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

SFH 204 F
SFH 204 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, 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 204 F	Q62702P5052
SFH 204 FA	Q62702P1793

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	20	V
Verlustleistung, T_A = 25 °C Total power dissipation	P_{tot}	150	mW

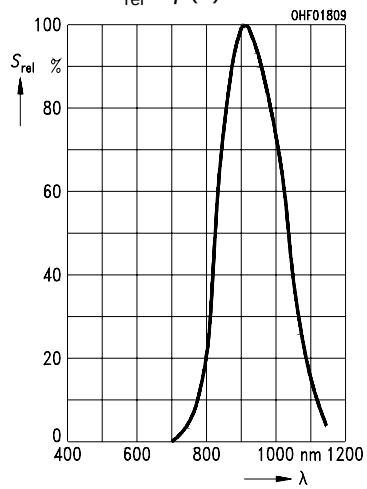
Kennwerte (T_A = 25 °C)
Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value		Einheit Unit
		SFH 204 F λ = 950 nm	**SFH 204 FA** λ = 870 nm	
Fotostrom Photocurrent V_R = 5 V, E_e = 1 mW/cm²	I_P	52 (≥ 43)	52 (≥ 43)	µA
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\,max}$	920	900	nm
Spektraler Bereich der Fotoempfindlichkeit S = 10% von S_{max} Spectral range of sensitivity S = 10% of S_{max}	λ	780 … 1120	740 … 1120	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	4.84	4.84	mm²
Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$	2.20 × 2.20	2.20 × 2.20	mm × mm
Halbwinkel horizontal Half angle horizontal plane	φ	±60	±60	Grad deg.
Halbwinkel vertikal Half angle vertical plane	φ	+ 60 – 75	+ 60 – 75	Grad deg.
Dunkelstrom, V_R = 10 V Dark current	I_R	2 (< 30)	2 (< 30)	nA
Spektrale Fotoempfindlichkeit Spectral sensitivity	S_λ	0.59	0.63	A/W

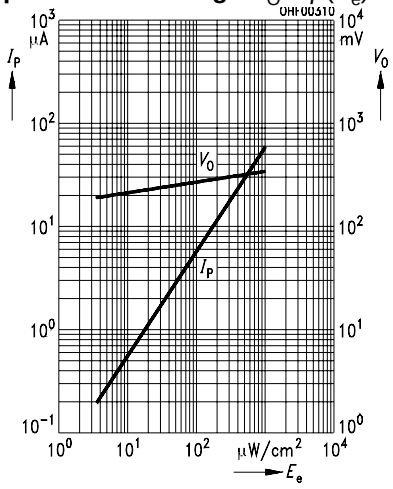
Kennwerte (T_A = 25 °C)
Characteristics (cont'd)

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**		**Einheit** **Unit**
		SFH 204 F λ = 950 nm	**SFH 204 FA** λ = 870 nm	
Quantenausbeute Quantum yield	η	0.77	0.90	Electrons / Photons
Leerlaufspannung, E_e = 0.5 mW/cm² Open-circuit voltage	V_O	340 (> 270)	340 (> 270)	mV
Kurzschlußstrom, E_e = 0.5 mW/cm² Short-circuit current	I_{SC}	25	25	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	20	ns
Durchlaßspannung, I_F = 100 mA, E = 0 Forward voltage	V_F	1.3	1.3	V
Kapazität, V_R = 0 V, f = 1 MHz, E = 0 Capacitance	C_0	48	48	pF
Temperaturkoeffizient von V_O Temperature coefficient of V_O	TC_V	– 2.6	– 2.6	mV/K
Temperaturkoeffizient von I_{SC} Temperature coefficient of I_{SC}	TC_I	0.18	0.1	%/K
Rauschäquivalente Strahlungsleistung Noise equivalent power V_R = 10 V	NEP	3.6×10^{-14}	3.6×10^{-14}	$\frac{W}{\sqrt{Hz}}$
Nachweisgrenze, V_R = 10 V Detection limit	D*	6.1×10^{12}	6.1×10^{12}	$\frac{cm \times \sqrt{Hz}}{W}$

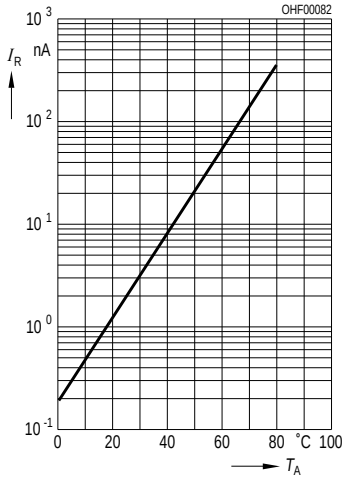
Relative Spectral Sensitivity
SFH 204 F $S_{rel} = f(\lambda)$



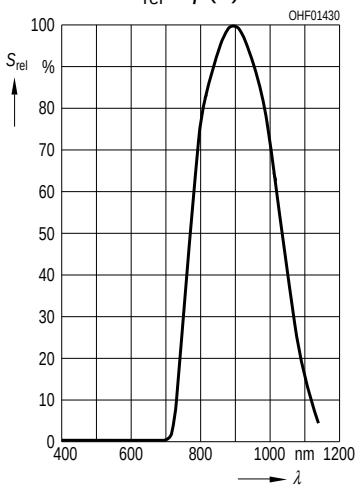
Photocurrent $I_P = f(E_e)$, V_R = 5 V
Open-Circuit Voltage $V_O = f(E_e)$



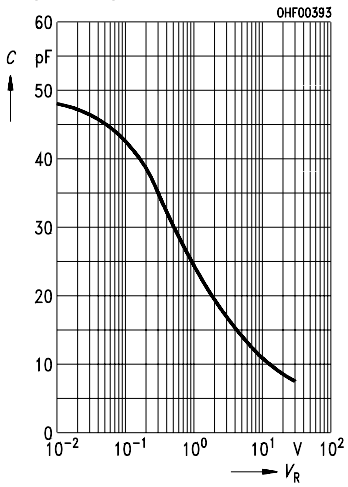
Dark Current
$I_R = f(T_A)$, V_R = 10 V, E = 0



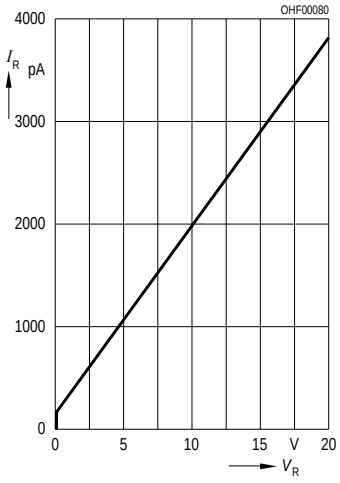
Relative Spectral Sensitivity
SFH 204 FA $S_{rel} = f(\lambda)$



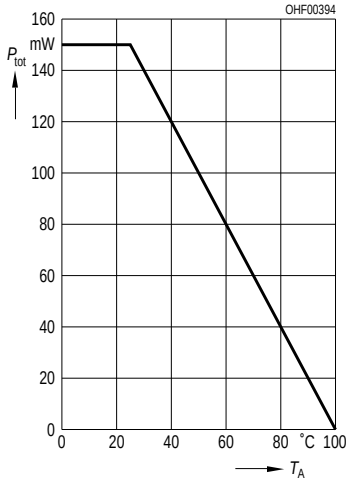
Capacitance
$C = f(V_R)$, f = 1 MHz, E = 0



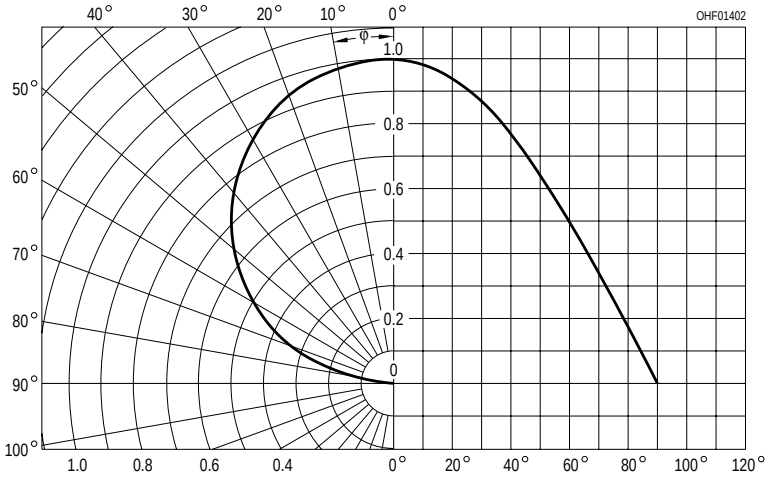
Dark Current
$I_R = f(V_R)$, E = 0



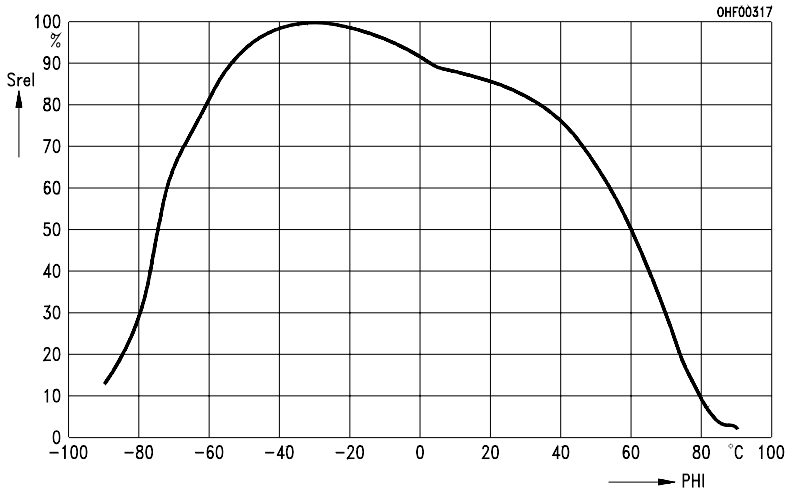
Total Power Dissipation
$P_{tot} = f(T_A)$



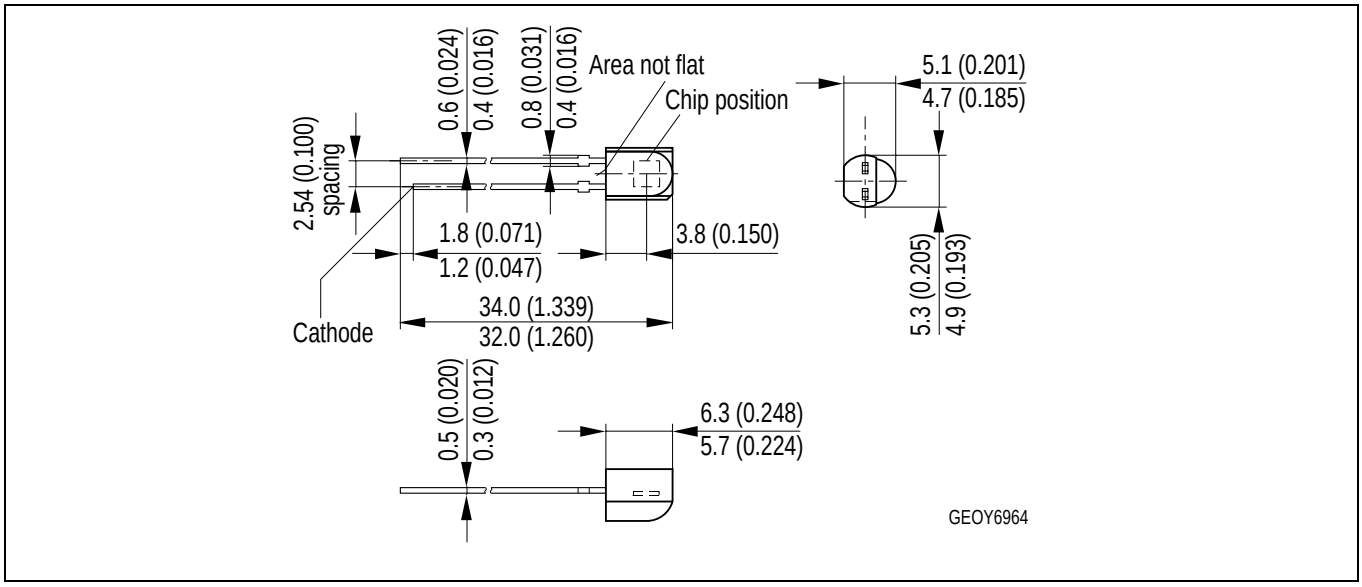
Directional Characteristics – Horizontal Plane
$S_{rel} = f(\varphi)$



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

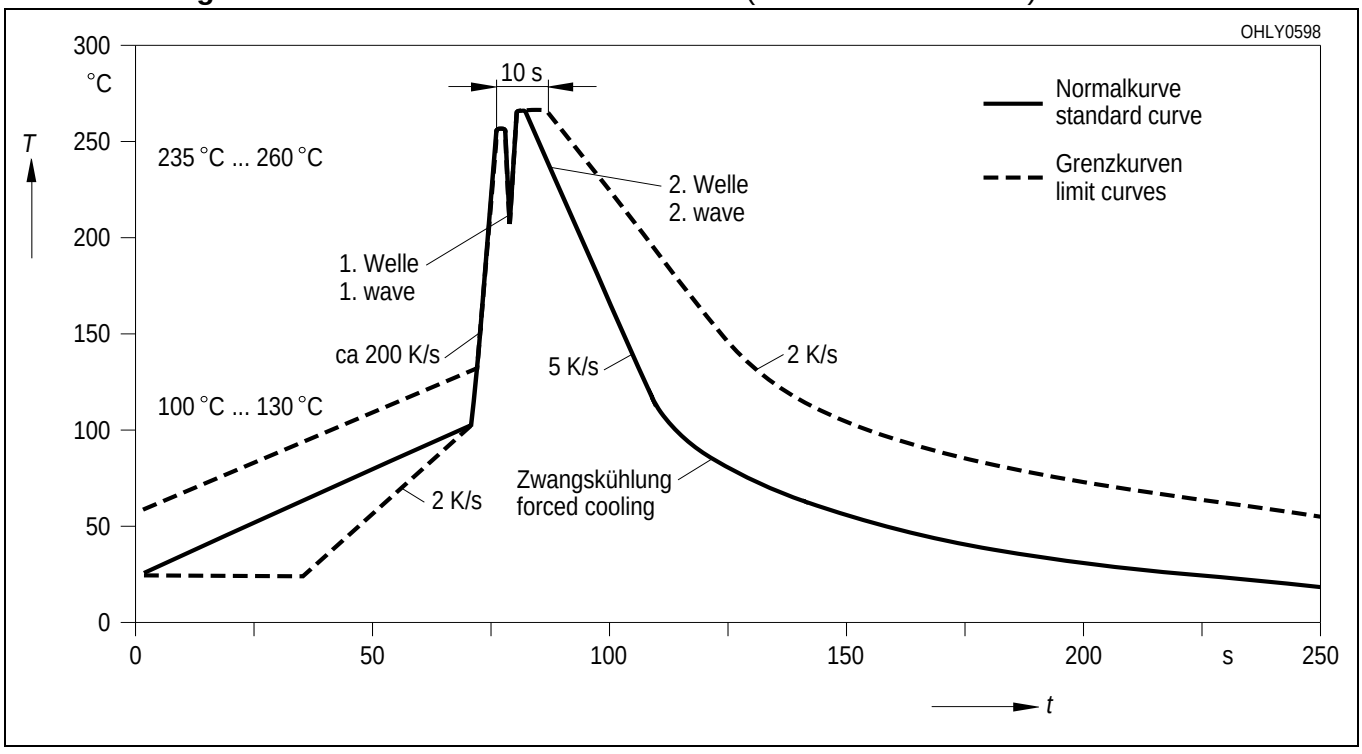


Maßzeichnung
Package Outlines



Maße in mm, wenn nicht anders angegeben / Dimensions in mm, unless otherwise specified.

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



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