

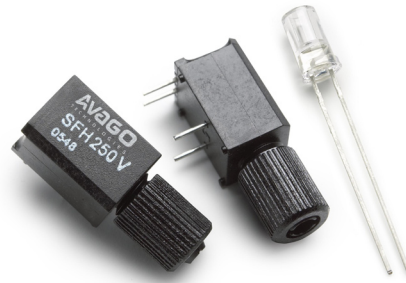
# SFH250 / SFH250V

## Plastic Fiber Optic Photodiode Detector

### Plastic Connector Housing



## Data Sheet



### Description

The SFH250 is a low-cost 650nm receiver diode for simple optical data transmission with polymer optical fiber. It incorporates an analog photodiode and can be used for speeds up to 100MBd.

The transparent plastic package has an aperture where the 2.2mm fiber end can be inserted and fixed with glue. This easy coupling method is extremely cost-effective.

The V-housing allows easy coupling of unconnectorized 2.2mm plastic optical fiber by means of an axial locking screw.

### Ordering Information

Type	Ordering Code
SFH250	SP000063866
SFH250V	SP000063852

### Features

- 2.2 mm Aperture holds Standard 1000 Micron Plastic Fiber
- No Fiber Stripping Required
- Fast Switching Time
- Good Linearity
- Sensitive in visible and near IR Range
- 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

## 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 (2mm from case bottom, $t \leq 5$ s)	$T_S$		260	°C
Reverse Voltage	$V_R$		30	V
Power Dissipation	$P_{TOT}$		100	mW
Thermal Resistance, Junction/Air	$R_{thJA}$		750	K/W

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

Parameter	Symbol	Values			Unit
		Min	Typ	Max	
Maximum Photosensitivity Wavelength	$\lambda_{Smax}$		850		nm
Photosensitivity Spectral Range ( $S = 10\% S_{max}$ )	$\lambda$	400		1100	nm
Dark Current ( $V_R = 20$ V)	$I_R$		1 ( $\leq 10$ )		nA
Capacitance ( $f = 1$ MHz, $V_R = 0$ V)	$C_0$		11		pF
Rise and Fall Times of Photo Current ( $R_L = 50 \Omega$ , $V_R = 30$ V, $\lambda = 880$ nm)					$\mu\text{s}$
10% to 90%	$t_R$		0.01		
90% to 10%	$t_F$		0.01		
Photo Current ( $\Phi_{IN} = 10 \mu\text{W}$ coupled from the end of a plastic fiber, $V_R = 5$ V)					$\mu\text{A}$
$\lambda = 660$ nm	$I_P$		3 ( $\geq 1.6$ )		
$\lambda = 950$ nm			4 ( $\geq 2.5$ )		
Temperature Coefficient $I_P \lambda = 560$ to $660$ nm	$TC_I$		-0.04		%/K
Temperature Coefficient $I_P \lambda = 830$ nm			0.04		
Temperature Coefficient $I_P \lambda = 950$ nm			0.2		

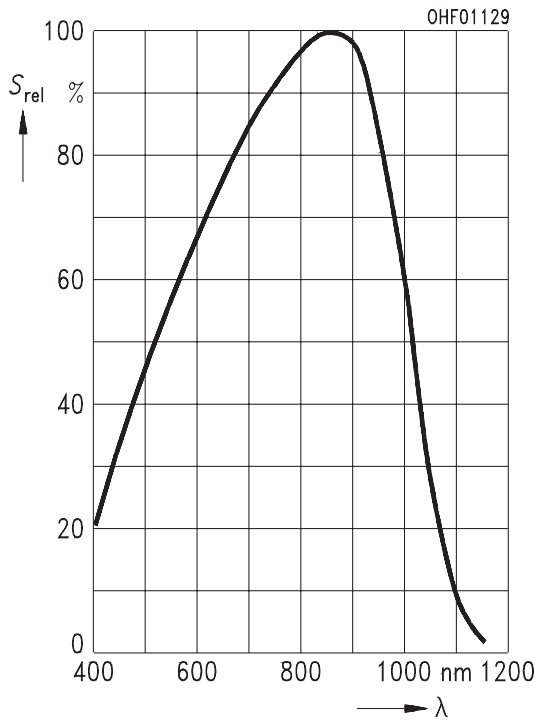


Figure 1. Relative Spectral Sensitivity  $S_{rel} = f(\lambda)$

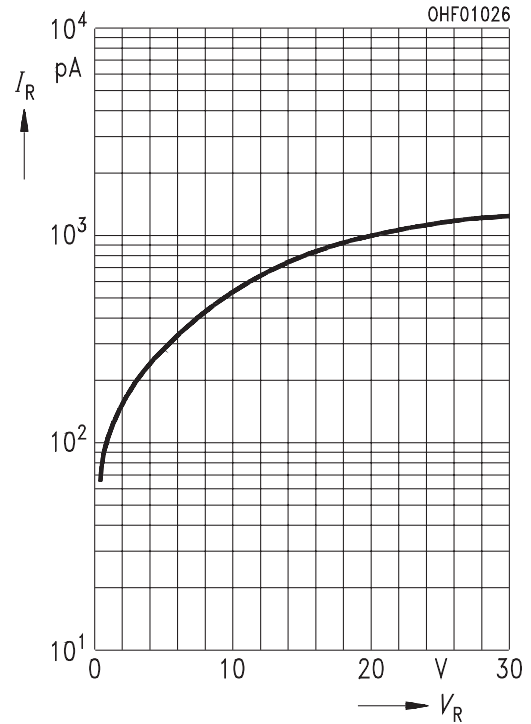


Figure 2. Dark Current  $I_R = f(V_R)$ ,  $T_A = 25^\circ\text{C}$

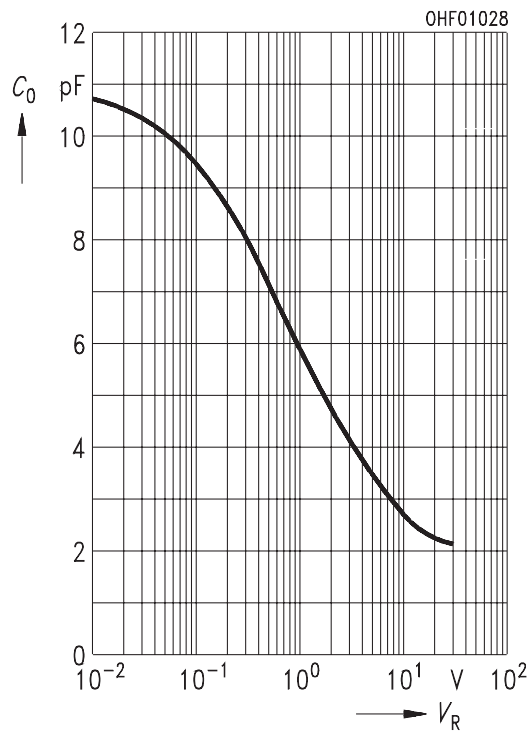


Figure 3. Capacitance  $C_0 = f(V_R)$ ,  $f = 1\text{ MHz}$ ,  $E_V = 0$

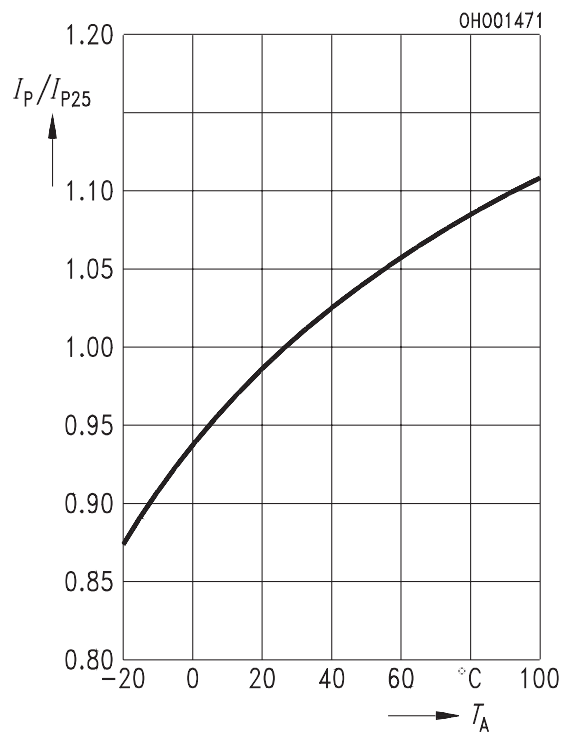
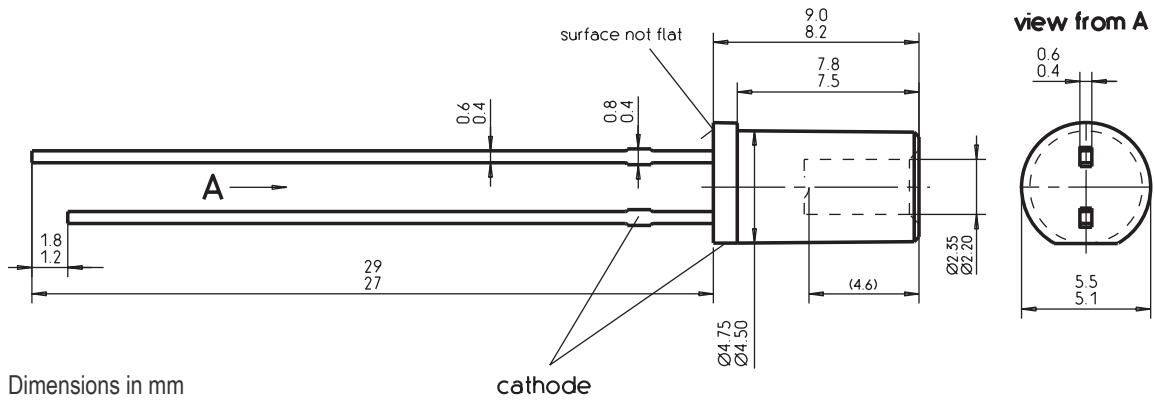


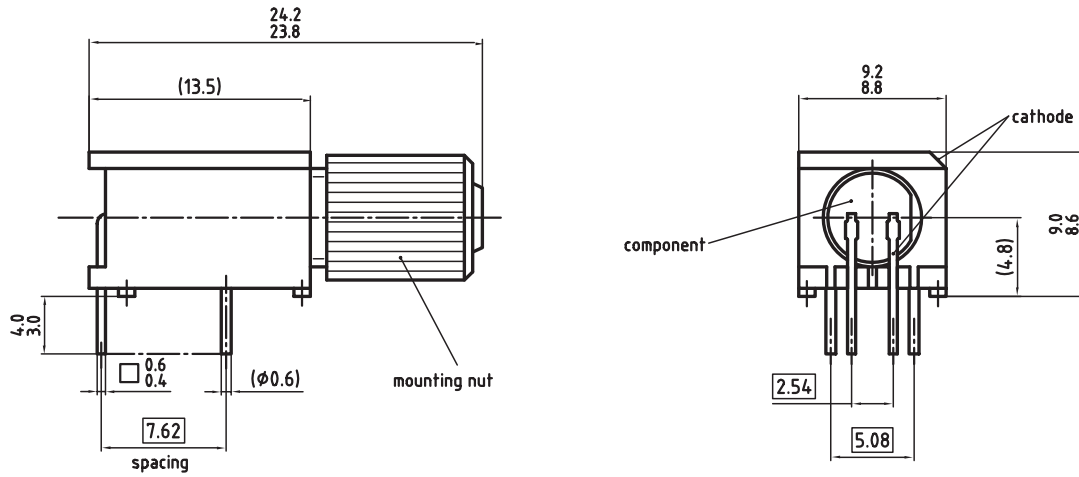
Figure 4. Photocurrent  $I_P/I_{P25} = f(T_A)$ ,  $\lambda = 950\text{ nm}$

# Package Outlines



Dimensions in mm

Figure 5. SFH250



Dimensions in mm

Figure 6. SFH250V

## **Disclaimer**

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