

**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

<b>Typ</b> <b>Type</b>	<b>Bestellnummer</b> <b>Ordering Code</b>
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 $\lambda = 405$ nm $\lambda = 650$ nm $\lambda = 780$ nm	$S_\lambda$		0.26 0.49 0.54		A/W
Fotostrom, $V_R = 5$ V, $E_e = 0.5$ mW/cm <sup>2</sup> Photocurrent $\lambda = 405$ nm $\lambda = 650$ nm $\lambda = 780$ 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 $S_{max}$	$\lambda$	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 ( $T_A = 25\text{ °C}$ )

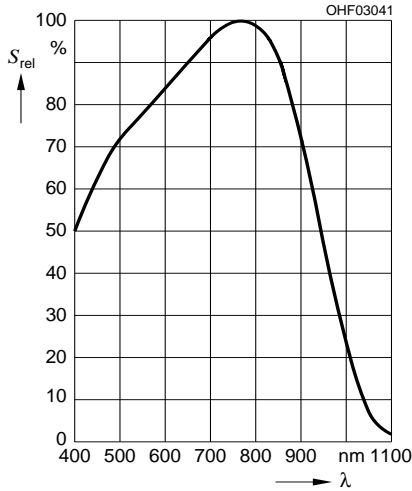
Characteristics (cont'd)

Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		min	typ	max	
Halbwinkel Half angle	$\varphi$		$\pm 17$		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 $S_\lambda$ Temperature coefficient of $S_\lambda$ $\lambda = 405\text{ nm}$ $\lambda = 650\text{ nm}$ $\lambda = 780\text{ nm}$	$TC_1$		-0.06 0.00 0.01		%/K %/K %/K
Rauschäquivalente Strahlungsleistung <sup>1)</sup> Noise equivalent power, $\lambda = 650\text{ nm}$	$NEP$		$8.2 \times 10^{-15}$		$\frac{W}{\sqrt{Hz}}$

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

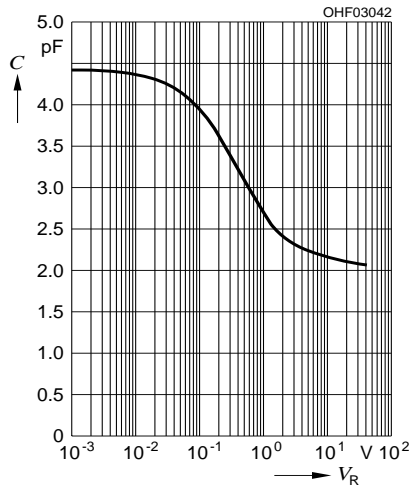
**Relative Spectral Sensitivity**

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



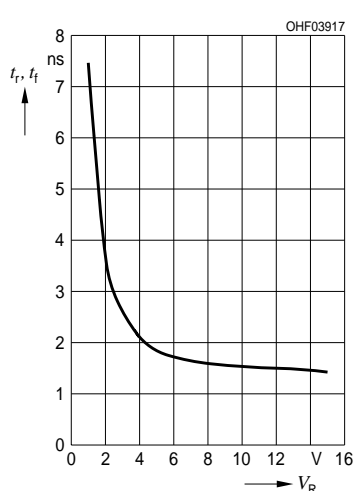
**Capacitance**

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



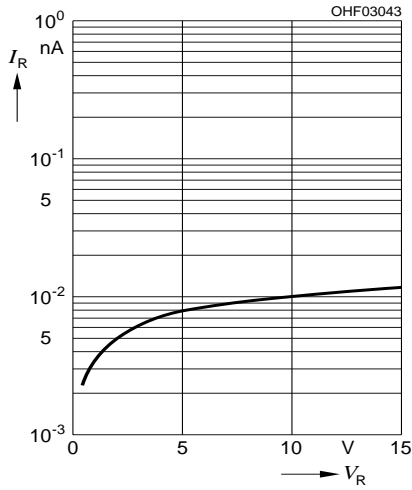
**Switching Time**

$t_r, t_f = f(V_R)$



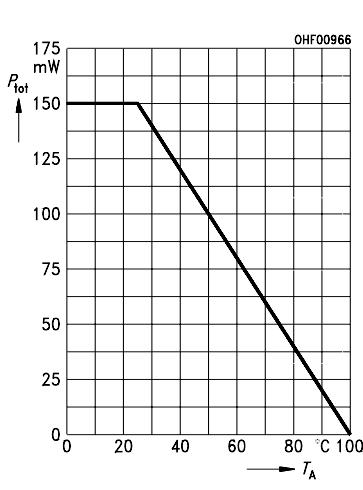
**Dark Current**

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



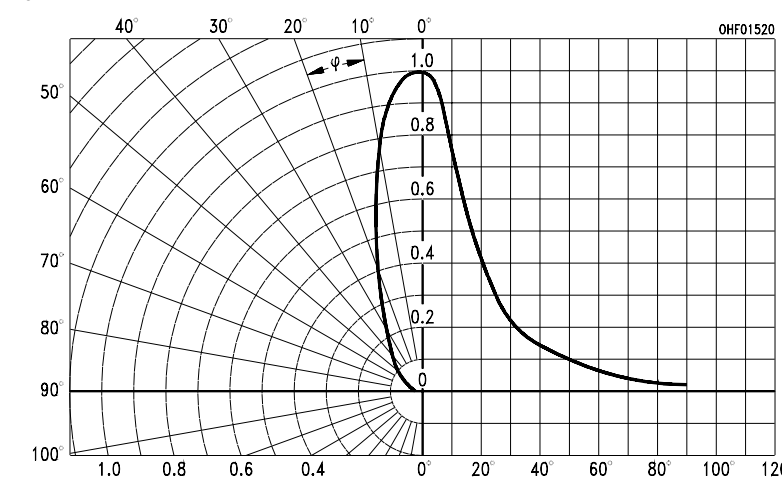
**Total Power Dissipation**

$P_{tot} = f(T_A)$

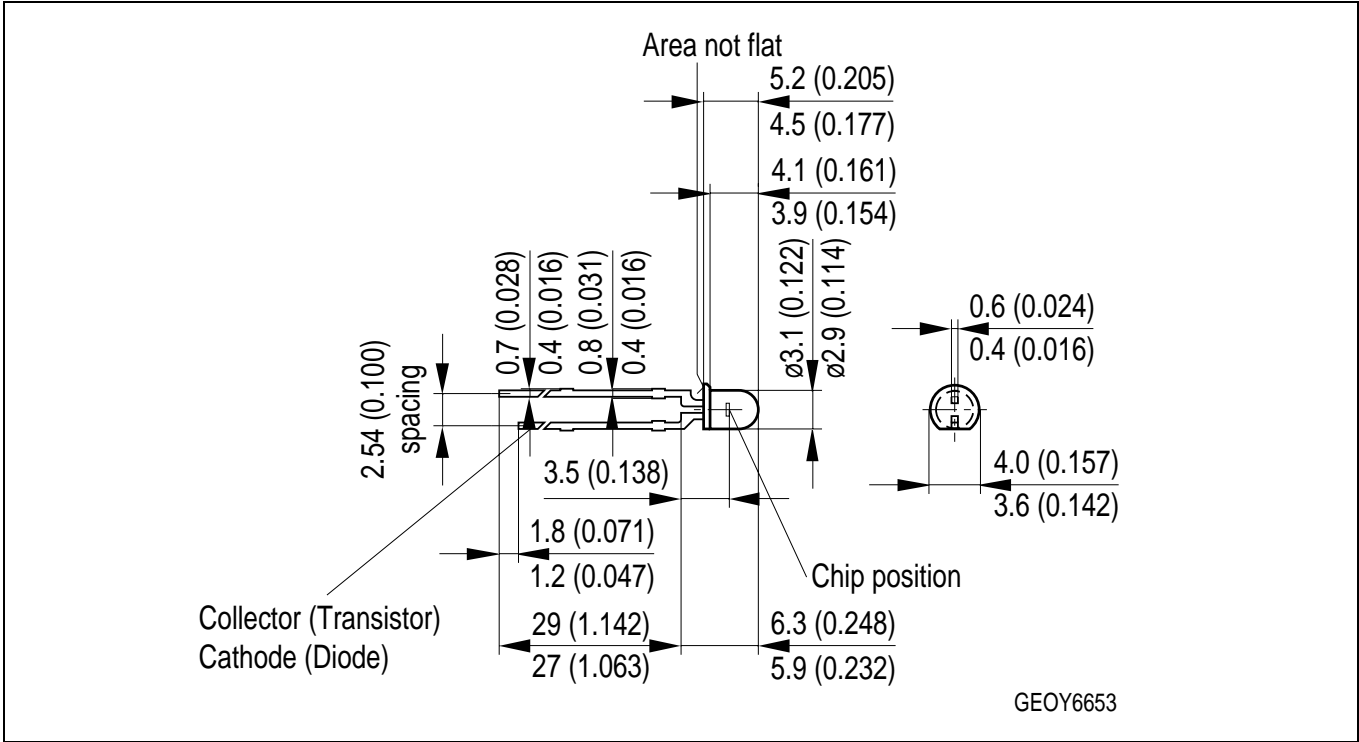


**Directional Characteristics**

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



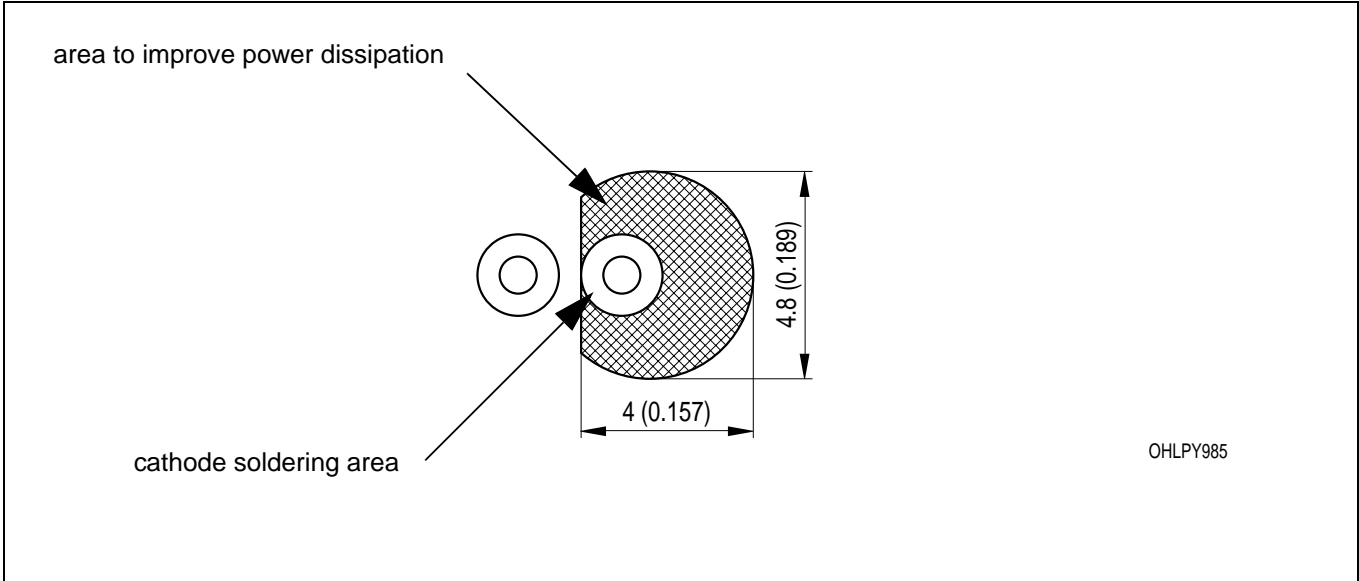
**Maßzeichnung  
Package Outlines**



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

**Empfohlenes Lötpaddesign  
Recommended Solder Pad**

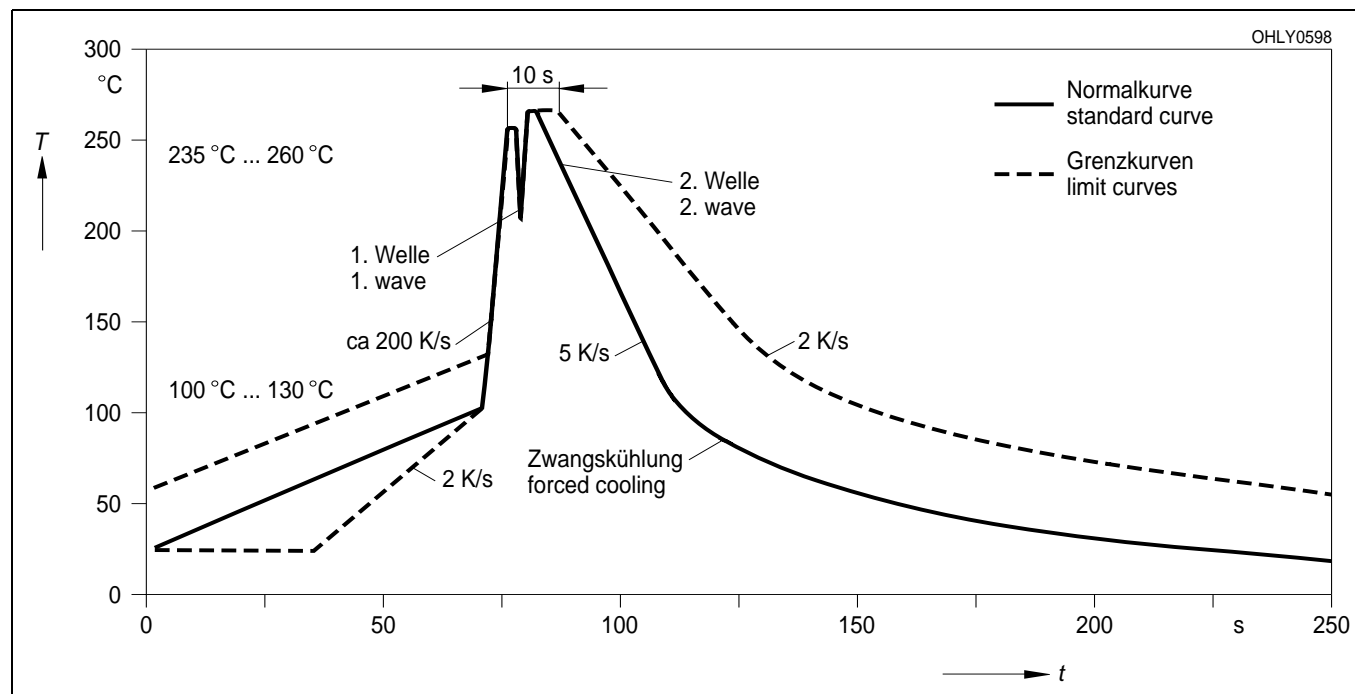
Wellenlöten (TTW)  
TTW Soldering



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

**Lötbedingungen**  
**Soldering Conditions**  
**Wellenlöten TTW**  
**TTW Soldering**

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



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