



THE DATASHEET OF SFH 2332



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

SFH 2332



Wesentliche Merkmale

- Speziell geeignet für Anwendungen von 350nm bis 780nm
- Sehr kurze Schaltzeit im spezifizierten Wellenlängenbereich
- Sehr kurze Schaltzeiten bei geringer Sperrspannung (<5V)
- Extrem kurze Abklingzeit („slow tail“)
- 3 mm Plastikbauform im LED-Gehäuse

Anwendungen

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

Features

- Especially suitable for applications from 350nm to 780nm
- 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, BluRay)
- Photointerrupters
- Industrial electronics
- For control and drive circuits
- Range Finder

Typ Type	Bestellnummer Ordering Code
SFH 2332	Q65110A6342

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 $\lambda = 405\text{nm}$ $\lambda = 650\text{nm}$ $\lambda = 780\text{nm}$	S_λ		0.26 0.49 0.54		A/W
Fotostrom, $V_R = 5$ V, $E_e = 0.5$ mW/cm ² Photocurrent $\lambda = 405\text{nm}$ $\lambda = 650\text{nm}$ $\lambda = 780\text{nm}$	I_P		4.5 7.6 8.5		μA
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S\ max}$		780		nm
Spektraler Bereich der Fotoempfindlichkeit Spectral range of sensitivity, $S = 10\%$ of S_{max}	λ	350		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 ($T_A = 25\text{ °C}$)

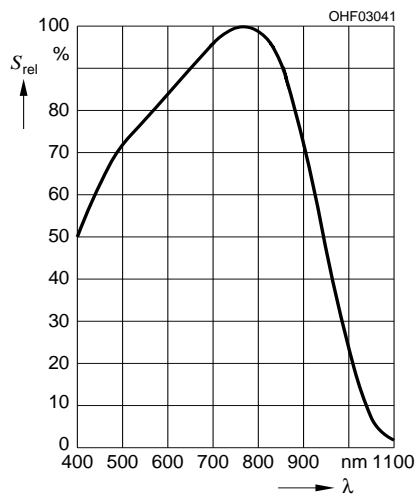
Characteristics (cont'd)

Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		min	typ	max	
Halbwinkel Half angle	φ		± 17		Grad deg.
Dunkelstrom, $V_R = 5V$ Dark current	I_R		0.05	5	nA
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent, 10% - 90% $V_R = 5V$; $R_L = 50\ \Omega$; $I_p = 1\text{ mA}$; $\lambda = 405\text{nm}$ $\lambda = 650\text{nm}$ $\lambda = 780\text{ nm}$;	t_r, t_f		1.5 1.6 1.8	5 5 5	ns
Kapazität, $f = 1\text{ MHz}$, $E = 0$, $V_R = 0\text{ V}$; Capacitance	C_0		4.5	5	pF
Temperaturkoeffizient von S_λ Temperature coefficient of S_λ $\lambda = 405\text{ nm}$ $\lambda = 650\text{ nm}$ $\lambda = 780\text{ nm}$	TC_1		-0.06 0.00 0.01		%/K %/K %/K
Rauschäquivalente Strahlungsleistung ¹⁾ Noise equivalent power, $\lambda = 650\text{ nm}$	NEP		8.2×10^{-15}		$\frac{W}{\sqrt{Hz}}$

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

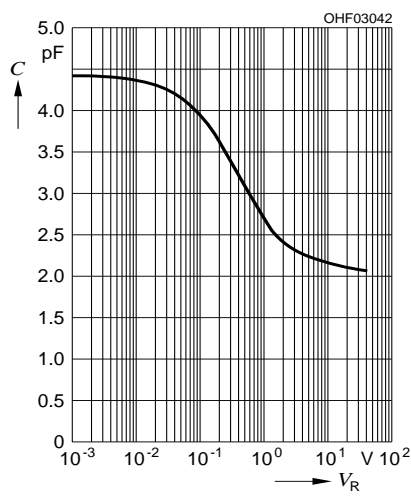
Relative Spectral Sensitivity

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



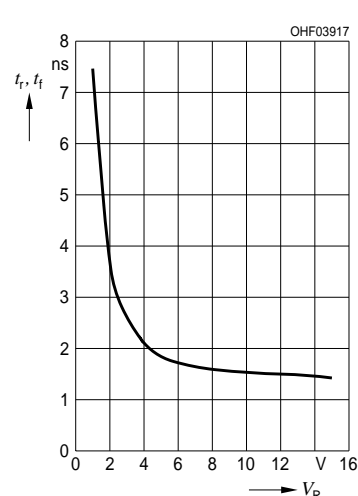
Capacitance

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



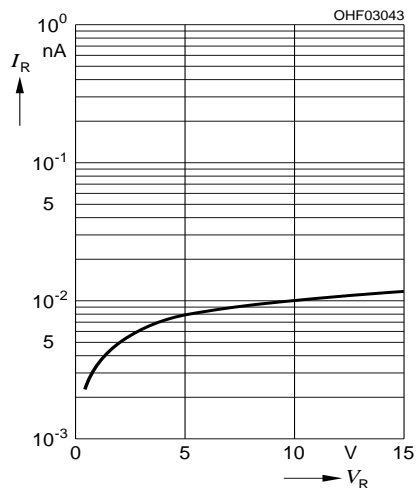
Switching Time

$t_r, t_f = f(V_R)$



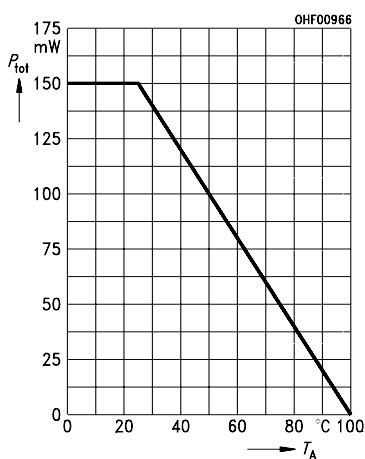
Dark Current

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



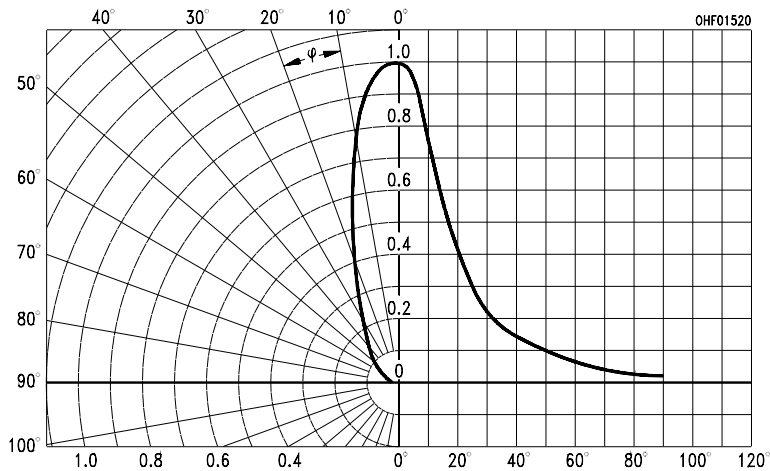
Total Power Dissipation

$P_{tot} = f(T_A)$

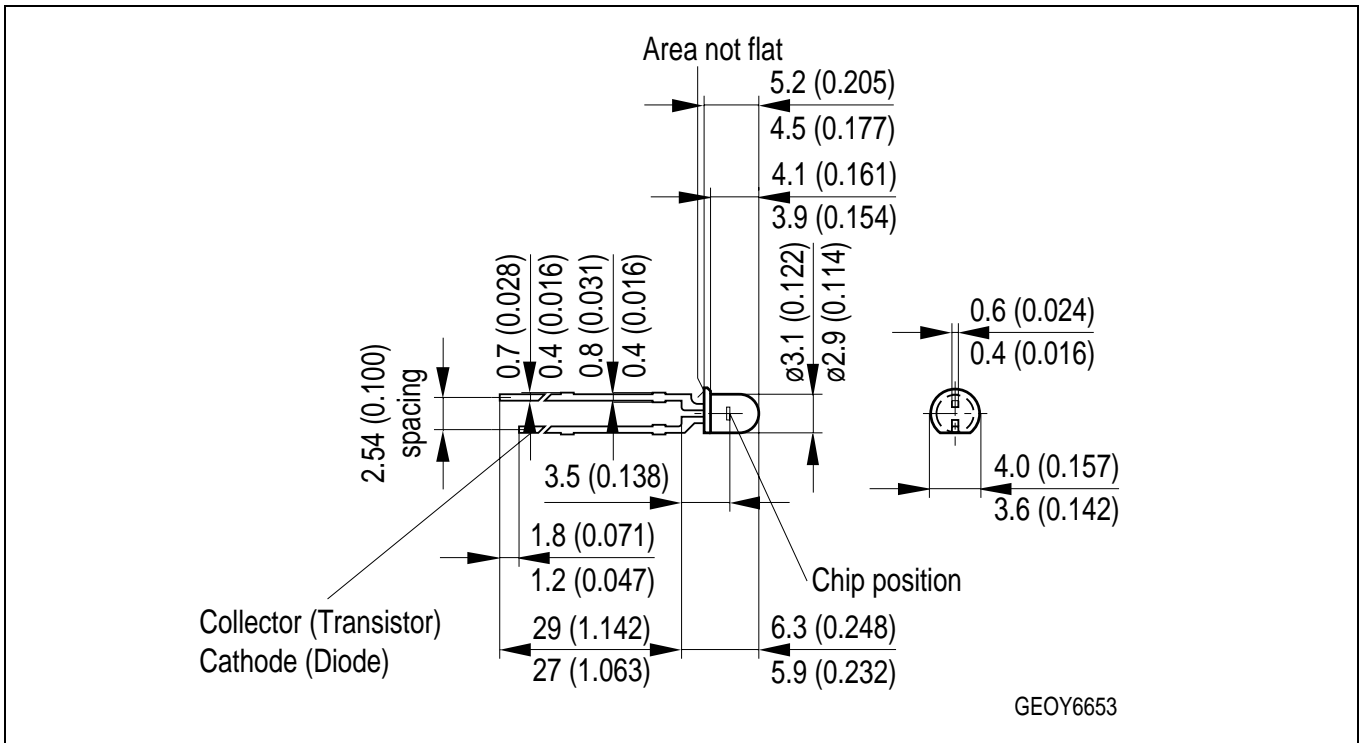


Directional Characteristics

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



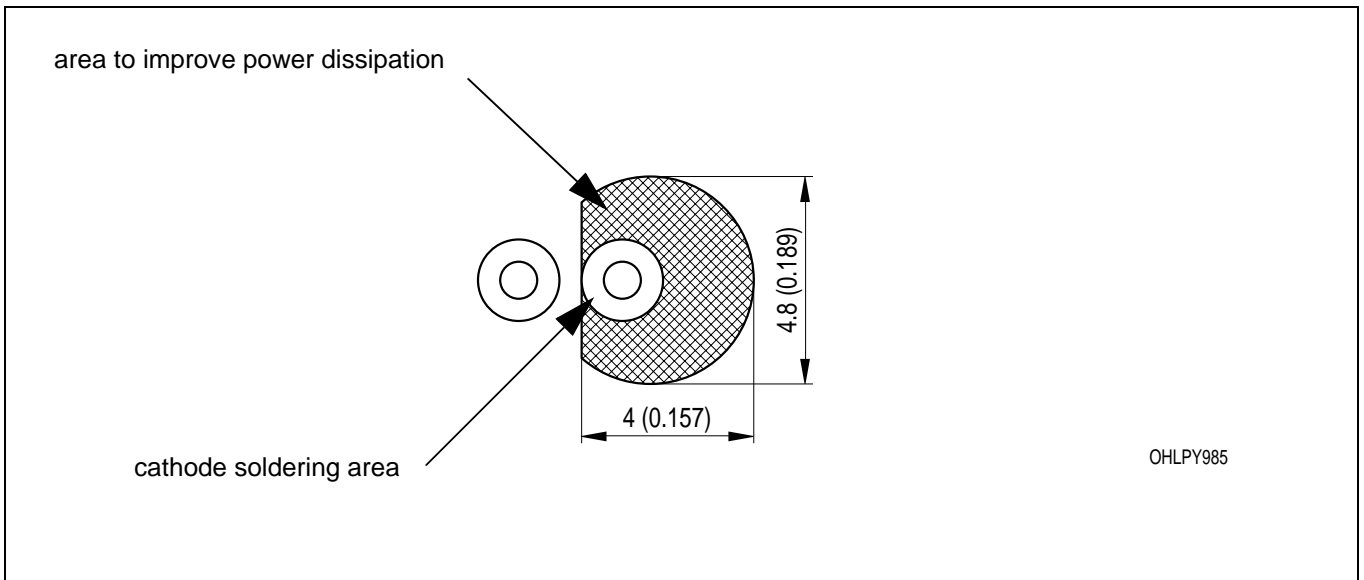
**Maßzeichnung
Package Outlines**



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

**Empfohlenes Lötpad design
Recommended Solder Pad**

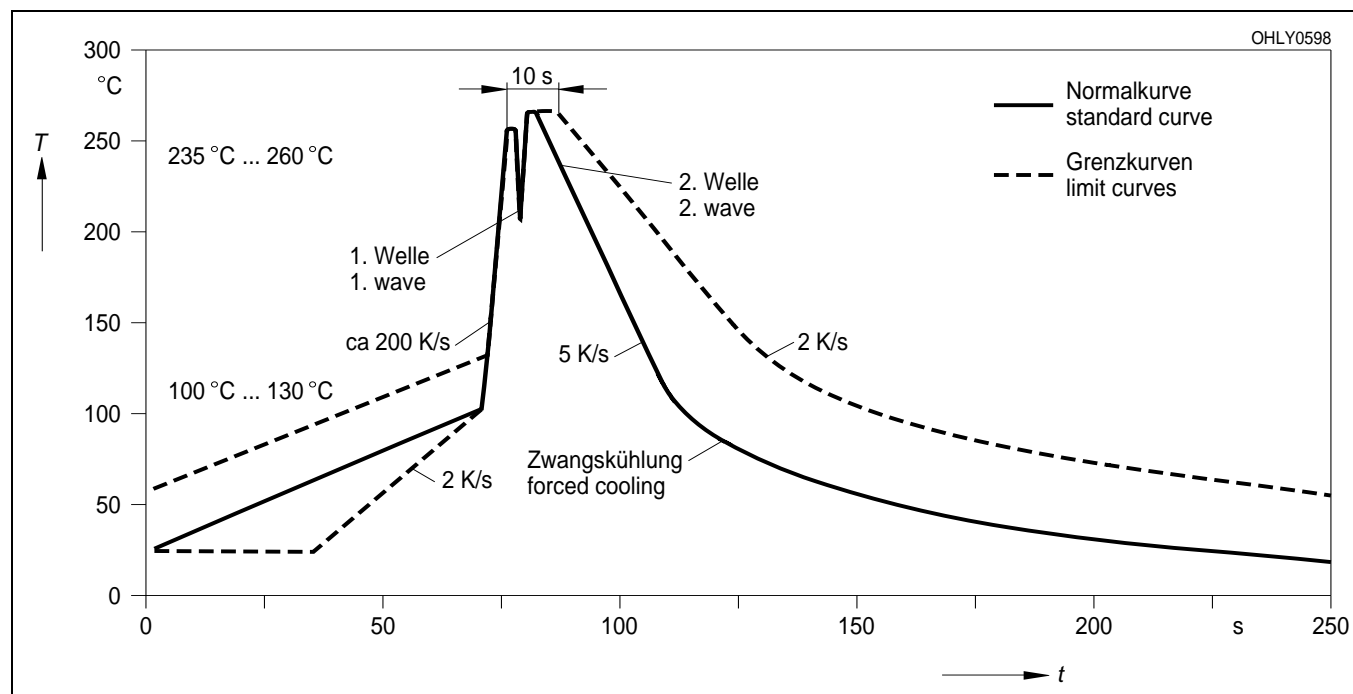
Wellenlöten (TTW)
TTW Soldering



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

Lötbedingungen
Soldering Conditions
Wellenlöten TTW
TTW Soldering

(nach CECC 00802)
(acc. to CECC 00802)



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