

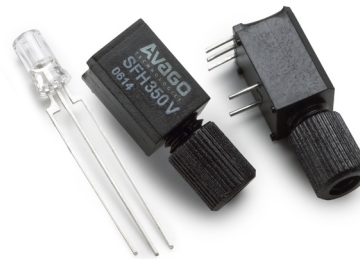
SFH350 / SFH350V

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 current even at low optical input power and can be used for speeds up to 15kBd.

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
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		Unit
		min.	max.	
Operating Temperature Range	T_{OP}	-40	+85	°C
Storage Temperature Range	T_{STG}	-40	+100	°C
Soldering Temperature (2mm from case bottom, $t \leq 5$ s)	T_S		260	°C
Collector-Emitter Voltage	V_{CE}		50	V
Collector Current	I_C		50	mA
Collector Peak Current ($t \leq 10$ s)	I_{CP}		100	mA
Emitter-Bias Voltage	V_{EB}		7	V
Reverse Voltage	V_R		30	V
Power Dissipation $T_A = 25^\circ\text{C}$	P_{TOT}		200	mW
Thermal Resistance, Junction/Air	R_{thJA}		375	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, 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 of Photo Current ($R_L = 1$ k Ω , $V_{CE} = 5$ 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_{CEO}		2 (≤ 50)		nA
Photo Current ($V_{CE} = 5$ 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} $\lambda = 560$ 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		

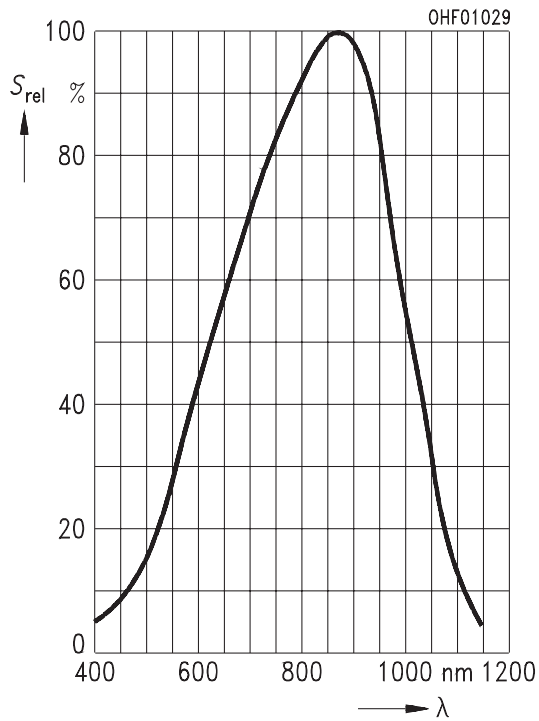


Figure 1. Relative Spectral Sensitivity $S_{rel} = f(\lambda)$

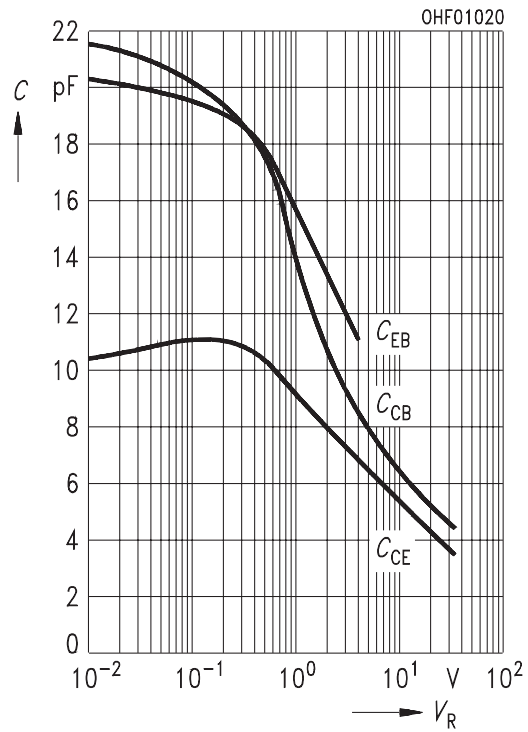


Figure 2. Capacitance $C = f(V_R)$, $f = 1 \text{ MHz}$, $E_V = 0$

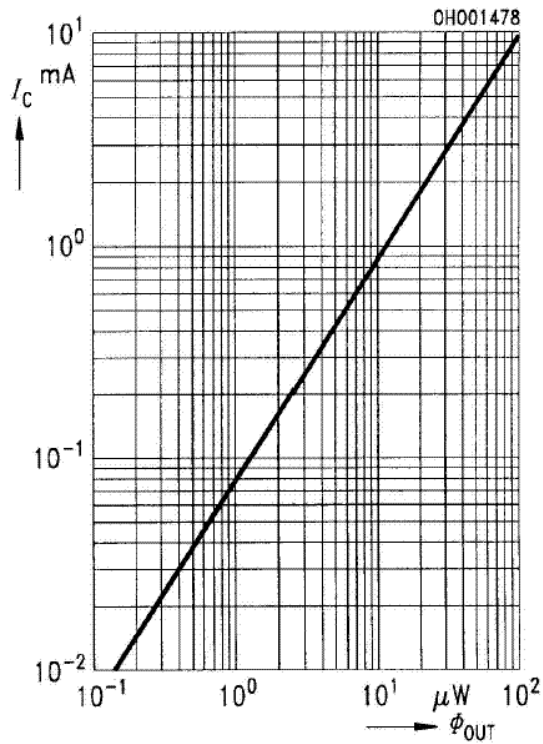


Figure 3. Photocurrent $I_C = f(\Phi_{OUT})$, $V_{CE} = 5 \text{ V}$, $\lambda = 560 \dots 950 \text{ nm}$

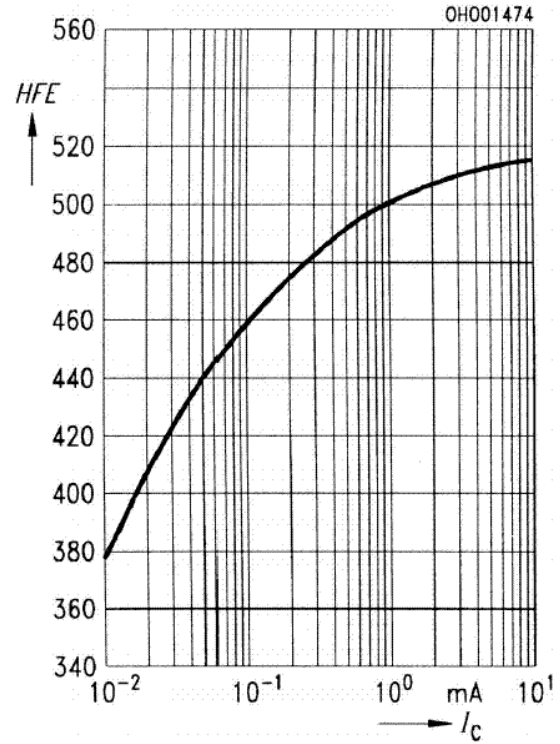


Figure 4. Current Gain $HFE = f(I_C)$, $V_{CE} = 5 \text{ V}$, $T_A = 25^\circ\text{C}$

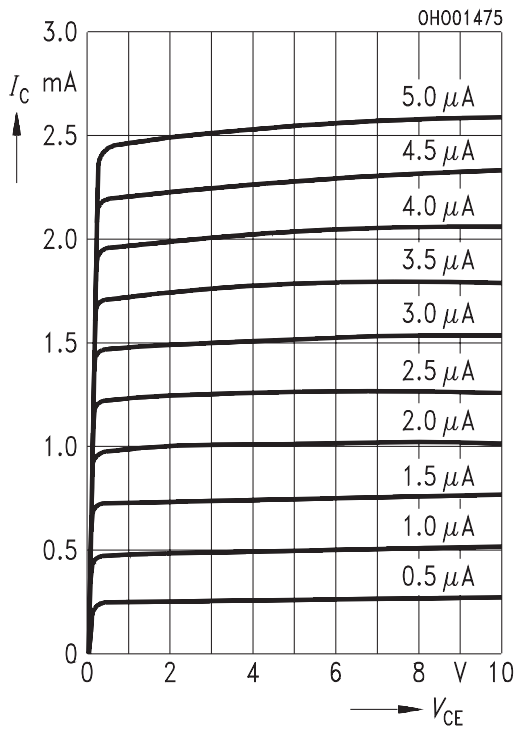


Figure 5. Output Characteristics $I_C = f(V_{CE})$, $I_B = \text{parameter}$

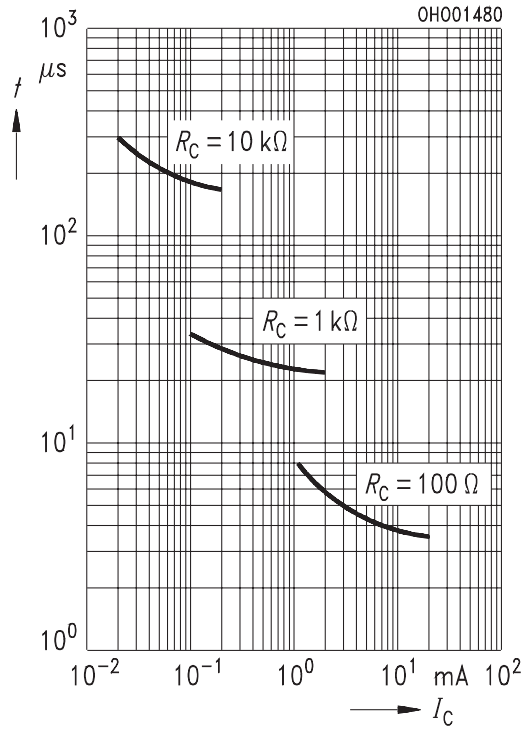


Figure 6. Response Time $t = f(I_C)$, $V_{CE} = 5$ V, $\lambda = 950$ nm

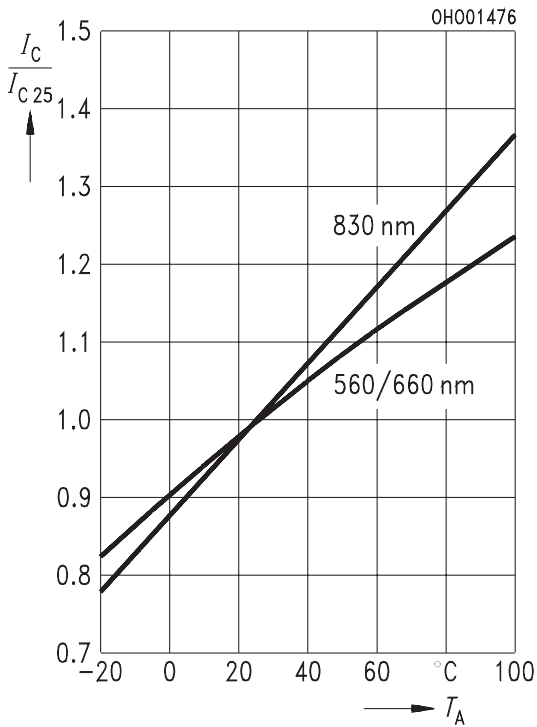


Figure 7. Photocurrent $I_C/I_{C25} = f(T_A)$, $V_{CE} = 5$ V, $\lambda = \text{parameter}$

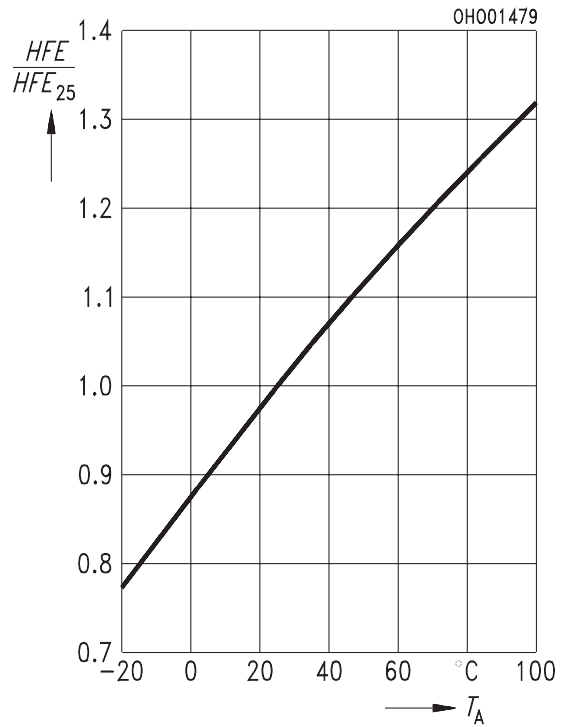
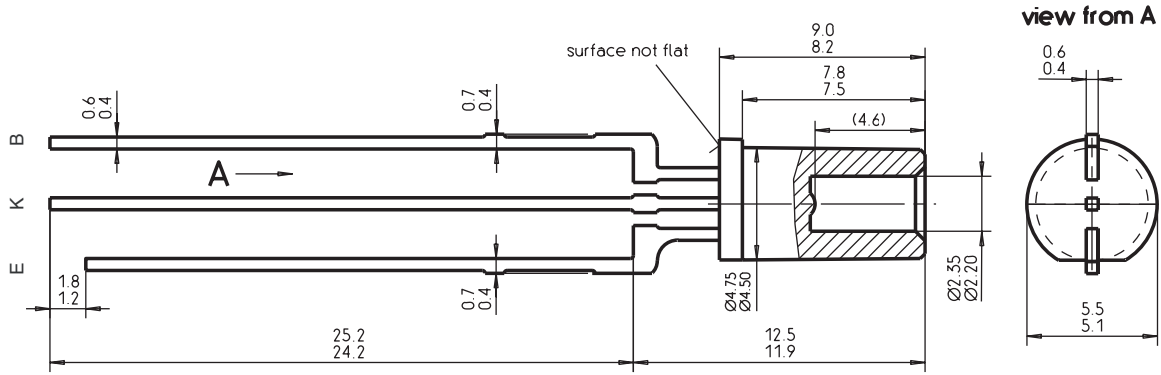


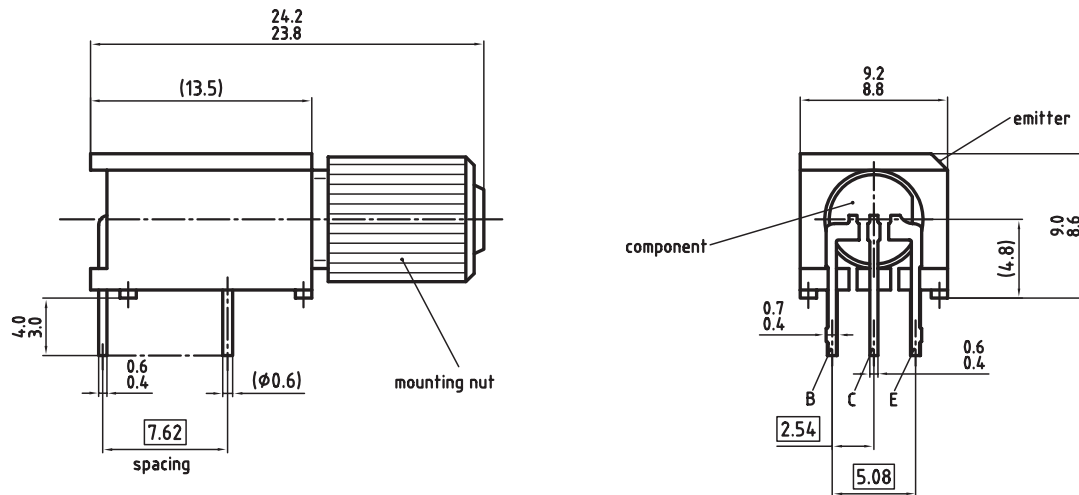
Figure 8. Current Gain $HFE/HFE_{25} = f(T_A)$, $V_{CE} = 5$ V, $I_C = 1$ mA

Package Outlines



Dimensions in mm

Figure 9. SFH350



Dimensions in mm

Figure 10. SFH350V

Disclaimer

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