FEATURES

- TO-18 Hemetic Package
- Flat Glass Lens
- For Fiber Optic Communications

DESCRIPTION

SFH202 and SFH202a are planar silicon PIN photodiodes. The case (18A2 DIN 41876 — similar to TO-18) has a flat glass lens top. The cathode is electrically connected to the case. The diode is a receiver with high operating frequency, very low reverse current, and fast switching time. Because of the flat lens, the diode is especially suitable for use with fiber optic cables, up to 560 Mbits.

Maximum Ratings

- Reverse Voltage \((V_R)\)
- Storage Temperature Range \((T_S)\)
- Junction Temperature \((T_J)\)

Characteristics \((T_{amb} = 25°C)\)

- Wavelength of Max Photosensitivity \(\lambda_{max}\)
- Radiant Sensitive Area \(A\)
- Dark Current \(I_D\)
- Spectral Sensitivity \(S\)
- Quantum Yield (Electrons per photon)
- Rise Time of the Photocurrent
- Cut-off Frequency
- Capacitance
- Temperature Coefficient for \(I_P\)
- Noise Equivalent Power \((V_R = 20 V)\)
- Detection Limit

Package Dimensions in Inches (mm)
FEATURES
- 2.3 mm Aperture Holds Standard 1000 Micron Plastic Fiber
- No Fiber Stripping Required
- Daylight Rejection Filter (SFH250F)
- High Reliability
- Low Noise
- Fast Switching Times
- Low Capacitance
- Very Good Linearity
- Sensitive in the Visible (SFH250) and Near IR Range (SFH250 & 250F)
- Molded Micro lens for Efficient Coupling

DESCRIPTION
The SFH250/250F are fast silicon PIN photodiodes in a low cost plastic package for use in short distance data transmission using 1000 micron plastic fibers. Both come in a 5 mm (T14) plastic package featuring a tubular aperture which is wide enough to accommodate fiber and cladding. A micro lens on the bottom of the aperture improves the light coupling efficiency of the fiber output into the photodiode.

The SFH250 has a clear plastic housing; the SFH250F has a black plastic housing.

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

For application information see Appendix 40

Maximum Ratings
- Operating and Storage Temperature Range (T) -55 to +100°C
- Soldering Temperature (Distance from solder to package = 2 mm) 260°C
- Reverse Voltage (V_r) 30 V
- Power Dissipation (P_diss) 100 mW
- Thermal Resistance (R_thermal) 750 K/W

Characteristics (T_amb = 25°C)
- Wavelength of Max. Photosensitivity SFH250 λ_{max} 850 nm
- SFH250F λ_{max} 900 nm
- Spectral Range of Photosensitivity (S = 10% of S_{max}) SFH250 λ 400 to 1100 nm
- SFH250F λ 800 to 1100 nm
- Dark Current (I_0) 1 ≤ 10 A
- Quantum Efficiency (λ = 850 nm) η 0.89
- Rise and Fall Time of the Photocurrent from 10% to 90%, respectively. 10 ns
- Capacitance (V_S = 0 V, f = 1 MHz, E = 0 kV) C 11 pF
- Noise Equivalent Power NEP 2.9 × 10^{-14} \sqrt{Hz}
- Detection Limit (V_S = 20 V) D_L 3.5 × 10^{-12} \sqrt{cm \cdot Hz}

1 Photocurrent generated at 10 µW light incidence through plastic 1000 micron fiber (distance between fiber and package = 1 mm, fiber type ESKA EH4001 fiber face polished)