

NPN-Silizium-Fototransistor
Silicon NPN Phototransistor
Lead (Pb) Free Product - RoHS Compliant

SFH 300
SFH 300 FA



SFH 300



SFH 300 FA

Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 450 nm bis 1100 nm (SFH 300) und bei 880 nm (SFH 300 FA)
- Hohe Linearität
- 5 mm-Plastikbauform im LED-Gehäuse
- Gruppiert lieferbar

Anwendungen

- Computer-Blitzlichtgeräte
- Lichtschranken für Gleich- und Wechsellichtbetrieb
- Industrieelektronik
- „Messen/Steuern/Regeln“

Features

- Especially suitable for applications from 450 nm to 1100 nm (SFH 300) and of 880 nm (SFH 300 FA)
- High linearity
- 5 mm LED plastic package
- Available in groups

Applications

- Computer-controlled flashes
- Photointerrupters
- Industrial electronics
- For control and drive circuits

| Typ Type | Bestellnummer Ordering Code | Typ Type | Bestellnummer Ordering Code |
|-------------|--------------------------------|----------------|--------------------------------|
| SFH 300 | Q62702P1189 | SFH 300 FA | Q62702-P1193 |
| SFH 300-3/4 | Q62702P3586 | SFH 300 FA-3/4 | Q62702-P3585 |

Grenzwerte
Maximum Ratings

| Bezeichnung Parameter | Symbol Symbol | Wert Value | Einheit Unit |
|--|-------------------|----------------|-----------------|
| Betriebs- und Lagertemperatur Operating and storage temperature range | $T_{op}; T_{stg}$ | - 40 ... + 100 | °C |
| Kollektor-Emitterspannung Collector-emitter voltage | V_{CE} | 35 | V |
| Kollektorstrom Collector current | I_C | 50 | mA |
| Kollektorspitzenstrom, $\tau < 10 \mu s$ Collector surge current | I_{CS} | 100 | mA |
| Emitter-Kollektorspannung Emitter-collector voltage | V_{EC} | 7 | V |
| Verlustleistung, $T_A = 25 \text{ °C}$ Power dissipation | P_{tot} | 200 | mW |
| Wärmewiderstand Thermal resistance | R_{thJA} | 375 | K/W |

Kennwerte ($T_A = 25\text{ °C}$, $\lambda = 950\text{ nm}$)

Characteristics

| Bezeichnung Parameter | Symbol Symbol | Wert Value | | Einheit Unit |
|--|------------------------------|------------------|------------------|-----------------|
| | | SFH 300 | SFH 300 FA | |
| Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity | $\lambda_{S\text{ max}}$ | 880 | 880 | nm |
| Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max} | λ | 450 ... 1100 | 730 ... 1120 | nm |
| Bestrahlungsempfindliche Fläche Radiant sensitive area | A | 0.11 | 0.11 | mm ² |
| Abmessungen der Chipfläche Dimensions of chip area | $L \times B$ $L \times W$ | 0.5×0.5 | 0.5×0.5 | mm × mm |
| Halbwinkel Half angle | φ | ± 25 | ± 25 | Grad deg. |
| Kapazität Capacitance $V_{EC} = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$ | C_{CE} | 7.5 | 7.5 | pF |
| Dunkelstrom Dark current $V_{CE} = 20\text{V}$, $E = 0$ | I_{CEO} | 1 (≤ 50) | 1 (≤ 50) | nA |

Die Fototransistoren werden nach ihrer Fotoempfindlichkeit gruppiert und mit arabischen Ziffern gekennzeichnet.

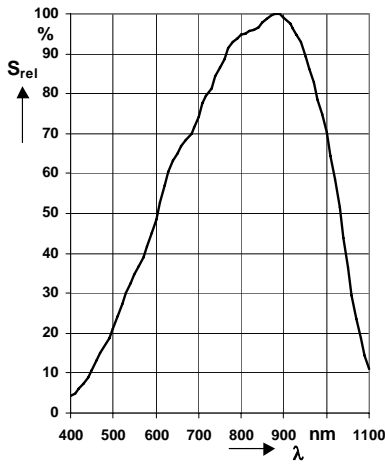
The phototransistors are grouped according to their spectral sensitivity and distinguished by arabian figures.

| Bezeichnung Parameter | Symbol Symbol | Wert Value | | | Einheit Unit |
|---|------------------|---------------|---------|------------|-----------------|
| | | -2 | -3 | -4 | |
| Fotostrom, $\lambda = 950 \text{ nm}$ Photocurrent $E_e = 0.5 \text{ mW/cm}^2$, $V_{CE} = 5 \text{ V}$ SFH 300: $E_v = 1000 \text{ lx}$, Normlicht/standard light A, $V_{CE} = 5 \text{ V}$ | I_{PCE} | 0.63 ... 1.25 | 1 ... 2 | ≥ 1.6 | mA |
| | I_{PCE} | 3.0 | 4.8 | 7.7 | mA |
| Anstiegszeit/Abfallzeit Rise and fall time $I_C = 1 \text{ mA}$, $V_{CC} = 5 \text{ V}$, $R_L = 1 \text{ k}\Omega$ | t_r , t_f | 7.5 | 10 | 10 | μs |
| Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = I_{PCEmin}^{1)} \times 0.3$, $E_e = 0.5 \text{ mW/cm}^2$ | V_{CEsat} | 130 | 140 | 150 | mV |

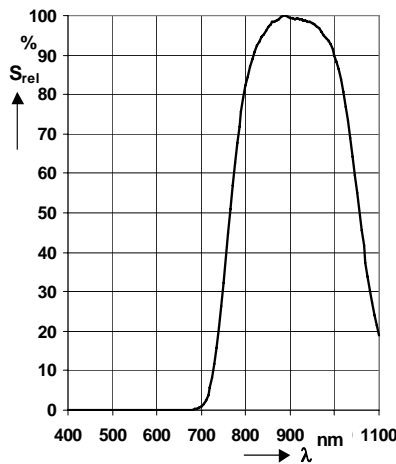
¹⁾ I_{PCEmin} ist der minimale Fotostrom der jeweiligen Gruppe.

¹⁾ I_{PCEmin} is the min. photocurrent of the specified group.

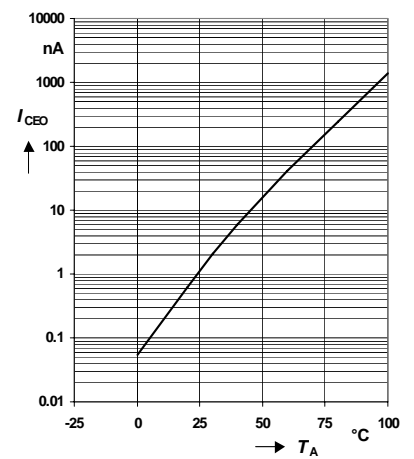
Relative Spectral Sensitivity, SFH 300 $S_{rel} = f(\lambda)$



Relative Spectral Sensitivity, SFH 300 FA $S_{rel} = f(\lambda)$

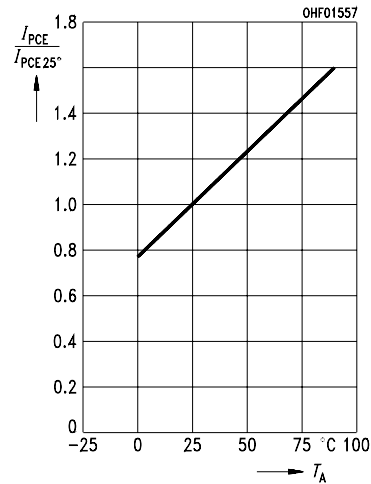


Dark Current $I_{CEO}/I_{CEO25^\circ} = f(T_A)$, $V_{CE} = 20\text{ V}$, $E = 0$



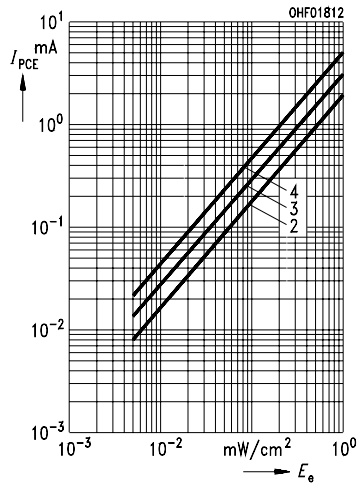
Photocurrent

$I_{PCE}/I_{PCE\ 25^\circ} = f(T_A)$, $V_{CE} = 5\text{ V}$



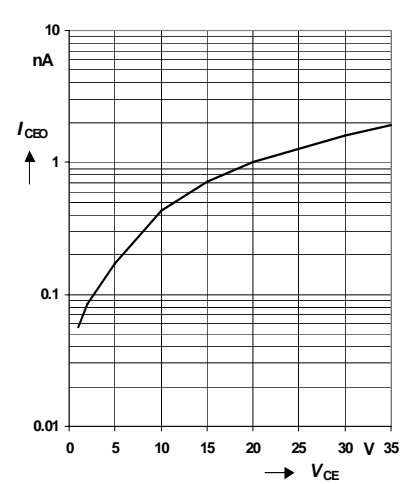
Photocurrent

$I_{PCE} = f(E_e)$, $V_{CE} = 5\text{ V}$



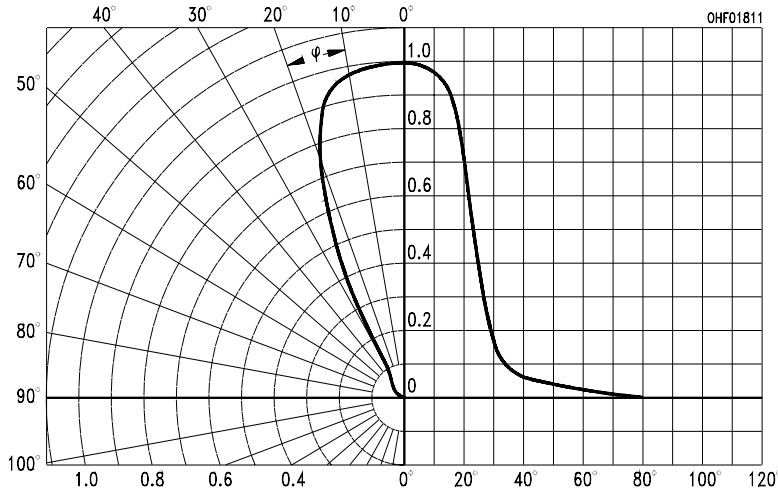
Dark Current

$I_{CEO} = f(V_{CE})$, $E = 0$



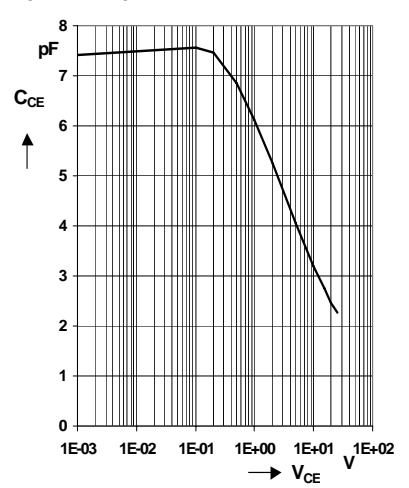
Directional Characteristics

$S_{rel} = f(\varphi)$

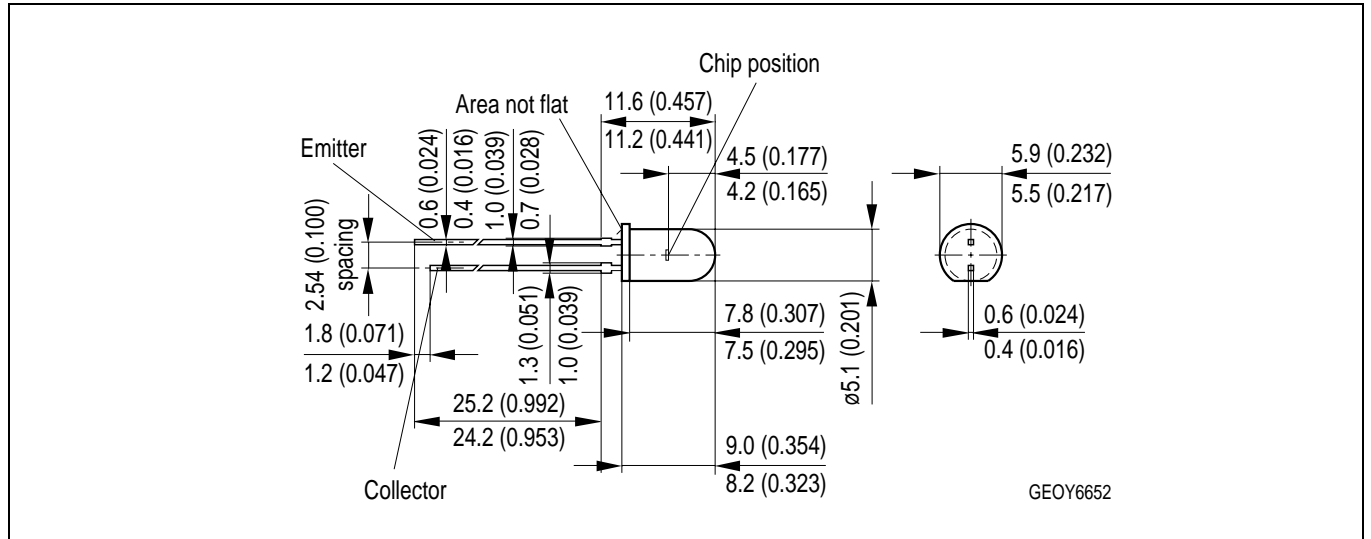


Collector-Emitter Capacitance

$C_{CE} = f(V_{CE})$, $f = 1\text{ MHz}$, $E = 0$



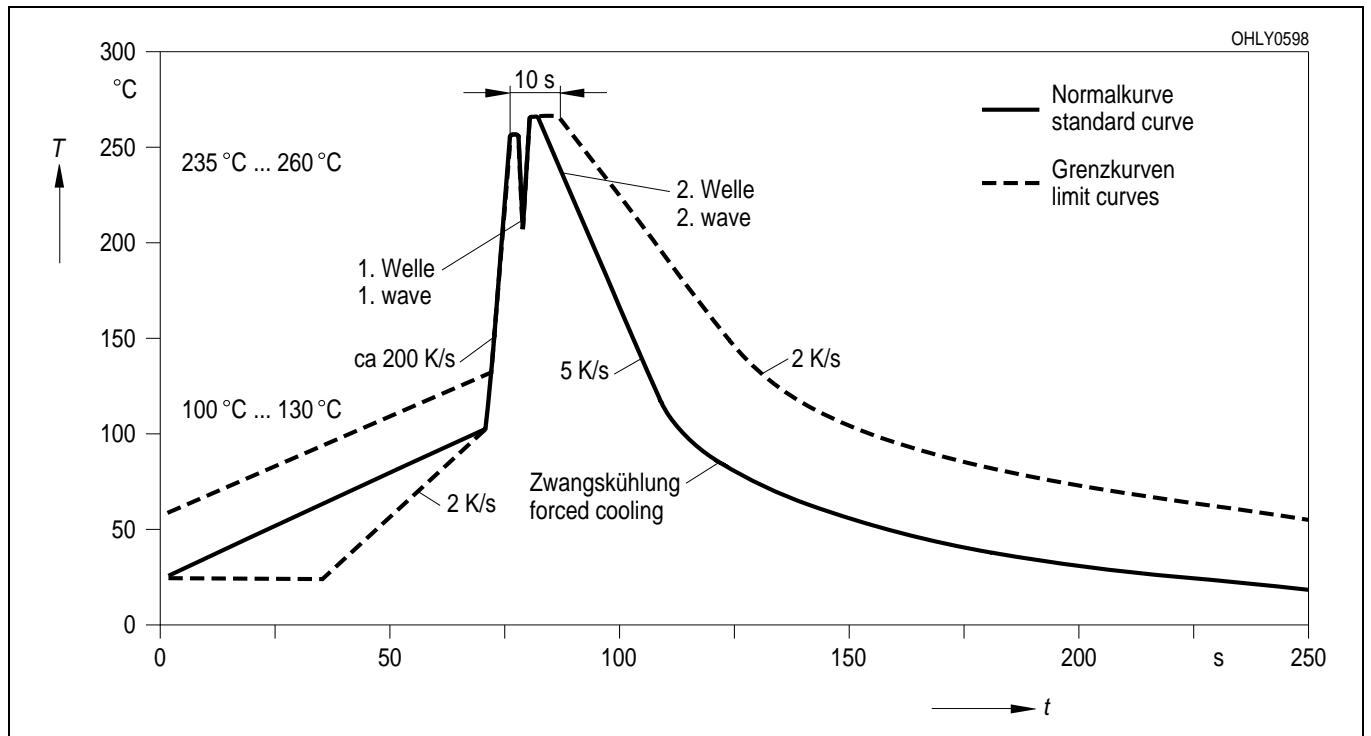
**Maßzeichnung
Package Outlines**



Maße in mm (inch) / Dimensions in mm (inch).

**Lötbedingungen
Soldering Conditions
Wellenlöten (TTW)
TTW Soldering**

(nach CECC 00802)
(acc. to CECC 00802)



Published by
OSRAM Opto Semiconductors GmbH
Wernerwerkstrasse 2, D-93049 Regensburg
www.osram-os.com
© All Rights Reserved.

EU RoHS and China RoHS compliant product



此产品符合欧盟 RoHS 指令的要求；

按照中国的相关法规和标准，不含有毒有害物质或元素。

The information describes the type of component and shall not be considered as assured characteristics. Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our Sales Organization.

Packing

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

Components used in life-support devices or systems must be expressly authorized for such purpose! Critical components¹, may only be used in life-support devices or systems² with the express written approval of OSRAM OS.

¹ A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or effectiveness of that device or system.

² Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered.