

**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<br>Type | Bestellnummer<br>Ordering Code |
|-------------|--------------------------------|
| SFH 2332    | Q65110A6342                    |

**Grenzwerte**  
**Maximum Ratings**

| Bezeichnung<br>Parameter                                                                                | Symbol<br>Symbol  | Wert<br>Value  | Einheit<br>Unit |
|---------------------------------------------------------------------------------------------------------|-------------------|----------------|-----------------|
| Betriebs- und Lagertemperatur<br>Operating and storage temperature range                                | $T_{op}; T_{stg}$ | - 40 ... + 100 | °C              |
| Sperrspannung<br>Reverse voltage                                                                        | $V_R$             | 15             | V               |
| Sperrspannung, $t < 120$ s<br>Reverse voltage                                                           | $V_R$             | 20             | V               |
| Verlustleistung<br>Total power dissipation                                                              | $P_{tot}$         | 150            | mW              |
| Elektrostatische Entladung<br>Electrostatic Discharge<br>Human Body Model according to EOS/ESD-5.1-1993 | ESD               | 2              | kV              |

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

| Bezeichnung<br>Parameter                                                                                                                                        | Symbol<br>Symbol             | Wert<br>Value |                      |      | Einheit<br>Unit |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------|----------------------|------|-----------------|
|                                                                                                                                                                 |                              | min           | typ                  | max  |                 |
| Spektrale Fotoempfindlichkeit des Chips<br>Spectral sensitivity of the chip<br>$\lambda = 405\text{nm}$<br>$\lambda = 650\text{nm}$<br>$\lambda = 780\text{nm}$ | $S_\lambda$                  |               | 0.26<br>0.49<br>0.54 |      | A/W             |
| Fotostrom, $V_R = 5$ V, $E_e = 0.5$ mW/cm <sup>2</sup><br>Photocurrent<br>$\lambda = 405\text{nm}$<br>$\lambda = 650\text{nm}$<br>$\lambda = 780\text{nm}$      | $I_P$                        |               | 4.5<br>7.6<br>8.5    |      | μA              |
| Wellenlänge der max. Fotoempfindlichkeit<br>Wavelength of max. sensitivity                                                                                      | $\lambda_{S\text{ max}}$     |               | 780                  |      | nm              |
| Spektraler Bereich der Fotoempfindlichkeit<br>Spectral range of sensitivity, $S = 10\%$ of $S_{\text{max}}$                                                     | $\lambda$                    | 350           |                      | 1050 | nm              |
| Abmessung der bestrahlungsempfindlichen Fläche<br>Dimensions of radiant sensitive area                                                                          | $L \times B$<br>$L \times W$ |               | 0.6 × 0.6            |      | mm × mm         |
| Abstand Chipoberfläche zu Gehäuseoberfläche<br>Distance chip front to case surface                                                                              | $H$                          |               | 2.4 ... 2.8          |      | mm              |

Kennwerte ( $T_A = 25\text{ °C}$ )

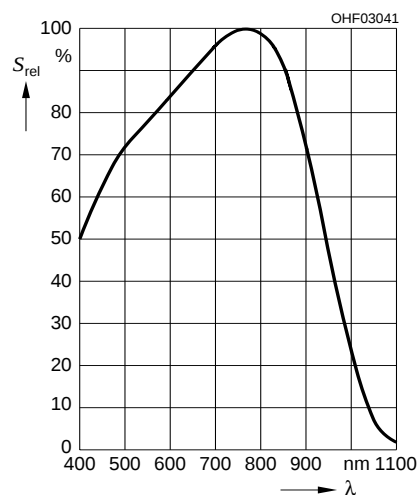
Characteristics (cont'd)

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

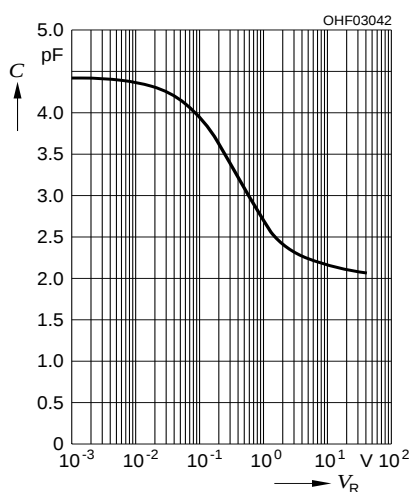
$$^1) \quad NEP = 17,9 \times 10^{-15} \times \frac{\sqrt{I_R}}{S_\lambda}$$

**Relative Spectral Sensitivity**

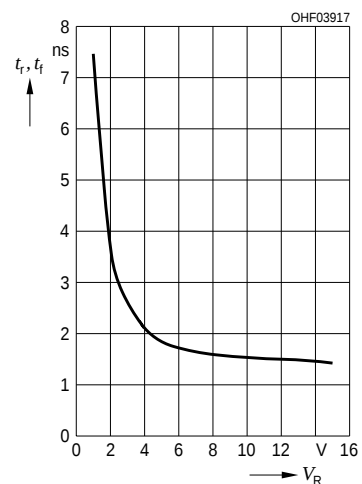
$$S_{\text{rel}} = f(\lambda)$$

**Capacitance**

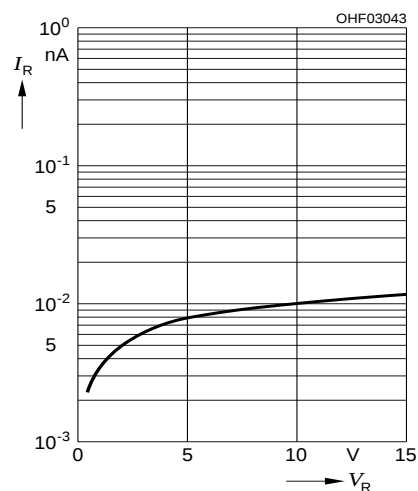
$$C = f(V_R), E = 0$$

**Switching Time**

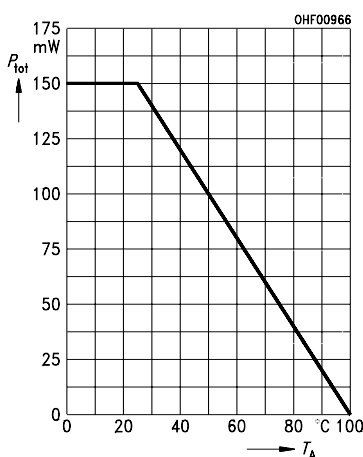
$$t_r, t_f = f(V_R)$$

**Dark Current**

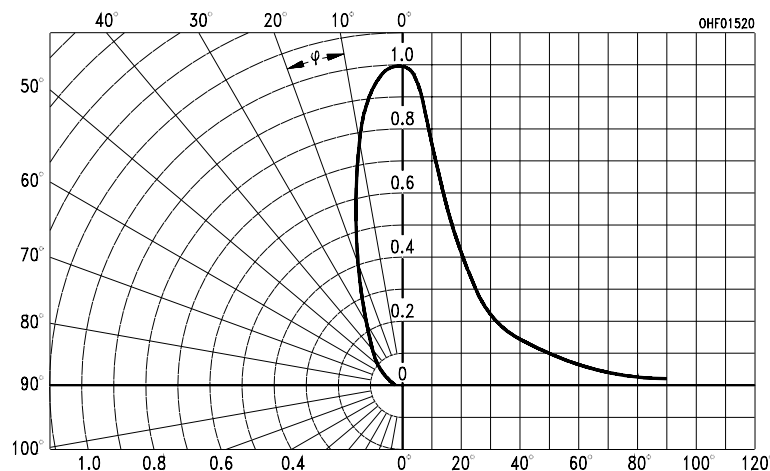
$$I_R = f(V_R), E = 0$$

**Total Power Dissipation**

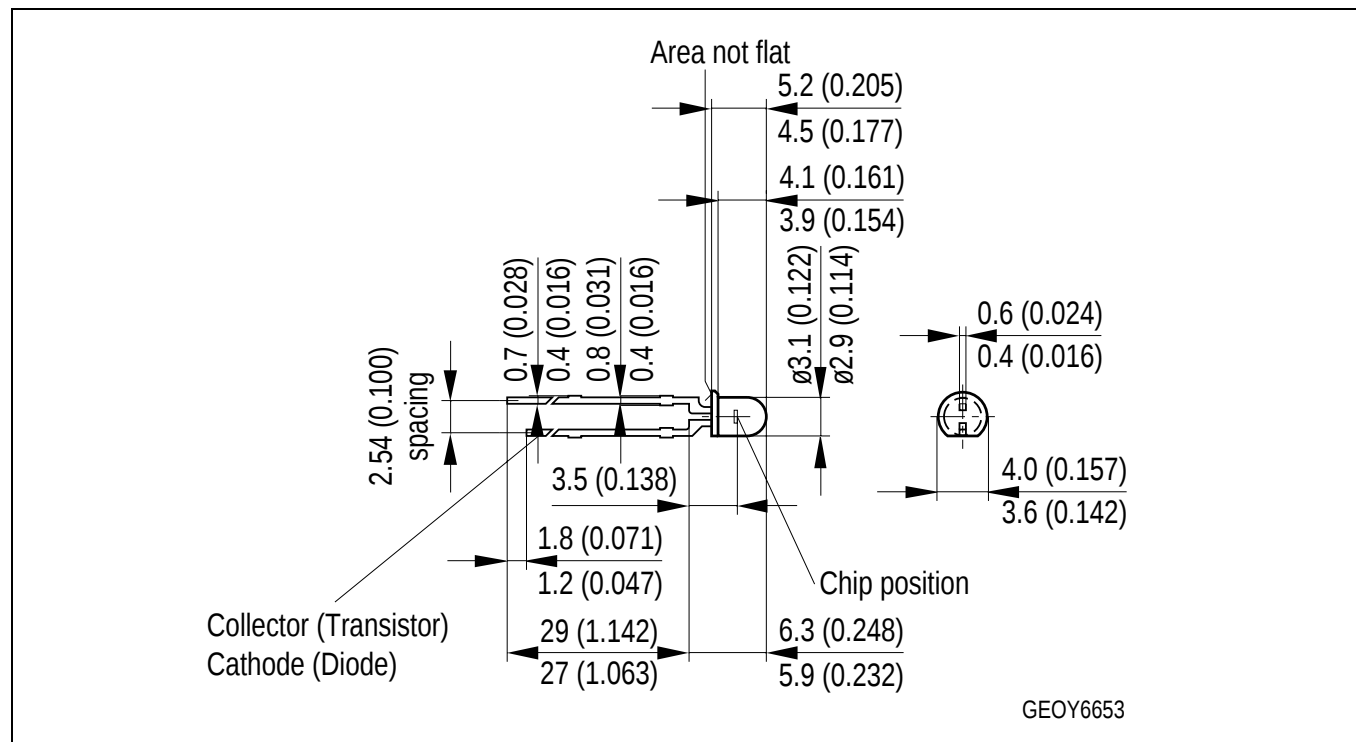
$$P_{\text{tot}} = f(T_A)$$

**Directional Characteristics**

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



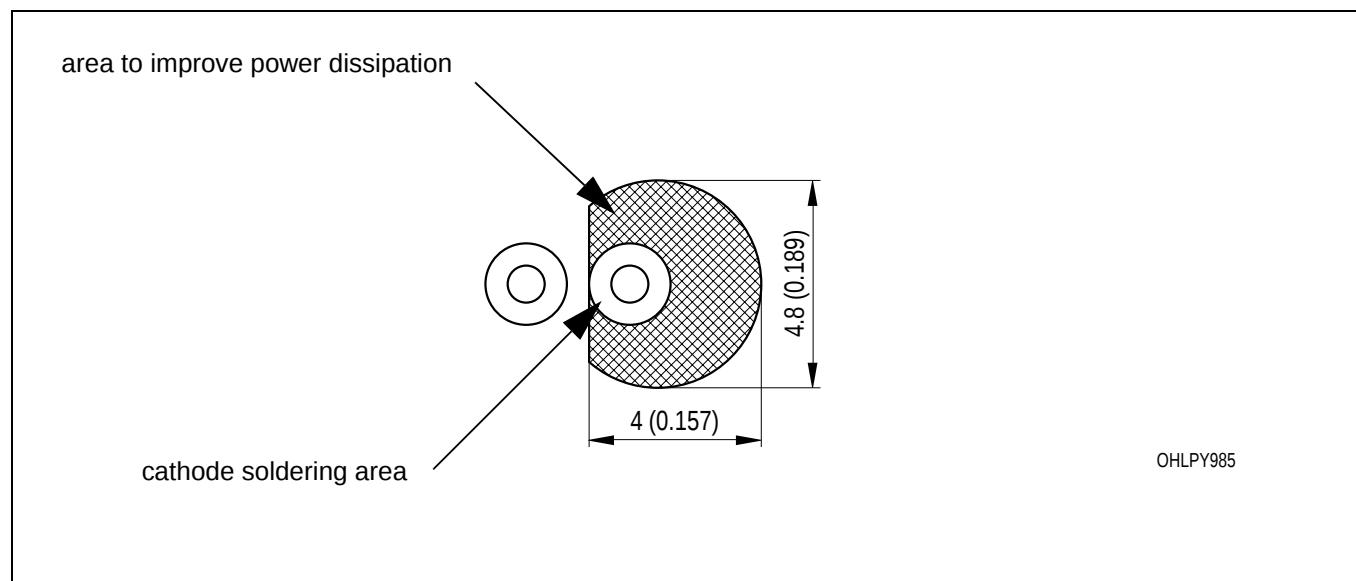
## Maßzeichnung Package Outlines



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

## Empfohlenes Lötpaddesign Recommended Solder Pad

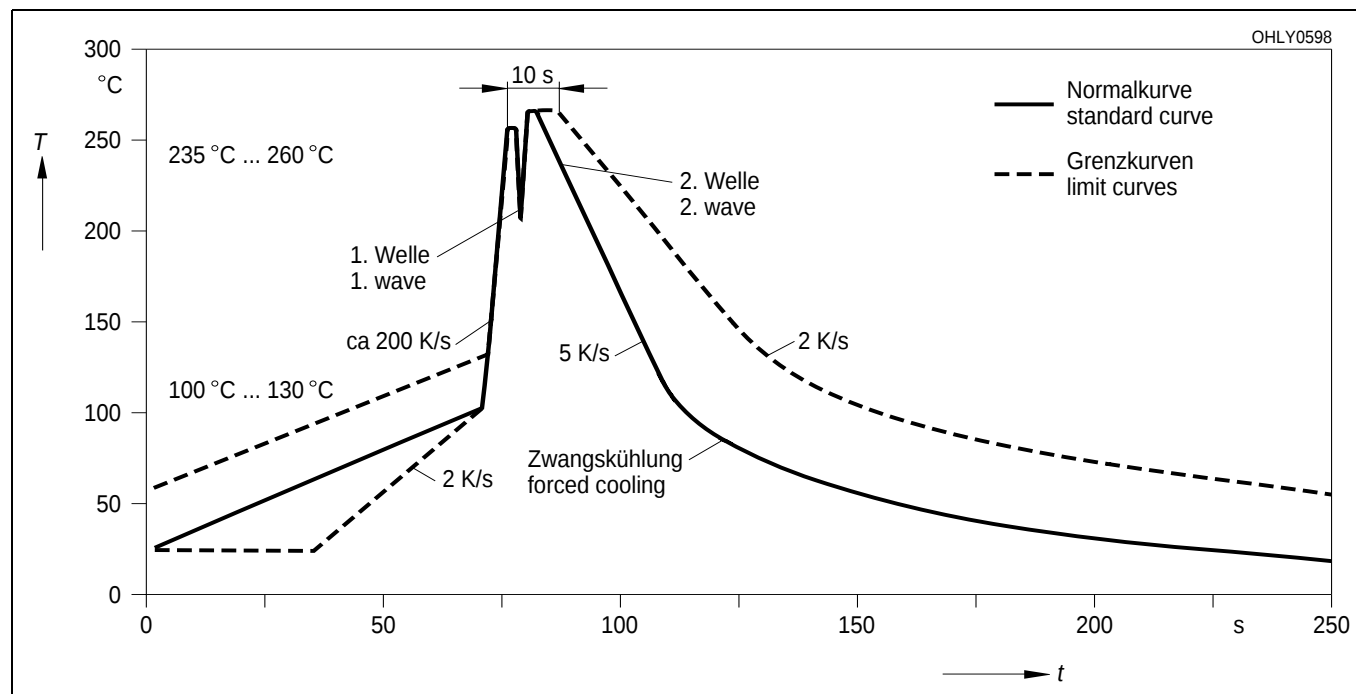
Wellenlöten (TTW)  
TTW Soldering



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

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

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



Published by  
**OSRAM Opto Semiconductors GmbH**  
 Wernerwerkstrasse 2, D-93049 Regensburg  
[www.osram-os.com](http://www.osram-os.com)  
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