

Silizium-PIN-Fotodiode mit Tageslichtsperrfilter
Silicon-PIN-Photodiode with Daylight Filter
Lead (Pb) Free Product - RoHS Compliant

SFH 205 F



Wesentliche Merkmale

- Speziell geeignet für Anwendungen bei 950 nm
- Kurze Schaltzeit (typ. 20 ns)
- 5 mm-Plastikbauform im LED-Gehäuse
- Auch gegurtet lieferbar

Anwendungen

- IR-Fernsteuerung von Fernseh- und Rundfunkgeräten, Videorecordern, Lichtdimmern, Gerätefernsteuerungen
- Lichtschranken für Gleich- und Wechsellichtbetrieb

Features

- Especially suitable for applications of 950 nm
- Short switching time (typ. 20 ns)
- 5 mm LED plastic package
- Also available on tape and reel

Applications

- IR-remote control of hi-fi and TV sets, video tape recorders, dimmers, remote control of various equipment
- Photointerrupters

Typ Type	Bestellnummer Ordering Code
SFH 205 F	Q62702P0102

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
Sperrspannung Reverse voltage	V_R	32	V
Verlustleistung, $T_A = 25$ °C Total power dissipation	P_{tot}	150	mW

Kennwerte ($T_A = 25$ °C, $\lambda = 950$ nm)
Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Fotostrom Photocurrent $V_R = 5$ V, $E_e = 1$ mW/cm ²	I_P	60 (≥ 45)	μ A
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$	950	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max}	λ	800 ... 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	7.00	mm ²
Abmessungen der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$	2.65 × 2.65	mm × mm
Halbwinkel Half angle	φ	± 60	Grad deg.
Dunkelstrom, $V_R = 10$ V Dark current	I_R	2 (≤ 30)	nA
Spektrale Fotoempfindlichkeit Spectral sensitivity	S_λ	0.59	A/W
Quantenausbeute Quantum yield	η	0.77	<u>Electrons</u> Photon
Leerlaufspannung, $E_e = 0.5$ mW/cm ² Open-circuit voltage	V_O	330 (≥ 250)	mV

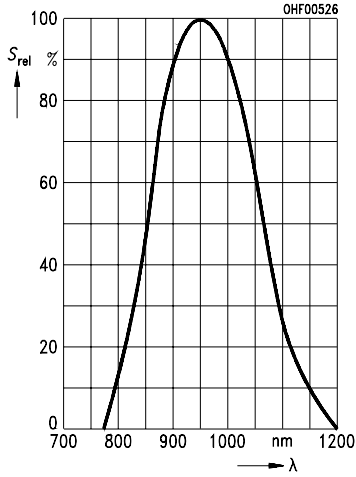
Kennwerte ($T_A = 25 \text{ }^\circ\text{C}$, $\lambda = 950 \text{ nm}$)

Characteristics (cont'd)

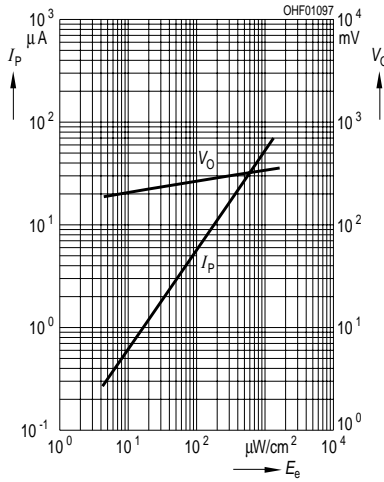
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Kurzschlußstrom, $E_e = 0.5 \text{ mW/cm}^2$ Short-circuit current	I_{SC}	28	μA
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent $R_L = 50 \text{ } \Omega$; $V_R = 5 \text{ V}$; $\lambda = 850 \text{ nm}$; $I_p = 800 \text{ } \mu\text{A}$	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 $V_R = 10 \text{ V}$	NEP	4.3×10^{-14}	$\frac{\text{W}}{\sqrt{\text{Hz}}}$
Nachweisgrenze, $V_R = 10 \text{ V}$ Detection limit	D^*	6.2×10^{12}	$\frac{\text{cm} \times \sqrt{\text{Hz}}}{\text{W}}$

Relative Spectral Sensitivity

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

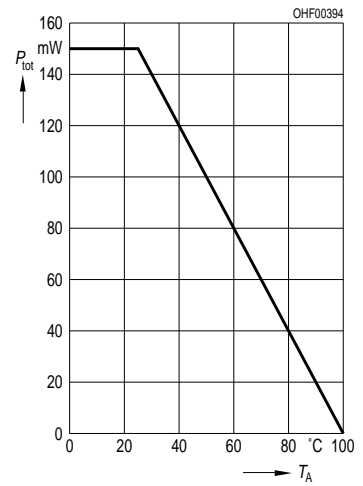


**Photocurrent $I_P = f(E_e)$, $V_R = 5 V$
Open-Circuit Voltage $V_O = f(E_e)$**



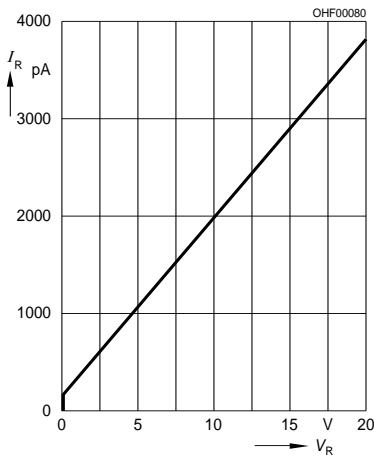
Total Power Dissipation

$P_{tot} = f(T_A)$



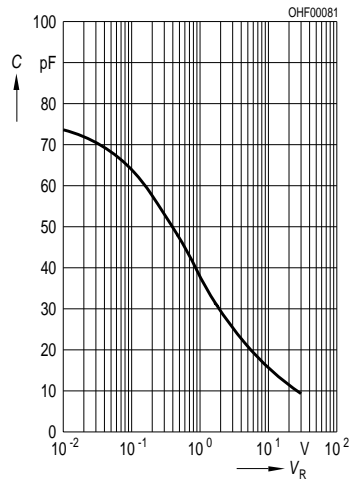
Dark Current

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



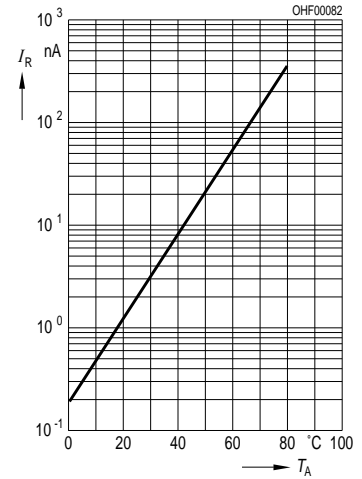
Capacitance

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



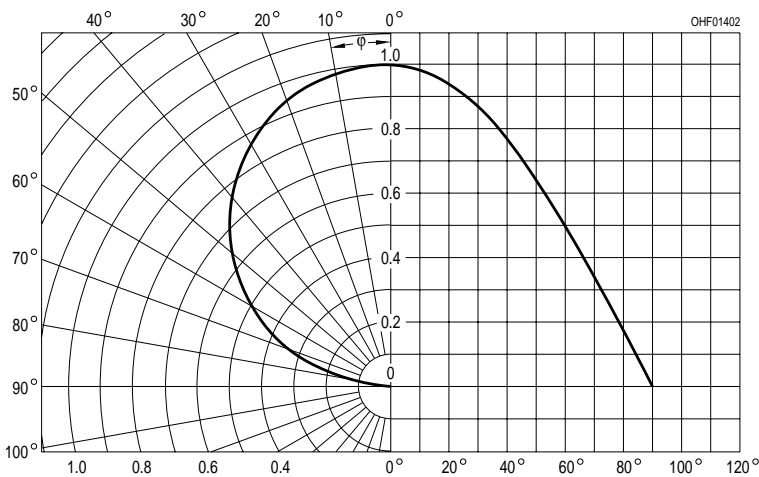
Dark Current

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

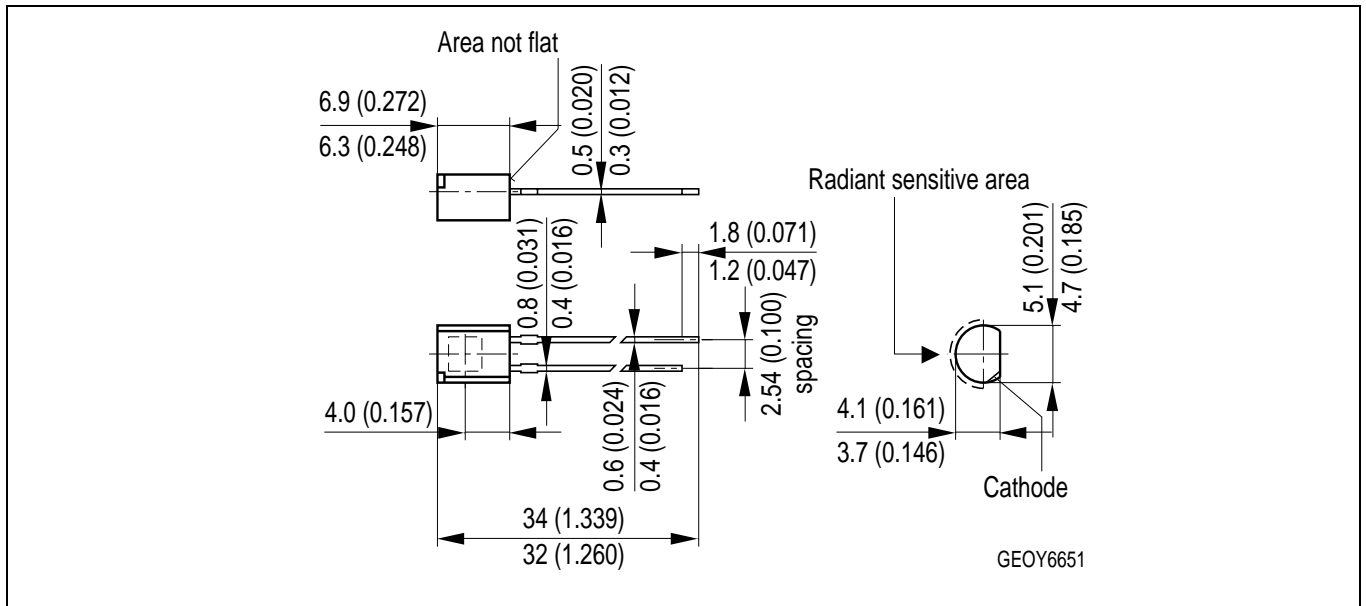


Directional Characteristics

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



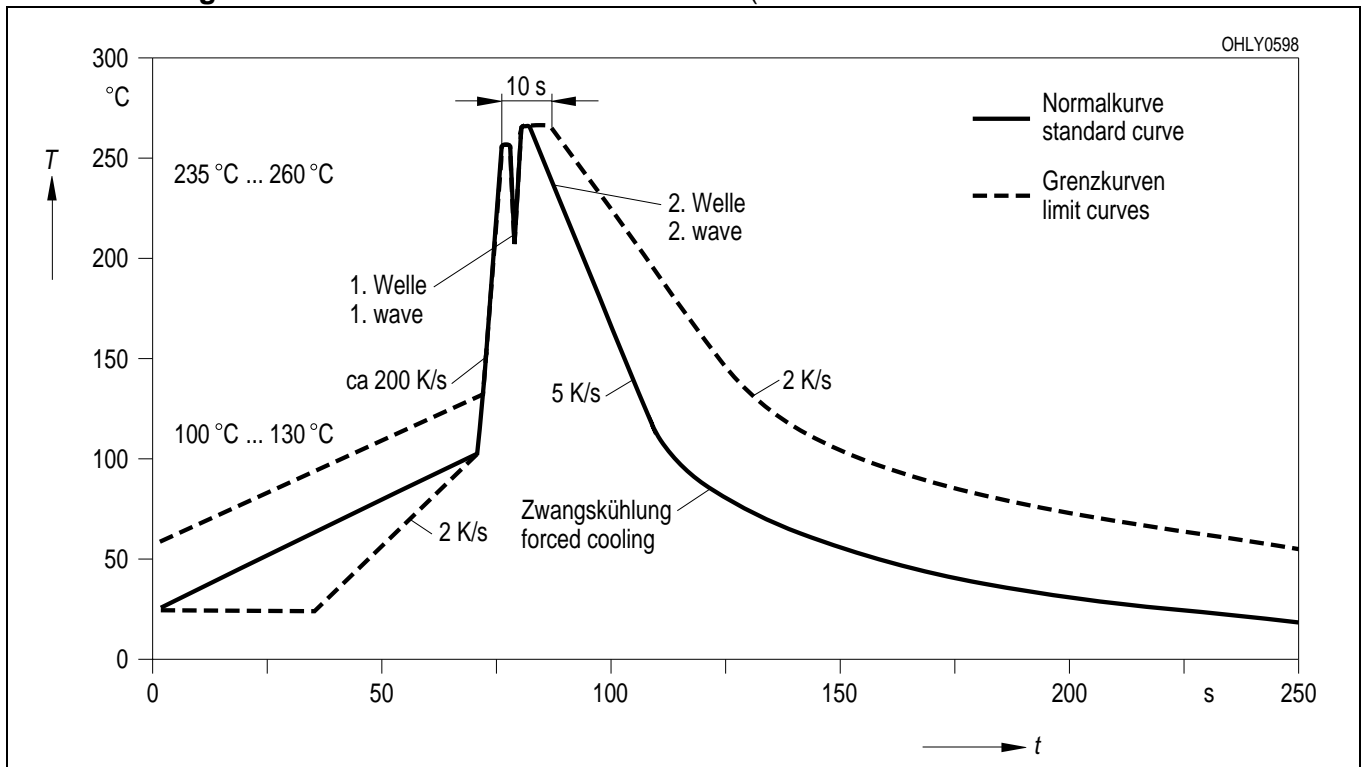
**Maßzeichnung
Package Outlines**



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

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

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



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