

Plastic Fiber Optic Phototransistor Detector Plastic Connector Housing

SFH350 SFH350V

Features

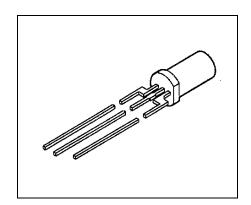
- 2.2 mm Aperture holds Standard 1000 Micron Plastic Fiber
- No Fiber Stripping Required
- Good Linearity
- Sensitive in visible and near IR Range
- Molded Microlens for Efficient Coupling

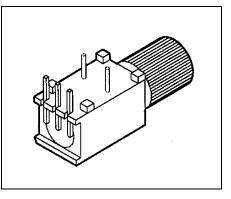
Plastic Connector Housing

- 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





| Туре | 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, $t \le 5$ 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 $T_A = 25^{\circ}\text{C}$ | P_{TOT} | | 200 | mW |
| Thermal Resistance, Junction/Air | R_{thJA} | | 375 | K/W |
| | | • | • | |

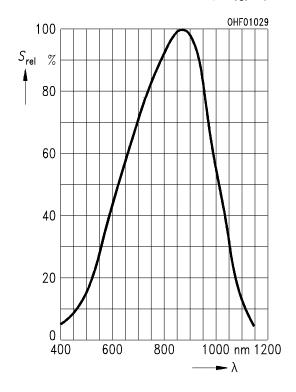


Characteristics ($T_A = 25^{\circ}\text{C}$)

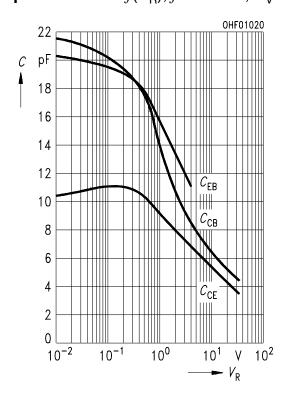
| Parameter | Symbol | Values | | | Unit |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------|----------------------|------|------|
| | | min. | typ. | max. | |
| Maximum Photosensitivity Wavelength | λ_{Smax} | | 850 | | nm |
| Photosensitivity Spectral Range $(S = 10\% S_{\text{max}})$ | λ | 400 | | 1100 | nm |
| Dark Current ($V_R = 20 \text{ V}$) | I_{R} | | 1 (≤ 10) | | nA |
| Capacitance $ (f = 1 \text{ MHz, without light}) $ $ (V_{\text{CE}} = 0 \text{ V}) $ $ (V_{\text{CB}} = 0 \text{ V}) $ $ (V_{\text{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} | | 20 20 | | μs |
| Current Gain | HFE | | 500 | | |
| Collector Dark Current $(V_{CE} = 5 \text{ V})$ | I_{CE0} | | 2 (≤ 50) | | nA |
| Photo Current (V_{CE} = 5 V, Φ_{IN} = 10 μ W coupled from the end of a plastic fiber, λ = 660 nm) | $I_{\sf CE}$ | | 0.8 (≥ 0.16) | | mA |
| Temperature Coefficient HFE | TC_{HFE} | | 0.55 | | %/K |
| Temperature Coefficient I_{CE} λ = 560 to 660 nm | TC_1 | | 0.34 | | %/K |
| Temperature Coefficient I_{CE} λ = 830 nm | | | 0.49 | | |
| Temperature Coefficient I_{CE} $\lambda = 950 \text{ nm}$ | | | 0.66 | | |



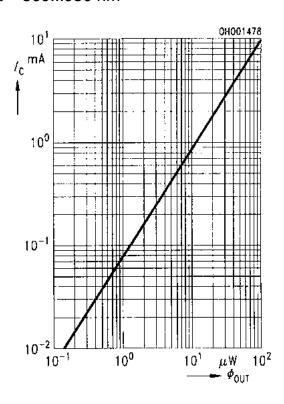
Relative Spectral Sensitivity $S_{\text{rel}} = f(\lambda)$



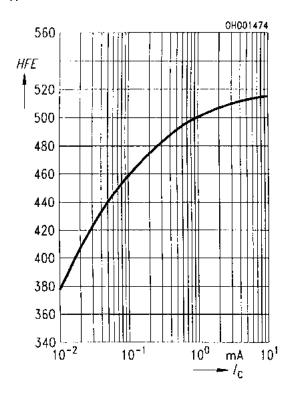
Capacitance $C = f(V_R), f = 1 \text{ MHz}, E_V = 0$



Photocurrent $I_{\rm C}$ = $f(\Phi_{\rm OUT}),~V_{\rm CE}$ = 5 V, λ = 560...950 nm

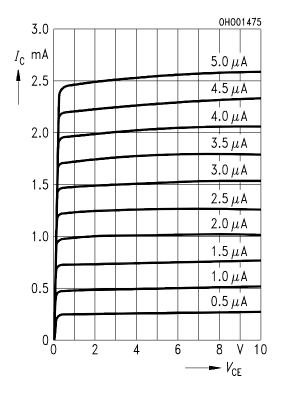


Current Gain $HFE = f(I_{\rm C}), \ V_{\rm CE} = 5 \ \rm V,$ $T_{\rm A} = 25 {\rm ^{\circ}C}$

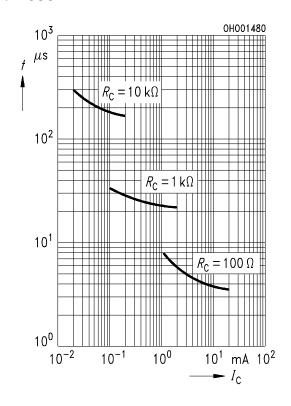




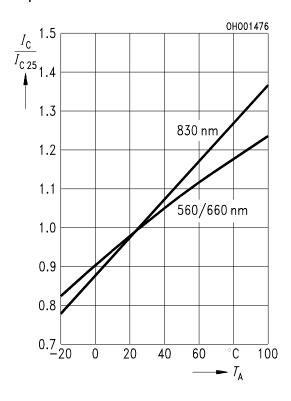
Output Characteristics $I_{\rm C} = f(V_{\rm CE}),$ $I_{\rm B} = {\rm parameter}$



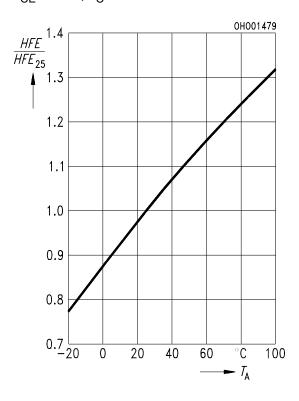
Response Time $t = f(I_C)$, $V_{CC} = 5$ V, $\lambda = 950$ nm



Photocurrent $I_{\rm C}/I_{\rm C25} = f(T_{\rm A}), \ V_{\rm CE} = 5 \ \rm V,$ $\lambda = \rm parameter$



Current Gain $HFE/HFE_{25} = f(T_{\rm A}),$ $V_{\rm CE} = 5$ V, $I_{\rm C} = 1$ mA





Package Outlines

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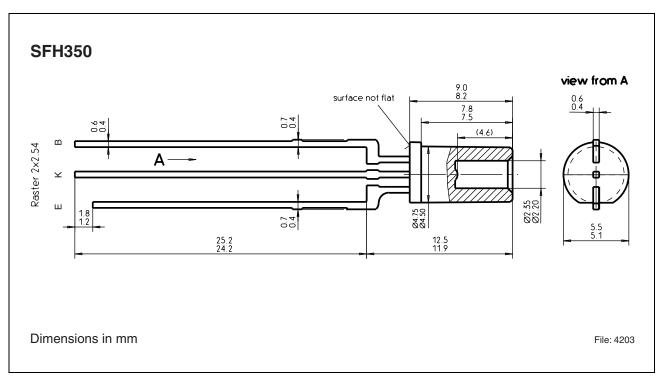


Figure 1

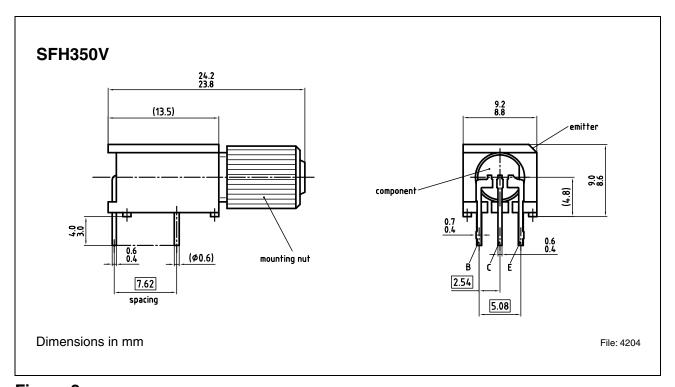


Figure 2

SFH350 SFH350V

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