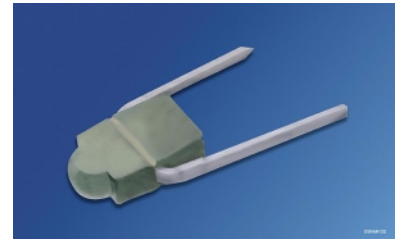


Mini-NPN-Silizium-Fototransistor

Mini Silicon NPN Phototransistor

SFH 305



Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 460 nm bis 1060 nm
- Hohe Linearität
- Mini-Bauform
- Gruppiert lieferbar

Anwendungen

- Miniaturlichtschranken für Gleich- und Wechsellichtbetrieb
- Lochstreifenleser
- Industrieelektronik
- „Messen/Steuern/Regeln“

Features

- Especially suitable for applications from 460 nm to 1060 nm
- High linearity
- Mini-package
- Available in groups

Applications

- Miniature photointerrupters
- Punched tape reading
- Industrial electronics
- For control and drive circuits

Typ Type	Bestellnummer Ordering Code
SFH 305	Q62702-P836
SFH 305-2/3	Q62702-P3589

Grenzwerte**Maximum Ratings**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebs- und Lagertemperatur Operating and storage temperature range	$T_{op}; T_{stg}$	– 40 ... + 80	°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	230	°C
Löttemperatur bei Kolbenlötung Lötstelle ≥ 2 mm vom Gehäuse, Lötzeit $t \leq 3$ s Iron soldering temperature ≥ 2 mm distance from case bottom, soldering time $t \leq 3$ s	T_S	300	°C
Kollektor-Emitterspannung Collector-emitter voltage	V_{CE}	32	V
Kollektorstrom Collector current	I_C	50	mA
Kollektorspitzenstrom, $\tau < 10 \mu s$ Collector surge current	I_{CS}	200	mA
Verlustleistung, $T_A = 25^\circ C$ Power dissipation	P_{tot}	70	mW
Wärmewiderstand Thermal resistance	R_{thJA}	950	K/W

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

Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\text{ max}}$	850	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max}	λ	460 ... 1060	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	0.17	mm ²
Abmessungen der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	0.6×0.6	mm × mm
Abstand Chipoberfläche zu Gehäuseoberfläche Distance chip front to case surface	H	1.3 ... 1.9	mm
Halbwinkel Half angle	φ	± 16	Grad deg.
Kapazität Capacitance $V_{\text{CE}} = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$	C_{CE}	5.5	pF
Dunkelstrom Dark current $V_{\text{CE}} = 25\text{ V}$, $E = 0$	I_{CEO}	3 (≤ 20)	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.

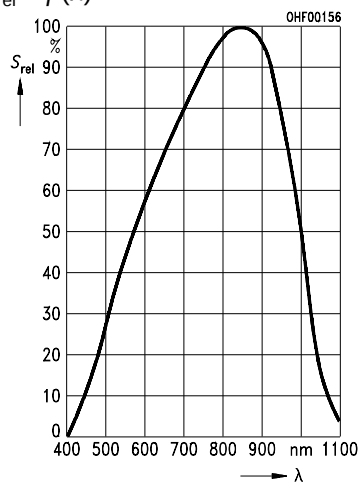
Bezeichnung Parameter	Symbol Symbol	Wert Value		Einheit Unit
		-2	-3	
Fotostrom, $\lambda = 950 \text{ nm}$ Photocurrent $E_e = 0.5 \text{ mW/cm}^2$, $V_{CE} = 5 \text{ V}$ $E_v = 1000 \text{ lx}$, Normlicht/standard light A, $V_{CE} = 5 \text{ V}$	I_{PCE} I_{PCE}	0.25 ... 0.5 1.4	0.4 ... 0.8 2.2	mA 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	5.5	6	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}	150	150	mV

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

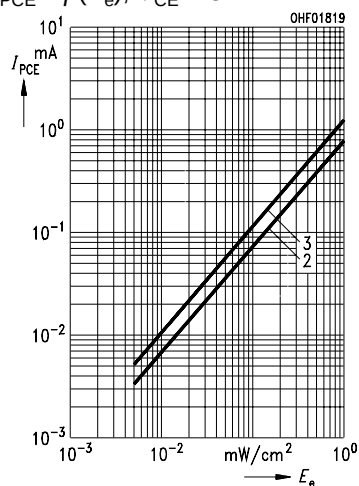
¹⁾ I_{PCEmin} is the min. photocurrent of the specified group.

Relative Spectral Sensitivity

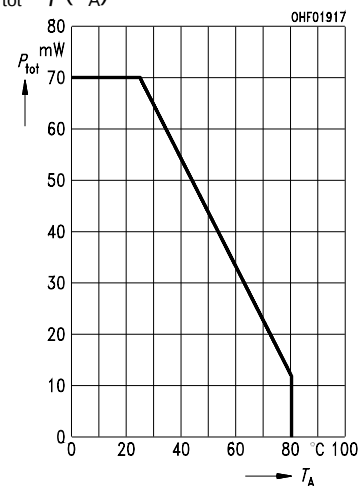
$$S_{\text{rel}} = f(\lambda)$$

**Photocurrent**

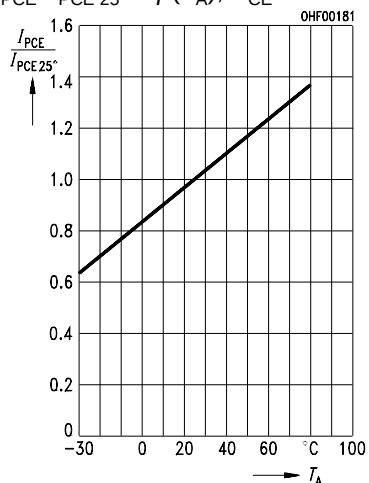
$$I_{\text{PCE}} = f(E_e), V_{\text{CE}} = 5 \text{ V}$$

**Total Power Dissipation**

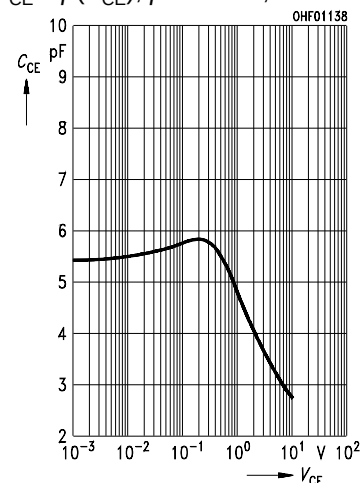
$$P_{\text{tot}} = f(T_A)$$

**Photocurrent**

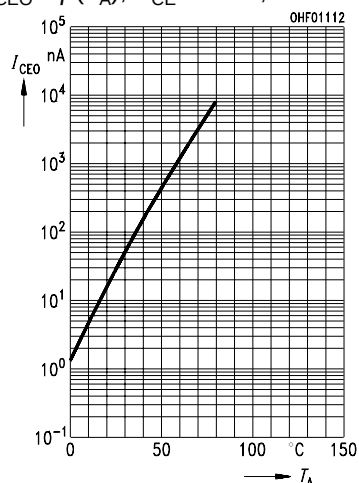
$$I_{\text{PCE}} / I_{\text{PCE } 25^\circ} = f(T_A), V_{\text{CE}} = 5 \text{ V}$$

**Collector-Emitter Capacitance**

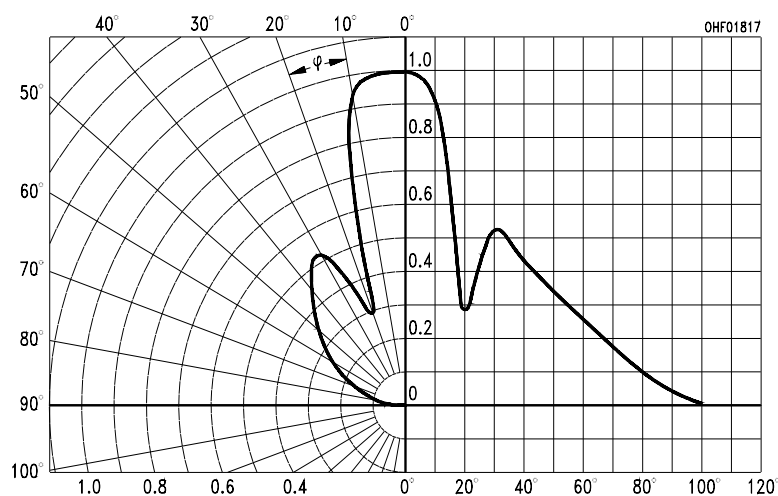
$$C_{\text{CE}} = f(V_{\text{CE}}), f = 1 \text{ MHz}, E = 0$$

**Dark Current**

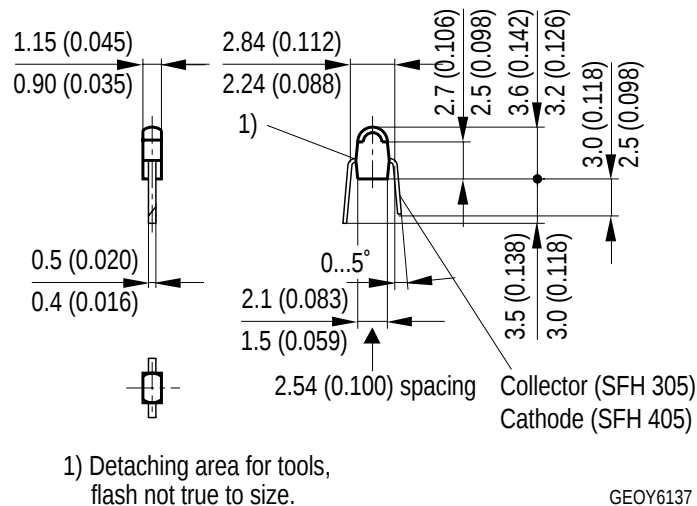
$$I_{\text{CEO}} = f(T_A), V_{\text{CE}} = 25 \text{ V}, E = 0$$

**Directional Characteristics**

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



Maßzeichnung Package Outlines



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

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