

**GaAlAs-IR-Lumineszenzdiode (880 nm)**  
**GaAlAs Infrared Emitter (880 nm)**  
**Lead (Pb) Free Product - RoHS Compliant**

**SFH 486**



**Wesentliche Merkmale**

- GaAlAs-LED mit sehr hohem Wirkungsgrad
- Hohe Zuverlässigkeit
- gute spektrale Anpassung an Si-Fotoempfänger
- Gegurtet lieferbar (im Ammo-Pack)
- Gruppiert lieferbar

**Anwendungen**

- IR-Fernsteuerung von Fernseh- und Rundfunkgeräten, Videorecordern, Lichtdimmern
- Gerätefernsteuerungen für Gleich- und Wechsellichtbetrieb
- Rauchmelder (UL-Freigabe)
- Sensorik
- Diskrete Lichtschranken

**Features**

- Very highly efficient GaAlAs-LED
- High reliability
- Spectral match with silicon photodetectors
- Available on tape and reel (in Ammo-pack)
- Available in bins

**Applications**

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

Typ Type	Bestellnummer Ordering Code
SFH 486	Q62703Q1094

**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 Thermal resistance	$R_{thJA}$	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 $I_F = 100\text{ mA}$	$\lambda_{peak}$	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	$\varphi$	$\pm 11$	Grad deg.
Aktive Chipfläche Active chip area	$A$	0.09	mm <sup>2</sup>
Abmessungen der aktiven Chipfläche Dimension of the active chip area	$L \times B$ $L \times W$	$0.3 \times 0.3$	mm <sup>2</sup>
Abstand Chipoberfläche bis Gehäusevorderseite Distance chip front to case surface	$H$	5.1 ... 5.7	mm
Schaltzeiten, $I_e$ von 10% auf 90% und von 90% auf 10%, bei $I_F = 100\text{ mA}$ , $R_L = 50\text{ }\Omega$ Switching times, $I_e$ from 10% to 90% and from 90% to 10%, $I_F = 100\text{ mA}$ , $R_L = 50\text{ }\Omega$	$t_r, t_f$	0.6/0.5	$\mu\text{s}$

**Kennwerte** ( $T_A = 25\text{ °C}$ )  
**Characteristics** (cont'd)

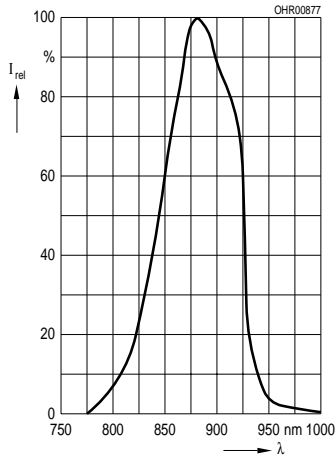
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Kapazität Capacitance $V_R = 0\text{ V}, f = 1\text{ MHz}$	$C_o$	15	pF
Durchlassspannung Forward voltage $I_F = 100\text{ mA}, t_p = 20\text{ ms}$ $I_F = 1\text{ A}, t_p = 100\text{ }\mu\text{s}$	$V_F$	1.5 (< 1.8) 3.0 (< 3.8)	V
Sperrstrom Reverse current $V_R = 5\text{ V}$	$I_R$	0.01 ( $\leq 1$ )	$\mu\text{A}$
Gesamtstrahlungsfluss Total radiant flux $I_F = 100\text{ mA}, t_p = 20\text{ ms}$	$\Phi_e$	25	mW
Temperaturkoeffizient von $I_e$ bzw. $\Phi_e$ , $I_F = 100\text{ mA}$ Temperature coefficient of $I_e$ or $\Phi_e$ , $I_F = 100\text{ mA}$	$TC_I$	- 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 $\lambda$ , $I_F = 100\text{ mA}$ Temperature coefficient of $\lambda$ , $I_F = 100\text{ mA}$	$TC_\lambda$	0.25	nm/K

**Strahlstärke  $I_e$  in Achsrichtung**gemessen bei einem Raumwinkel  $\Omega = 0.001$  sr**Radiant Intensity  $I_e$  in Axial Direction**at a solid angle of  $\Omega = 0.001$  sr

Bezeichnung Parameter	Symbol	Werte Values	Einheit Unit
Strahlstärke Radiant intensity $I_F = 100$ mA, $t_p = 20$ ms	$I_{e \text{ min}}$ $I_{e \text{ typ}}$	40 70	mW/sr
Strahlstärke Radiant intensity $I_F = 1$ A, $t_p = 100$ $\mu$ s	$I_{e \text{ typ}}$	600	mW/sr

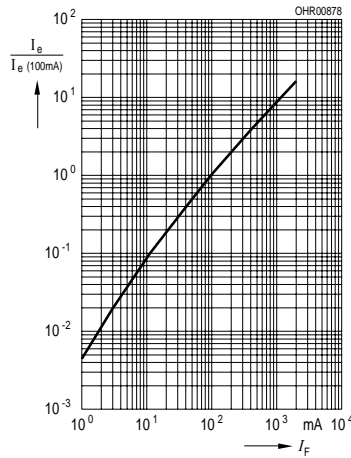
**Relative Spectral Emission**

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



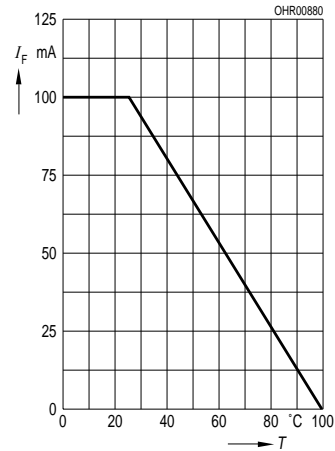
**Radiant Intensity**  $\frac{I_e}{I_e 100 \text{ mA}} = f(I_F)$

Single pulse,  $t_p = 20 \mu\text{s}$



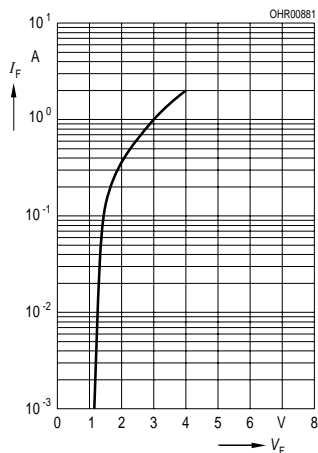
**Max. Permissible Forward Current**

$I_F = f(T_A)$



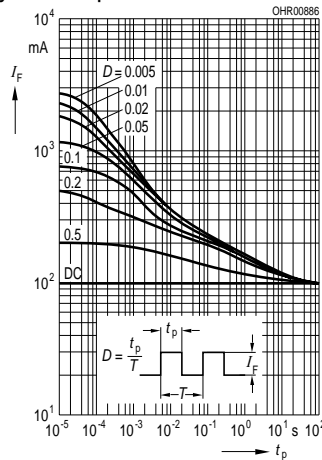
**Forward Current**

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



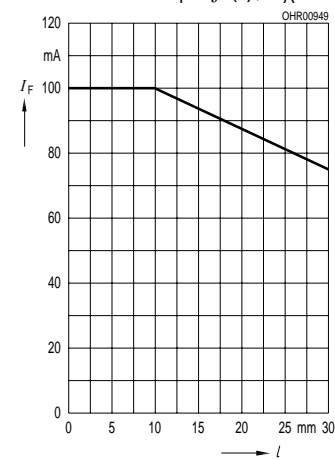
**Permissible Pulse Handling Capability**

$I_F = f(\tau)$ ,  $T_A = 25 \text{ }^\circ\text{C}$ , duty cycle  $D = \text{parameter}$

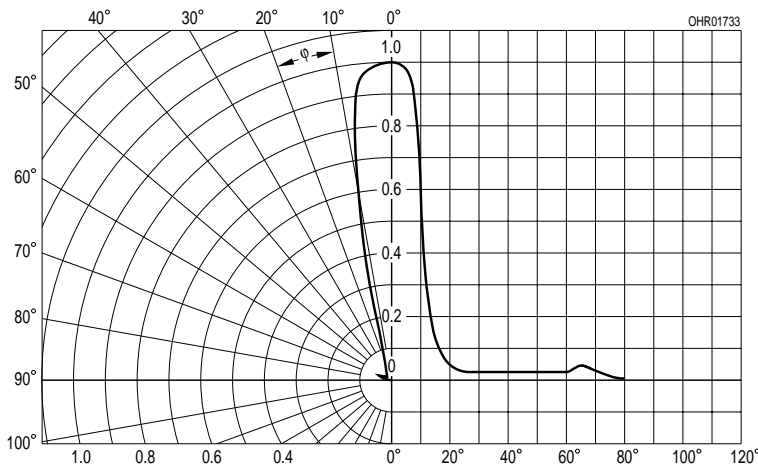


**Forward Current vs. Lead Length Between the Package Bottom and the PC-Board**

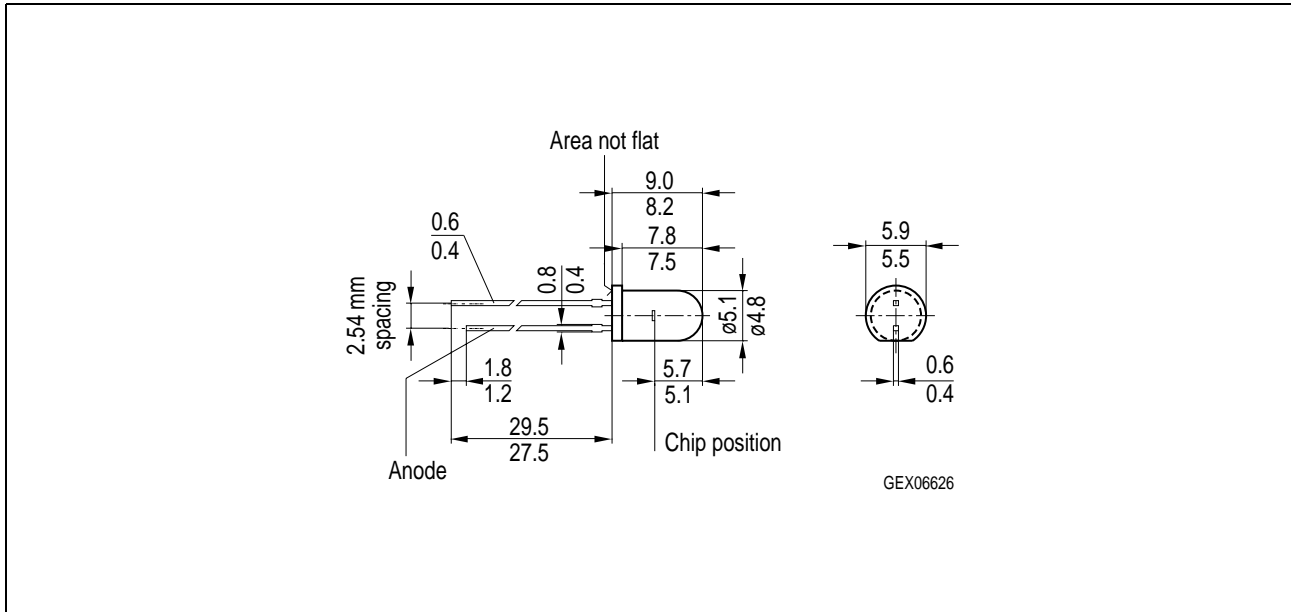
$I_F = f(l)$ ,  $T_A = 25 \text{ }^\circ\text{C}$



**Radiation Characteristics**  $I_{rel} = f(\varphi)$



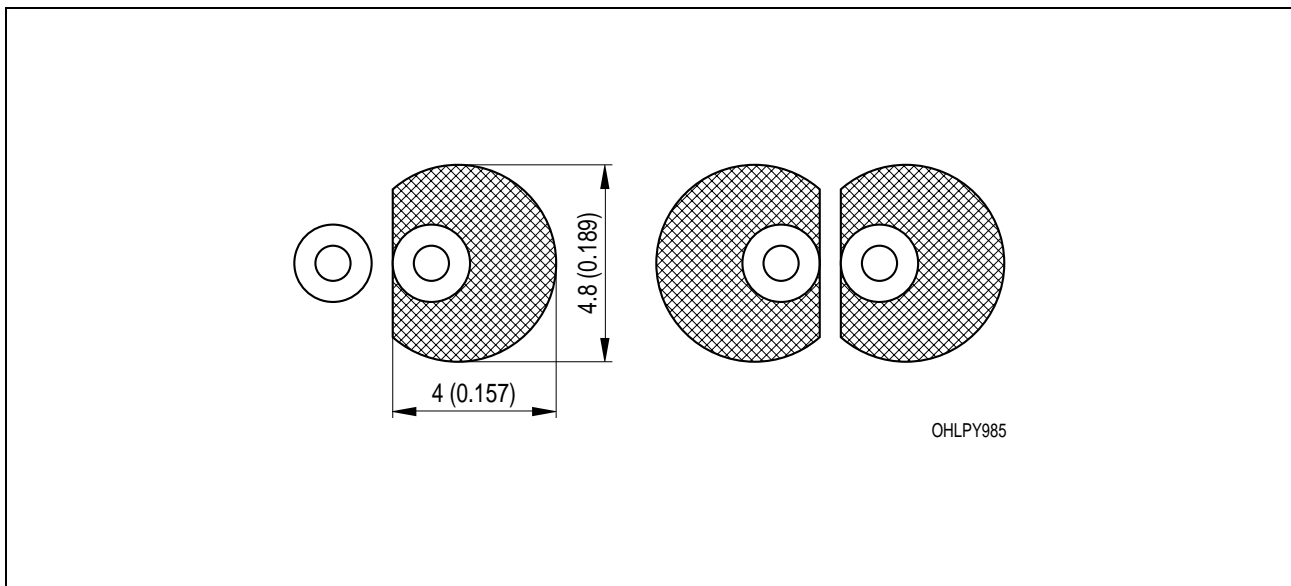
**Maßzeichnung  
Package Outlines**



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

**Empfohlenes Lötpaddesign)  
Recommended Solder Pad**

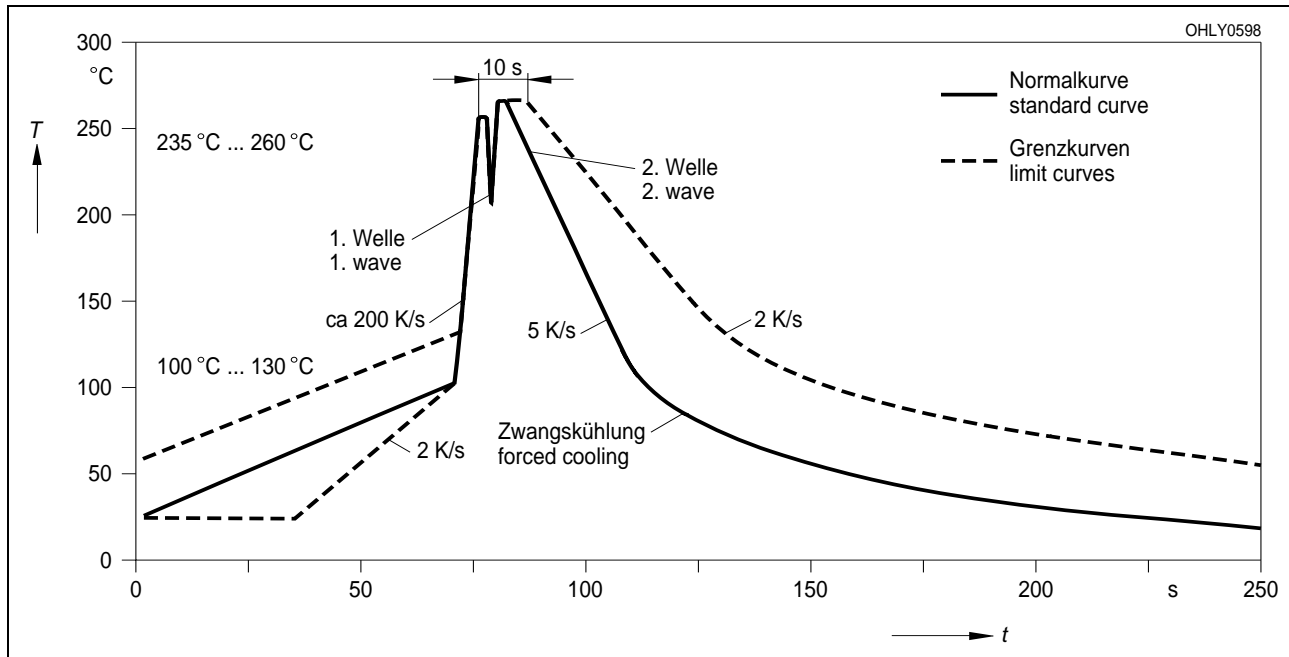
**Wellenlöten (TTW)  
TTW Soldering**



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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