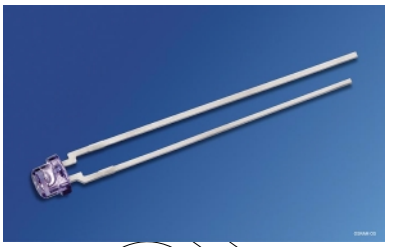
GaAlAs-IR-Lumineszenzdiode (880 nm)
GaAlAs Infrared Emitter (880 nm)

SFH 487 P



Wesentliche Merkmale

- GaAlAs-LED mit sehr hohem Wirkungsgrad
- Hohe Zuverlässigkeit
- Hohe Impulsbelastbarkeit
- Gute spektrale Anpassung an Si-Fotoempfänger
- Gehäusegleich mit SFH 309

Features

- Very highly efficient GaAlAs-LED
- High reliability
- High pulse handling capability
- Good spectral match to silicon photodetectors
- Same package as SFH 309

Anwendungen

- IR-Fernsteuerung von Fernseh-, Rundfunk- und Videogeräten, Lichtdimmern
- Lichtschranken bis 500 kHz
- Münzzähler
- Sensorik
- Diskrete Optokoppler

Applications

- IR remote control for hifi and TV sets, video tape recorder, dimmers
- Light-reflection switches (max. 500 kHz)
- Coin counters
- Sensor technology
- Discrete optocouplers

Typ Type	Bestellnummer Ordering Code	Gehäuse Package
SFH 487 P	Q62703-Q517	3-mm-LED-Gehäuse, plan, klares violettes Epoxy-Gießharz, Anschlüsse im 2.54-mm-Raster ($^1/_{10}$''), Anodenkennzeichnung: kürzerer Anschluß 3 mm LED package (T 1), plane, violet-colored transparent epoxy resin, solder tabs lead spacing 2.54 mm ($^1/_{10}$''), anode marking: short lead

Grenzwerte (T_A = 25 °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, $\tau \leq 10$ µs Surge current	I_{FSM}	2.5	A
Verlustleistung Power dissipation	P_{tot}	200	mW
Wärmewiderstand, freie Beinchenlänge max. 10 mm Thermal resistance, lead length between package bottom and PC-board max. 10 mm	R_{thJA}	375	K/W

Kennwerte (T_A = 25 °C)
Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength at peak emission I_F = 100 mA	λ_{peak}	880	nm
Spektrale Bandbreite bei 50% von I_{max}, I_F = 100 mA Spectral bandwidth at 50% of I_{max}	$\Delta\lambda$	80	nm
Abstrahlwinkel Half angle	φ	± 65	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
Abstand Chipoberfläche bis Gehäusevorderseite Distance chip front to case surface	H	0.4 … 0.8	mm

Kennwerte (T_A = 25 °C)
Characteristics (cont'd)

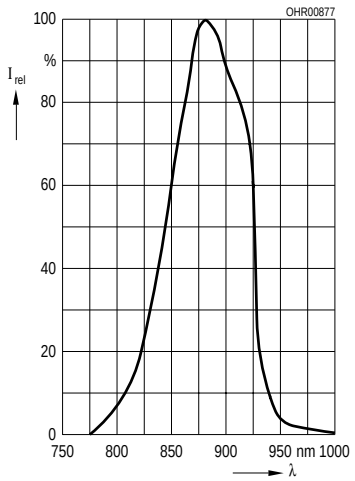
Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Schaltzeiten, I_e von 10% auf 90% und von 90% auf 10%, bei I_F = 100 mA, R_L = 50 Ω Switching times, I_e from 10% to 90% and from 90% to 10%, I_F = 100 mA, R_L = 50 Ω	t_r, t_f	0.6/0.5	µs
Kapazität Capacitance V_R = 0 V, f = 1 MHz	C_o	15	pF
Durchlaßspannung Forward voltage I_F = 100 mA, t_p = 20 ms I_F = 1 A, t_p = 100 µs	V_F	1.5 (< 1.8) 3.0 (< 3.8)	V
Sperrstrom Reverse current V_R = 5 V	I_R	0.01 (≤ 1)	µA
Gesamtstrahlungsfluß Total radiant flux I_F = 100 mA, t_p = 20 ms	Φ_e	25	mW
Temperaturkoeffizient von I_e bzw. Φ_e, I_F = 100 mA Temperature coefficient or I_e or Φ_e, I_F = 100 mA	TC_I	– 0.5	%/K
Temperaturkoeffizient von V_F, I_F = 100 mA Temperature coefficient of V_F, I_F = 100 mA	TC_V	– 2	mV/K
Temperaturkoeffizient von λ_{peak}, I_F = 100 mA Temperature coefficient of λ_{peak}, I_F = 100 mA	TC_λ	0.25	nm/K

Strahlstärke I_e in Achsrichtung
gemessen bei einem Raumwinkel Ω = 0.01 sr
Radiant Intensity I_e in Axial Direction
at a solid angle of Ω = 0.01 sr

Bezeichnung **Parameter**	**Symbol**	**Wert** **Value**	**Einheit** **Unit**
Strahlstärke Radiant intensity I_F = 100 mA, t_p = 20 ms	I_e	> 2	mW/sr
Strahlstärke Radiant intensity I_F = 1 A, t_p = 100 µs	$I_{e\ typ.}$	30	mW/sr

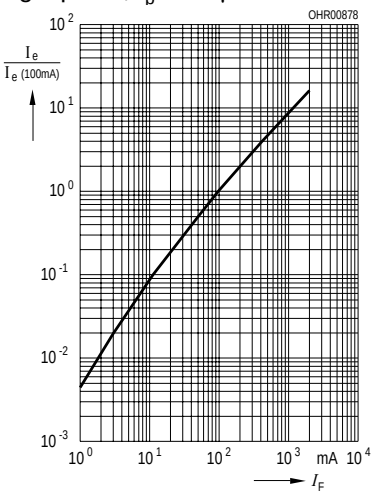
Relative Spectral Emission

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



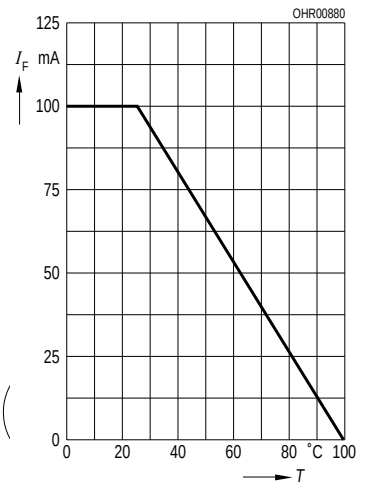
Radiant Intensity $\frac{I_e}{I_e\ 100\ mA} = f(I_F)$

Single pulse, t_p = 20 µs



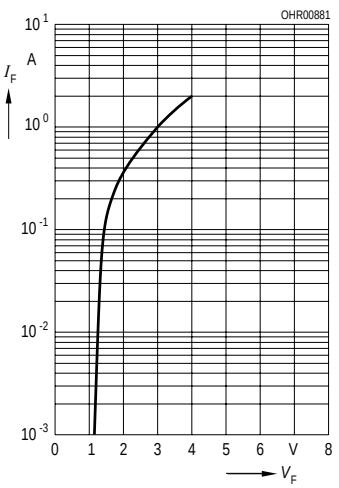
Max. Permissible Forward Current

$I_F = f(T_A)$

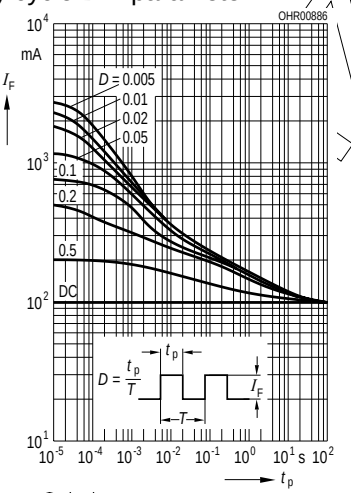


Forward Current, $I_F = f(V_F)$

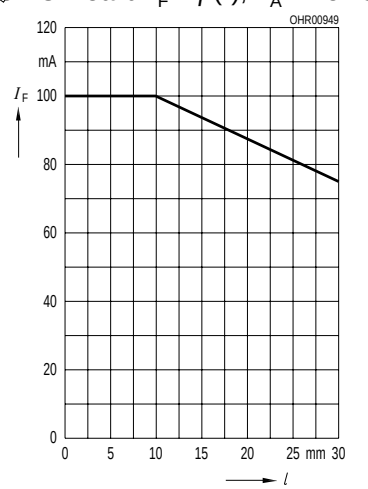
Single pulse, t_p = 20 µs



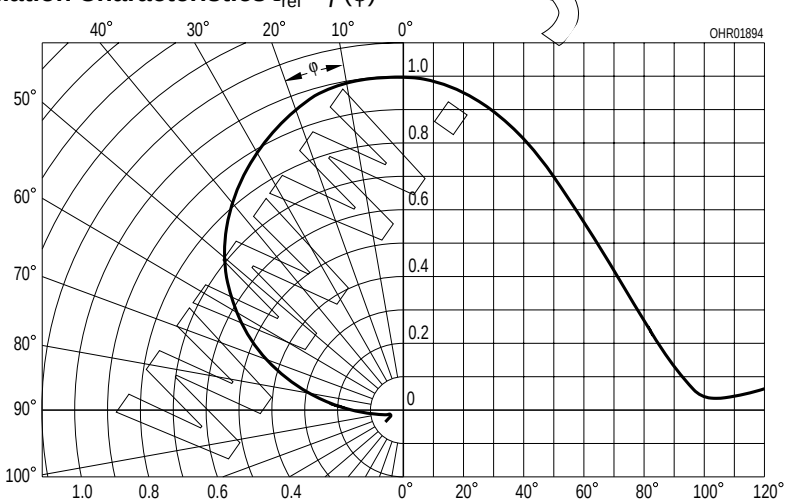
Permissible Pulse Handling Capability $I_F = f(\tau)$, T_A = 25 °C, duty cycle D = parameter



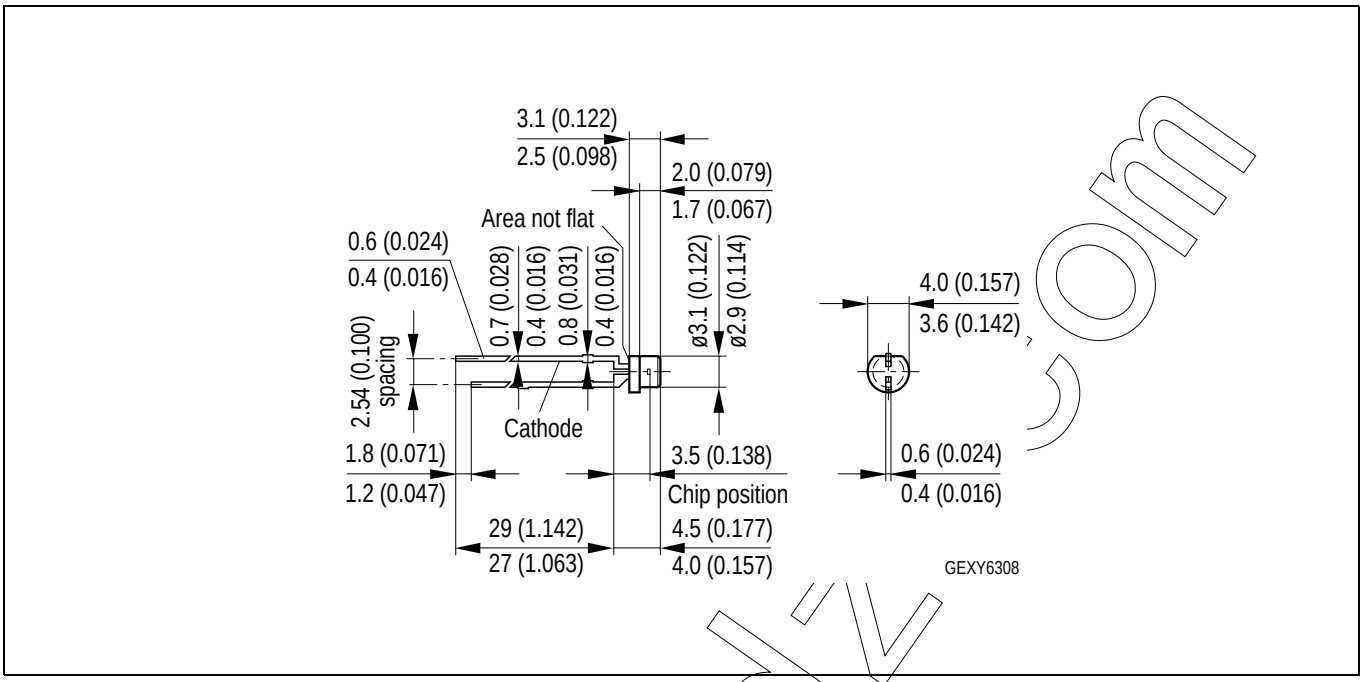
Forward Current vs. Lead Length between the Package Bottom and the PC-Board $I_F = f(l)$, T_A = 25 °C



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



Maßzeichnung
Package Outlines



Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

Attention please!

The information describes the type of component and shall not be considered as assured characteristics.
Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our Sales Organization.

Packing

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

Components used in life-support devices or systems must be expressly authorized for such purpose! Critical components [1] , may only be used in life-support devices or systems [2] with the express written approval of OSRAM OS.

[1] A critical component is a component usedin a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or effectiveness of that device or system.

[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.