

GaAlAs-IR-Lumineszenzdiode (880 nm) in SMR® Gehäuse

GaAlAs Infrared Emitters (880 nm) in SMR® Package

Lead (Pb) Free Product - RoHS Compliant

SFH 4580
SFH 4585



SFH 4580



SFH 4585

Wesentliche Merkmale

- GaAlAs-LED mit sehr hohem Wirkungsgrad
- SMR® (Surface Mount Radial) Gehäuse
- Für Oberflächenmontage geeignet
- Gegurtet lieferbar
- Gehäusegleich mit Fotodiode SFH 2500/ SFH 2505
- Hohe Zuverlässigkeit
- Gute spektrale Anpassung an Si-Fotoempfänger
- UL Version erhältlich

Anwendungen

- IR-Fernsteuerung von Fernseh- und Rundfunkgeräten, Videorecordern, Lichtdimmern
- Gerätefernsteuerungen für Gleich- und Wechsellichtbetrieb
- Rauchmelder
- Sensorik
- Diskrete Lichtschranken
- Diskrete Optokoppler

Features

- Very highly efficient GaAlAs-LED
- SMR® (Surface Mount Radial) package
- Suitable for surface mounting (SMT)
- Available on tape and reel
- Same package as photodiode SFH 2500/ SFH 2505
- High reliability
- Spectral match with silicon photodetectors
- UL version available

Applications

- IR remote control of hi-fi and TV-sets, video tape recorders, dimmers
- Remote control for steady and varying intensity
- Sensor technology
- Smoke detectors
- Discrete interrupters
- Discrete optocouplers

Typ Type	Bestellnummer Ordering Code	Strahlstärkegruppierung ¹⁾ ($I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$) Radiant Intensity Grouping ¹⁾ I_e (mW/sr)
SFH 4580	Q65110A2632	≥ 25 (typ. 55)
SFH 4585	Q65110A2631	

¹⁾ gemessen bei einem Raumwinkel $\Omega = 0.01\text{ sr}$ / measured at a solid angle of $\Omega = 0.01\text{ sr}$

Grenzwerte ($T_A = 25\text{ °C}$)
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	5	V
Durchlassstrom Forward current	I_F	100	mA
Stoßstrom, $t_p = 10\text{ }\mu\text{s}$, $D = 0$ Surge current	I_{FSM}	2.5	A
Verlustleistung Power dissipation	P_{tot}	200	mW
Wärmewiderstand Sperrschicht - Umgebung bei Montage auf FR4 Platine, Padgröße je 20 mm ² Thermal resistance junction - ambient mounted on PC-board (FR4), padsize 20 mm ² each	R_{thJA}	375	K/W

Kennwerte ($T_A = 25\text{ °C}$)
Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength at peak emission $I_F = 100\text{ mA}$	λ_{peak}	880	nm
Spektrale Bandbreite bei 50% von I_{rel} Spectral bandwidth at 50% of I_{rel} $I_F = 100\text{ mA}$	$\Delta\lambda$	80	nm
Abstrahlwinkel Half angle	φ	± 15	Grad deg.
Aktive Chipfläche Active chip area	A	0.09	mm ²
Abmessungen der aktiven Chipfläche Dimension of the active chip area	$L \times B$ $L \times W$	0.3×0.3	mm ²
Abstand Chipoberfläche bis Linsenscheitel Distance chip front to lens top	H	3.9 ... 4.5	mm

Kennwerte ($T_A = 25\text{ °C}$)

Characteristics (cont'd)

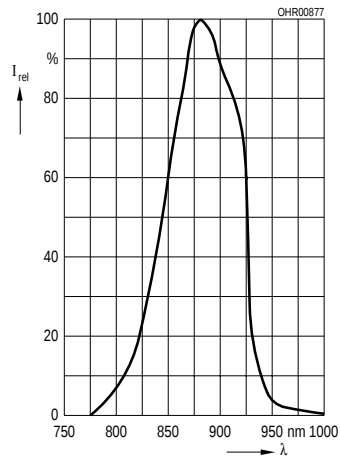
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Schaltzeiten, I_e von 10% auf 90% und von 90% auf 10%, bei $I_F = 100\text{ mA}$, $R_L = 50\ \Omega$ Switching times, I_e from 10% to 90% and from 90% to 10%, $I_F = 100\text{ mA}$, $R_L = 50\ \Omega$	t_r , t_f	0.6/0.5	μs
Kapazität Capacitance $V_R = 0\text{ V}$, $f = 1\text{ MHz}$	C_o	15	pF
Durchlassspannung Forward voltage $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$ $I_F = 1\text{ A}$, $t_p = 100\ \mu\text{s}$	V_F V_F	1.50 (≤ 1.8) 3.00 (≤ 3.8)	V V
Sperrstrom Reverse current $V_R = 5\text{ V}$	I_R	0.01 (≤ 1)	μA
Gesamtstrahlungsfluss Total radiant flux $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	Φ_e	25	mW
Temperaturkoeffizient von I_e bzw. Φ_e , $I_F = 100\text{ mA}$ Temperature coefficient of I_e or Φ_e , $I_F = 100\text{ mA}$	TC_I	- 0.5	%/K
Temperaturkoeffizient von V_F , $I_F = 100\text{ mA}$ Temperature coefficient of V_F , $I_F = 100\text{ mA}$	TC_V	- 2	mV/K
Temperaturkoeffizient von λ , $I_F = 100\text{ mA}$ Temperature coefficient of λ , $I_F = 100\text{ mA}$	TC_λ	0.25	nm/K

Strahlstärke I_e in Achsrichtunggemessen bei einem Raumwinkel $\Omega = 0.01$ sr**Radiant Intensity I_e in Axial Direction**at a solid angle of $\Omega = 0.01$ sr

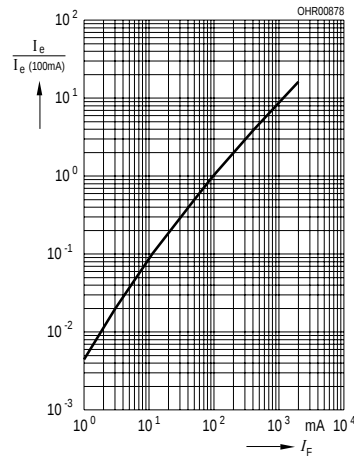
Bezeichnung Parameter	Symbol	Wert Value	Einheit Unit
Strahlstärke Radiant intensity $I_F = 100$ mA, $t_p = 20$ ms	$I_{e \text{ min}}$ $I_{e \text{ typ}}$	25 55	mW/sr mW/sr
Strahlstärke Radiant intensity $I_F = 1$ A, $t_p = 100$ μ s	$I_{e \text{ typ}}$	500	mW/sr

Relative Spectral Emission

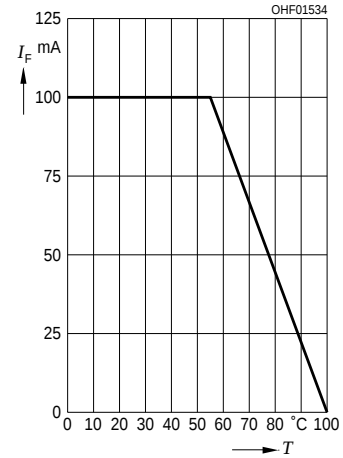
$$I_{\text{rel}} = f(\lambda)$$



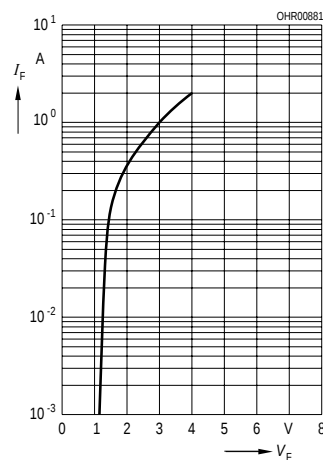
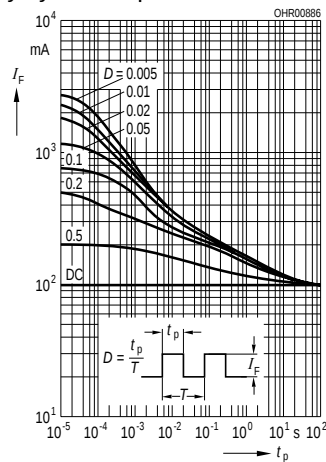
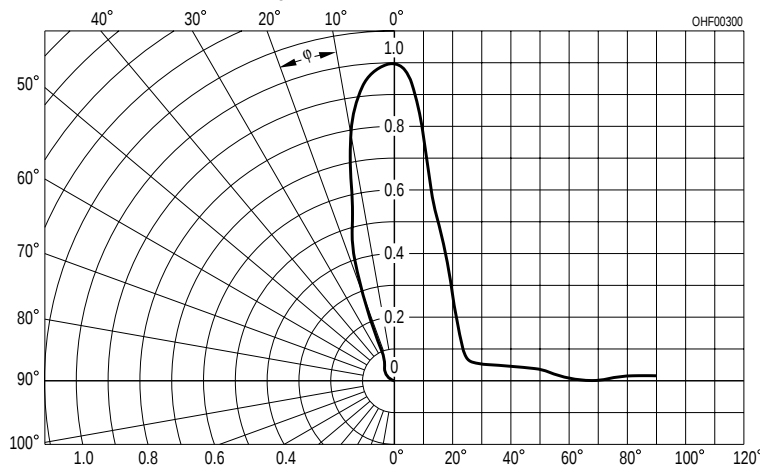
$$\text{Radiant Intensity } \frac{I_e}{I_e 100 \text{ mA}} = f(I_F)$$

Single pulse, $t_p = 20 \mu\text{s}$ **Max. Permissible Forward Current**

$$I_F = f(T_A)$$

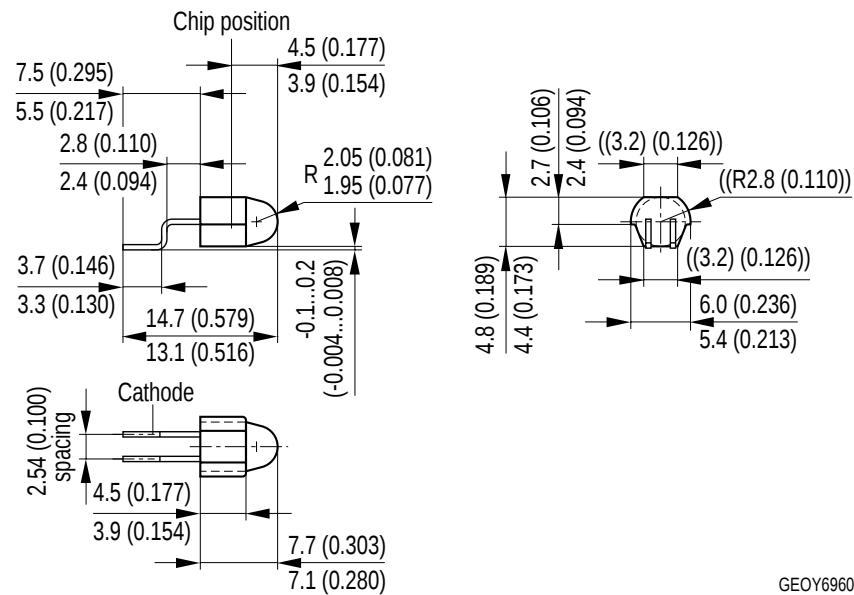
**Forward Current**

$$I_F = f(V_F), \text{ single pulse, } t_p = 20 \mu\text{s}$$

**Permissible Pulse Handling Capability** $I_F = f(\tau)$, $T_A = 25^\circ\text{C}$, duty cycle $D = \text{parameter}$ **Radiation Characteristics** $I_{\text{rel}} = f(\varphi)$ 

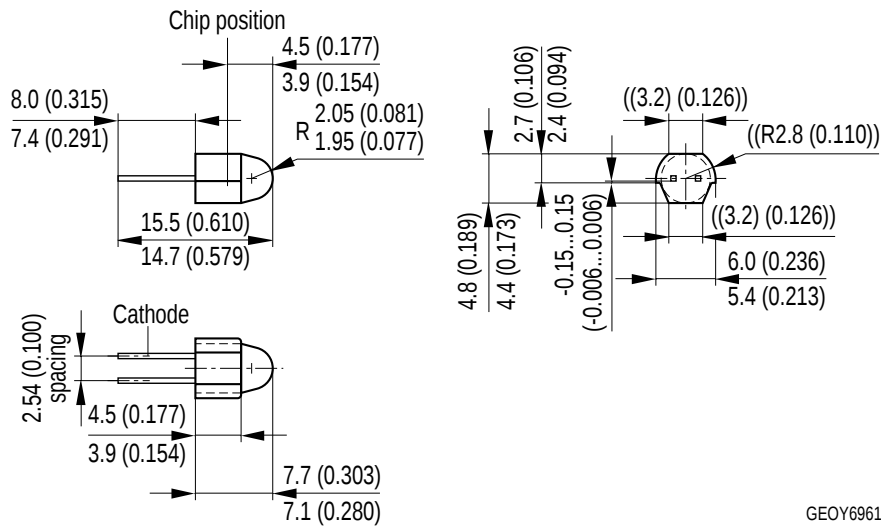
Maßzeichnung Package Outlines

SFH 4580



GEOY6960

SFH 4585

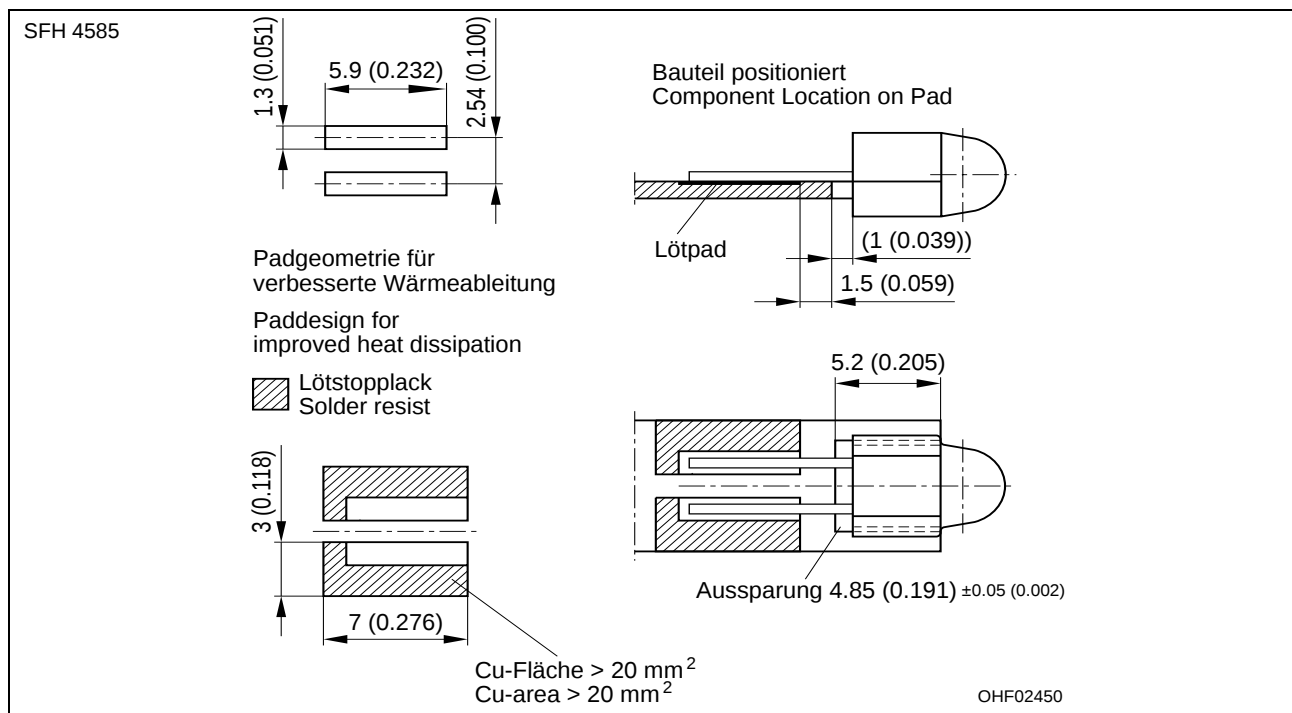
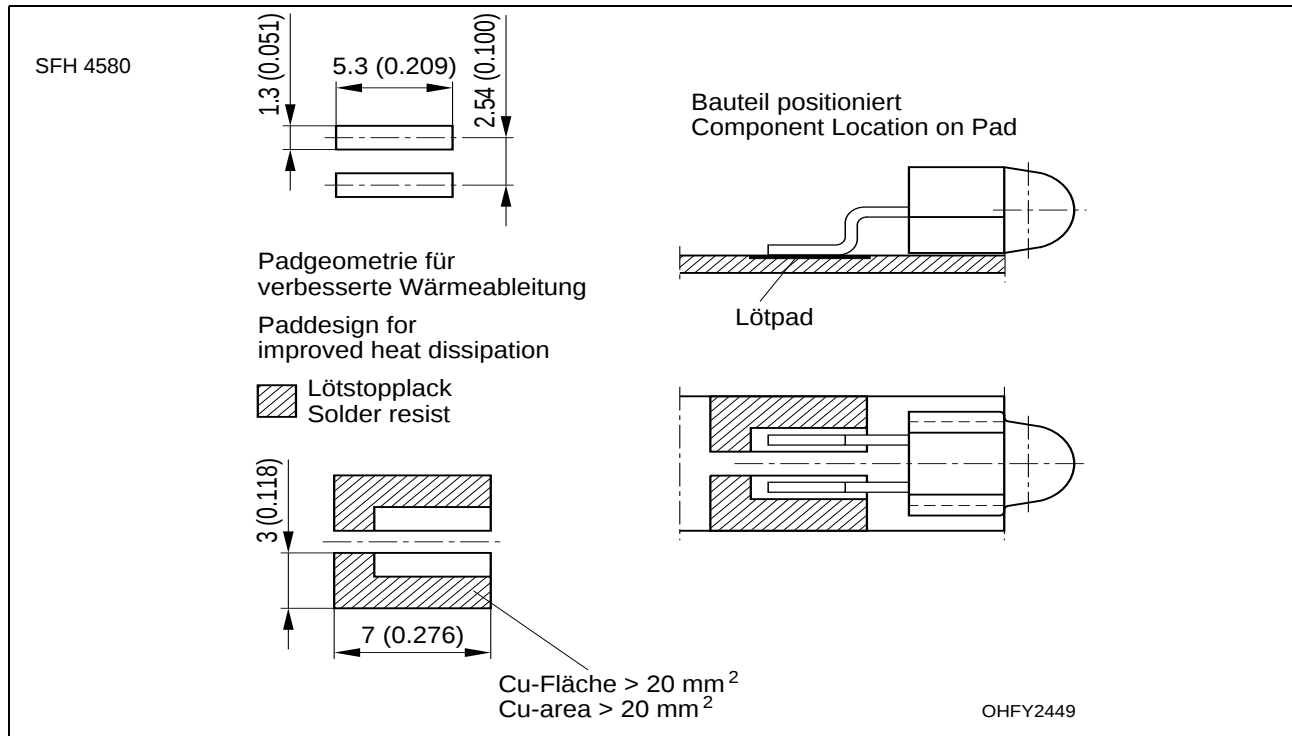


GEOY6961

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

Empfohlenes Lötpad design Recommended Solder Pad

Reflow Löten
Reflow Soldering



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

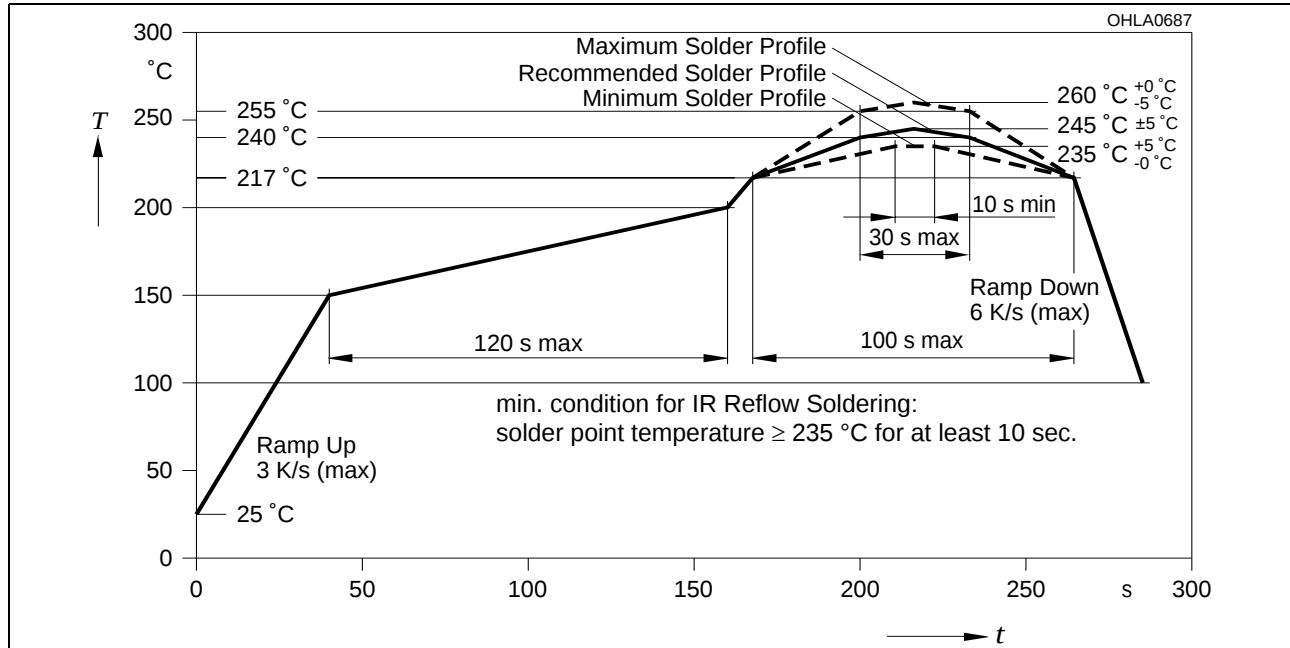
Lötbedingungen**Soldering Conditions****Reflow Lötprofil für bleifreies Löten****Reflow Soldering Profile for lead free soldering**

Vorbehandlung nach JEDEC Level 3

Preconditioning acc. to JEDEC Level 3

(nach J-STD-020C)

(acc. to J-STD-020C)



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