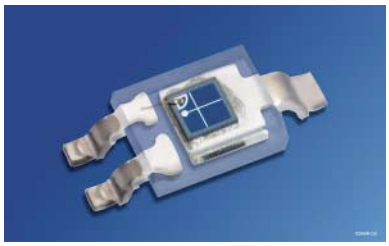
NPN-Silizium-Fototransistor
Silicon NPN Phototransistor

SFH 3401



Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 460 nm bis 1080 nm
- Hohe Linearität
- SMT-Bauform mit Basisanschluß, geeignet für Vapor Phase-Löten und IR-Reflow-Löten (JEDEC level 4)
- Nur gegurtet lieferbar

Features

- Especially suitable for applications from 460 nm to 1080 nm
- High linearity
- SMT package with base connection, suitable for vapor phase and IR reflow soldering (JEDEC level 4)
- Available only on tape and reel

Anwendungen

- Umgebungslicht-Detektor
- Lichtschranken für Gleich- und Wechsellichtbetrieb
- Industrieelektronik
- „Messen/Steuern/Regeln“

Applications

- Ambient light detector
- Photointerrupters
- Industrial electronics
- For control and drive circuits

Typ Type	Bestellnummer Ordering Code	Gehäuse Package
SFH 3401	Q62702-P5014	Klares Epoxy-Gießharz, Kollektorkennzeichung: breiter Anschluß Transparent epoxy resin, collector marking: broad lead
SFH 3401-2/3	Q62702-P5200	

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}	20	V
Kollektor-Emitterspannung, t < 120 s Collector-emitter voltage	V_{CE}	70	V
Kollektorstrom Collector current	I_C	50	mA
Kollektorspitzenstrom, τ < 10 µs Collector surge current	I_{CS}	100	mA
Emitter-Kollektorspannung Emitter-collector voltage	V_{EC}	7	V
Verlustleistung, T_A = 25 °C Total power dissipation	P_{tot}	120	mW
Wärmewiderstand für Montage auf PC-Board Thermal resistance for mounting on pcb	R_{thJA}	450	K/W

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

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$	850	nm
Spektraler Bereich der Fotoempfindlichkeit S = 10% von S_{max} Spectral range of sensitivity S = 10% of S_{max}	λ	460 … 1080	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	0.55	mm^2
Abmessungen der Chipfläche Dimensions of chip area	$L \times B$ $L \times W$	1 × 1	mm × mm
Halbwinkel Half angle	φ	± 60	Grad deg.
Kapazität, V_{CE} = 0 V, f = 1 MHz, E = 0 Capacitance	C_{CE}	15	pF
Kapazität, V_{CB} = 0 V, f = 1 MHz, E = 0 Capacitance	C_{CB}	45	pF
Kapazität, V_{EB} = 0 V, f = 1 MHz, E = 0 Capacitance	C_{EB}	19	pF
Dunkelstrom Dark current V_{CE} = 10 V, E = 0	I_{CEO}	3 (≤ 200)	nA
Fotostrom der Kollektor-Basis Fotodiode Photocurrent of collektor-base photodiode E_e = 0.1 mW/cm², V_{CB} = 5 V E_v = 1000 lx, Normlicht/standard light A, V_{CB} = 5 V	 I_{PCB} I_{PCB}	 0.28 4.8	 µA µA

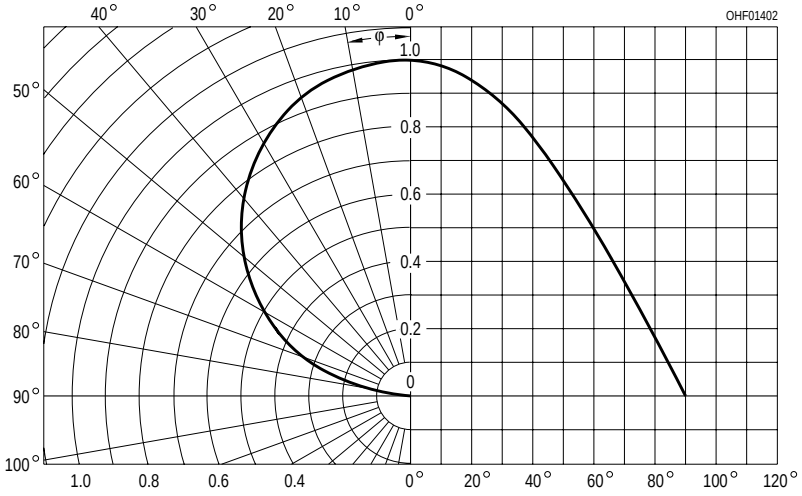
Die Fototransistoren werden nach ihrer Fotoempfindlichkeit gruppiert und mit arabischen Ziffern gekennzeichnet.
The phototransistors are grouped according to their spectral sensitivity and distinguished by arabian figures.

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**			**Einheit** **Unit**
		-1	**-2**	**-3**	
Fotostrom, $\lambda = 950$ nm Photocurrent E_e = 0.1 mW/cm², V_{CE} = 5 V E_v = 1000 lx, Normlicht A/ standard light A, V_{CE} = 5 V	I_{PCE} I_{PCE}	63 … 125 1.65	100 … 200 2.6	160 … 320 4.2	µA mA
Anstiegszeit/Abfallzeit Rise and fall time I_C = 1 mA, V_{CC} = 5 V, R_L = 1 kΩ	t_r, t_f	16	24	34	µs
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage $I_C = I_{PCEmin}$ [1] × 0.3, E_e = 0.1 mW/cm²	V_{CEsat}	170	170	170	mV
Stromverstärkung Current gain E_e = 0.1 mW/cm², V_{CE} = 5 V	I_{PCE}/I_{PCB}	340	530	860	–

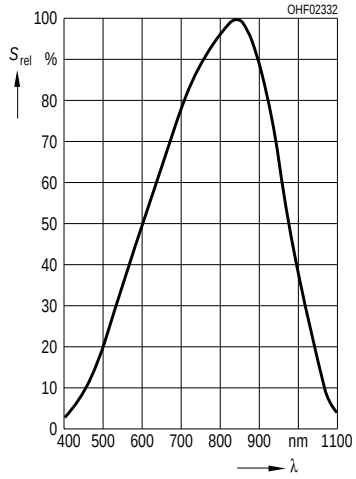
[1] I_{PCEmin} ist der minimale Fotostrom der jeweiligen Gruppe.

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

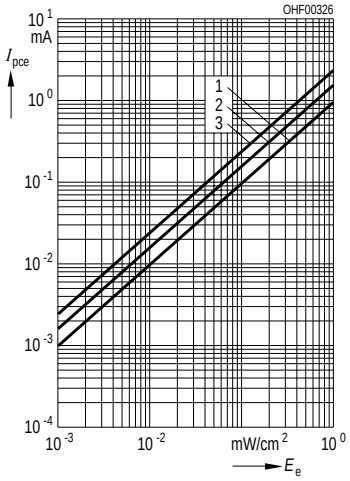
Directional Characteristics $S_{rel} = f(\varphi)$



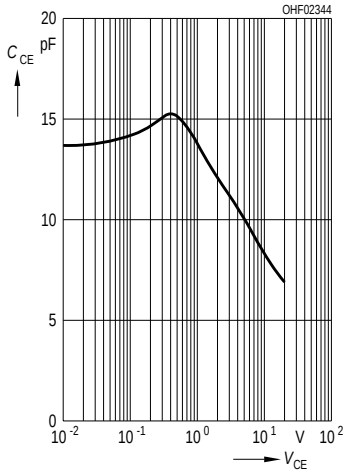
Rel. Spectral Sensitivity,
$S_{rel} = f(\lambda)$



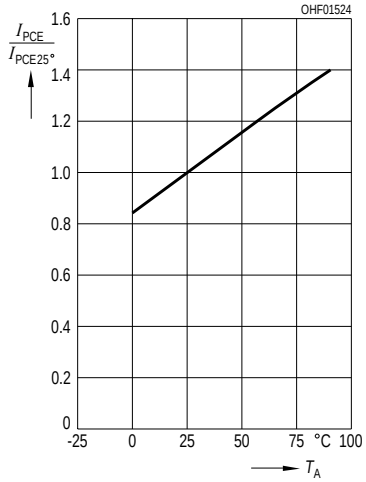
Photocurrent
$I_{PCE} = f(E_e)$, V_{CE} = 5 V



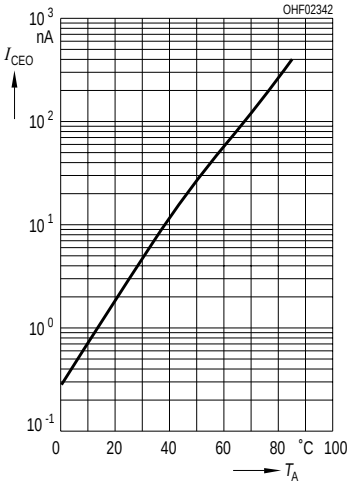
Collector-Emitter Capacitance
$C_{CE} = f(V_{CE})$, f = 1 MHz, E = 0



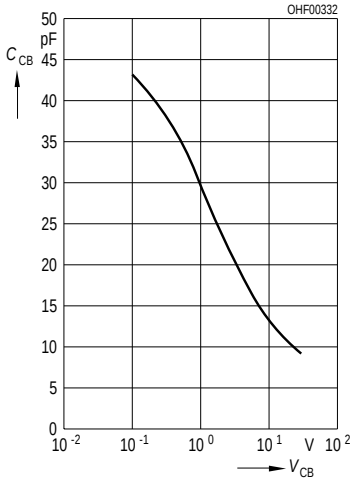
Photocurrent $I_{PCE} = f(T_A)$,
V_{CE} = 5 V, normalized to 25 °C



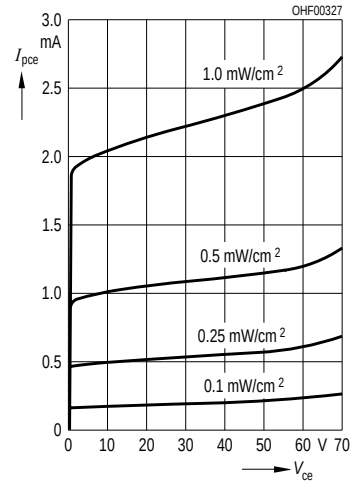
Dark Current
$I_{CEO} = f(T_A)$, V_{CE} = 10 V, E = 0



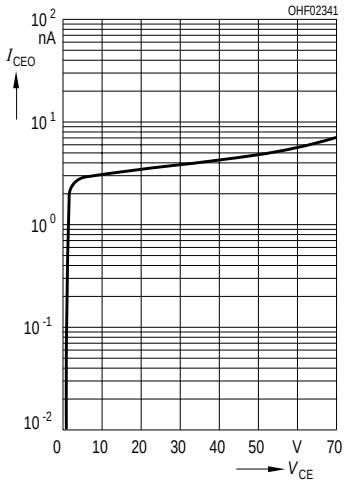
Collector-Base Capacitance
$C_{CB} = f(V_{CB})$, f = 1 MHz, E = 0



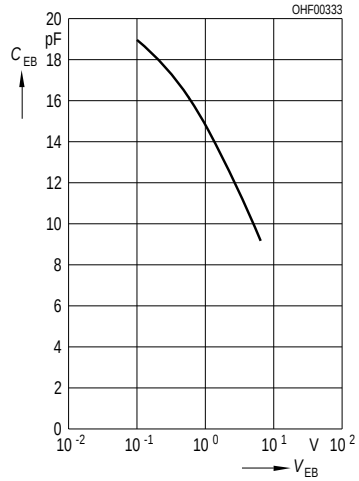
Photocurrent
$I_{PCE} = f(V_{CE})$ **SFH 3401-3**



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

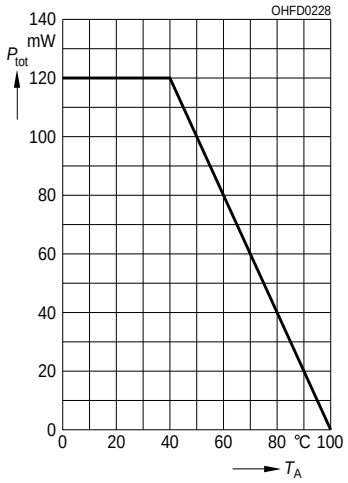


Emitter-Base Capacitance
$C_{EB} = f(V_{EB})$, f = 1 MHz, E = 0



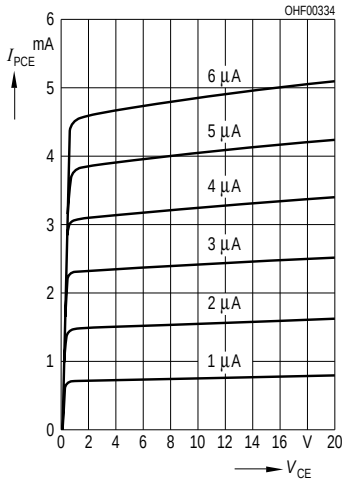
Total Power Dissipation

$P_{tot} = f(T_A)$

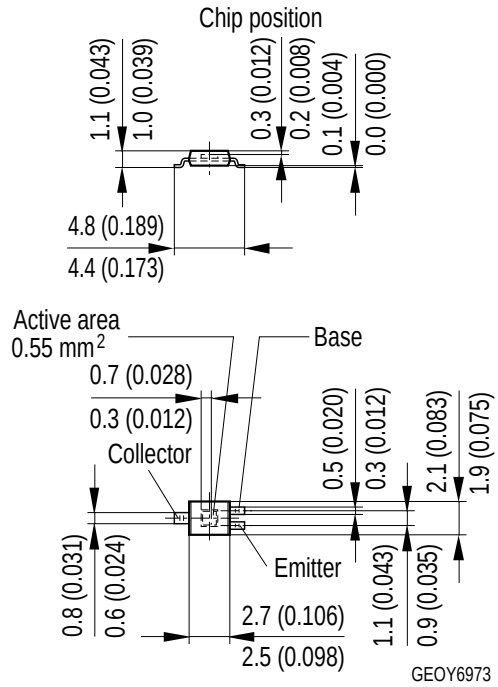


Photocurrent

$I_{PCE} = f(V_{CE})$, I_B = Parameter



Maßzeichnung
Package Outlines



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

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