Silizium-Differential-Fotodiode
Silicon Differential Photodiode
Lead (Pb) Free Product - RoHS Compliant

SFH 221

Wesentliche Merkmale

- Speziell geeignet für Anwendungen im Bereich von 400 nm bis 1100 nm
- Hohe Fotoempfindlichkeit
- Hermetisch dichte Metallbauform (ähnlich TO-5), geeignet bis 125 °C[1)]
- Doppeldiode von extrem hoher Gleichmäßigkeit

Features

- Especially suitable for applications from 400 nm to 1100 nm
- High photosensitivity
- Hermetically sealed metal package (similar to TO-5), suitable up to 125 °C[1)]
- Double diode with extremely high homogeneousness

Anwendungen

- Nachlaufsteuerungen
- Kantenführung
- Industrieelektronik
- „Messen/Steuern/Regeln“

Applications

- Follow-up controls
- Edge drives
- Industrial electronics
- For control and drive circuits

Typ Type	Bestellnummer Ordering Code
SFH 221	Q62702P0270

1) Eine Abstimmung der Einsatzbedingungen mit dem Hersteller wird empfohlen bei T_A > 85 °C

1) For operating conditions of T_A > 85 °C please contact us.

Grenzwerte
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebs- und Lagertemperatur Operating and storage temperature range	T_{op}; T_{stg}	– 40 … + 125	°C
Sperrspannung Reverse voltage	V_R	10	V
Isolationsspannung gegen Gehäuse Insulation voltage vs. package	V_{IS}	100	V
Verlustleistung, T_A = 25 °C Total power dissipation	P_{tot}	50	mW

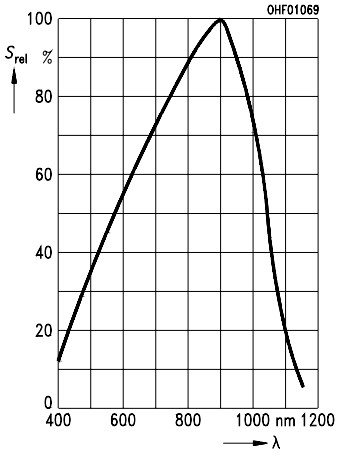
Kennwerte (T_A = 25 °C, Normlicht A, T = 2856 K) für jede Einzeldiode
Characteristics (T_A = 25 °C, standard light A, T = 2856 K) per single diode

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Fotoempfindlichkeit, V_R = 5 V Spectral sensitivity	S	24 (≥ 15)	nA/lx
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	400 … 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	1.54	mm^2
Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$	0.7 × 2.2	mm²
Halbwinkel Half angle	φ	± 55	Grad deg.
Dunkelstrom, V_R = 10 V Dark current	I_R	10 (≤ 100)	nA
Spektrale Fotoempfindlichkeit, λ = 850 nm Spectral sensitivity	S_λ	0.55	A/W

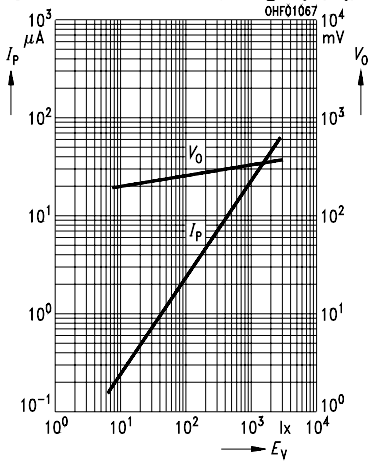
Kennwerte (T_A = 25 °C, Normlicht A, T = 2856 K) für jede Einzeldiode
Characteristics (T_A = 25 °C, standard light A, T = 2856 K) per single diode (cont'd)

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Maximale Abweichung der Fotoempfindlichkeit vom Mittelwert Max. deviation of the system spectral sensitivity from the average	ΔS	$\pm$ 5	%
Quantenausbeute, λ = 850 nm Quantum yield	η	0.80	Electrons / Photon
Leerlaufspannung, E_v = 1000 lx Open-circuit voltage	V_O	330 ($\geq$ 280)	mV
Kurzschluβstrom, E_v = 1000 lx Short-circuit current	I_{SC}	24	µA
Isolationsstrom, V_{IS} = 100 V Insulation current	I_{IS}	0.1 ($\leq$ 1)	nA
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent R_L = 1 kΩ; V_R = 5 V; λ = 850 nm; I_p = 25 µA	t_r, t_f	500	ns
Durchlaβspannung, I_F = 40 mA, E = 0 Forward voltage	V_F	1.0	V
Kapazität, V_R = 0 V, f = 1 MHz, E = 0 Capacitance	C_0	25	pF
Temperaturkoeffizient für V_O Temperature coefficient of V_O	TC_V	– 2.6	mV/K
Temperaturkoeffizient für I_{SC} Temperature coefficient of I_{SC}	TC_I	0.18	%/K
Rauschäquivalente Strahlungsleistung Noise equivalent power V_R = 10 V, λ = 850 nm	NEP	1.0×10^{-13}	$\frac{W}{\sqrt{Hz}}$
Nachweisgrenze, V_R = 10 V, λ = 850 nm Detection limit	D*	1.2×10^{12}	$\frac{cm \times \sqrt{Hz}}{W}$

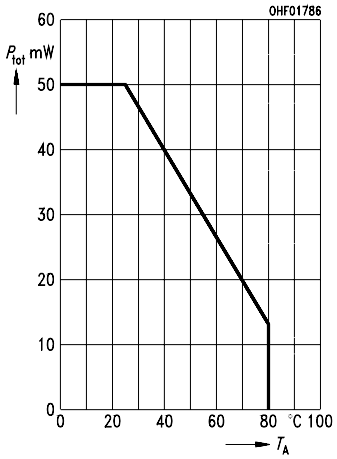
Relative Spectral Sensitivity
$S_{rel} = f(\lambda)$



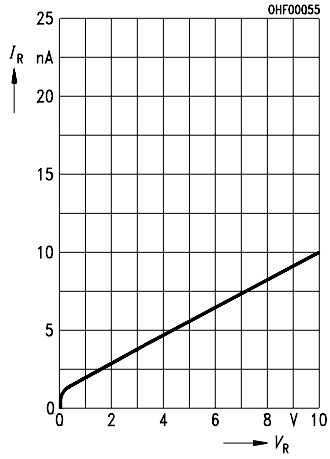
Photocurrent $I_P = f(E_V)$, V_R = 5 V
Open-Circuit-Voltage $V_L = f(E_V)$



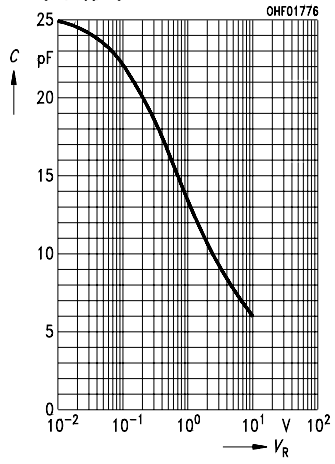
Total Power Dissipation
$P_{tot} = f(T_A)$



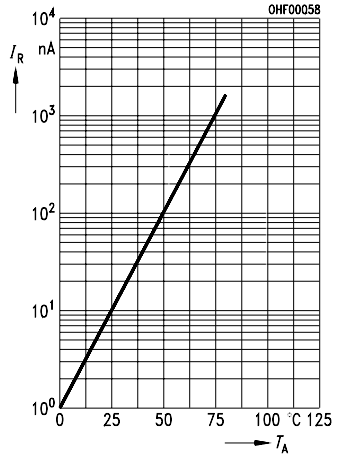
Dark Current
$I_R = f(V_R)$, E = 0



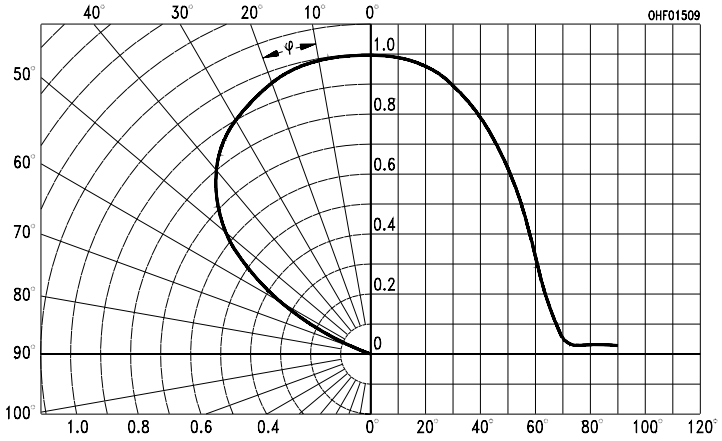
Capacitance
$C = f(V_R)$, f = 1 MHz, E = 0



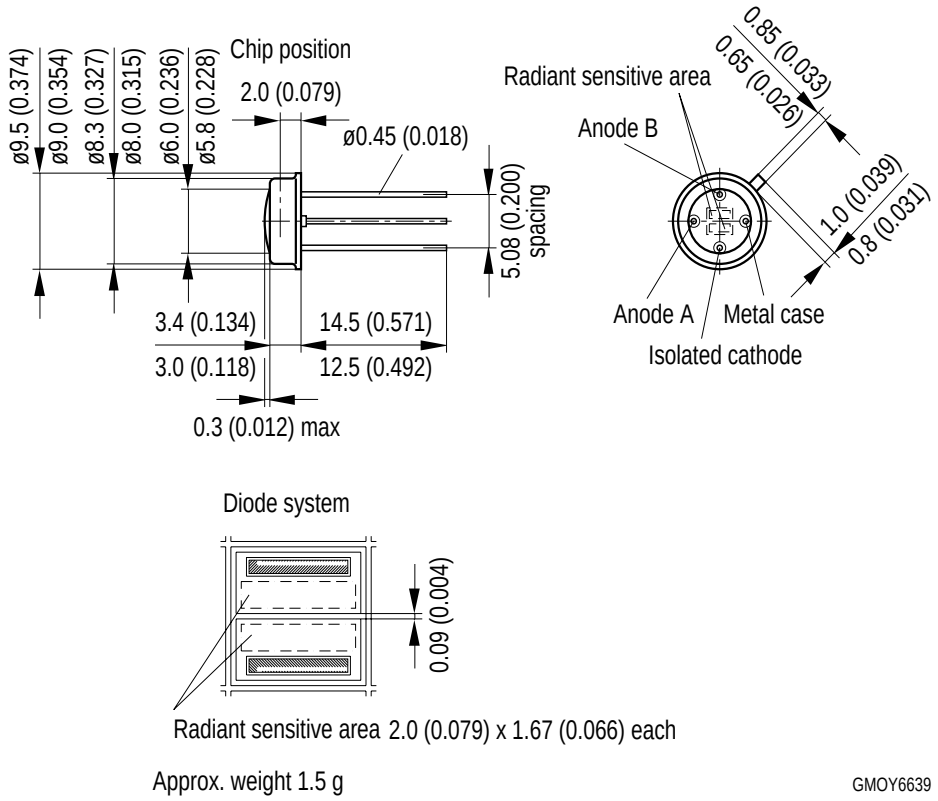
Dark Current
$I_R = f(T_A)$, V_R = 1 V, E = 0



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

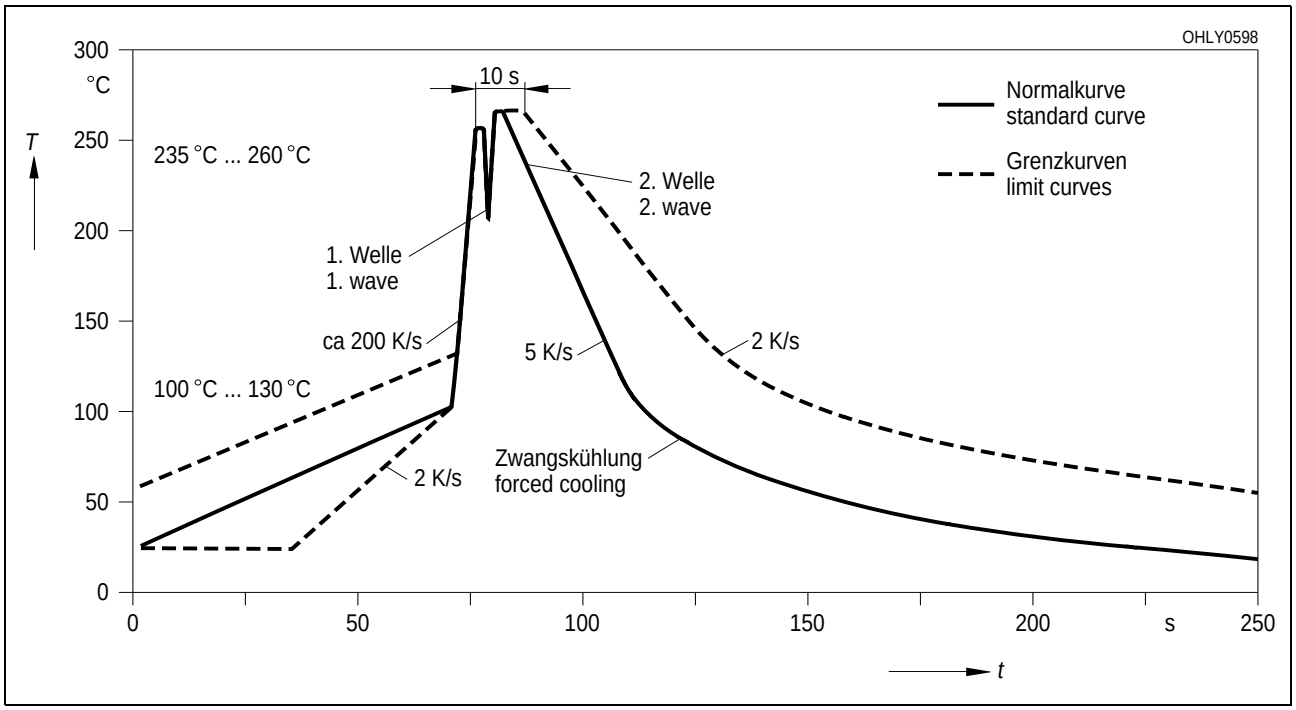


Maßzeichnung
Package Outlines



Maße in mm (inch) / Dimensions in mm (inch).

Lötbedingungen
Soldering Conditions
Wellenlöten (TTW) (nach CECC 00802)
TTW Soldering (acc. to CECC 00802)



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