NPN-Silizium-Fototransistor
Silicon NPN Phototransistor

SFH 300
SFH 300 FA

SFH 300

SFH 300 FA

Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 420 nm bis 1130 nm (SFH 300) und bei 880 nm (SFH 300 FA)
- Hohe Linearität
- 5 mm-Plastikbauform im LED-Gehäuse
- Gruppiert lieferbar

Features

- Especially suitable for applications from 420 nm to 1130 nm (SFH 300) and of 880 nm (SFH 300 FA)
- High linearity
- 5 mm LED plastic package
- Available in groups

Anwendungen

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

Applications

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

Typ Type	Bestellnummer Ordering Code	Typ Type	Bestellnummer Ordering Code
SFH 300	Q62702-P1189	SFH 300 FA	Q62702-P1193
SFH 300-3/4	Q62702-P3586	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
Löttemperatur bei Tauchlötung Lötstelle ≥ 2 mm vom Gehäuse, Lötzeit $t \leq 5$ s Dip soldering temperature ≥ 2 mm distance from case bottom, soldering time $t \leq 5$ s	T_S	260	°C
Löttemperatur bei Kolbenlötung Lötstelle ≥ 2 mm vom Gehäuse, Lötzeit $t \leq 3$ s Iron soldering temperature ≥ 2 mm distance from case bottom $t \leq 3$ s	T_S	300	°C
Kollektor-Emitterspannung Collector-emitter voltage	V_{CE}	35	V
Kollektorstrom Collector current	I_C	50	mA
Kollektorspitzenstrom, $\tau < 10$ µs Collector surge current	I_{CS}	100	mA
Emitter-Kollektorspannung Emitter-collector voltage	V_{EC}	7	V
Verlustleistung, $T_A = 25$ °C Power dissipation	P_{tot}	200	mW
Wärmewiderstand Thermal resistance	R_{thJA}	375	K/W

Kennwerte (T_A = 25 °C, λ = 950 nm)
Characteristics

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**		**Einheit** **Unit**
		SFH 300	**SFH 300 FA**	
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$	850	870	nm
Spektraler Bereich der Fotoempfindlichkeit S = 10% von S_{max} Spectral range of sensitivity S = 10% of S_{max}	λ	420 … 1130	730 … 1120	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	0.12	0.12	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
Abstand Chipoberfläche zu Gehäuseoberfläche Distance chip front to case surface	H	4.1 … 4.7	4.1 … 4.7	mm
Halbwinkel Half angle	φ	± 25	± 25	Grad deg.
Kapazität Capacitance V_{EC} = 0 V, f = 1 MHz, E = 0	C_{CE}	6.5	6.5	pF
Dunkelstrom Dark current V_{CE} = 35 V, E = 0	I_{CEO}	5 (≤ 100)	5 (≤ 100)	nA

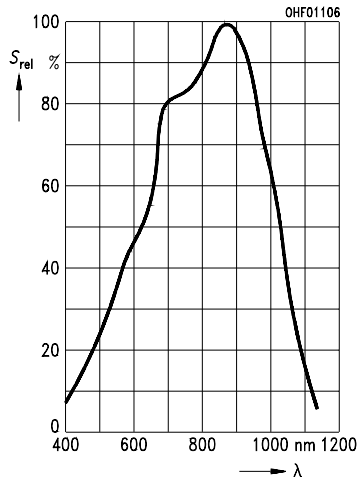
Die Fototransistoren werden nach ihrer Fotoempfindlichkeit gruppiert und mit arabischen Ziffern gekennzeichnet.
The phototransistors are grouped according to their spectral sensitivity and distinguished by arabian figures.

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**			**Einheit** **Unit**
		-2	**-3**	**-4**	
Fotostrom, $\lambda = 950$ nm Photocurrent E_e = 0.5 mW/cm^2, V_{CE} = 5 V	I_{PCE}	0.63 … 1.25	1 … 2	≥ 1.6	mA
SFH 300: E_v = 1000 lx, Normlicht/standard light A, V_{CE} = 5 V	I_{PCE}	3.4	5.4	8.6	mA
Anstiegszeit/Abfallzeit Rise and fall time I_C = 1 mA, V_{CC} = 5 V, R_L = 1 kΩ	t_r, t_f	7.5	10	10	µs
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = I_{PCEmin}$[1] × 0.3, E_e = 0.5 mW/cm^2	V_{CEsat}	130	140	150	mV

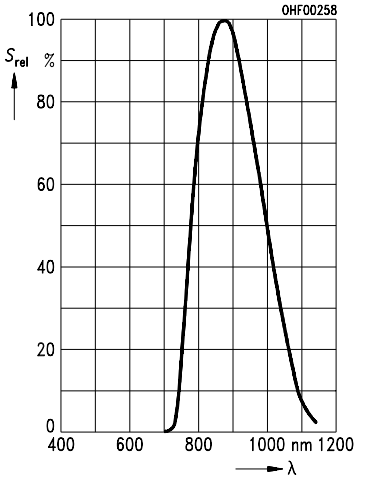
[1] I_{PCEmin} ist der minimale Fotostrom der jeweiligen Gruppe.

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

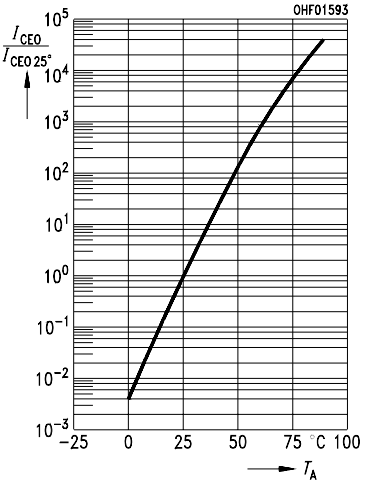
Relative Spectral Sensitivity, SFH 300 $S_{rel} = f(\lambda)$



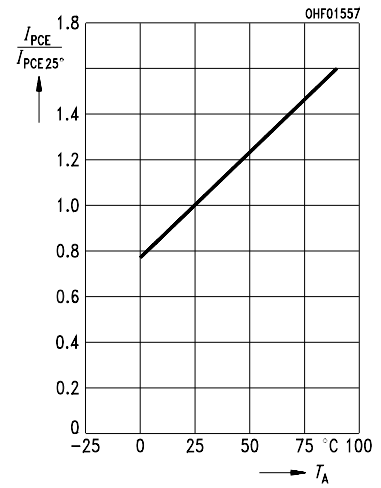
Relative Spectral Sensitivity, SFH 300 FA $S_{rel} = f(\lambda)$



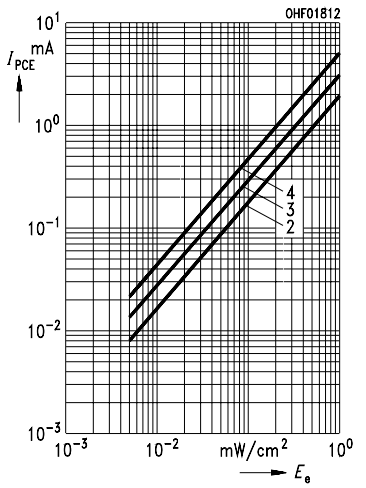
Dark Current $I_{CEO}/I_{CEO25°} = f(T_A)$, V_{CE} = 25 V, E = 0



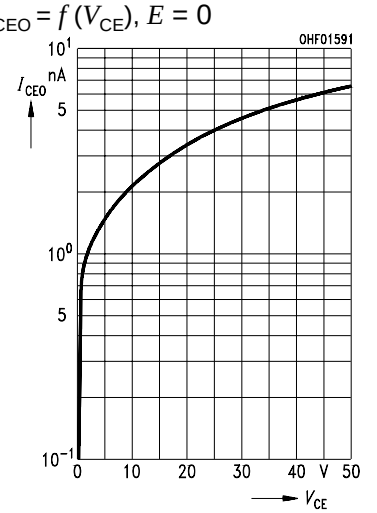
Photocurrent $I_{PCE}/I_{PCE\ 25°} = f(T_A)$, V_{CE} = 5 V



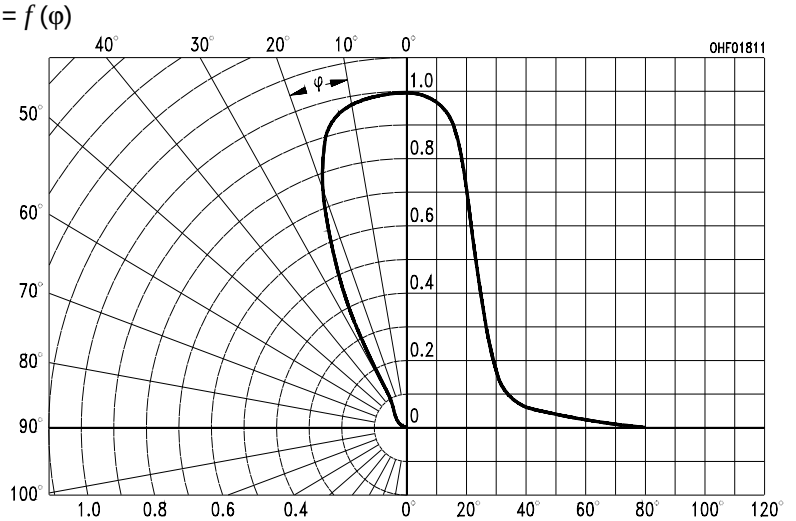
Photocurrent $I_{PCE} = f(E_e)$, V_{CE} = 5 V



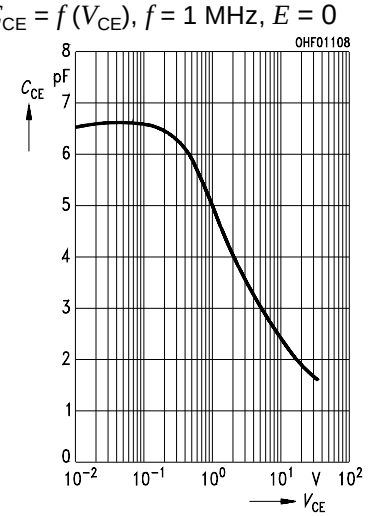
Dark Current $I_{CEO} = f(V_{CE})$, E = 0



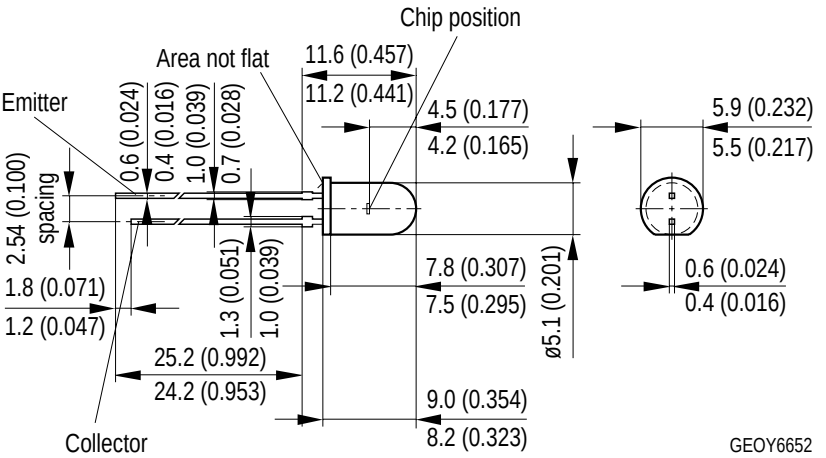
Directional Characteristics $S_{rel} = f(\varphi)$



Collector-Emitter Capacitance $C_{CE} = f(V_{CE})$, f = 1 MHz, E = 0



Maßzeichnung
Package Outlines



Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

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