



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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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 ($\pm 4^\circ$)
- 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 | Q62702Q5557 | > 63 (typ. 150) |

¹⁾ gemessen bei einem Raumwinkel $\Omega = 0.001$ sr / measured at a solid angle of $\Omega = 0.001$ 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} | 3 | A |
| Verlustleistung Power dissipation | P_{tot} | 165 | mW |
| Wärmewiderstand Thermal resistance | R_{thJA} | 450 | K/W |

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

| Bezeichnung Parameter | Symbol Symbol | Wert Value | Einheit Unit |
|---|------------------------------|------------------|-----------------|
| Wellenlänge der Strahlung Wavelength at peak emission $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$ | λ_{peak} | 950 | nm |
| Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} $I_F = 100\text{ mA}$ | $\Delta\lambda$ | 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 ² |
| 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 | 0.5 | μs |

Kennwerte ($T_A = 25\text{ °C}$)

Characteristics (cont'd)

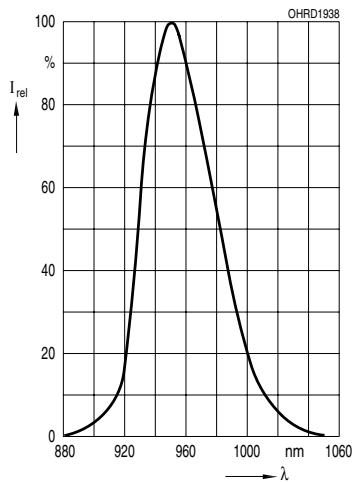
| Bezeichnung Parameter | Symbol Symbol | Wert Value | Einheit Unit |
|---|---------------------|--|-----------------|
| Kapazität, Capacitance $V_R = 0\text{ V}, f = 1\text{ MHz}$ | C_o | 25 | pF |
| Durchlassspannung Forward voltage $I_F = 100\text{ mA}, t_p = 20\text{ ms}$ $I_F = 1\text{ A}, t_p = 100\text{ }\mu\text{s}$ | V_F V_F | 1.3 (≤ 1.5) 2.3 (≤ 2.8) | 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 | 22 | mW |
| Strahlstärke Radiant intensity $I_F = 1\text{ A}, t_p = 100\text{ }\mu\text{s}$ | $I_{e\text{ typ.}}$ | 1200 | mW/sr |
| 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 | + 0.3 | nm/K |

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

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

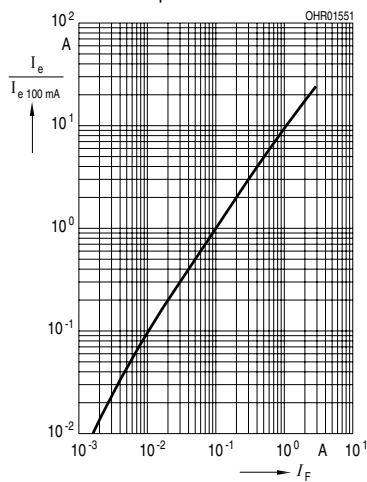
Relative Spectral Emission

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



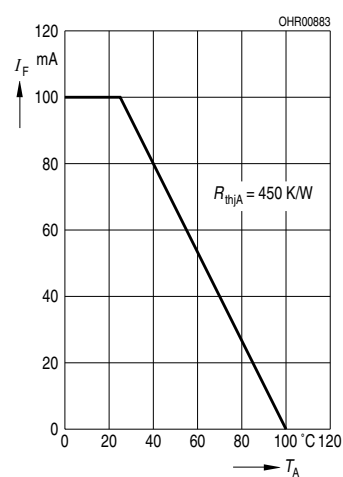
Radiant Intensity $\frac{I_e}{I_e 100 \text{ mA}} = f(I_F)$

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



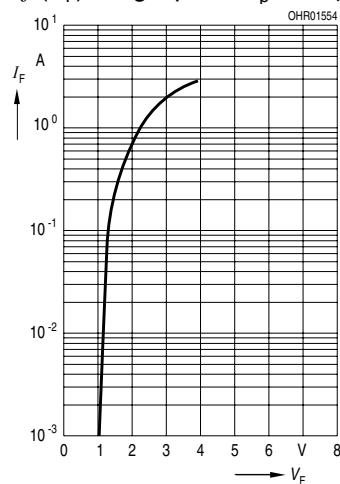
Max. Permissible Forward Current

$I_F = f(T_A)$



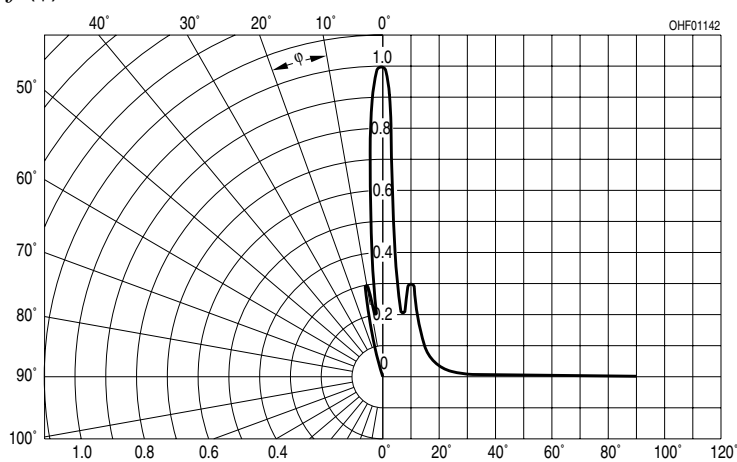
Forward Current

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



Radiation Characteristics,

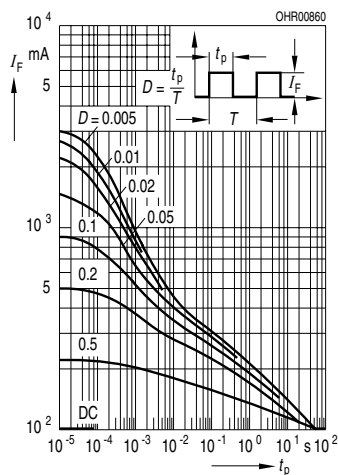
$I_{rel} = f(\varphi)$



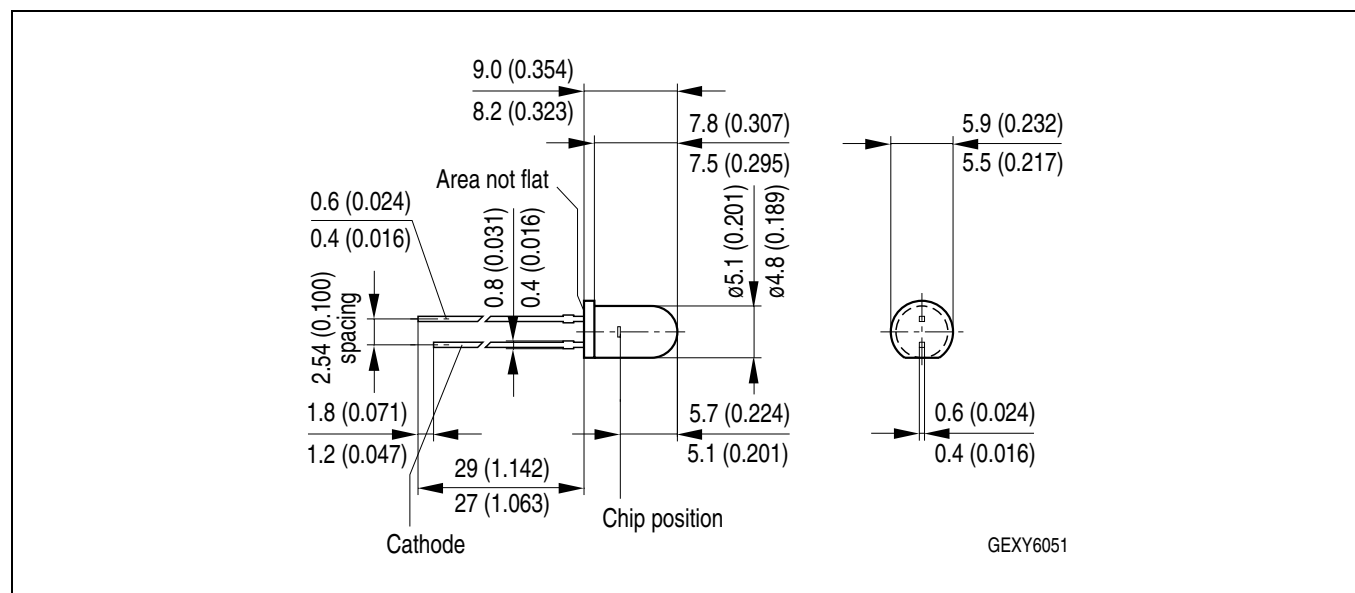
Permissible Pulse Handling Capability

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

duty cycle $D = \text{parameter}$

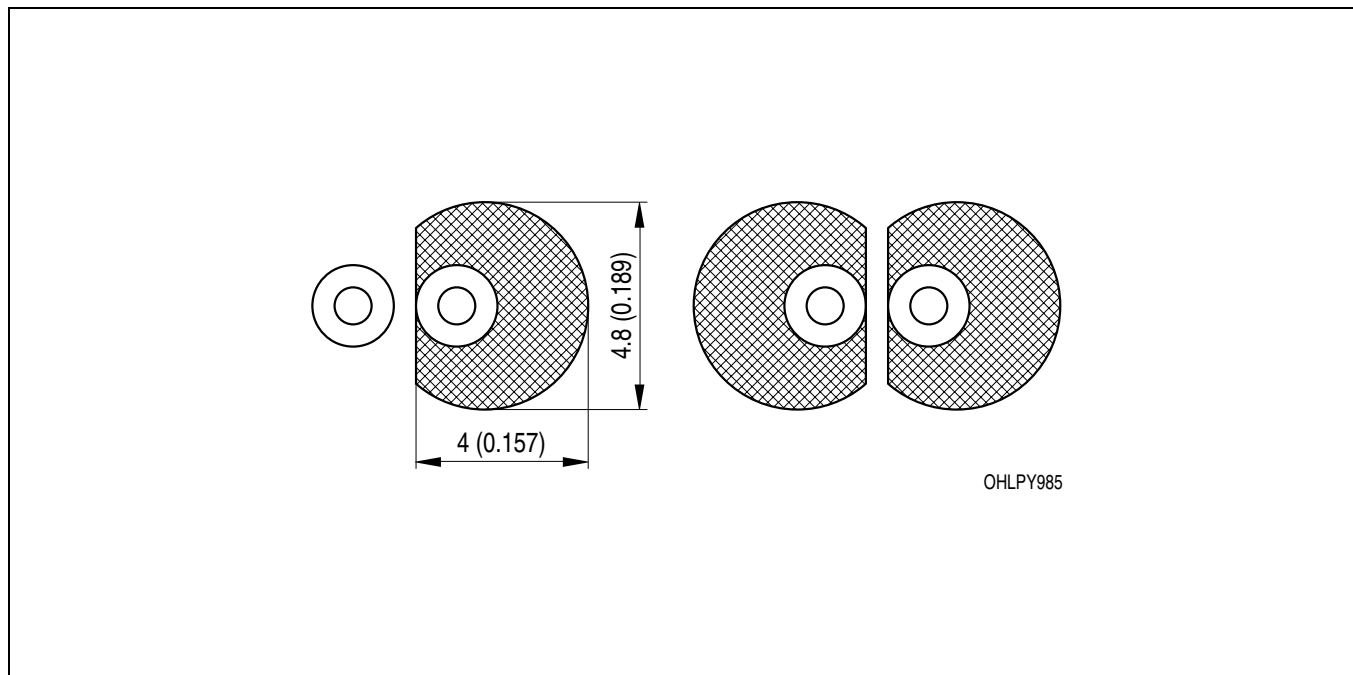


Maßzeichnung Package Outlines



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

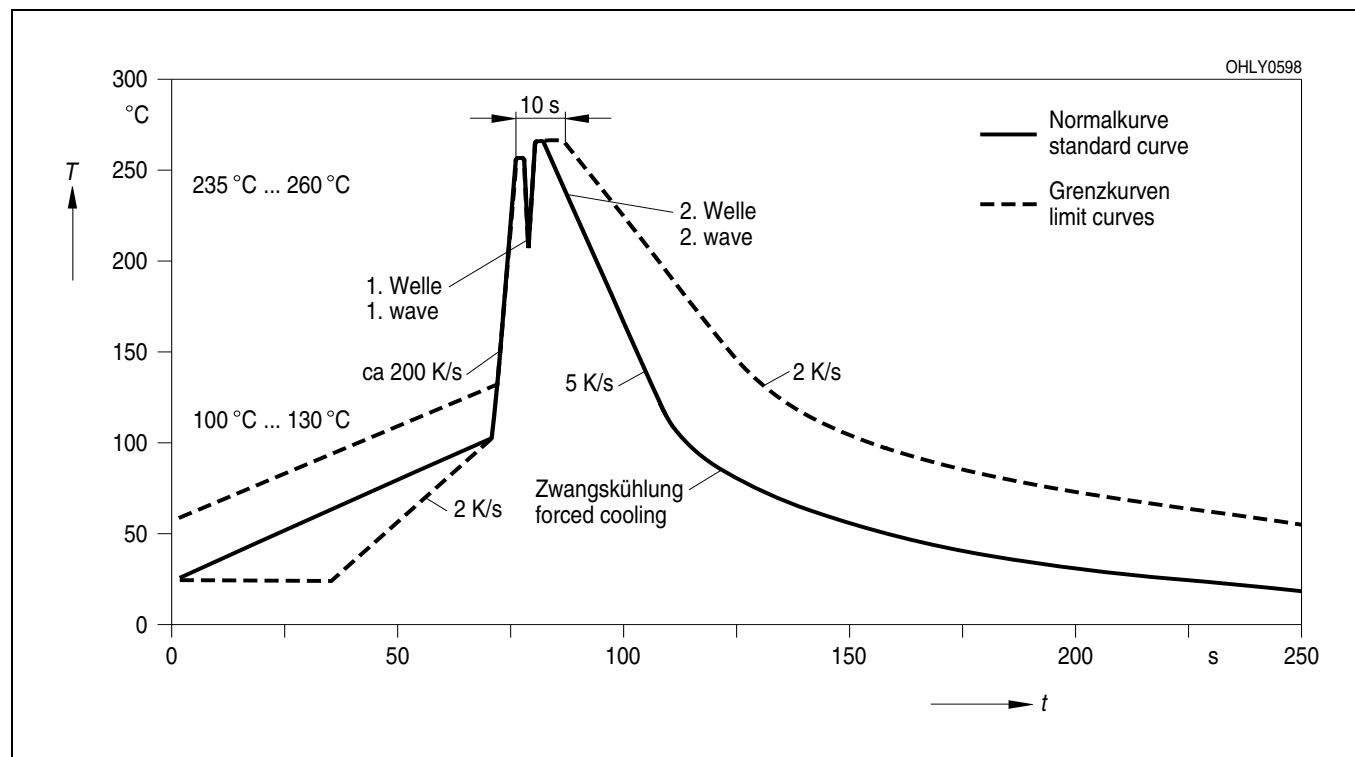
| | |
|----------------|--|
| Package | 5 mm radial (T 1 ³ / ₄) |
| Colour | black |

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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¹ A critical component is a component used in 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.

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