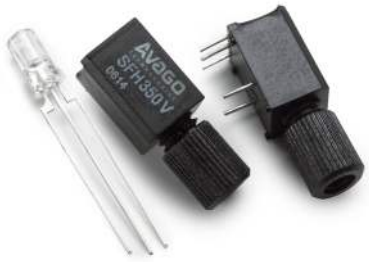
SFH350 / SFH350V

Plastic Fiber Optic Phototransistor Detector
Plastic Connector Housing

Data Sheet



Description

The SFH350 is a low-cost 650nm receiver for simple optical data transmission with polymer optical fiber. The phototransistor yields a high output crurrent even at low optical input power and can be used for speeds up to 15kBd.

The transparent plastic package has an aperture where the 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
SFH350	SP000063861
SFH350V	SP000063853

Features

- 2.2 mm Aperture holds Standard 1000 Micron Plastic Fiber
- No Fiber Stripping Required
- 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 Network

Technical Data

Absolute Maximum Ratings

Parameter	Symbol	Limit Values min.	Limit Values max.	Unit
Operating Temperature Range	T_{OP}	–40	+85	°C
Storage Temperature Range	T_{STG}	–40	+100	°C
Soldering Temperature (2mm from case bottom, t ≤ 5 s)	T_S		260	°C
Collector-Emitter Voltage	V_{CE}		50	V
Collector Current	I_C		50	mA
Collector Peak Current (t ≤ 10 s)	I_{CP}		100	mA
Emitter-Bias Voltage	V_{EB}		7	V
Reverse Voltage	V_R		30	V
Power Dissipation $T_A = 25°C$	P_{TOT}		200	mW
Thermal Resistance, Junction/Air	R_{thJA}		375	K/W

Characteristics (TA = 25°C)

Parameter	Symbol	Values min.	Values typ.	Values max.	Unit
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, without light)					pF
($V_{CE} = 0$ V)	C_{CE}		10.5		
($V_{CB} = 0$ V)	C_{CB}		21.5		
($V_{EB} = 0$ V)	C_{EB}		20.5		
Rise and Fall Times ofPhoto Current ($R_L = 1$ kΩ, $V_{CE} = 5$ V, $I_C = 1.0$ mA, $\lambda = 959$ nm)					ms
10% to 90%	t_R		20		
90% to 10%	t_F		20		
Current Gain	HFE		500		
Collector Dark Current($V_{CE} = 5$ V)	I_{CE0}		2 (≤ 50)		nA
Photo Current (VCE = 5 V,$\Phi_{IN} = 10$ μW coupled from the end of a plastic fiber, $\lambda = 660$nm)	I_{CE}		0.8(≥ 0.16)		mA
Temperature Coefficient HFE	TC_{HFE}		0.55		%/K
Temperature Coefficient I_{CE} λ = 560 to 660 nm	TC_I		0.34		%/K
Temperature Coefficient I_{CE} $\lambda = 830$ nm			0.49		
Temperature Coefficient I_{CE} $\lambda = 950$ nm			0.66		

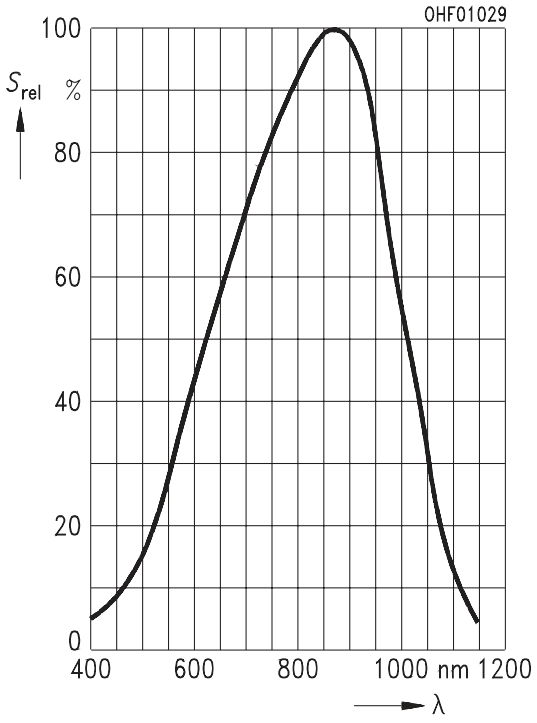


Figure 1. Relative Spectral Sensitivity $S_{rel} = f(\lambda)$

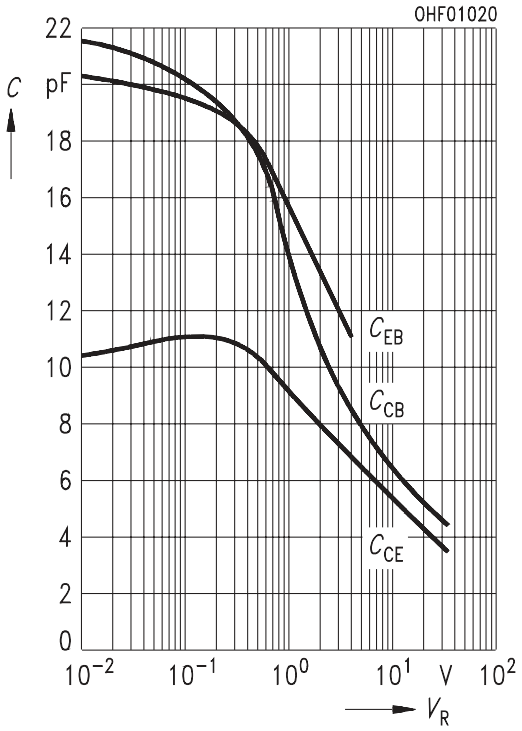


Figure 2. Capacitance $C = f(V_R)$, $f = 1$ MHz, $E_V = 0$

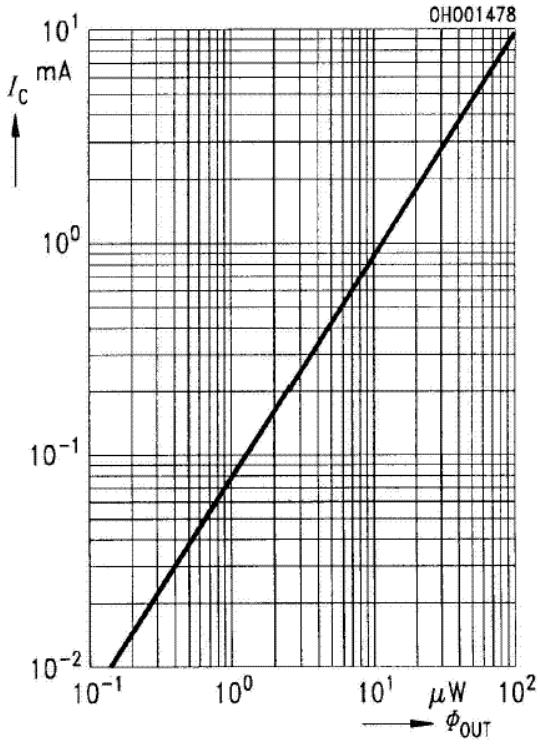


Figure 3. Photocurrent $I_C = f(\Phi_{OUT})$, $V_{CE} = 5$ V, $\lambda = 560...950$ nm

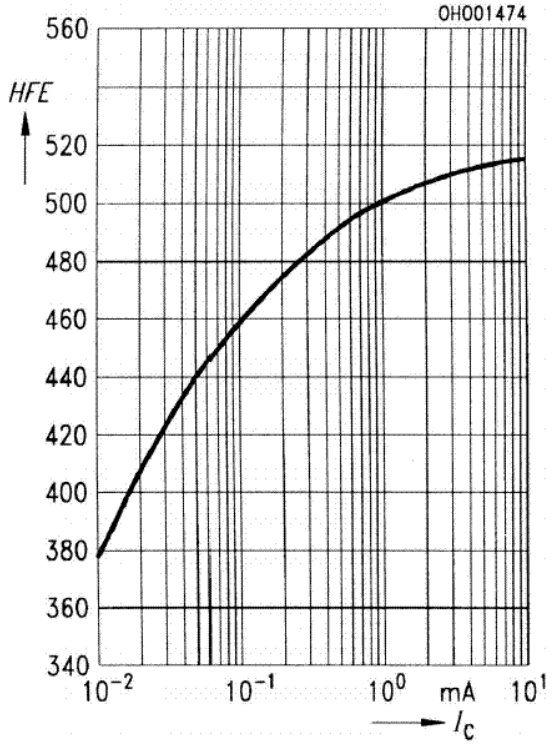


Figure 4. Current Gain $HFE = f(I_C)$, $V_{CE} = 5$ V, $T_A = 25°C$

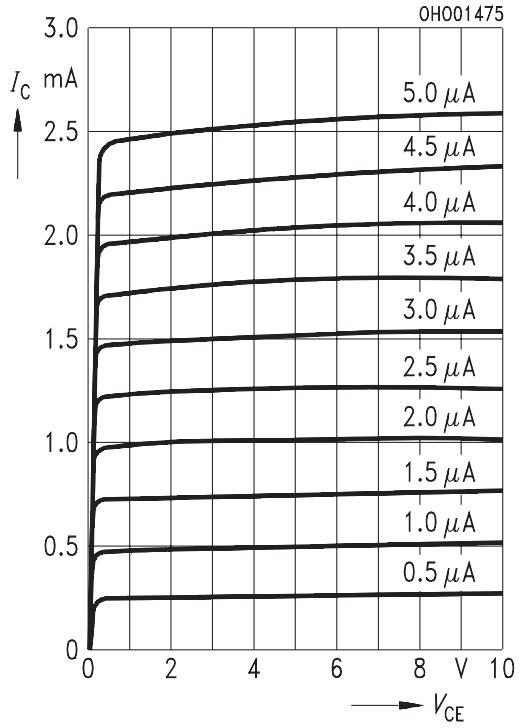


Figure 5. Output Characteristics $I_C = f(V_{CE})$, I_B = parameter

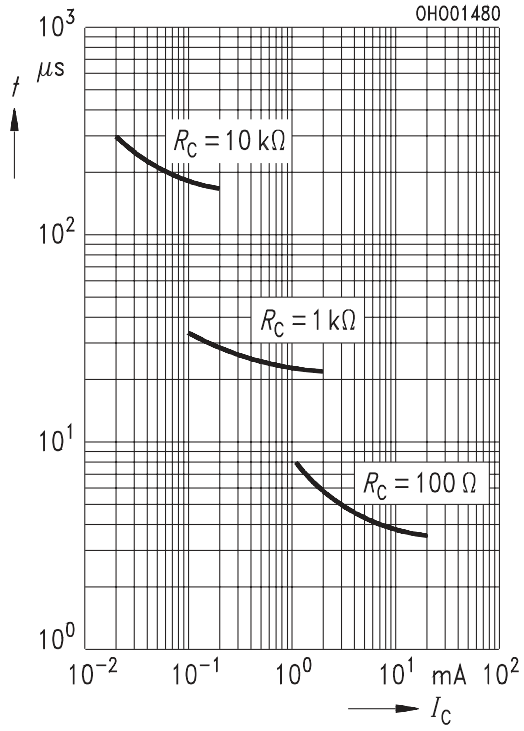


Figure 6. Response Time $t = f(I_C)$, V_{CC} = 5 V, λ = 950 nm

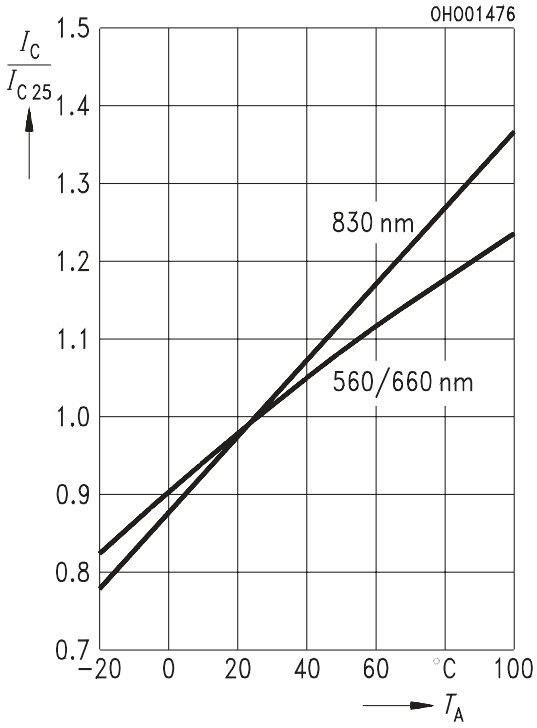


Figure 7. Photocurrent $I_C/I_{C25} = f(T_A)$, V_{CE} = 5 V, λ = parameter

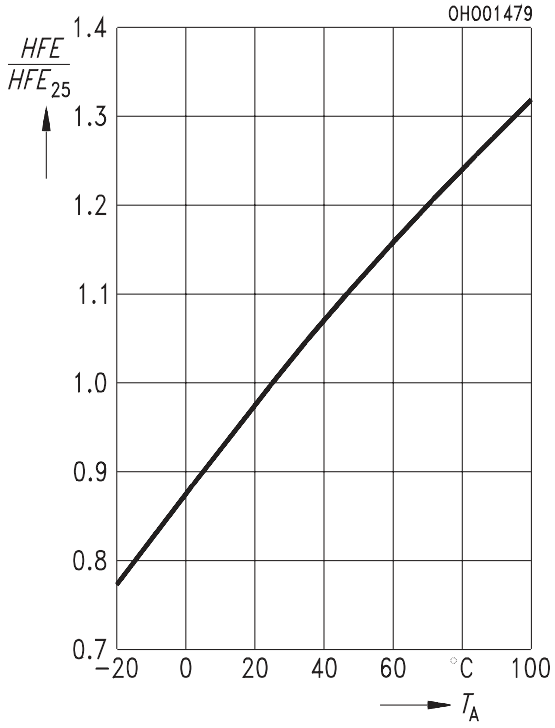
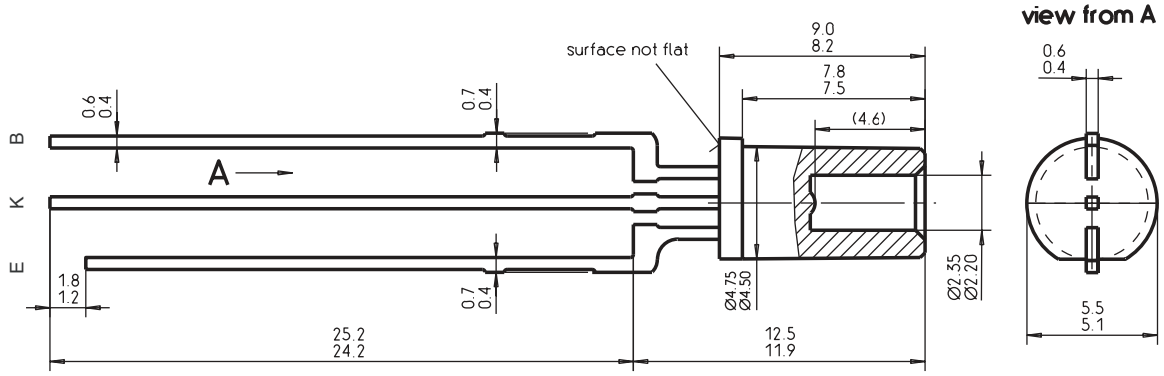


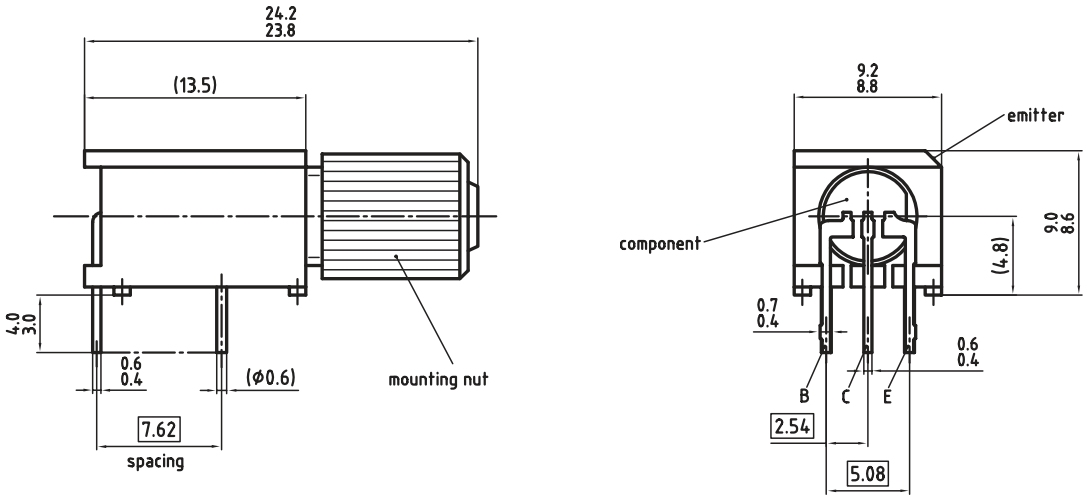
Figure 8. Current Gain $HFE/HFE_{25} = f(T_A)$, V_{CE} = 5 V, I_C = 1 mA

Package Outlines



Dimensions in mm

Figure 9. SFH350



Dimensions in mm

Figure 10. SFH350V

Disclaimer

The information herein is given to describe certain components and shall not be considered as a guarantee of characteristics.

Terms of delivery and rights to technical change reserved.We hereby disclaim any and all warranties, including but not limited to warranties of non-infringement, regarding circuits, descriptions and charts stated herein.

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in-question please contact your nearest Avago Technologies Office.

Avago Technologies Components may only be used in life-support devices or systems with the express written approval of Avago Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sus-tainand/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons maybe endangered.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Avago Technologies Office (www.avagotech.com).

For product information and a complete list of distributors, please go to our web site: **www.avagotech.com**

AV01-0712EN - July 18, 2007

AVAGO TECHNOLOGIES