

**Plastic Fiber Optic Phototransistor Detector  
Plastic Connector Housing**

**SFH350  
SFH350V**

**Features**

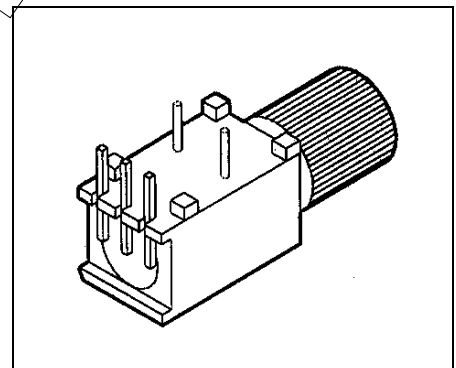
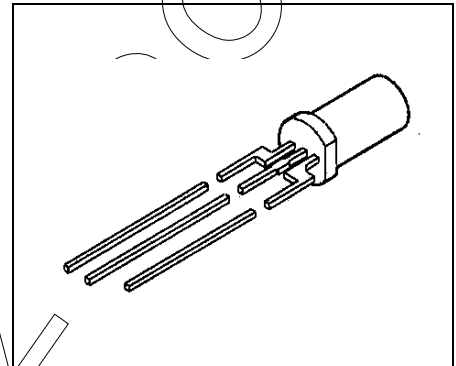
- 2.2 mm Aperture holds Standard 1000 Micron Plastic Fiber
- No Fiber Stripping Required
- Good Linearity
- Sensitive in visible and near IR Range
- Molded Microlens for Efficient Coupling

**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 Networks
- Light Barriers



Type	Ordering Code
SFH350	Q62702-P1033
SFH350V	Q62702-P0264

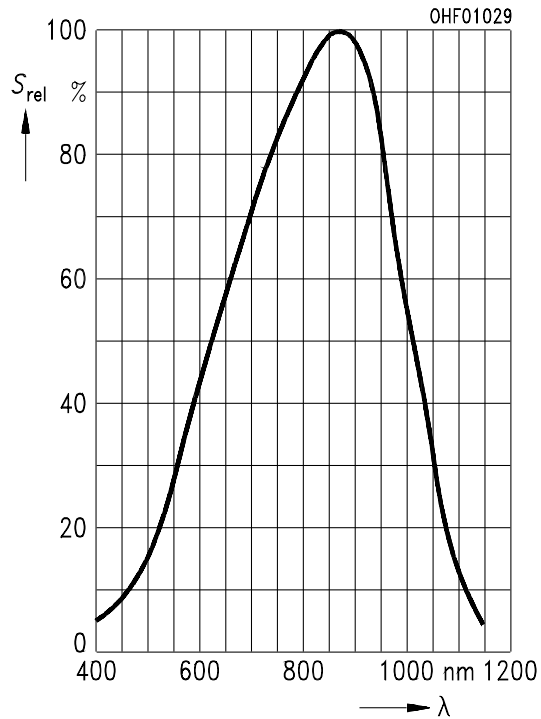
**Technical Data**
**Absolute Maximum Ratings**

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 (2 mm 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

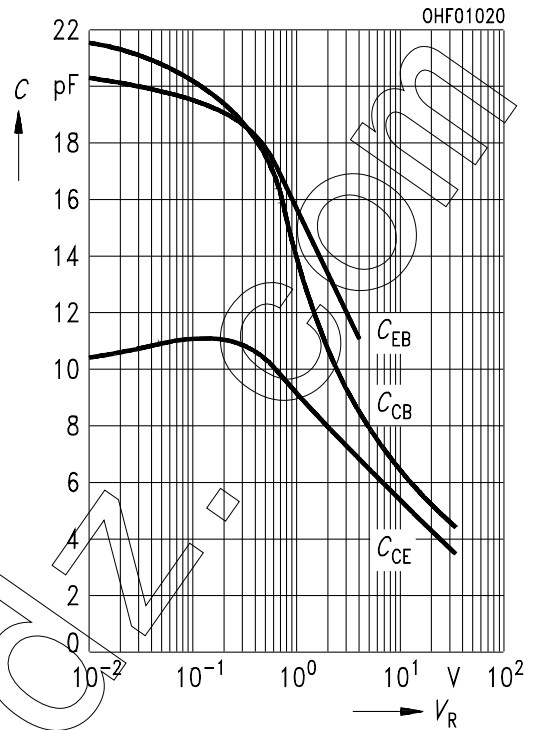
**Characteristics** ( $T_A = 25^\circ\text{C}$ )

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Maximum Photosensitivity Wavelength	$\lambda_{Smax}$		850		nm
Photosensitivity Spectral Range ( $S = 10\% S_{max}$ )	$\lambda$	400		1100	nm
Dark Current ( $V_R = 20\text{ V}$ )	$I_R$		1 ( $\leq 10$ )		nA
Capacitance ( $f = 1\text{ MHz}$ , without light) ( $V_{CE} = 0\text{ V}$ ) ( $V_{CB} = 0\text{ V}$ ) ( $V_{EB} = 0\text{ V}$ )	$C_{CE}$ $C_{CB}$ $C_{EB}$		10.5 21.5 20.5		pF
Rise and Fall Times of Photo Current ( $R_L = 1\text{ k}\Omega$ , $V_{CE} = 5\text{ V}$ , $I_C = 1.0\text{ mA}$ , $\lambda = 959\text{ nm}$ ) 10% to 90% 90% to 10%	$t_R$ $t_F$		20 20		$\mu\text{s}$
Current Gain	HFE		500		
Collector Dark Current ( $V_{CE} = 5\text{ V}$ )	$I_{CE0}$		2 ( $\leq 50$ )		nA
Photo Current ( $V_{CE} = 5\text{ V}$ , $\Phi_{IN} = 10\text{ }\mu\text{W}$ coupled from the end of a plastic fiber, $\lambda = 660\text{ nm}$ )	$I_{CE}$		0.8 ( $\geq 0.16$ )		mA
Temperature Coefficient HFE	$TC_{HFE}$		0.55		%/K
Temperature Coefficient $I_{CE}$ $\lambda = 560\text{ to }660\text{ nm}$	$TC_1$		0.34		%K
Temperature Coefficient $I_{CE}$ $\lambda = 830\text{ nm}$			0.49		
Temperature Coefficient $I_{CE}$ $\lambda = 950\text{ nm}$			0.66		

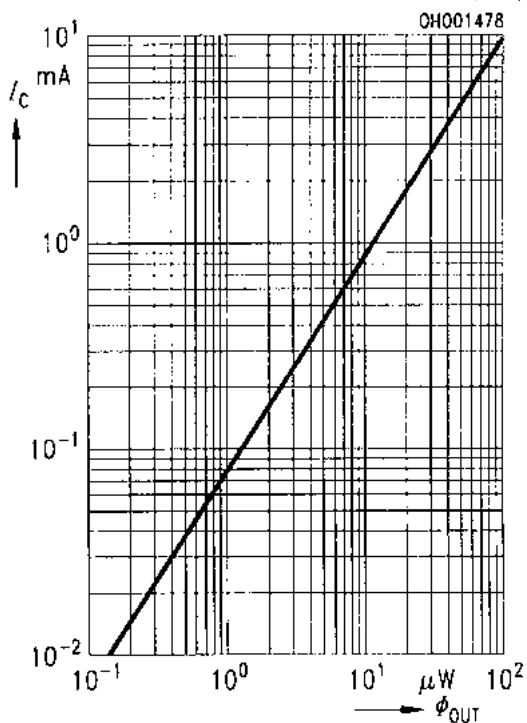
**Relative Spectral Sensitivity  $S_{rel} = f(\lambda)$**



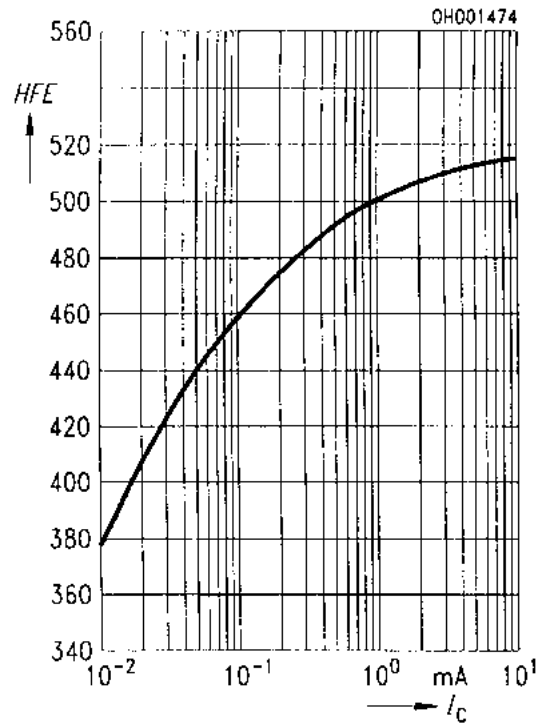
**Capacitance  $C = f(V_R), f = 1 \text{ MHz}, E_V = 0$**



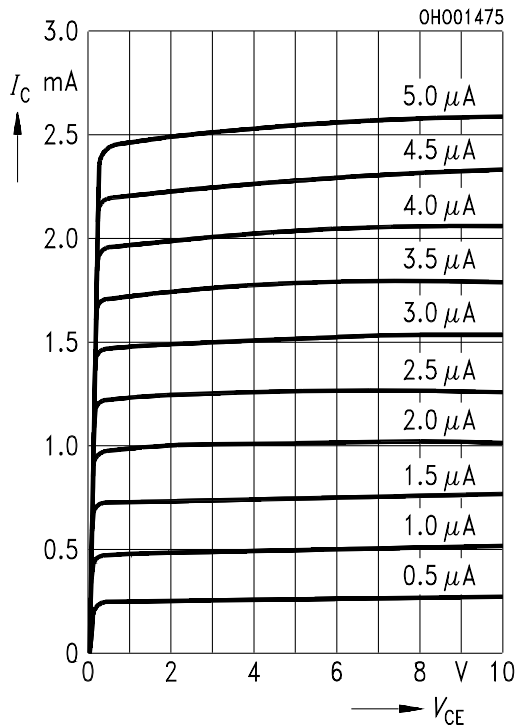
**Photocurrent  $I_C = f(\Phi_{OUT}), V_{CE} = 5 \text{ V}, \lambda = 560 \dots 950 \text{ nm}$**



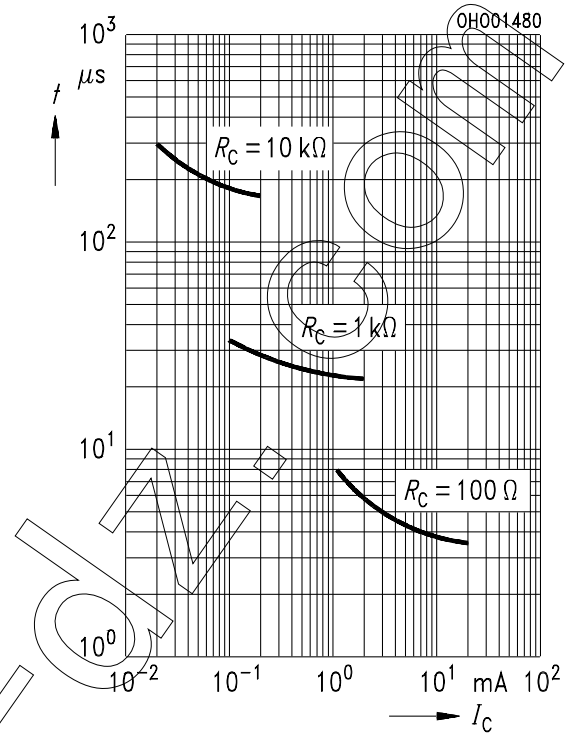
**Current Gain  $HFE = f(I_C), V_{CE} = 5 \text{ V}, T_A = 25^\circ\text{C}$**



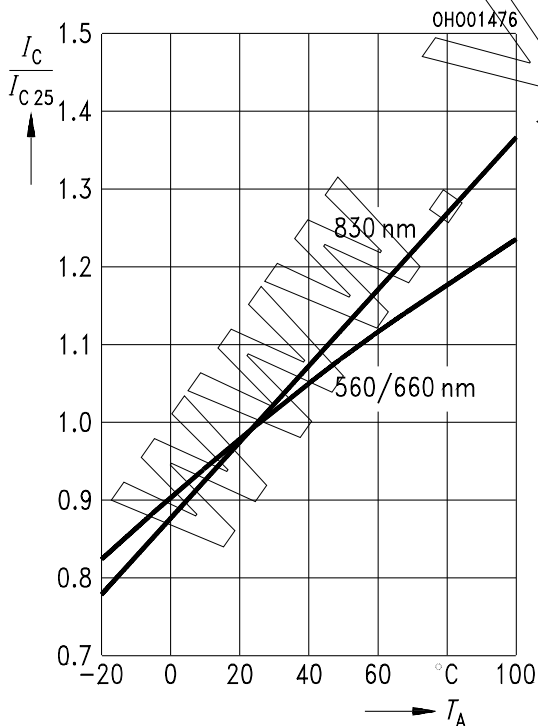
**Output Characteristics**  $I_C = f(V_{CE})$ ,  
 $I_B = \text{parameter}$



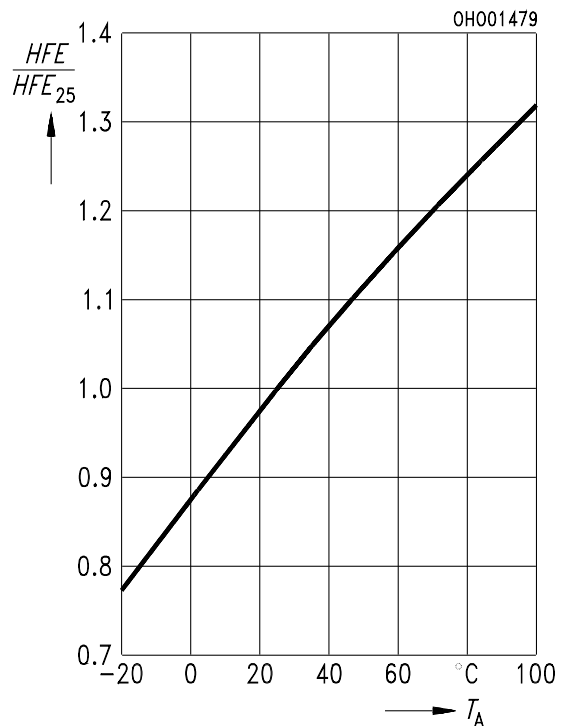
**Response Time**  $t = f(I_C)$ ,  $V_{CC} = 5 V$ ,  
 $\lambda = 950 \text{ nm}$



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



**Current Gain**  $HFE/HFE_{25} = f(T_A)$ ,  
 $V_{CE} = 5 V$ ,  $I_C = 1 \text{ mA}$



Package Outlines

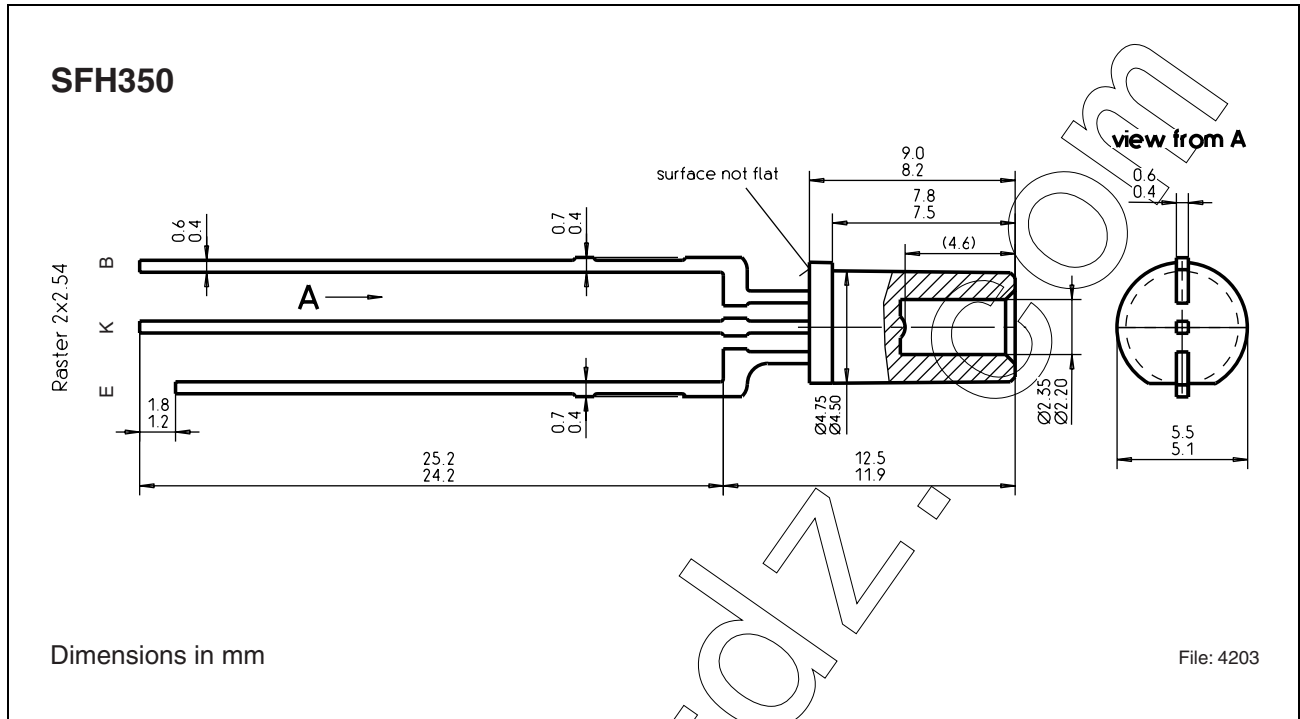


Figure 1

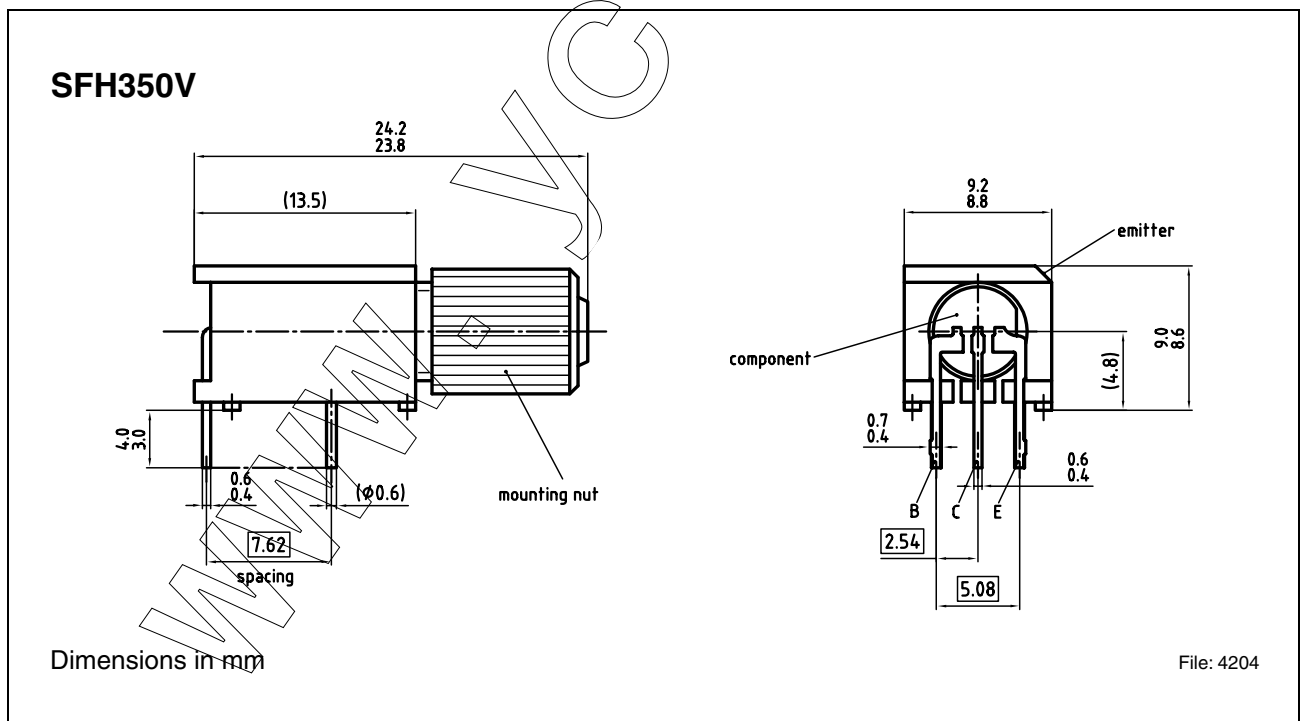


Figure 2

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**SFH350**  
**SFH350V**

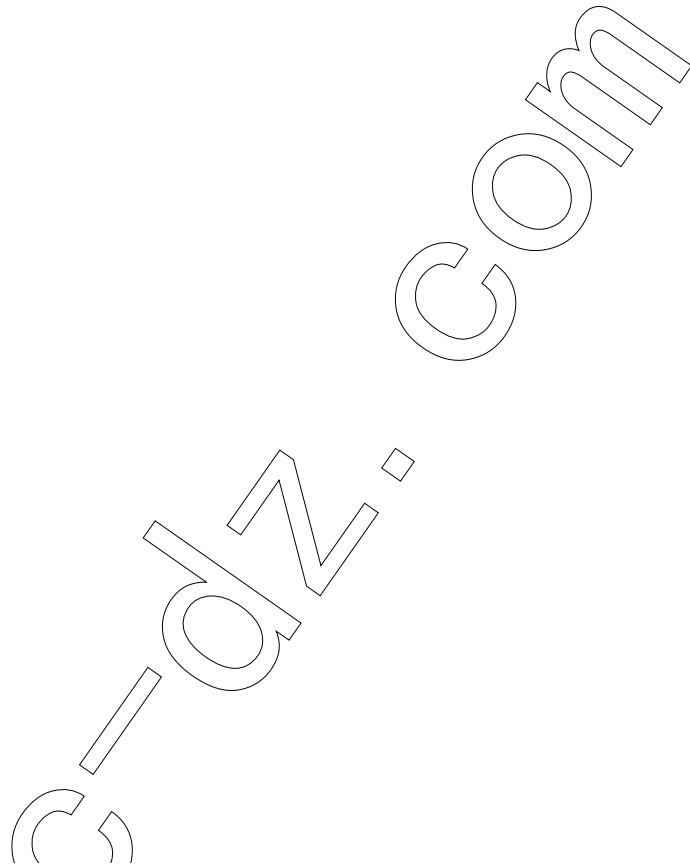
**Revision History:**           **2004-03-19**

**DS1**

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Previous Version:           2002-03-14

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