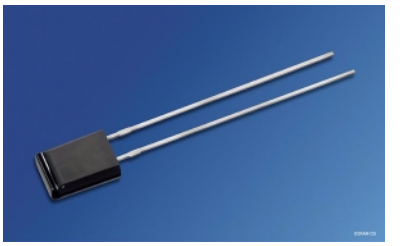
Silizium-PIN-Fotodiode mit Tageslichtsperrfilter
Silicon PIN Photodiode with Daylight Filter

SFH 235 FA



Wesentliche Merkmale

- Speziell geeignet für Anwendungen bei 880 nm
- Kurze Schaltzeit (typ. 20 ns)
- 5 mm-Plastikbauform im LED-Gehäuse
- Auch gegurtet lieferbar

Anwendungen

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

Features

- Especially suitable for applications of 880 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 235 FA	Q62702-P273

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 (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

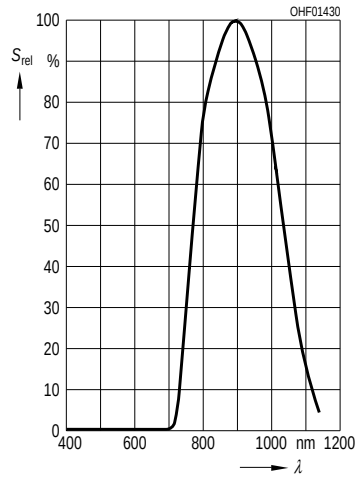
Kennwerte (T_A = 25 °C, λ = 870 nm)
Characteristics

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Fotostrom Photocurrent V_R = 5 V, E_e = 1 mW/cm^2	I_P	50 (≥ 40)	µA
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$	900	nm
Spektraler Bereich der Fotoempfindlichkeit S = 10% von S_{max} Spectral range of sensitivity S = 10% of S_{max}	λ	740 … 1120	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	7	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	0.6 … 0.8	mm
Halbwinkel Half angle	φ	± 65	Grad deg.
Dunkelstrom, V_R = 10 V Dark current	I_R	2 (≤ 30)	nA

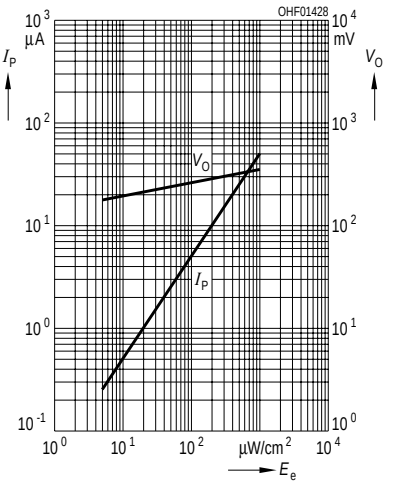
Kennwerte (T_A = 25 °C, λ = 870 nm)
Characteristics (cont'd)

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Spektrale Fotoempfindlichkeit Spectral sensitivity	S_λ	0.63	A/W
Quantenausbeute Quantum yield	η	0.9	Electrons Photon
Leerlaufspannung, E_e = 0.5 mW/cm^2 Open-circuit voltage	V_O	320 (≥ 250)	mV
Kurzschlußstrom, E_e = 0.5 mW/cm^2 Short-circuit current	I_{SC}	22	µA
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent R_L = 50 Ω; V_R = 5 V; λ = 850 nm; I_p = 800 µA	t_r, t_f	20	ns
Durchlaßspannung, I_F = 100 mA, E = 0 Forward voltage	V_F	1.3	V
Kapazität, V_R = 0 V, f = 1 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	0.03	%/K
Rauschäquivalente Strahlungsleistung Noise equivalent power V_R = 10 V	NEP	4.0×10^{-14}	$\frac{W}{\sqrt{Hz}}$
Nachweisgrenze, V_R = 10 V Detection limit	D*	6.6×10^{12}	$\frac{cm \times \sqrt{Hz}}{W}$

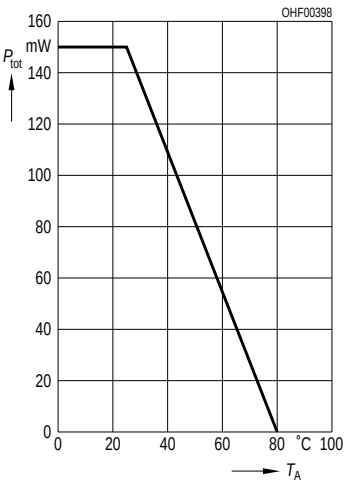
Relative Spectral Sensitivity
$S_{rel} = f(\lambda)$



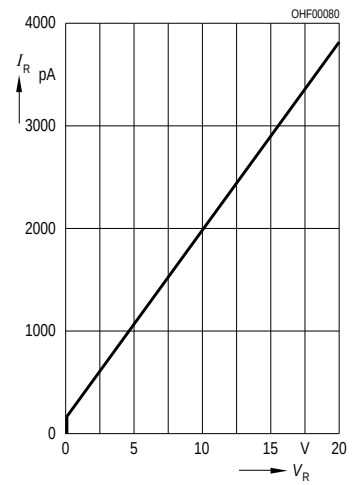
Photocurrent $I_P = f(E_e)$, V_R = 5 V
Open-Circuit Voltage
$V_O = f(E_e)$



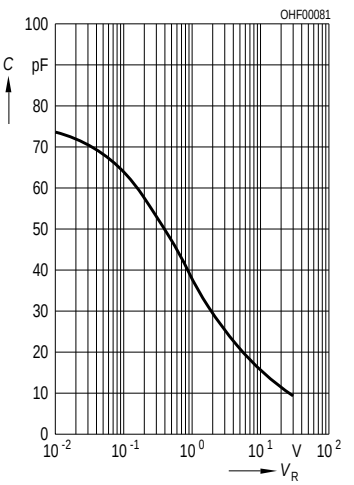
Total Power Dissipation
$P_{tot} = f(T_A)$



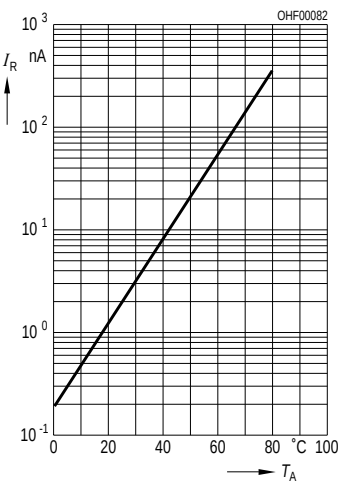
Dark Current
$I_R = f(V_R)$, E = 0



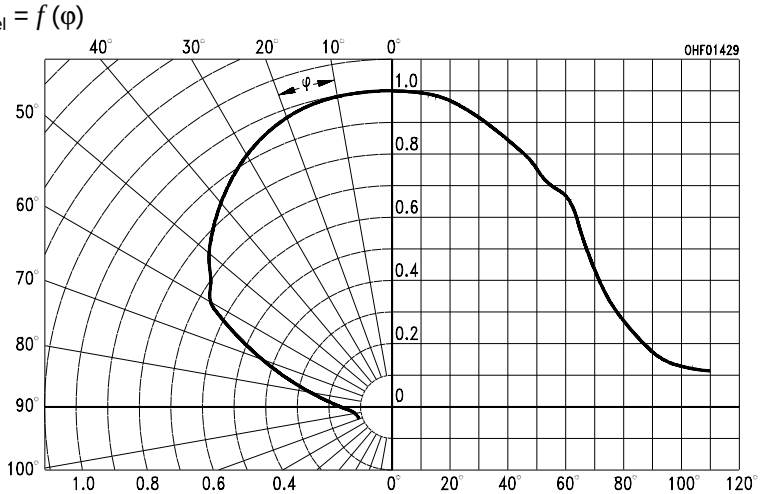
Capacitance
$C = f(V_R)$, f = 1 MHz, E = 0



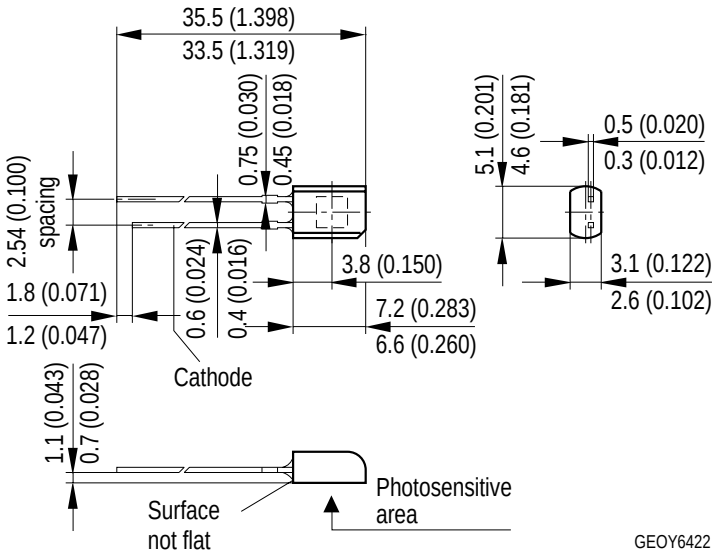
Dark Current
$I_R = f(T_A)$, V_R = 10 V, E = 0



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



Maßzeichnung
Package Outlines



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

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