

**Plastic Fiber Optic Transmitter Diode  
Plastic Connector Housing**

**SFH450  
SFH450V**

**Features**

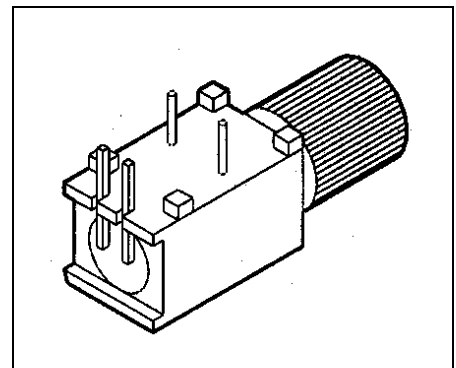
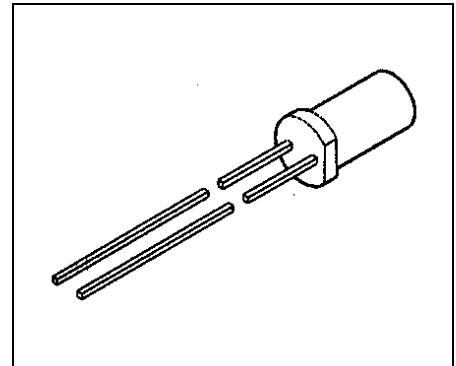
- 2.2 mm Aperture holds Standard 1000 Micron Plastic Fiber
- No Fiber Stripping Required
- Good Linearity (Forward current > 2 mA)
- Molded Microlens for Efficient Coupling

**Plastic Connector Housing**

- Mounting Screw Attached to the Connector
- Interference Free Transmission from light-Tight Housing
- Transmitter and Receiver can be flexibly positioned
- No Cross Talk
- Auto insertable and Wave solderable
- Supplied in Tubes

**Applications**

- Household Electronics
- Power Electronics
- Optical Networks
- Light Barriers



Type	Ordering Code
SFH450	Q62702-P1034
SFH450V	Q62702-P0265

**Technical Data**
**Absolute Maximum Ratings**

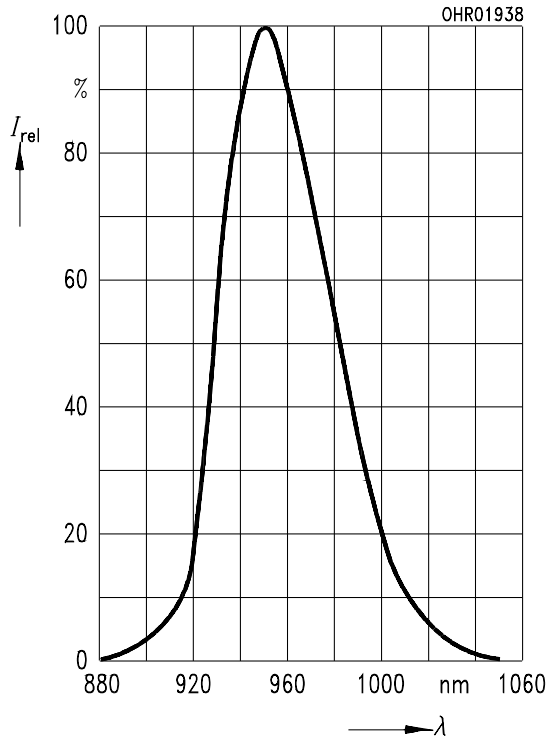
Parameter	Symbol	Limit Values		Unit
		min.	max.	
Operating Temperature Range	$T_{OP}$	-40	+85	°C
Storage Temperature Range	$T_{STG}$	-40	+100	°C
Junction Temperature	$T_J$		100	°C
Soldering Temperature (2 mm from case bottom, $t \leq 5$ s)	$T_S$		260	°C
Reverse Voltage	$V_R$		5	V
Forward Current	$I_F$		130	mA
Surge Current ( $t \leq 10 \mu\text{s}$ , $D = 0$ )	$I_{FSM}$		3.5	A
Power Dissipation	$P_{TOT}$		200	mW
Thermal Resistance, Junction/Air	$R_{thJA}$		375	K/W

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

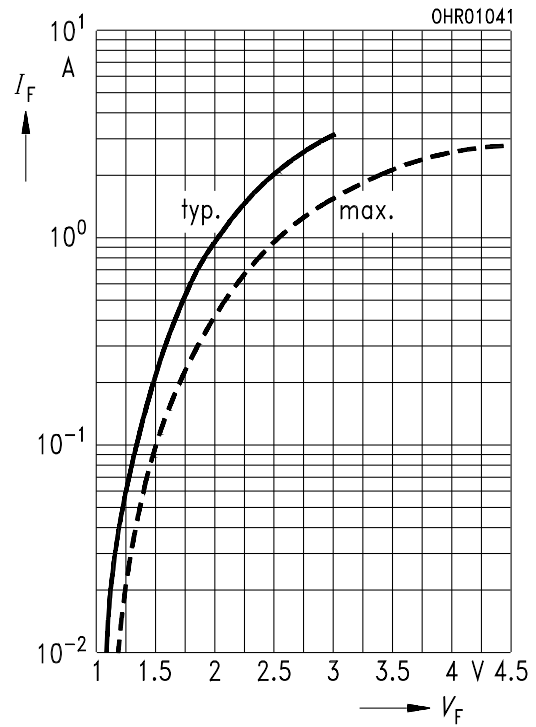
Parameter	Symbol	Value	Unit
Peak Wavelength	$\lambda_{\text{Peak}}$	950	nm
Spectral Bandwidth	$\Delta\lambda$	55	nm
Switching Times ( $R_G = 50 \Omega$ , $I_{F(\text{LOW})} = 0.1 \text{ mA}$ , $I_{F(\text{HIGH})} = 50 \text{ mA}$ ) 10% to 90% 90% to 10%	$t_R$ $t_F$	1 1	$\mu\text{s}$
Capacitance ( $f = 1 \text{ MHz}$ , $V_R = 0 \text{ V}$ )	$C_O$	40	pF
Forward Voltage ( $I_F = 10 \text{ mA}$ )	$V_F$	1.3 ( $\leq 1.5$ )	V
Output Power Coupled into Plastic Fiber ( $I_F = 10 \text{ mA}$ ) <sup>1)</sup>	$\Phi_{\text{IN}}$	90 ( $\geq 40$ )	$\mu\text{W}$
Temperature Coefficient $\Phi_{\text{IN}}$	$TC_\Phi$	-0.5	%/K
Temperature Coefficient $V_F$	$TC_V$	-1.5	mV/K
Temperature Coefficient $\lambda_{\text{Peak}}$	$TC_\lambda$	0.3	nm/K

<sup>1)</sup> The output power coupled into plastic fiber is measured with a large area detector after a short fiber (about 30 cm). This value must not be used for calculating the power budget for a fiber optic system with a long fiber because the numerical aperture of plastic fibers is decreasing on the first meters. Therefore the fiber seems to have compared with the specified value a higher attenuation on the first meters.

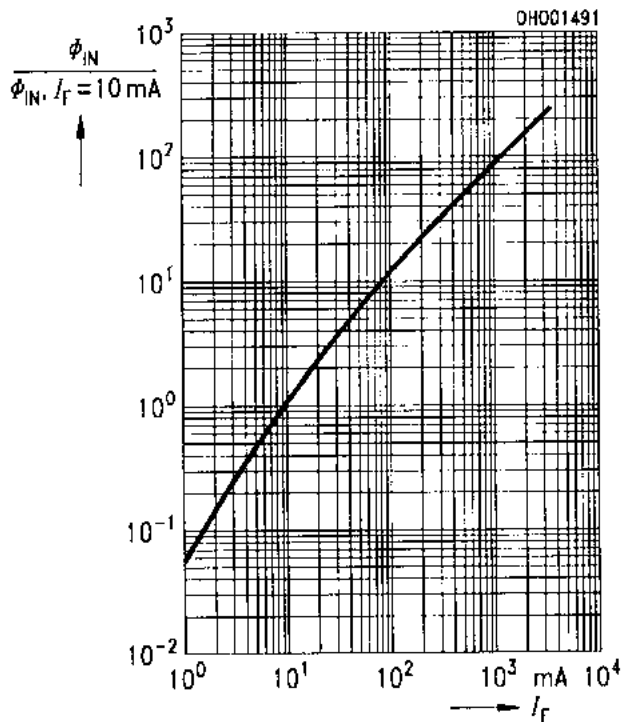
Relative Spectral Emission  $I_{rel} = f(\lambda)$



Forward Current  $I_F = f(V_F)$   
single pulse, duration = 20  $\mu$ s

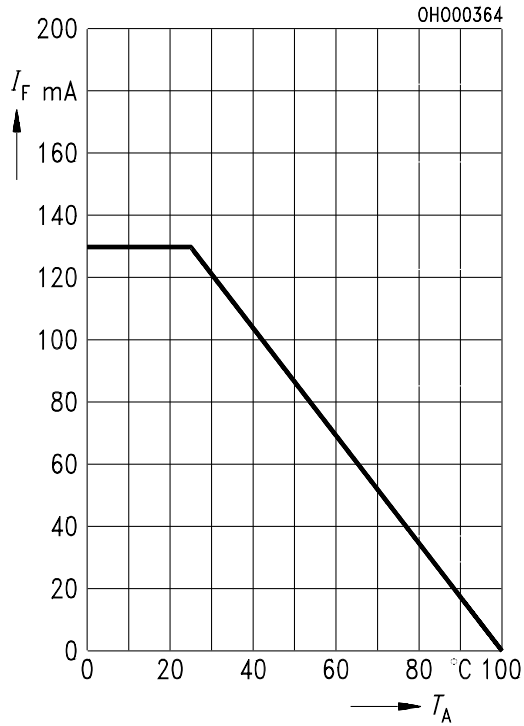


Relative Output Power  $\Phi_{IN}/\Phi_{IN(10\text{ mA})} = f(I_F)$

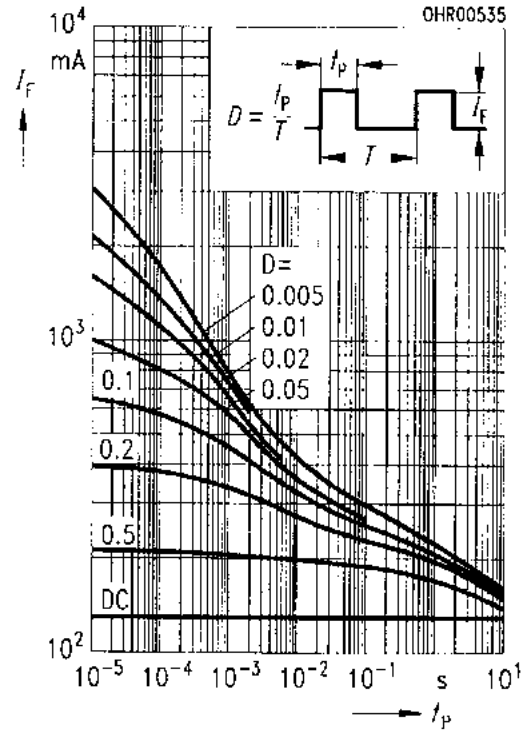


**Maximum Permissible Forward Current**

$I_F = f(T_A)$



**Permissible Pulse Load  $I_F = f(t_P)$ ,  
duty cycle  $D =$  parameter,  $T_A = 25^\circ\text{C}$**



Package Outlines

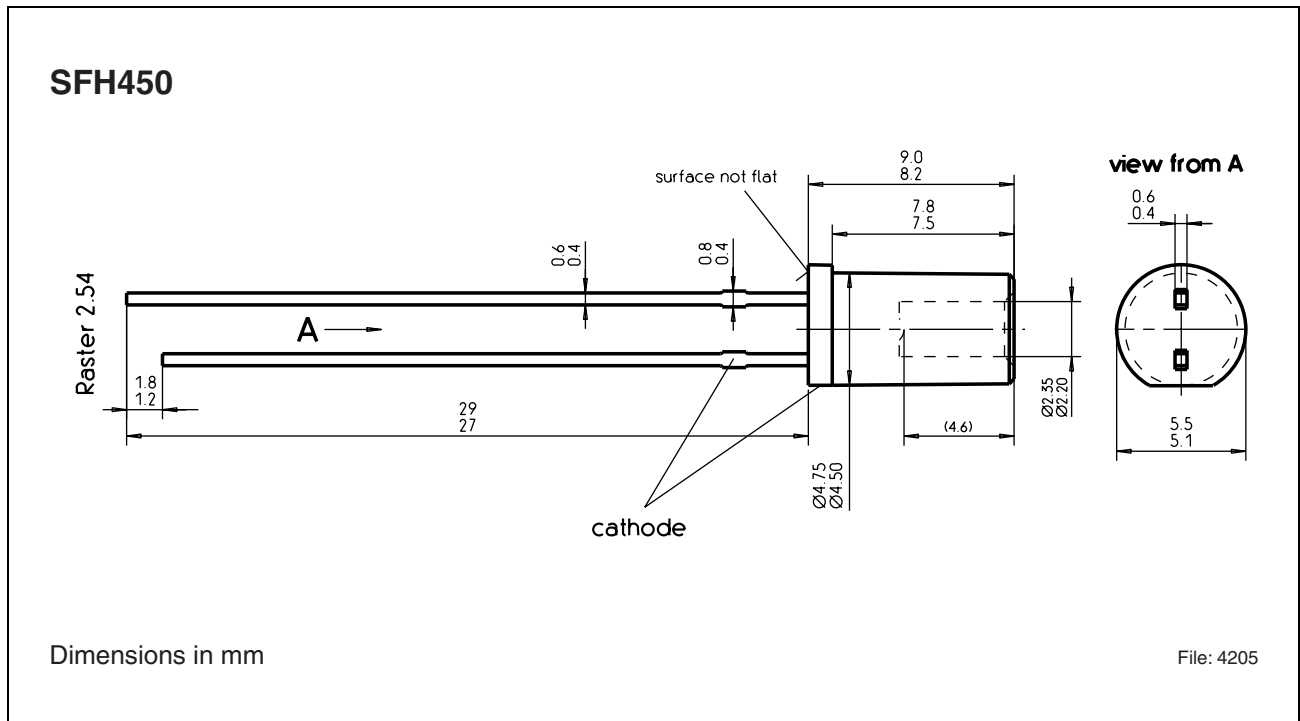


Figure 1

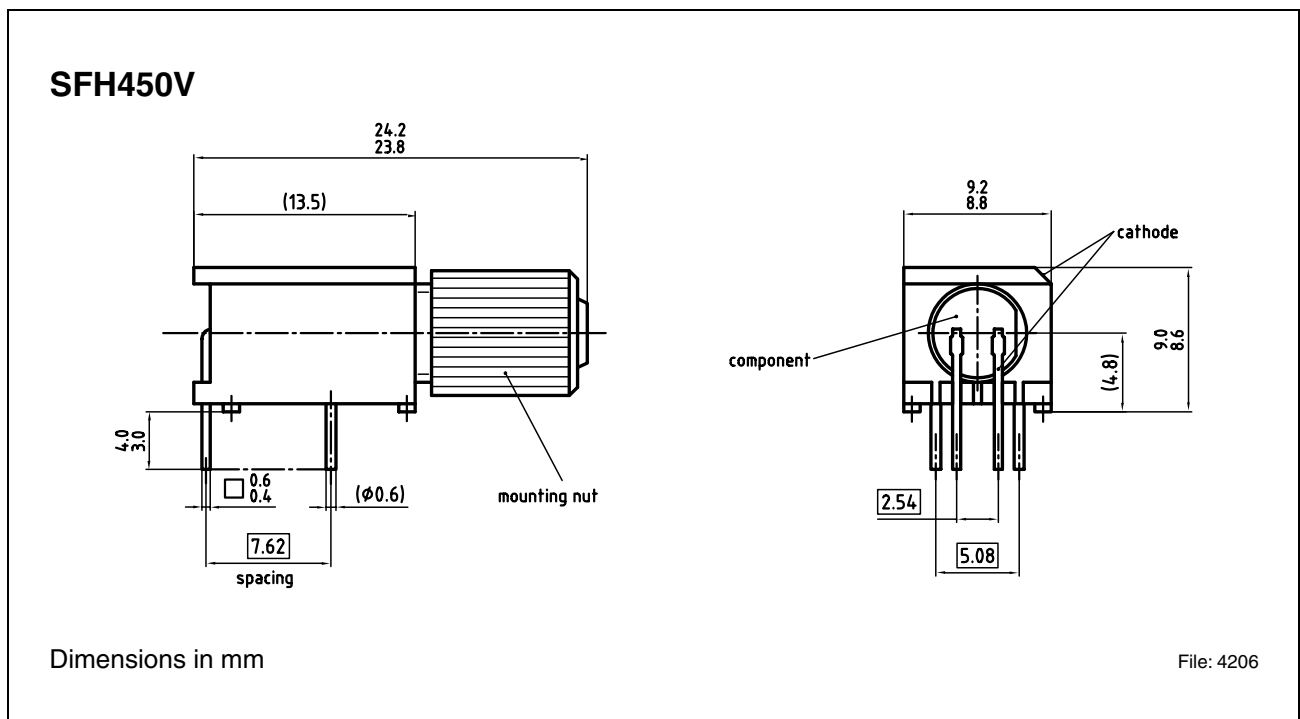


Figure 2

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**SFH450**  
**SFH450V**

**Revision History:**           **2004-03-19**

DS1

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Previous Version:           2002-03-14

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