

**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 $S_{\text{max}}$ Spectral range of sensitivity $S = 10\%$ of $S_{\text{max}}$	$\lambda$	450 ... 1100	730 ... 1120	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	$A$	0.11	0.11	mm <sup>2</sup>
Abmessungen der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	$0.5 \times 0.5$	$0.5 \times 0.5$	mm × mm
Halbwinkel Half angle	$\varphi$	$\pm 25$	$\pm 25$	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 ( $\leq 50$ )	1 ( $\leq 50$ )	nA

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

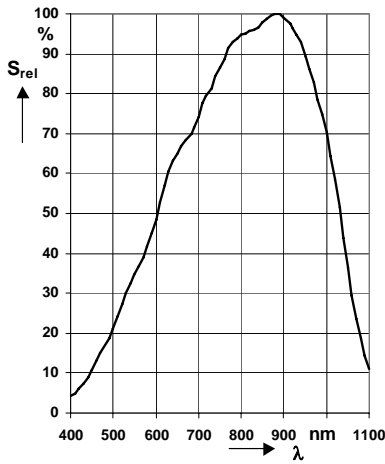
The phototransistors are grouped according to their spectral sensitivity and distinguished by arabian figures.

Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		-2	-3	-4	
Fotostrom, $\lambda = 950 \text{ nm}$ Photocurrent $E_e = 0.5 \text{ mW/cm}^2$ , $V_{CE} = 5 \text{ V}$ <b>SFH 300:</b> $E_v = 1000 \text{ lx}$ , Normlicht/standard light A, $V_{CE} = 5 \text{ V}$	$I_{PCE}$	0.63 ... 1.25	1 ... 2	$\geq 1.6$	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	$\mu\text{s}$
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

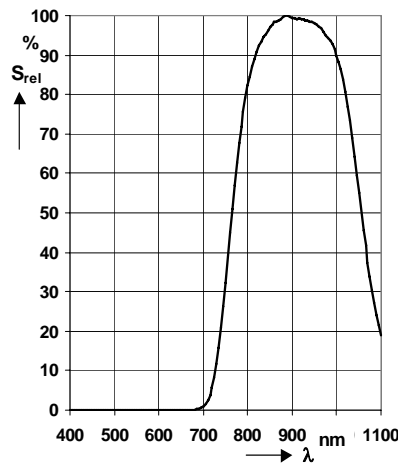
<sup>1)</sup>  $I_{PCEmin}$  ist der minimale Fotostrom der jeweiligen Gruppe.

<sup>1)</sup>  $I_{PCEmin}$  is the min. photocurrent of the specified group.

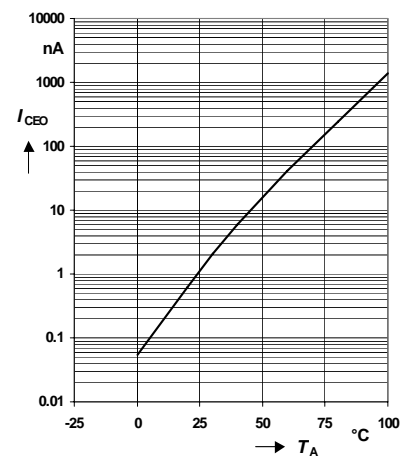
**Relative Spectral Sensitivity, SFH 300**  $S_{rel} = f(\lambda)$



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

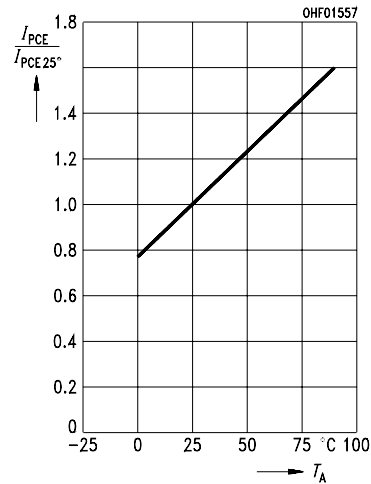


**Dark Current**  $I_{CEO}/I_{CEO25^\circ} = f(T_A)$ ,  $V_{CE} = 20\text{ V}$ ,  $E = 0$



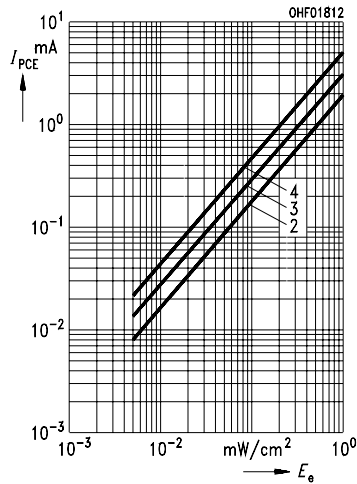
**Photocurrent**

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



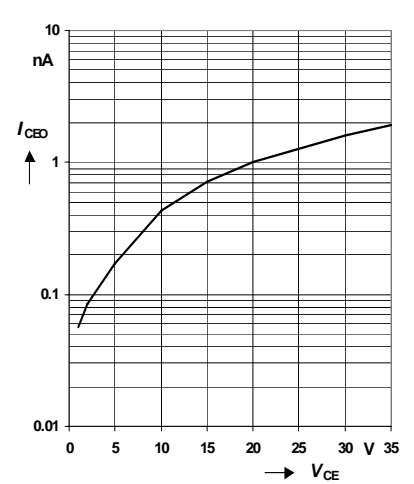
**Photocurrent**

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



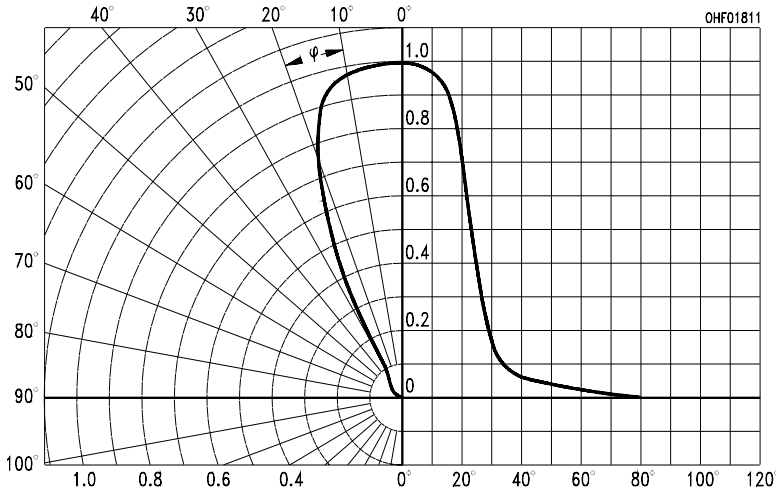
**Dark Current**

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



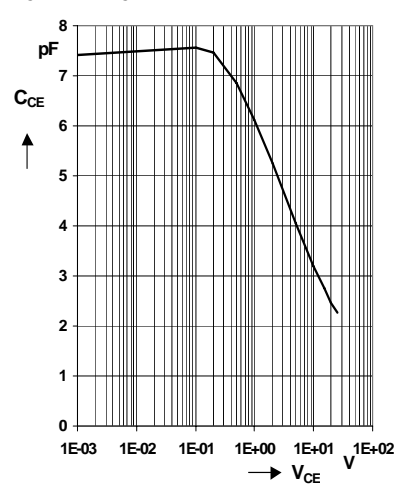
**Directional Characteristics**

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

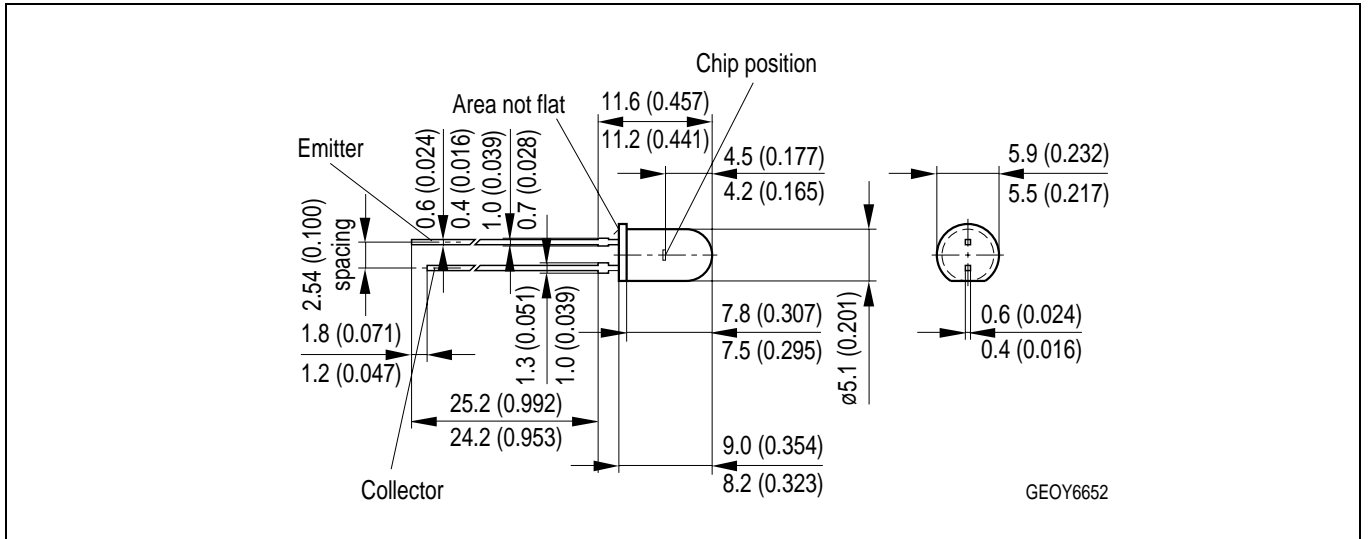


**Collector-Emitter Capacitance**

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



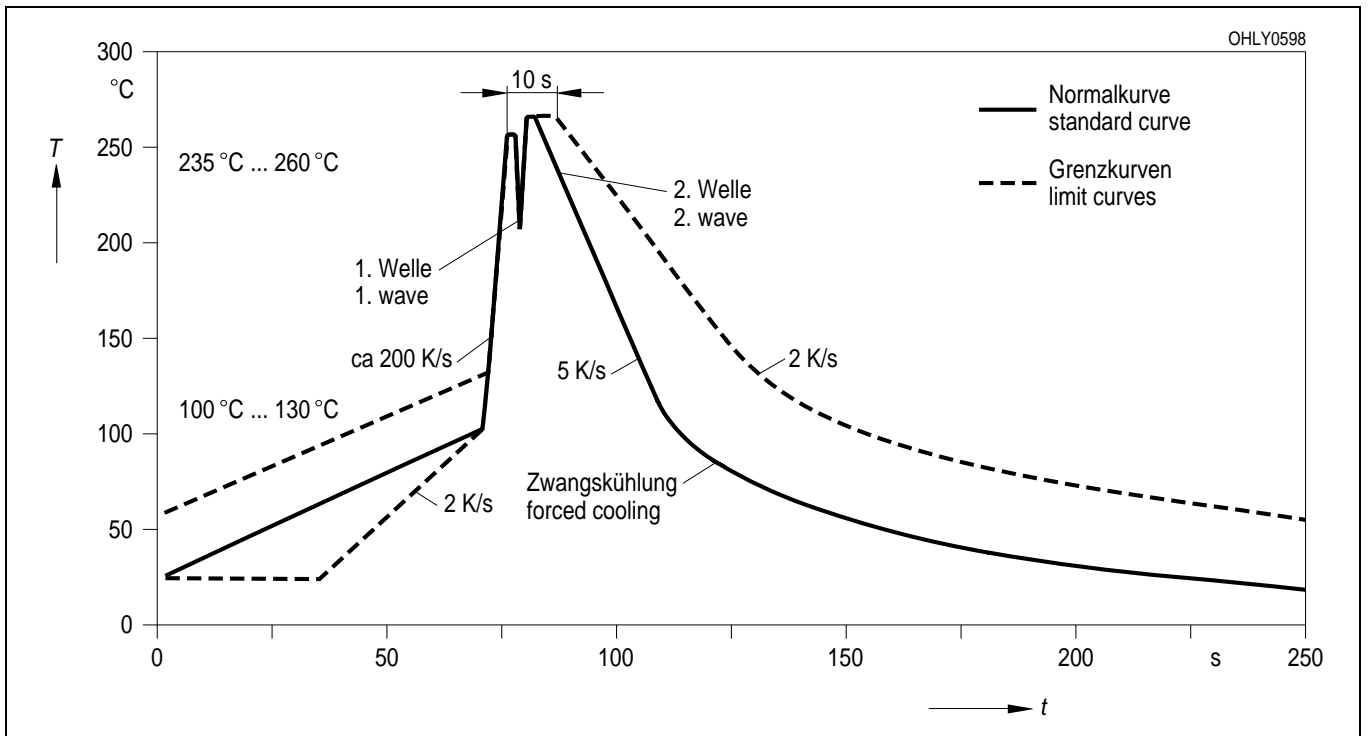
**Maßzeichnung  
Package Outlines**



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

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

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



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