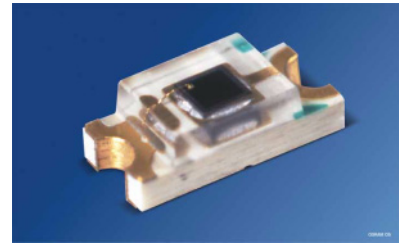


**Schnelle PIN-Fotodiode**  
**High Speed PIN-Photodiode**  
**Lead (Pb) Free Product - RoHS Compliant**

**SFH 2701**



**Wesentliche Merkmale**

- Speziell geeignet für Anwendungen von 400nm bis 1050nm
- Sehr kurze Schaltzeit im spezifizierten Wellenlängenbereich
- Sehr kurze Schaltzeiten bei geringer Sperrspannung (<5V)
- Extrem kurze Abklingzeit („slow tail“)
- IEC Standard 3216 Chipled Bauform

**Anwendungen**

- Optische Laufwerke (CD, DVD)
- Lichtschranken für Gleich- und Wechselbetrieb
- Industrieelektronik
- „Messen/Steuern/Regeln“

**Features**

- Especially suitable for applications from 400nm to 1050nm
- Fast switching time within the specified wavelength
- Fast switching time at low reverse voltage (<5V)
- Ultra short decay time („slow tail“)
- IEC Standard 3216 Chipled package

**Applications**

- Optical Disc Drives (CD, DVD)
- Photointerrupters
- Industrial electronics
- For control and drive circuits

Typ Type	Bestellnummer Ordering Code
SFH 2701	Q65110A2960

**Grenzwerte**  
**Maximum Ratings**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebs- und Lagertemperatur Operating and storage temperature range	$T_{op}; T_{stg}$	- 40 ... + 85	°C
Sperrspannung Reverse voltage	$V_R$	15	V
Sperrspannung, $t < 120$ s Reverse voltage	$V_R$	20	V
Elektrostatische Entladung Electrostatic Discharge Human Body Model according to EOS/ESD-5.1-1993	ESD	2	kV

**Kennwerte** ( $T_A = 25$  °C)  
**Characteristics**

Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		min	typ	max	
Spektrale Fotoempfindlichkeit des Chips Spectral sensitivity of the chip $\lambda = 650\text{nm}$ $\lambda = 780\text{nm}$	$S_\lambda$		0.45 0.5		A/W
Fotostrom, $V_R = 5$ V, $E_e = 0.5$ mW/cm <sup>2</sup> Photocurrent $\lambda = 650\text{nm}$ $\lambda = 780\text{nm}$	$I_P$		1.2 1.4		μA
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S \max}$		820		nm
Spektraler Bereich der Fotoempfindlichkeit Spectral range of sensitivity $S = 10\%$ of $S_{\max}$	$\lambda$		400...1050		nm
Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$		$0.6 \times 0.6$		mm × mm
Abstand Chipoberfläche zu Gehäuseoberfläche Distance chip front to case surface	$H$		0.3		mm
Halbwinkel Half angle	$\varphi$		± 60		Grad deg.

Kennwerte ( $T_A = 25\text{ °C}$ )

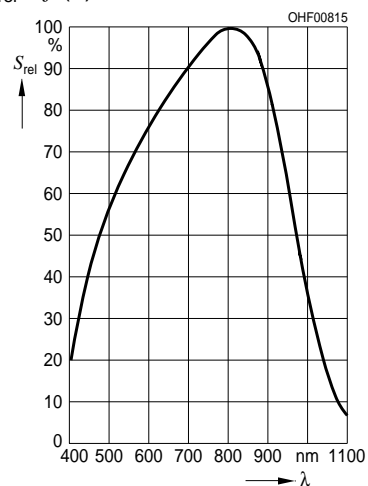
Characteristics (cont'd)

Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		min	typ	max	
Dunkelstrom, $V_R = 5\text{ V}$ Dark current	$I_R$		0.05	5	nA
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent, 10% - 90% $V_R = 5\text{ V}$ , $R_L = 50\text{ }\Omega$ , $\lambda = 650\text{ nm}$ , $I_p = 1\text{ mA}$ $V_R = 5\text{ V}$ , $R_L = 50\text{ }\Omega$ , $\lambda = 780\text{ nm}$ , $I_p = 1\text{ mA}$	$t_r$ , $t_f$ $t_r$ , $t_f$		1.8 2.0		ns ns
Kapazität, $f = 1\text{ MHz}$ , $E = 0$ , $V_R = 0\text{ V}$ Capacitance	$C_0$		3	5	pF
Temperaturkoeffizient von $S_\lambda$ Temperature coefficient of $S_\lambda$ $\lambda = 650\text{ nm}$ $\lambda = 780\text{ nm}$	$TC_I$		-0.03 -0.01		%/K %/K
Rauschäquivalente Strahlungsleistung <sup>1)</sup> Noise equivalent power, $V_R = 5\text{ V}$ , $\lambda = 650\text{ nm}$	$NEP$		$6.3 \times 10^{-15}$		$\frac{\text{W}}{\sqrt{\text{Hz}}}$

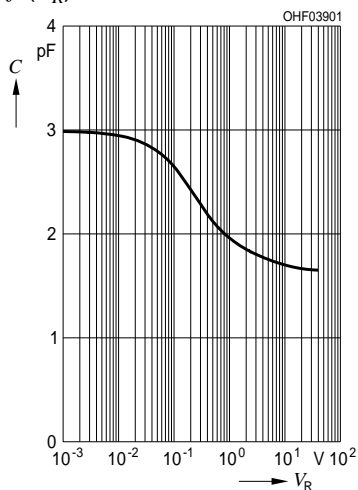
$$^1) \text{ NEP} = 17,9 \times 10^{-15} \times \frac{\sqrt{I_R}}{S_\lambda}$$

**Relative Spectral Sensitivity**

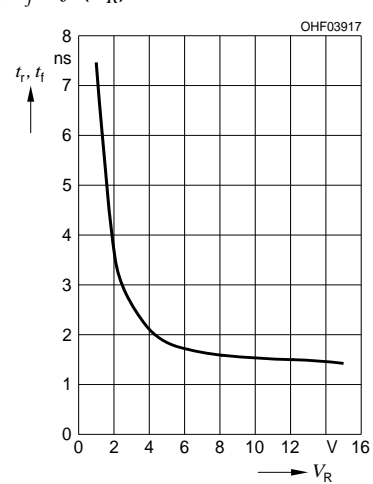
$$S_{\text{rel}} = f(\lambda)$$

**Capacitance**

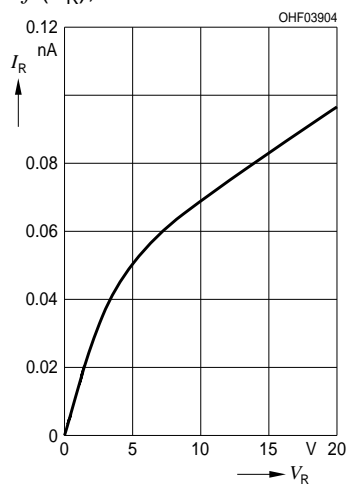
$$C_0 = f(V_R), E = 0$$

**Switching time**

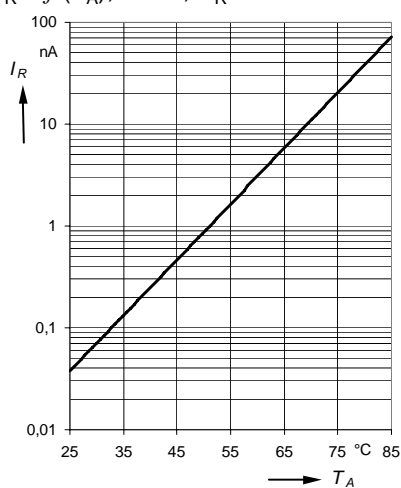
$$t_r, t_f = f(V_R)$$

**Dark Current**

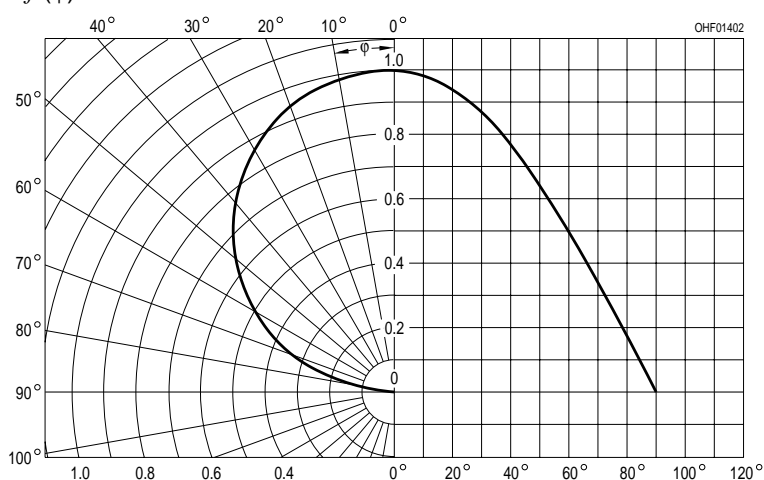
$$I_R = f(V_R), E = 0$$

**Dark Current**

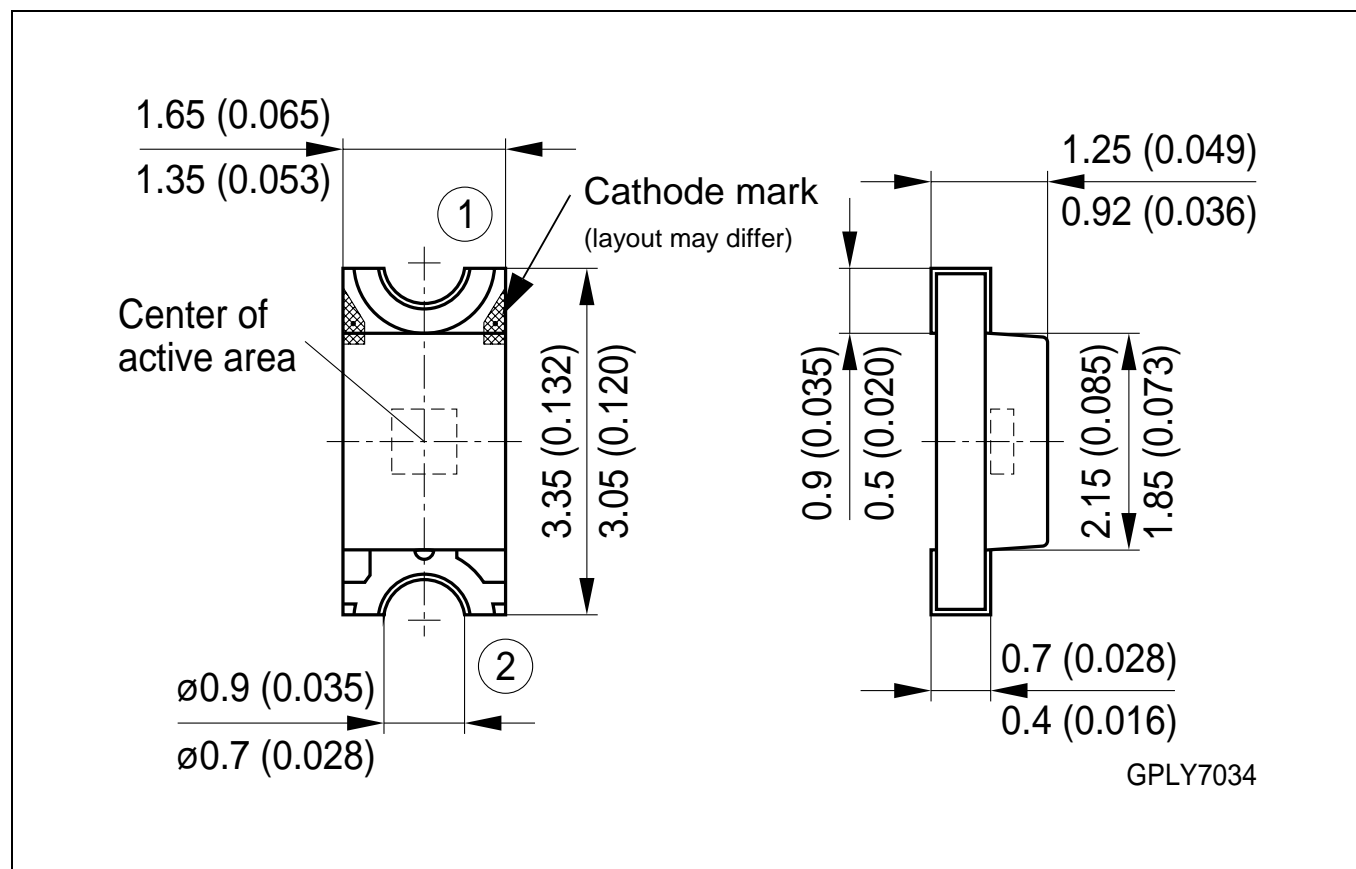
$$I_R = f(T_A), E = 0, V_R = 5V$$

**Directional Characteristics**

$$S_{\text{rel}} = f(\varphi)$$



## Maßzeichnung Package Outlines

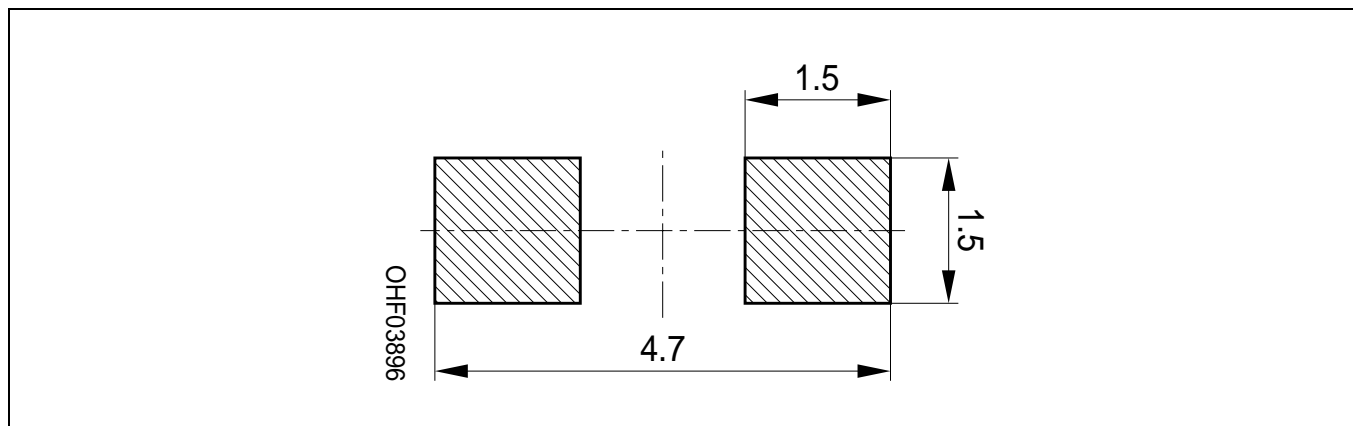


Maße in mm (inch) / Dimensions in mm (inch)

Gehäuse / Package	PCB mit klarem Epoxid / PCB with clear epoxy
Anschlussbelegung Pin configuration	Pad 1 = Kathode / cathode Pad 2 = Anode / anode

Kathoden Markierung (grün) kann von der in der Zeichnung angegeben Form abweichen.  
Cathode mark (green) can differ from the form shown in drawing.

**Empfohlenes Lötpaddesign**  
**Recommended Solderpad Design**



Maße in mm / Dimensions in mm

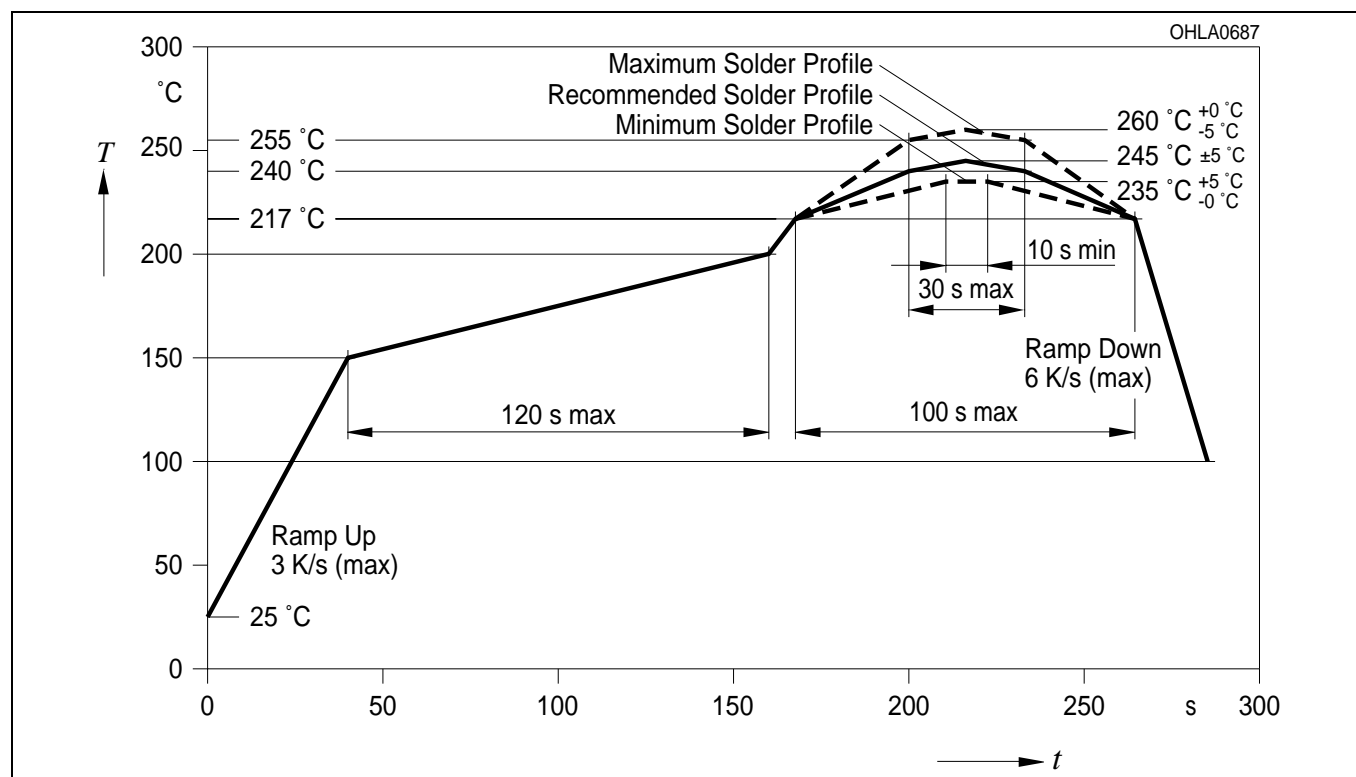
**Lötbedingungen****Soldering Conditions****Reflow Lötprofil für bleifreies Löten****Reflow Soldering Profile for lead free soldering**

Vorbehandlung nach JEDEC Level 3

Preconditioning acc. to JEDEC Level 3

(nach J-STD-020C)

(acc. to J-STD-020C)



Published by  
**OSRAM Opto Semiconductors GmbH**  
Wernerwerkstrasse 2, D-93049 Regensburg

[www.osram-os.com](http://www.osram-os.com)

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