



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



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

**SFH 2302**



**Wesentliche Merkmale**

- Speziell geeignet für Anwendungen von 400nm bis 1050nm
- Sehr kurze Schaltzeit im spezifizierten Wellenlängenbereich
- Sehr kurze Schaltzeit bei geringer Sperrspannung (<5V)
- Extrem kurze Abklingzeit („slow tail“)
- 3 mm-Plastikbauform im LED-Gehäuse

**Anwendungen**

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

**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“)
- 3 mm LED plastic package

**Applications**

- Optical Disc Drives (CD, DVD)
- Photointerrupters
- Industrial electronics
- For control and drive circuits
- Fibre optic transmission systems
- Range Finders

<b>Typ</b> <b>Type</b>	<b>Bestellnummer</b> <b>Ordering Code</b>
SFH 2302	Q65110A6343

**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	$V_R$	15	V
Sperrspannung, $t < 120$ s Reverse voltage	$V_R$	20	V
Verlustleistung Total power dissipation	$P_{tot}$	150	mW
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 $\lambda = 650\text{nm}$ $\lambda = 780\text{nm}$	$\lambda_{S\ max}$		0.45 0.5		A/W
Fotostrom, $V_R = 5$ V, $E_e = 0.5$ mW/cm <sup>2</sup> Photocurrent $\lambda = 650\text{nm}$ $\lambda = 780\text{nm}$	$I_P$		10 11		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 × 0.6		mm × mm
Abstand Chipoberfläche zu Gehäuseoberfläche Distance chip front to case surface	$H$		2.4 ... 2.8		mm

Kennwerte ( $T_A = 25\text{ °C}$ )

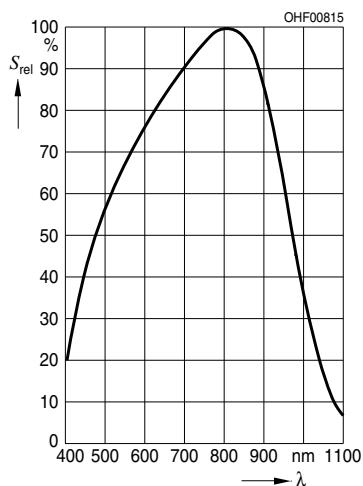
Characteristics (cont'd)

Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		min	typ	max	
Halbwinkel Half angle	$\varphi$		$\pm 17$		Grad deg.
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% $V_R = 5\text{ V}$ , $R_L = 50\ \Omega$ ; $\lambda = 650\text{ nm}$ ; $I_p = 1\text{ mA}$ $V_R = 5\text{ V}$ , $R_L = 50\ \Omega$ ; $\lambda = 780\text{ nm}$ ; $I_p = 1\text{ mA}$	$t_r, t_f$ $t_r, t_f$		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 $I_p$ Temperature coefficient of $I_p$ $\lambda = 650\text{ nm}$ $\lambda = 780\text{ nm}$	$TC_1$		-0.03 -0.01		%/K %/K
Rauschäquivalente Strahlungsleistung <sup>1)</sup> Noise equivalent power, $V_R = 5\text{ V}$ , $\lambda = 650\text{ nm}$			$8.9 \times 10^{-15}$		$\frac{W}{\sqrt{Hz}}$

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

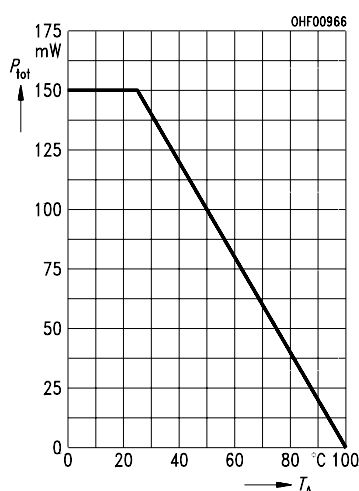
**Relative Spectral Sensitivity**

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



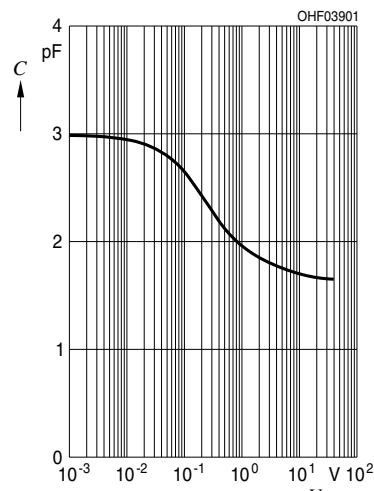
**Total Power Dissipation**

$P_{tot} = f(T_A)$



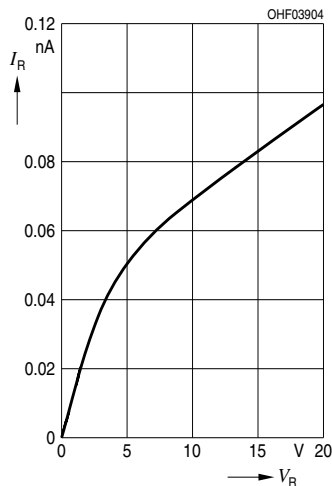
**Capacitance**

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



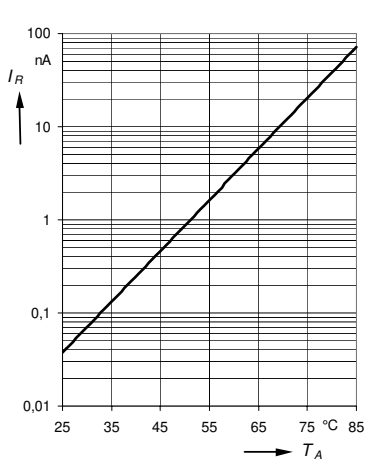
**Dark Current**

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



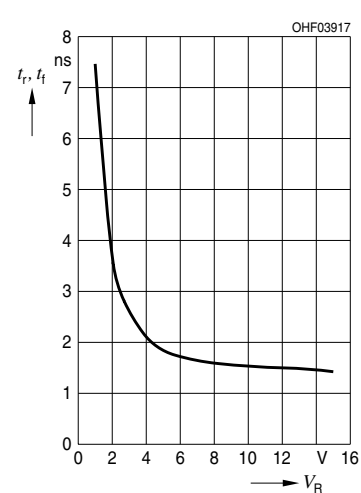
**Dark Current**

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



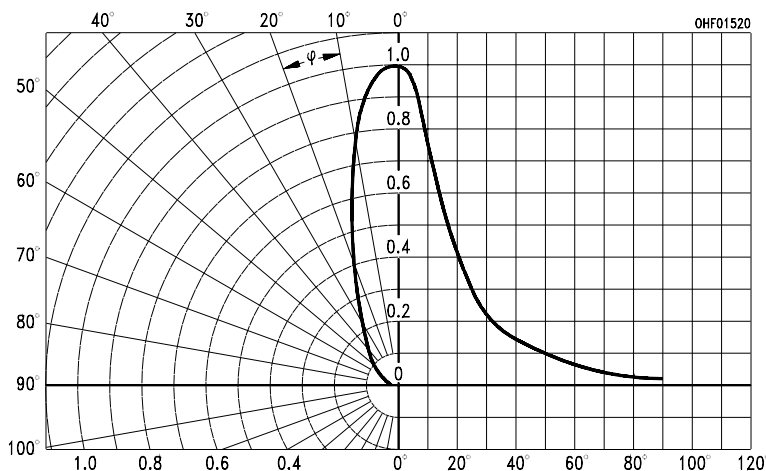
**Switching Time**

$t_r, t_f = f(V_R)$

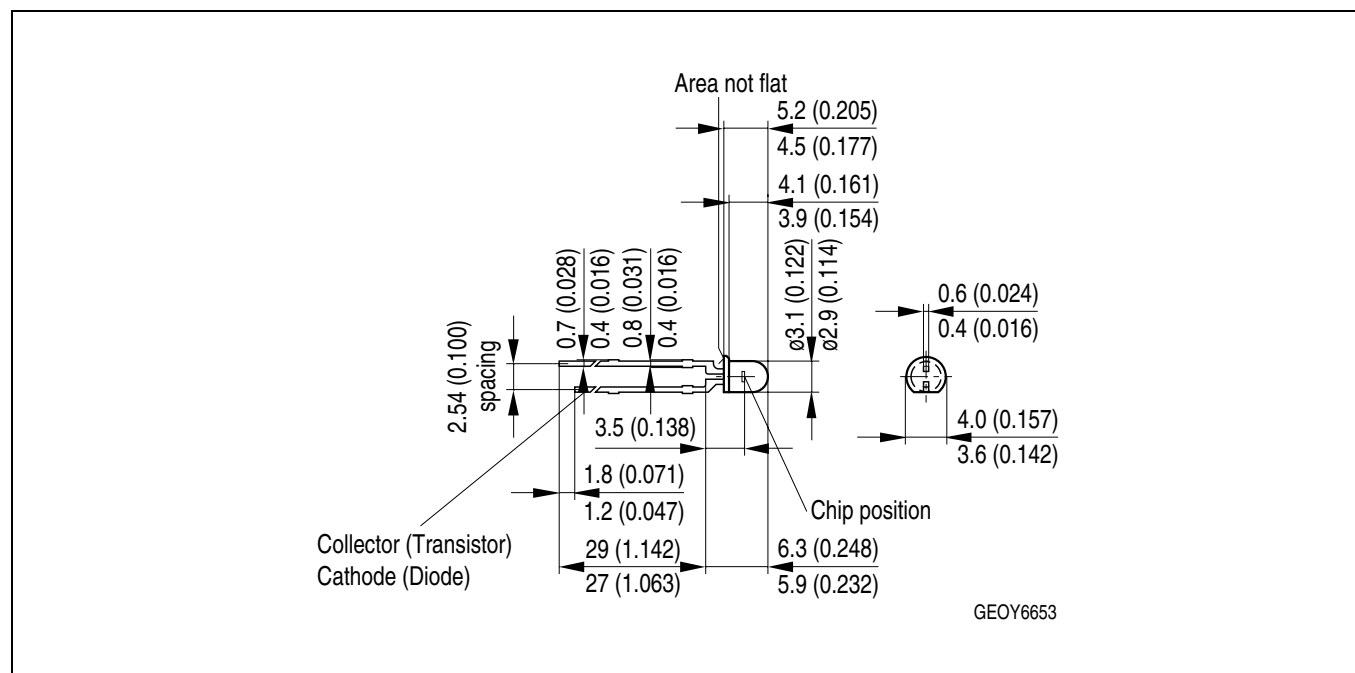


**Directional Characteristics**

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

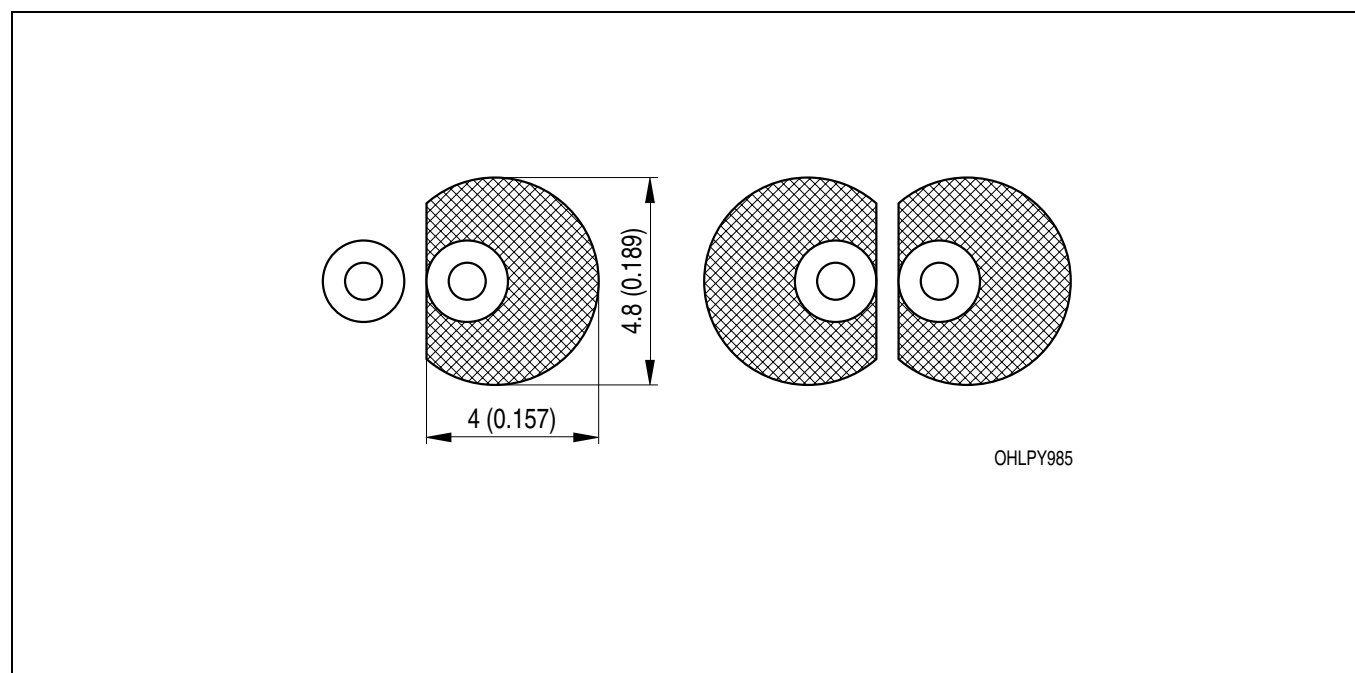


**Maßzeichnung  
Package Outlines**



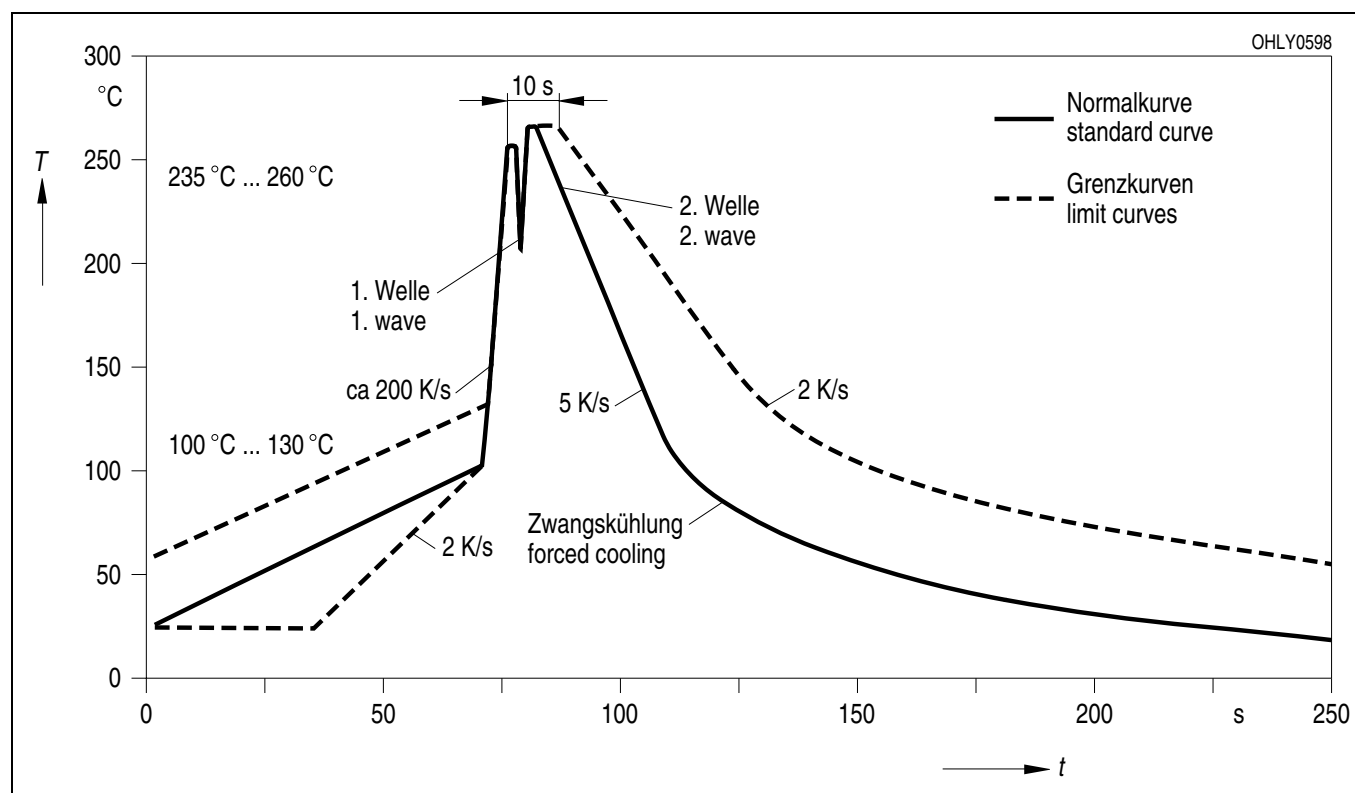
Maße in mm (inch) / Dimensions in mm (inch)

**Empfohlenes Lötpaddesign Wellenlöten (TTW)  
Recommended Solder Pad TTW Soldering**



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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EU RoHS and China RoHS compliant product



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