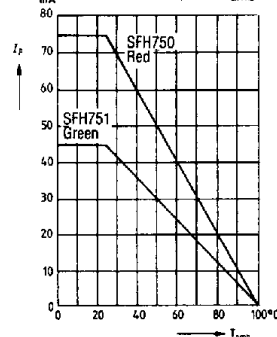
SFH751
Permissible pulse load
 $I_F = f(t)$, $T_{amb} = 25^\circ C$
Duty Cycle $D = \text{Parameter}$



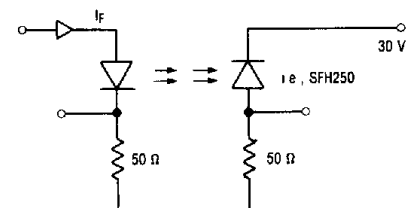
SFH450
Maximum permissible
forward current $I_F = f(T_{amb})$



SFH750/751
Maximum permissible
forward current $I_F = f(T_{amb})$



SFH450/750/751
Test Circuit for Switching Times



Fiber Optic
Devices

SFH450