GaAs-IR-Lumineszenzdiode
GaAs Infrared Emitter
Lead (Pb) Free Product - RoHS Compliant

SFH 4511

Wesentliche Merkmale

- GaAs-LED mit sehr hohem Wirkungsgrad
- 5mm Kunststoffgehäuse
- Peakwellenlänge 950 nm
- Sehr enger Abstrahlwinkel (± 4°)
- Hohe Strahlstärke
- Hohe Zuverlässigkeit

Features

- Very highly efficient GaAs-LED
- 5mm plastic package
- Peak Wavelength 950 nm
- Very narrow radiation Angle (± 4 Deg.)
- High radiant intensity
- High reliability

Anwendungen

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

Applications

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

Typ **Type**	**Bestellnummer** **Ordering Code**	**Strahlstärkegruppierung** [1] (I_F = 100 mA, t_p = 20 ms) **Radiant Intensity Grouping** [1] I_e (mW/sr)
SFH 4511	Q62703Q5557	> 63 (typ. 150)

[1] gemessen bei einem Raumwinkel Ω = 0.001 sr / measured at a solid angle of Ω = 0.001 sr

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, t_p = 10 µs, D = 0 Surge current	I_{FSM}	3	A
Verlustleistung Power dissipation	P_{tot}	165	mW
Wärmewiderstand Thermal resistance	R_{thJA}	450	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, t_p = 20 ms	λ_{peak}	950	nm
Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} I_F = 100 mA	$\Delta\lambda$	55	nm
Abstrahlwinkel Half angle	φ	± 4	Grad deg.
Aktive Chipfläche Active chip area	A	0.09	mm^2
Abmessungen der aktiven Chipfläche Dimensions of the active chip area	$L \times B$ $L \times W$	0.3 × 0.3	mm
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	0.5	µs

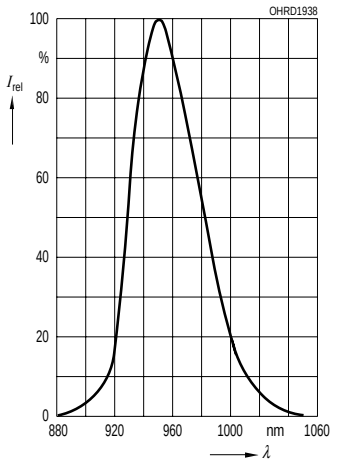
Kennwerte (T_A = 25 °C)
Characteristics (cont'd)

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Kapazität, Capacitance V_R = 0 V, f = 1 MHz	C_o	25	pF
Durchlassspannung Forward voltage I_F = 100 mA, t_p = 20 ms I_F = 1 A, t_p = 100 µs	 V_F V_F	 1.3 (≤ 1.5) 2.3 (≤ 2.8)	 V 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	22	mW
Strahlstärke Radiant intensity I_F = 1 A, t_p = 100 µs	$I_{e\ typ.}$	1200	mW/sr
Temperaturkoeffizient von I_e bzw. Φ_e, I_F = 100 mA Temperature coefficient of 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, I_F = 100 mA Temperature coefficient of λ, I_F = 100 mA	TC_λ	+ 0.3	nm/K

Strahlstärke I_e in Achsrichtung
gemessen bei einem Raumwinkel Ω = 0.001 sr
Grouping of Radiant Intensity I_e in Axial Direction
at a solid angle of Ω = 0.001 sr

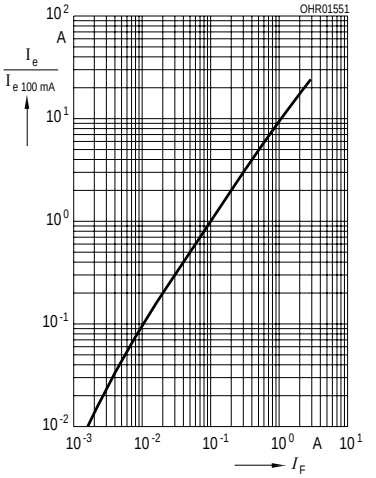
Bezeichnung **Parameter**	**Symbol**	**Wert** **Value**	**Einheit** **Unit**
Strahlstärke Radiant intensity I_F = 100 mA, t_p = 20 ms	 $I_{e\ min.}$ $I_{e\ typ.}$	 63 150	 mW/sr mW/sr
Strahlstärke Radiant intensity I_F = 1 A, t_p = 100 µs	$I_{e\ typ.}$	1200	mW/sr

Relative Spectral Emission
$I_{rel} = f(\lambda)$

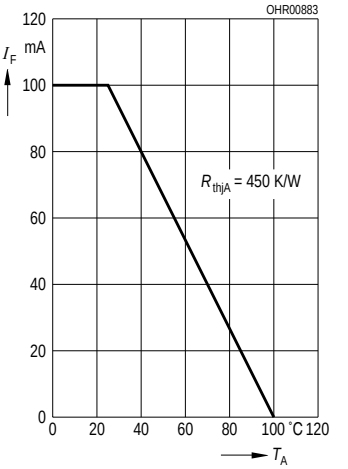


Radiant Intensity $\frac{I_e}{I_{e\ 100\ mA}} = f(I_F)$

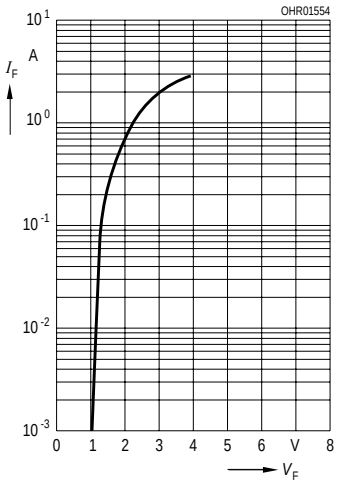
Single pulse, t_p = 20 µs



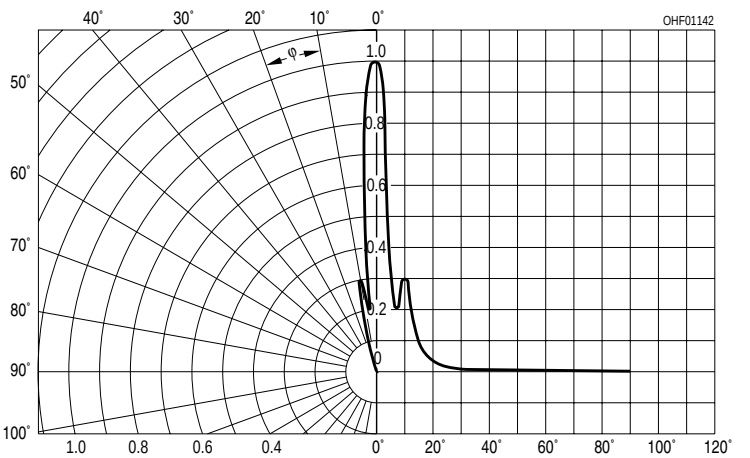
Max. Permissible Forward Current
$I_F = f(T_A)$



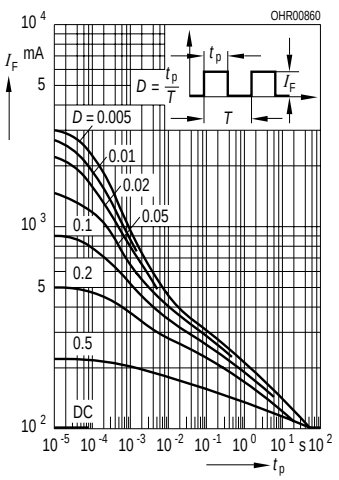
Forward Current
$I_F = f(V_F)$, single pulse, t_p = 20 µs



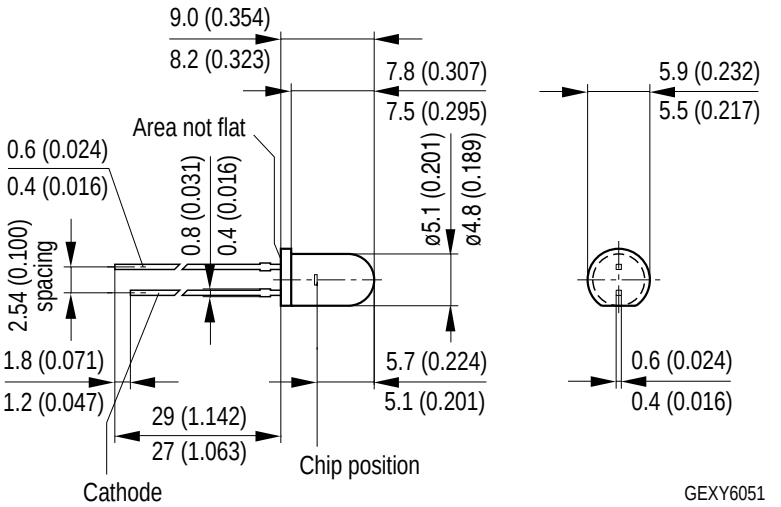
Radiation Characteristics,
$I_{rel} = f(\varphi)$



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



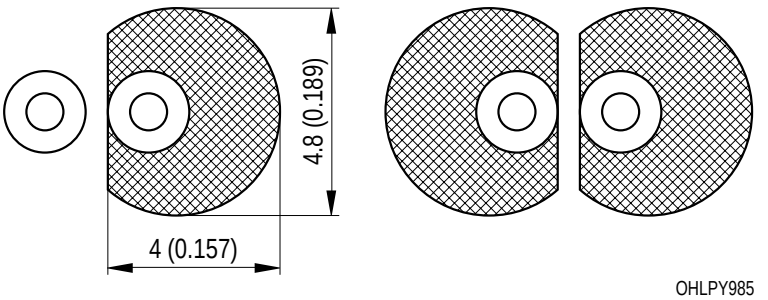
Maßzeichnung
Package Outlines



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

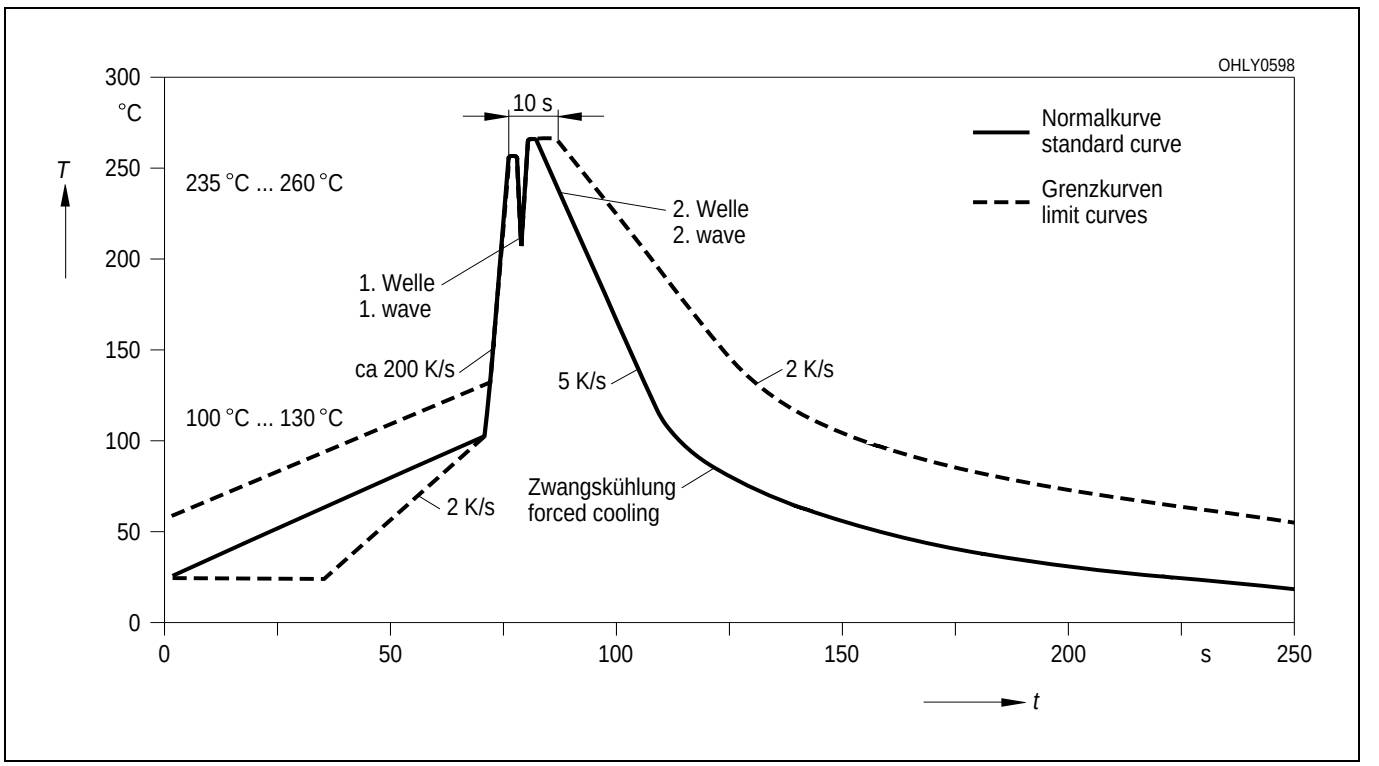
Package	5 mm radial (T 1 3/4)
Colour	black

Empfohlenes Lötpaddesign Wellenlöten (TTW)
Recommended Solder Pad TTW Soldering



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

Lötbedingungen
Soldering Conditions
Wellenlöten (TTW) (nach CECC 00802)
TTW Soldering (acc. to CECC 00802)



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