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

Typ Type	Bestellnummer Ordering Code
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

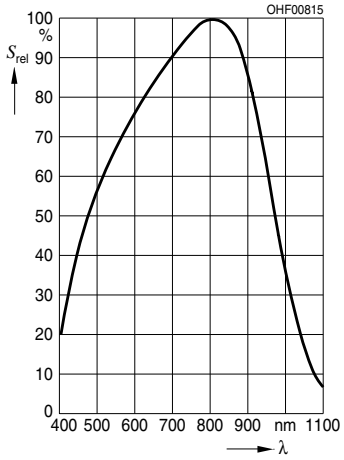
Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		min	typ	max	
Spektrale Fotoempfindlichkeit des Chips Spectral sensitivity of the chip λ = 650nm λ = 780nm	$\lambda_{S\ max}$		 0.45 0.5		A/W
Fotostrom, V_R = 5 V, E_e = 0.5 mW/cm² Photocurrent λ = 650nm λ = 780nm	I_P		 10 11		µA
Wellenlänge 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}	λ		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 °C)
Characteristics (cont'd)

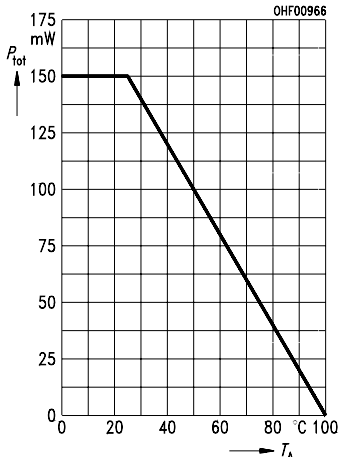
Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		min	typ	max	
Halbwinkel Half angle	φ		± 17		Grad deg.
Dunkelstrom, V_R = 5 V Dark current	I_R		0.05	5	nA
Anstiegs- und Abfallzeit des Fotostromes Rise and fall time of the photocurrent, 10% - 90% V_R = 5 V, R_L = 50 Ω; λ = 650 nm; I_p = 1 mA V_R = 5 V, R_L = 50 Ω; λ = 780 nm; I_p = 1 mA	 t_r, t_f t_r, t_f		 1.8 2.0		 ns ns
Kapazität, f = 1 MHz, E = 0, V_R = 0 V Capacitance	C_0		3	5	pF
Temperaturkoeffizient von I_P Temperature coefficient of I_P λ = 650 nm λ = 780 nm	 TC_I		 -0.03 -0.01		 %/K %/K
Rauschäquivalente Strahlungsleistung[1)] Noise equivalent power, V_R = 5 V, λ = 650 nm			8.9×10^{-15}		$\frac{W}{\sqrt{Hz}}$

[1)] $NEP = 17{,}9\times10^{-15} \times \frac{\sqrt{I_R}}{S_\lambda}$

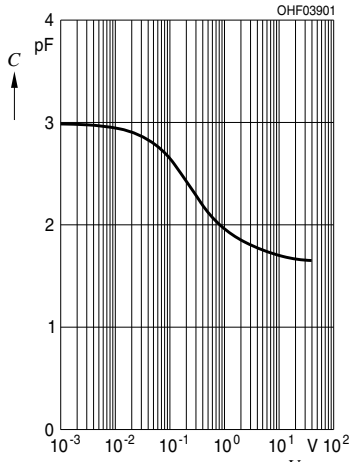
Relative Spectral Sensitivity
$S_{rel} = f(\lambda)$



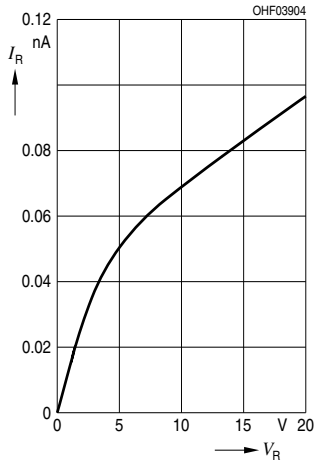
Total Power Dissipation
$Ptot = f(T_A)$



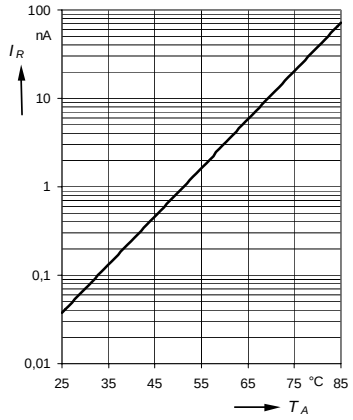
Capacitance
$C_0 = f(V_R), E = 0$



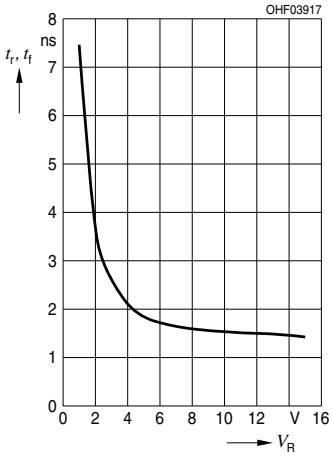
Dark Current
$I_R = f(V_R), E = 0$



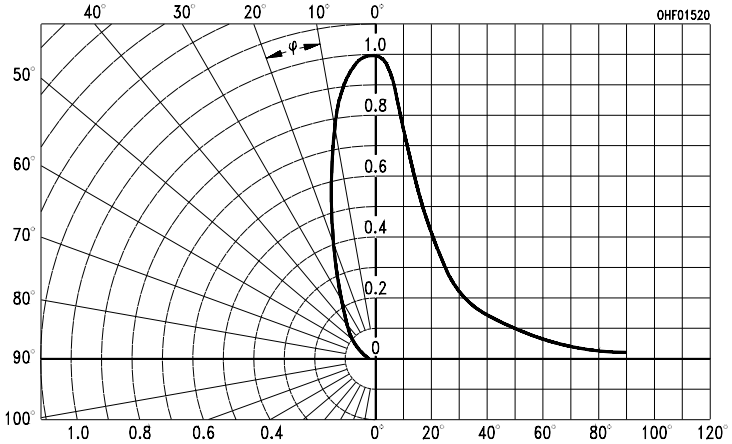
Dark Current
$I_R = f(T_A), E = 0, V_R = 5\ V$



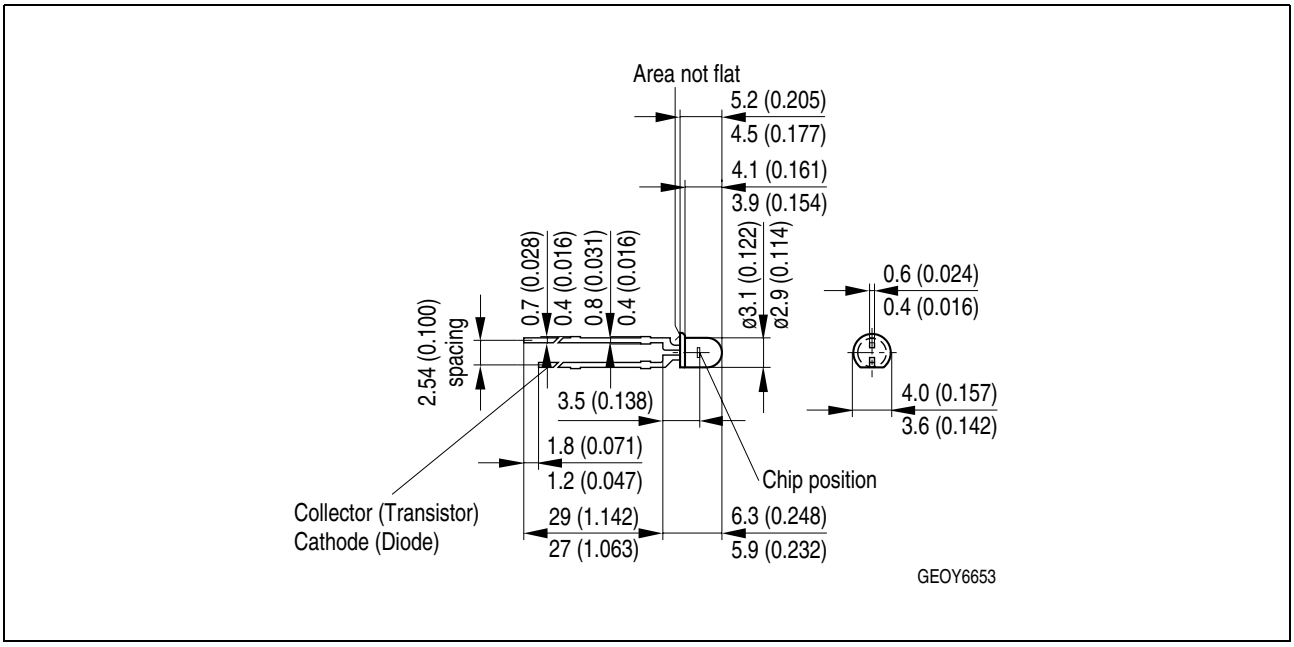
Switching Time
$t_r, t_f = f(V_R)$



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

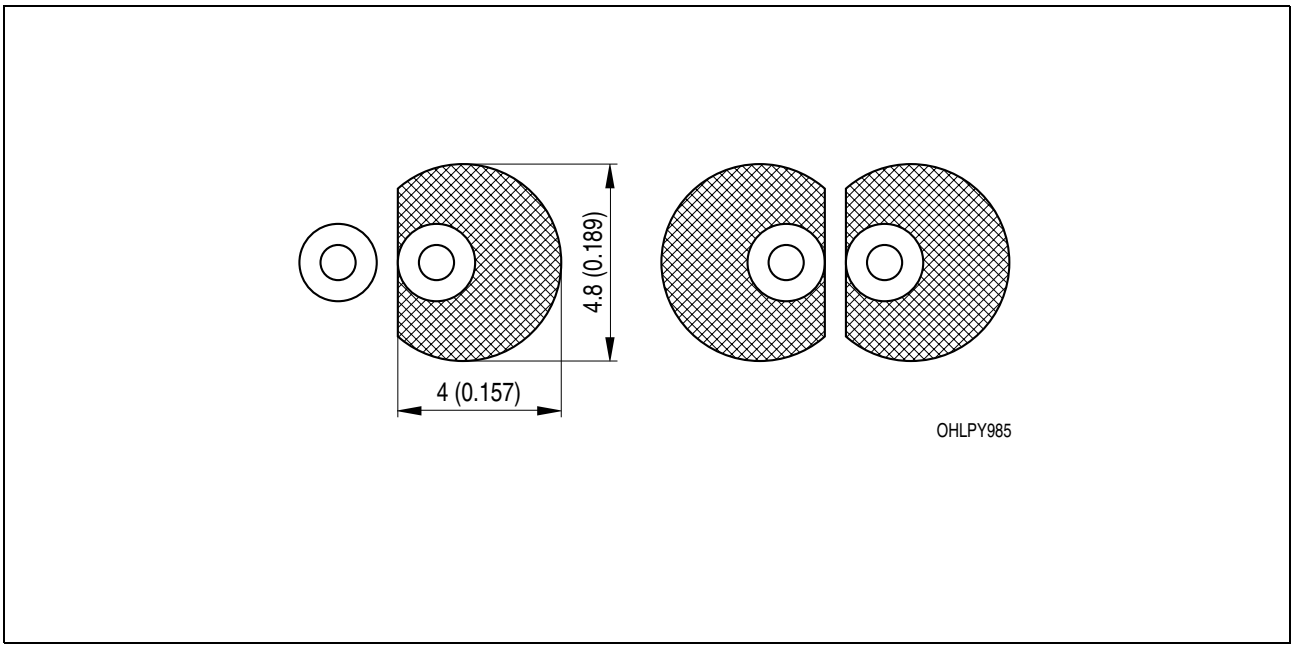


Maßzeichnung
Package Outlines



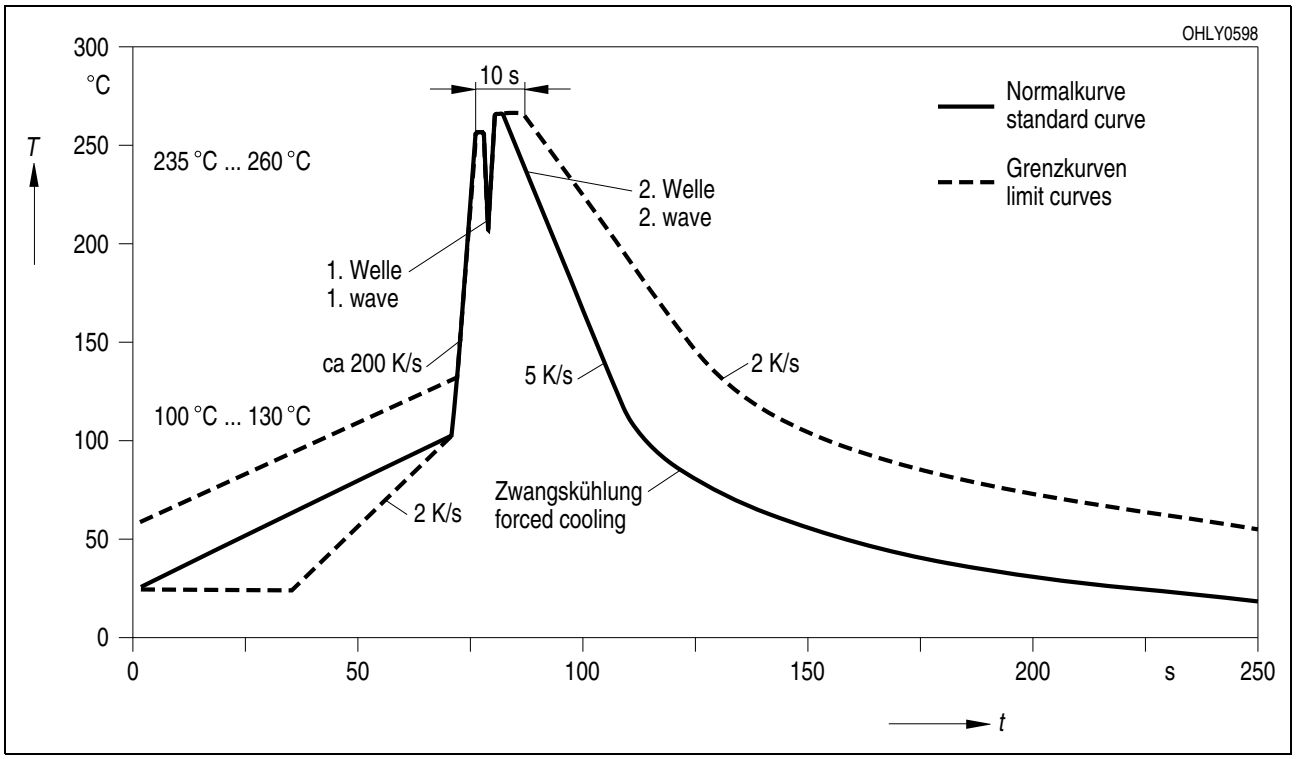
Maße in mm (inch) / Dimensions in mm (inch)

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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[2] Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered.