

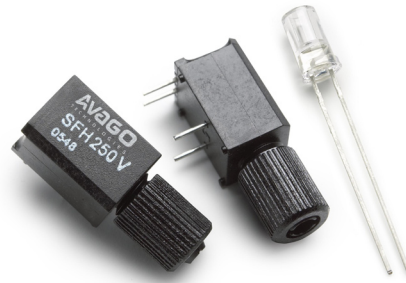
SFH250 / SFH250V

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 | λ_{Smax} | | 850 | | nm |
| Photosensitivity Spectral Range ($S = 10\% S_{max}$) | λ | 400 | | 1100 | nm |
| Dark Current ($V_R = 20$ V) | I_R | | 1 (≤ 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) | | | | | μs |
| 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) | | | | | μA |
| $\lambda = 660$ nm | I_P | | 3 (≥ 1.6) | | |
| $\lambda = 950$ nm | | | 4 (≥ 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 | | |

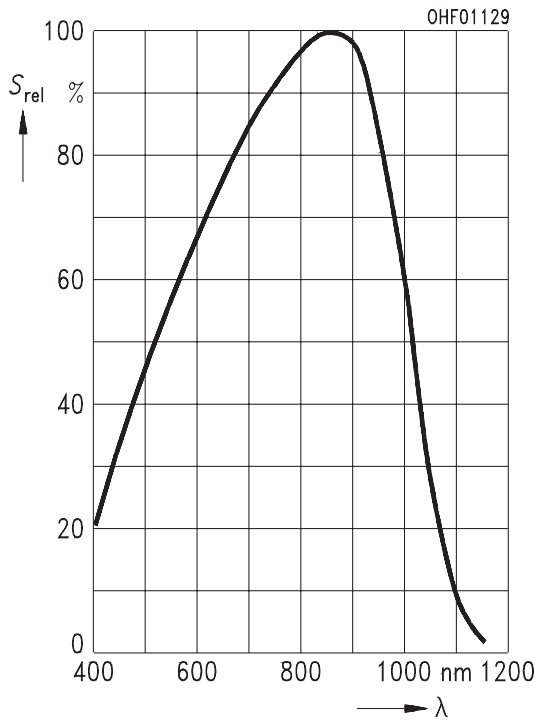


Figure 1. Relative Spectral Sensitivity $S_{rel} = f(\lambda)$

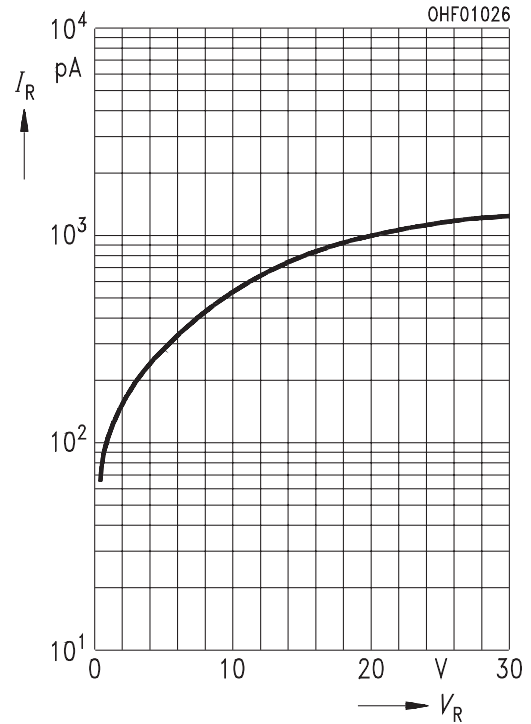


Figure 2. Dark Current $I_R = f(V_R)$, $T_A = 25^\circ\text{C}$

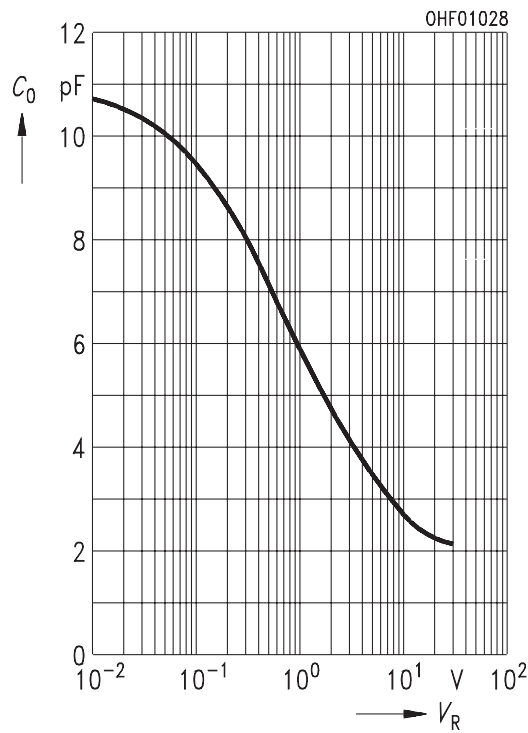


Figure 3. Capacitance $C_0 = f(V_R)$, $f = 1$ MHz, $E_V = 0$

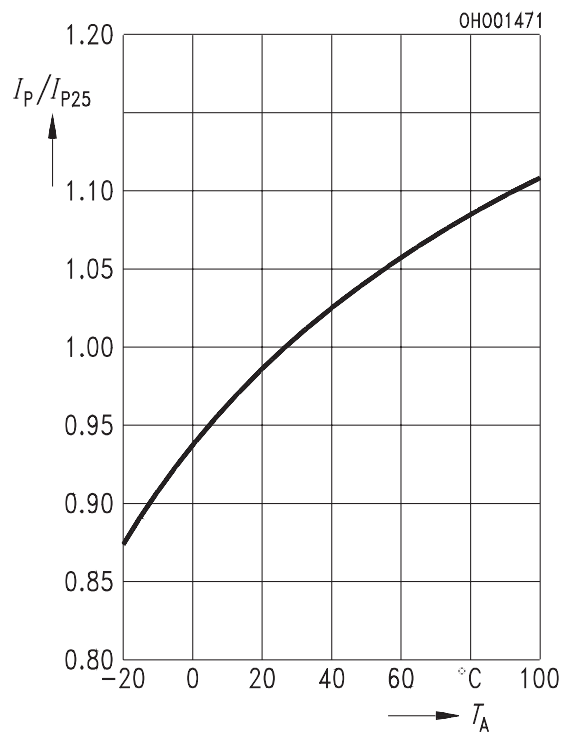
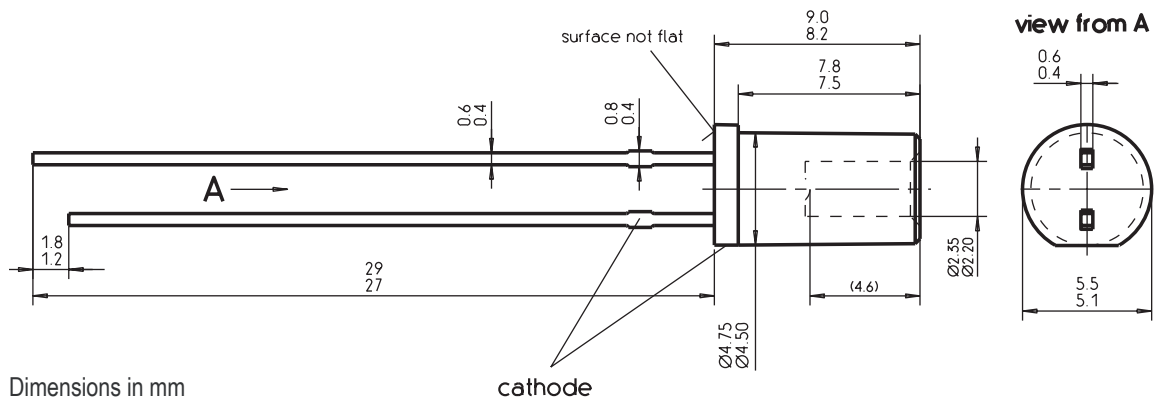


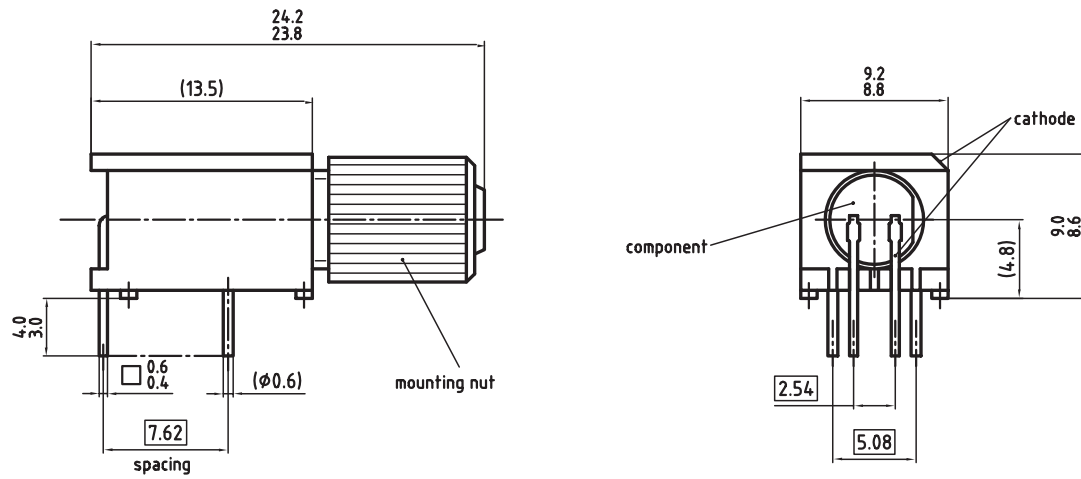
Figure 4. Photocurrent $I_P/I_{P25} = f(T_A)$, $\lambda = 950$ nm

Package Outlines



Dimensions in mm

Figure 5. SFH250



Dimensions in mm

Figure 6. SFH250V

Disclaimer

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