

Silizium-PIN-Fotodiode Silicon PIN Photodiode

SFH 206 K



Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 400 nm bis 1100 nm
- Kurze Schaltzeit (typ. 20 ns)
- 5-mm-Plastikbauform im LED-Gehäuse
- Auch gegurtet lieferbar

Anwendungen

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

Features

- Especially suitable for applications from 400 nm to 1100 nm
- Short switching time (typ. 20 ns)
- 5 mm LED plastic package
- Also available on tape and reel

Applications

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

Typ Type	Bestellnummer Ordering Code
SFH 206 K	Q62702-P129

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 (Lötstelle 2 mm vom Gehäuse entfernt bei Lötzeit $t \leq 3$ s) Soldering temperature in 2 mm distance from case bottom ($t \leq 3$ s)	T_S	230	°C
Sperrspannung Reverse voltage	V_R	32	V
Verlustleistung, $T_A = 25$ °C Total power dissipation	P_{tot}	150	mW

Kennwerte ($T_A = 25$ °C, Normlicht A, $T = 2856$ K)
Characteristics ($T_A = 25$ °C, standard light A, $T = 2856$ K)

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Fotoempfindlichkeit, $V_R = 5$ V Spectral sensitivity	S	80 (≥ 50)	nA/lx
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	400 ... 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	7.00	mm ²
Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$	2.65 × 2.65	mm × mm
Abstand Chipoberfläche zu Gehäuseoberfläche Distance chip front to case surface	H	1.2 ... 1.4	mm
Halbwinkel Half angle	φ	± 60	Grad deg.
Dunkelstrom, $V_R = 10$ V Dark current	I_R	2 (≤ 30)	nA
Spektrale Fotoempfindlichkeit, $\lambda = 850$ nm Spectral sensitivity	S_λ	0.62	A/W

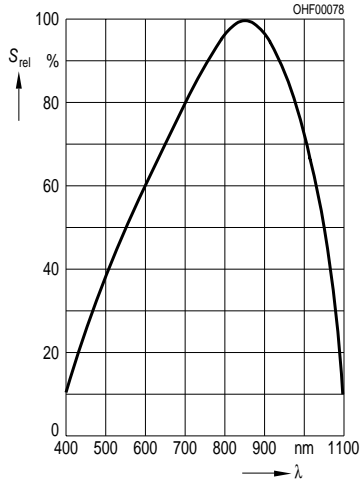
Kennwerte ($T_A = 25\text{ °C}$, Normlicht A, $T = 2856\text{ K}$)

Characteristics ($T_A = 25\text{ °C}$, standard light A, $T = 2856\text{ K}$) (cont'd)

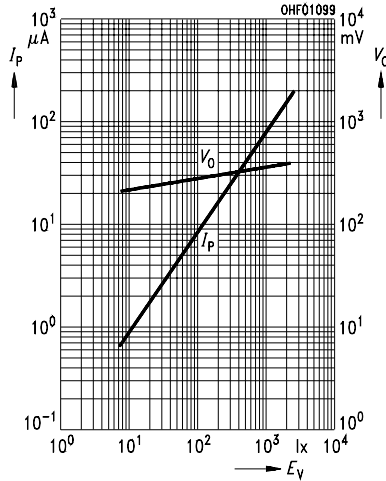
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Quantenausbeute, $\lambda = 850\text{ nm}$ Quantum yield	η	0.90	<u>Electrons</u> Photon
Leerlaufspannung, $E_V = 1000\text{ lx}$ Open-circuit voltage	V_O	365 (≥ 310)	mV
Kurzschlußstrom, $E_V = 1000\text{ lx}$ Short-circuit current	I_{SC}	80	μA
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent $R_L = 50\ \Omega$; $V_R = 5\text{ V}$; $\lambda = 850\text{ nm}$; $I_p = 800\ \mu\text{A}$	t_r, t_f	20	ns
Durchlaßspannung, $I_F = 100\text{ mA}$, $E = 0$ Forward voltage	V_F	1.3	V
Kapazität, $V_R = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$ Capacitance	C_0	72	pF
Temperaturkoeffizient von V_O Temperature coefficient of V_O	TC_V	-2.6	mV/K
Temperaturkoeffizient von I_{SC} Temperature coefficient of I_{SC}	TC_I	0.18	%/K
Rauschäquivalente Strahlungsleistung Noise equivalent power $V_R = 10\text{ V}$, $\lambda = 850\text{ nm}$	NEP	4.2×10^{-14}	$\frac{\text{W}}{\sqrt{\text{Hz}}}$
Nachweisgrenze, $V_R = 10\text{ V}$, $\lambda = 850\text{ nm}$ Detection limit	D^*	6.3×10^{12}	$\frac{\text{cm} \times \sqrt{\text{Hz}}}{\text{W}}$

Relative Spectral Sensitivity

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

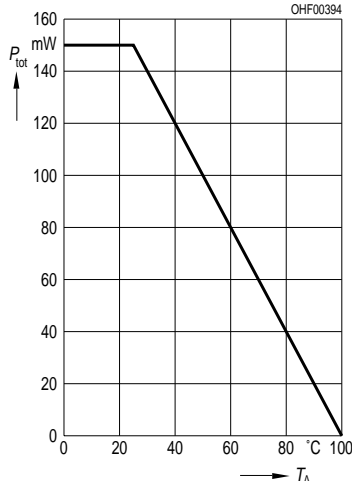


**Photocurrent $I_P = f(E_V), V_R = 5 V$
Open-Circuit Voltage $V_O = f(E_V)$**



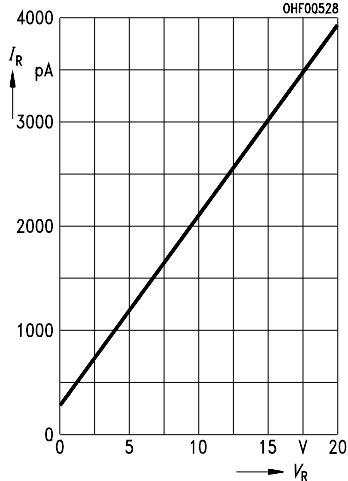
Total Power Dissipation

$P_{tot} = f(T_A)$



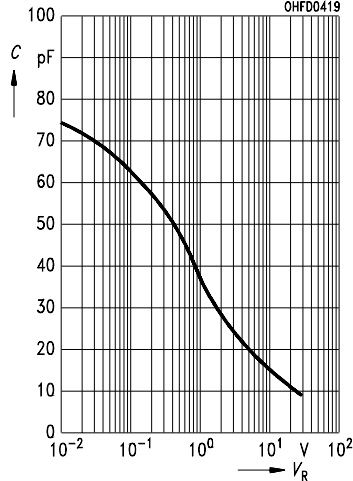
Dark Current

$I_R = f(V_R), E = 0$



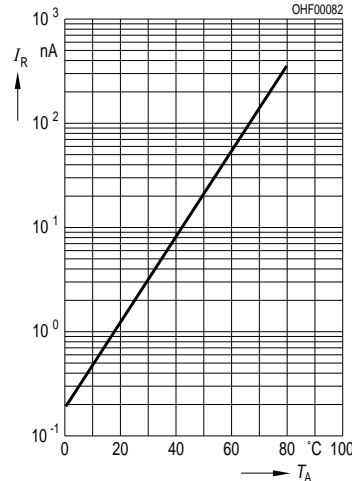
Capacitance

$C = f(V_R), f = 1 MHz, E = 0$



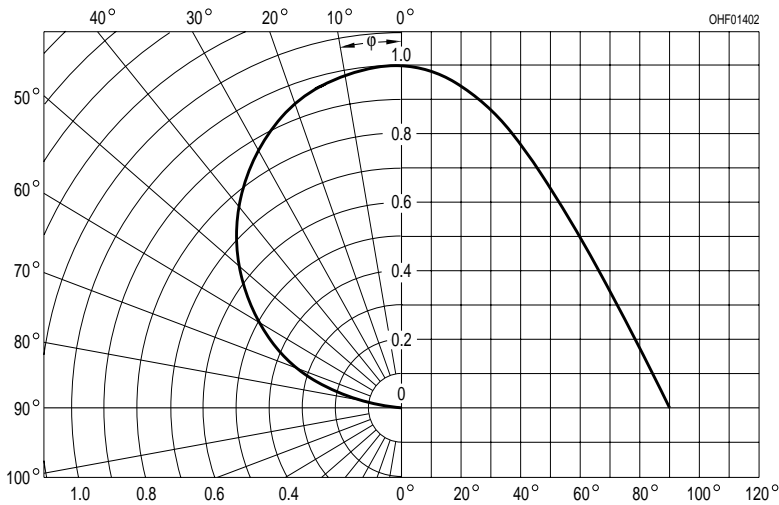
Dark Current

$I_R = f(T_A), V_R = 10 V, E = 0$

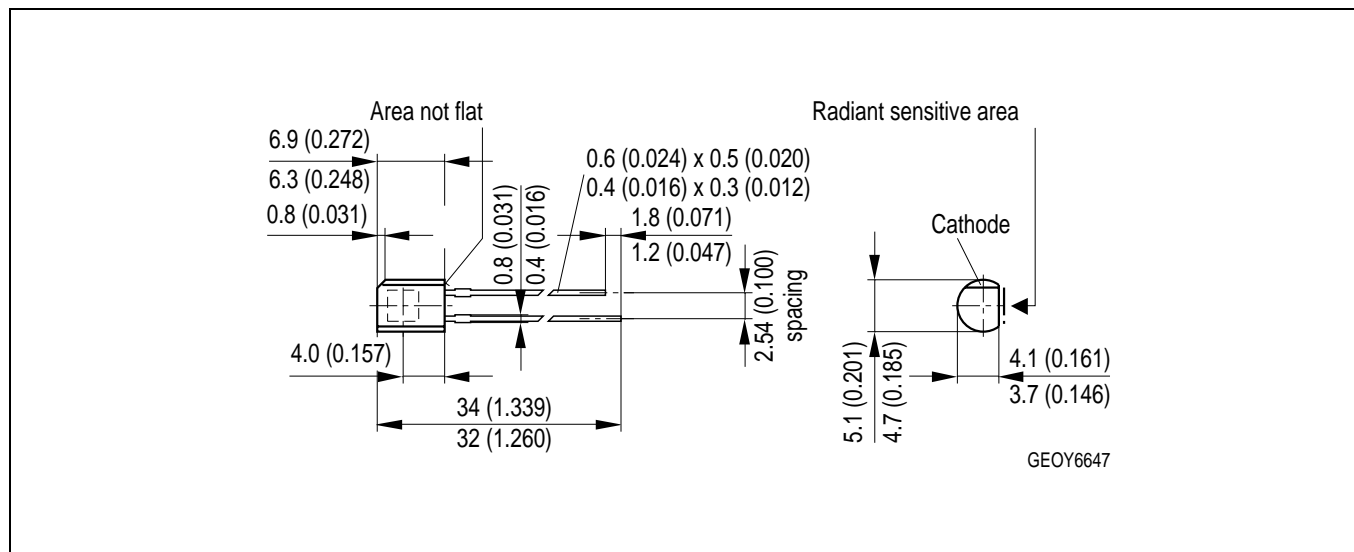


Directional Characteristics

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



Maßzeichnung Package Outlines



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

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