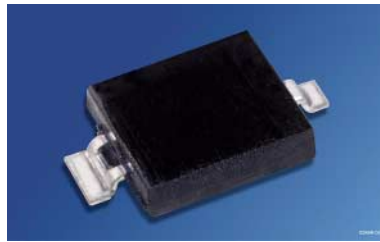
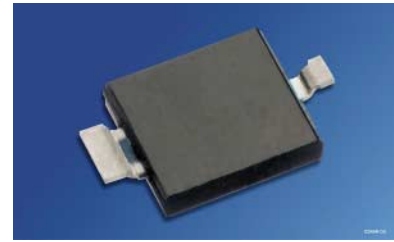


**Silizium-Pin-Fotodiode mit Tageslichtsperrfilter**  
**Silicon Pin Photodiode with Daylight Filter**  
**Lead (Pb) Free Product - RoHS Compliant**

**BP 104 FAS**  
**BP 104 FASR**



BP 104 FAS



BP 104 FASR

**Wesentliche Merkmale**

- Speziell geeignet für Anwendungen im Bereich von 730 nm... 1100nm
- Kurze Schaltzeit (typ. 20 ns)
- SMT-fähig

**Anwendungen**

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

**Features**

- Especially suitable for applications from 730 nm... 1100nm
- Short switching time (typ. 20 ns)
- Suitable for SMT

**Applications**

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

Typ Type	Bestellnummer Ordering Code	Fotostrom, $E_e=1 \text{ mW/cm}^2$ , $V_R = 5 \text{ V}$ , $\lambda = 880 \text{ nm}$ Photocurrent $I_p (\mu\text{A})$
BP 104 FAS	Q65110A2672	34 ( $\geq 25$ )
BP 104 FASR	Q65110A4263	34 ( $\geq 25$ )

**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,  $\lambda = 880$  nm)**
**Characteristics**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Fotostrom Photocurrent $V_R = 5$ V, $E_e = 1$ mW/cm <sup>2</sup>	$I_P$	34 ( $\geq 25$ )	$\mu$ A
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$	880	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10$ % von $S_{max}$ Spectral range of sensitivity $S = 10$ % of $S_{max}$	$\lambda$	730 ... 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	$A$	4.84	mm <sup>2</sup>
Halbwinkel Half angle	$\varphi$	$\pm 60$	Grad deg.
Dunkelstrom, $V_R = 10$ V Dark current	$I_R$	2 ( $\leq 30$ )	nA
Spektrale Fotoempfindlichkeit Spectral sensitivity	$S_\lambda$	0.65	A/W
Quantenausbeute Quantum yield	$\eta$	0.90	<u>Electrons</u> Photon
Leerlaufspannung, $E_e = 0.5$ mW/cm <sup>2</sup> Open-circuit voltage	$V_O$	330 ( $\geq 250$ )	mV
Kurzschlussstrom, $E_e = 0.5$ mW/cm <sup>2</sup> Short-circuit current	$I_{SC}$	16	$\mu$ A

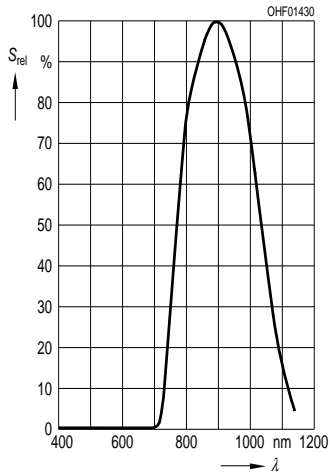
**Kennwerte** ( $T_A = 25 \text{ }^\circ\text{C}$ ,  $\lambda = 880 \text{ nm}$ )

**Characteristics** (cont'd)

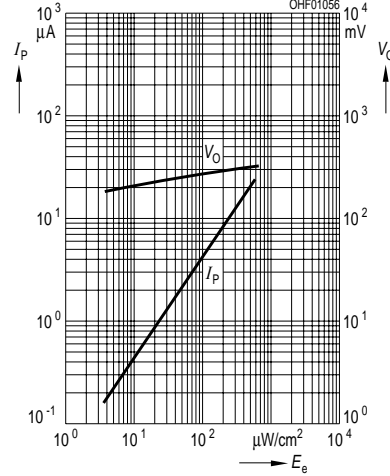
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent $R_L = 50 \text{ } \Omega$ ; $V_R = 5 \text{ V}$ ; $\lambda = 850 \text{ nm}$ ; $I_p = 800 \text{ } \mu\text{A}$	$t_r, t_f$	20	ns
Durchlassspannung, $I_F = 100 \text{ mA}$ , $E = 0$ Forward voltage	$V_F$	1.3	V
Kapazität, $V_R = 0 \text{ V}$ , $f = 1 \text{ MHz}$ , $E = 0$ Capacitance	$C_0$	48	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 $V_R = 10 \text{ V}$	$NEP$	$3.6 \times 10^{-14}$	$\frac{\text{W}}{\sqrt{\text{Hz}}}$
Nachweisgrenze, $V_R = 10 \text{ V}$ Detection limit	$D^*$	$6.1 \times 10^{12}$	$\frac{\text{cm} \times \sqrt{\text{Hz}}}{\text{W}}$

**Relative Spectral Sensitivity**

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

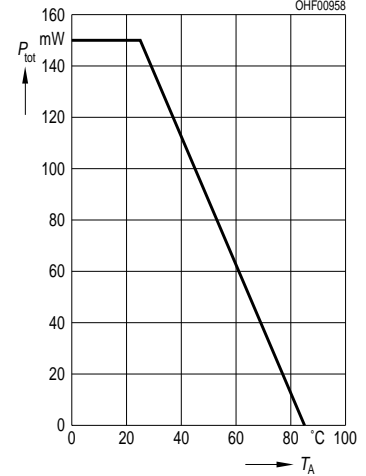


**Photocurrent  $I_P = f(E_e)$ ,  $V_R = 5 V$   
Open-Circuit Voltage  $V_O = f(E_e)$**



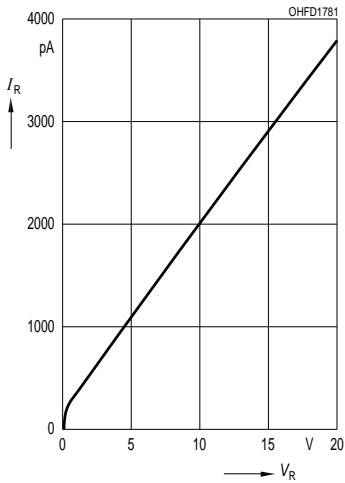
**Total Power Dissipation**

$P_{tot} = f(T_A)$



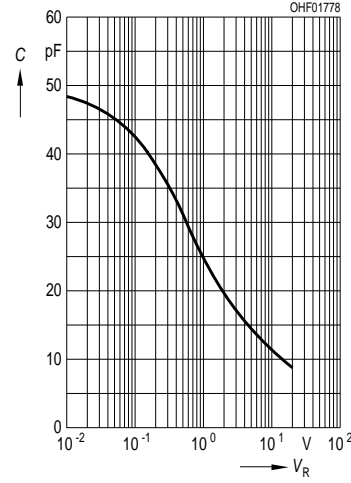
**Dark Current**

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



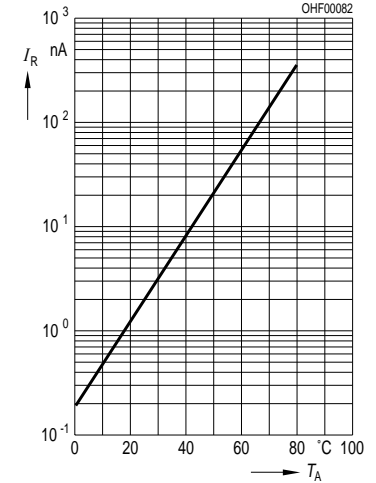
**Capacitance**

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



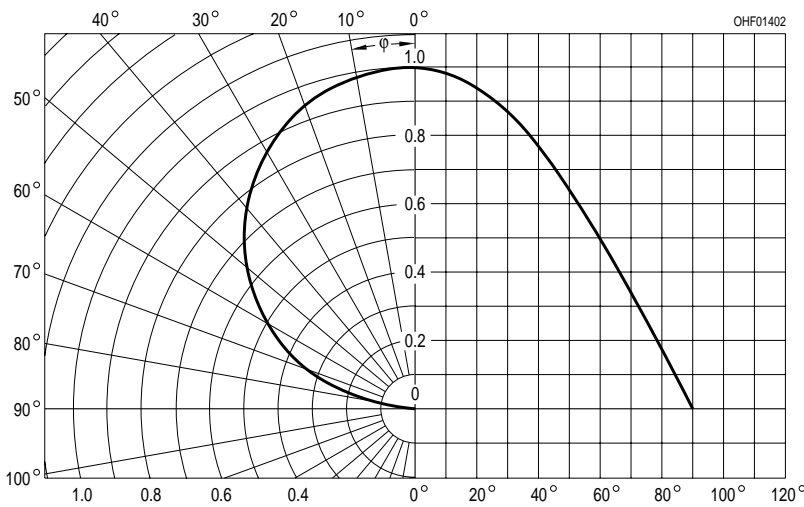
**Dark Current**

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

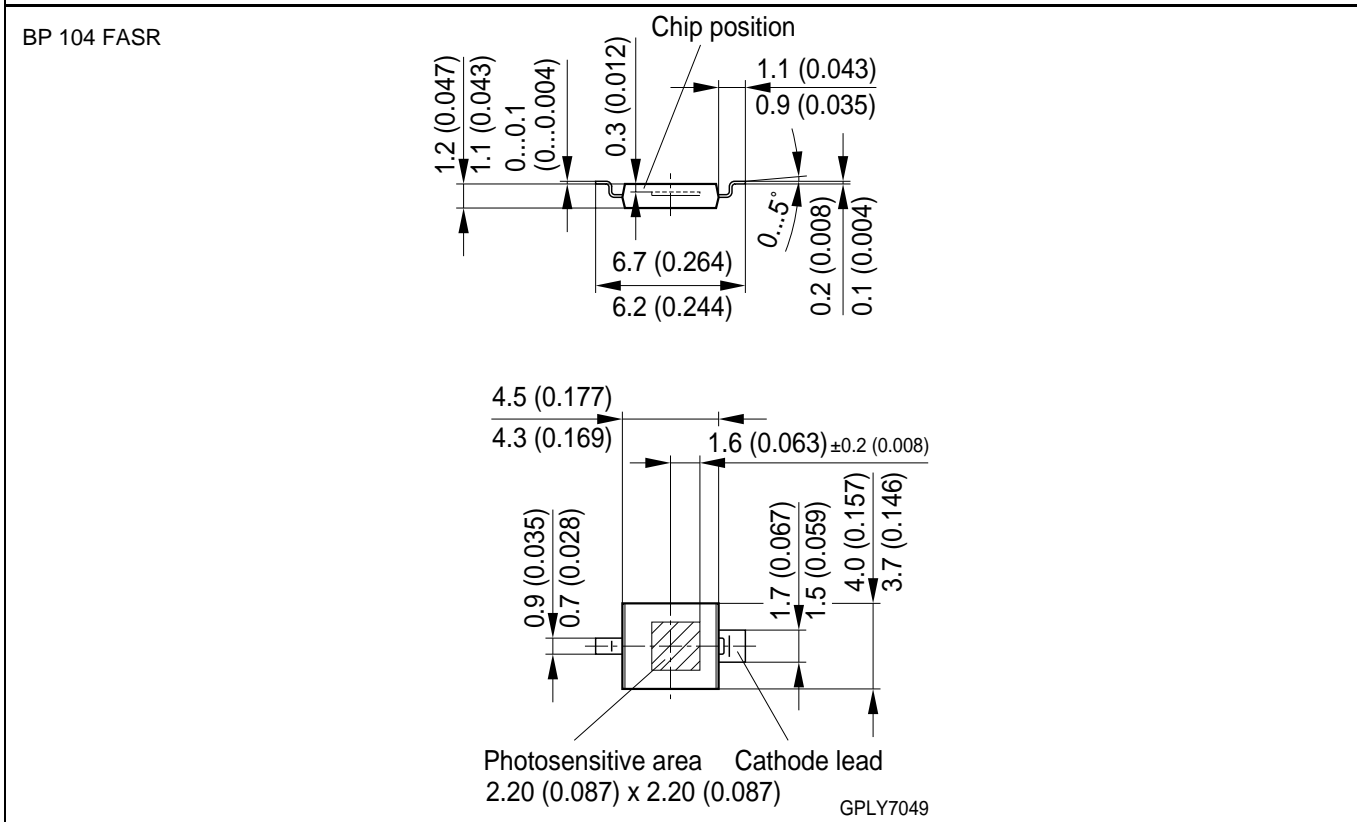
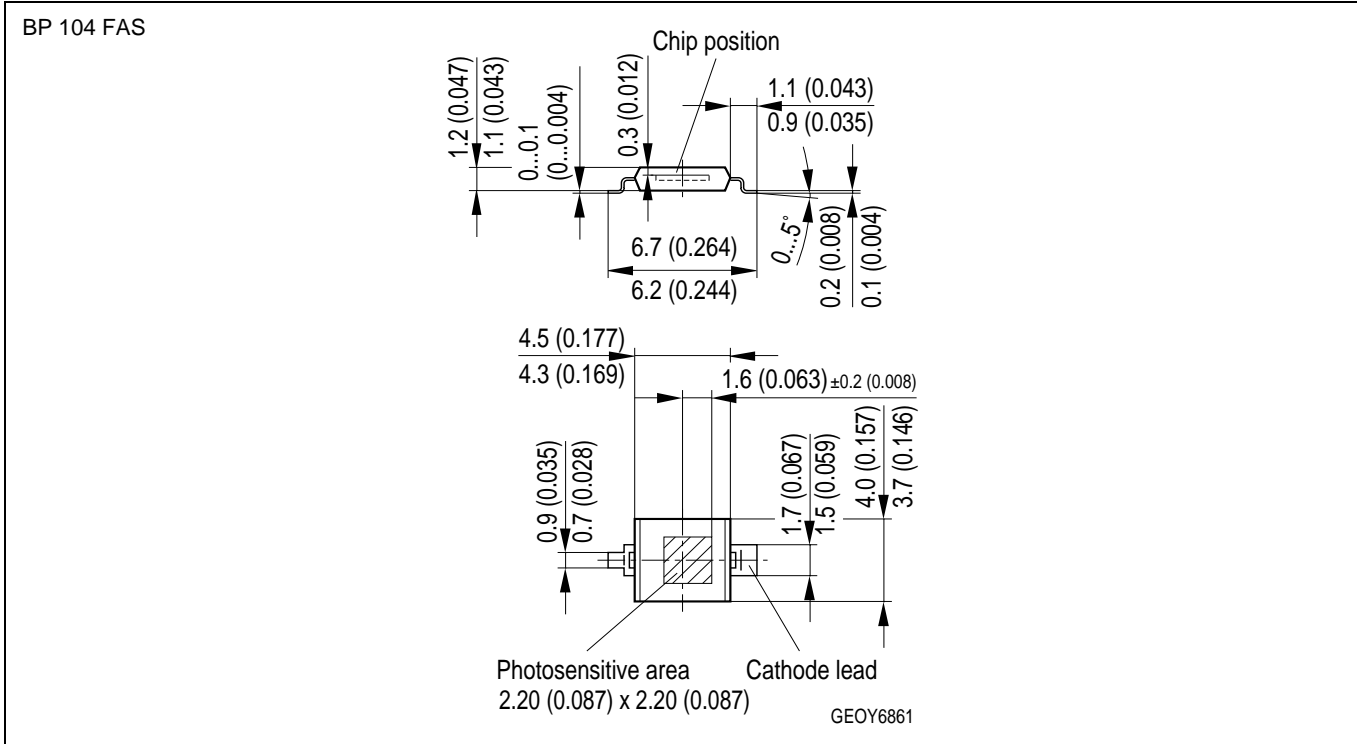


**Directional Characteristics**

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



Maßzeichnung  
Package Outlines

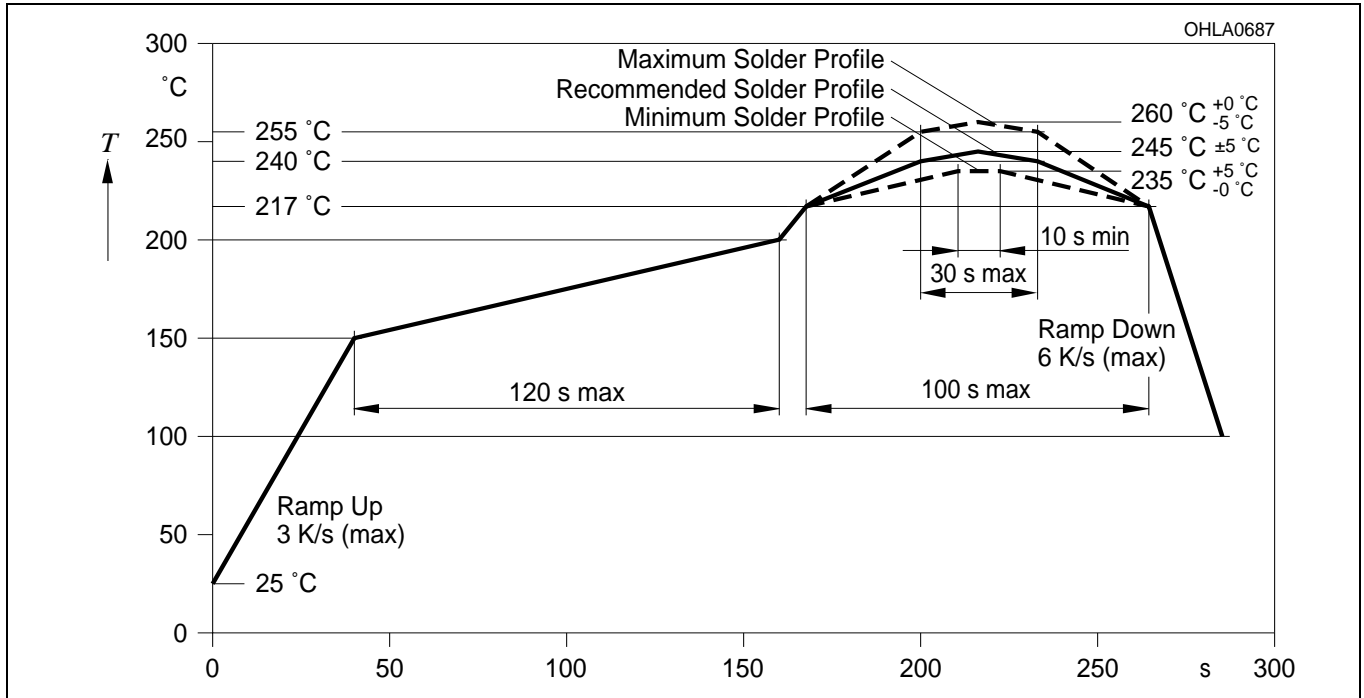


Maße in mm (inch) / Dimensions in mm (inch).

**Lötbedingungen**  
**Soldering Conditions**

**Reflow Lötprofil für bleifreies Löten**  
**Reflow Soldering Profile for lead free soldering**

Vorbehandlung nach JEDEC Level 4  
 Preconditioning acc. to JEDEC Level 4  
 (nach J-STD-020C)  
 (acc. to J-STD-020C)



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**Packing**

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

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<sup>1</sup> A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or effectiveness of that device or system.

<sup>2</sup> Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered.