



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!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



Leistungsstarke IR-Lumineszenzdiode High Power Infrared Emitter

SFH 4500
SFH 4505



SFH 4500



SFH 4505

Vorläufige Daten / Preliminary Data

Wesentliche Merkmale

- Leistungsstarke GaAs-LED (40mW)
- Hoher Wirkungsgrad bei kleinen Strömen
- Typische Peakwellenlänge 950nm
- Engwinkliger SMT-Sidelooker
- IR Reflow Löten geeignet
- Feuchte-Empfindlichkeitsstufe 3 nach JEDEC Standard J-STD-020A

Features

- High Power GaAs-LED (40mW)
- High Efficiency at low currents
- Typical peak wavelength 950nm
- Narrow angle SMT-Sidelooker
- Suitable for IR reflow soldering
- Moisture Sensitivity Level 3 according to JEDEC Standard J-STD-020A

Anwendungen

- Bauteil mit hoher Strahlstärke zur Oberflächenmontage (SMT)
- Schnelle Datenübertragung mit Übertragungsraten bis 100 Mbaud (IR Tastatur, Joystick, Multimedia)
- Analoge und digitale Hi-Fi Audio- und Videosignalübertragung
- Alarm- und Sicherungssysteme
- IR Freiraumübertragung
- IR-Scheinwerfer für Kameras

Applications

- Device with high radiant intensity suitable for surface mounting (SMT)
- High data transmission rate up to 100 Mbaud (IR keyboard, Joystick, Multimedia)
- Analog and digital Hi-Fi audio and video signal transmission
- Alarm and safety equipment
- IR free air transmission
- IR spotlight for cameras

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 4500	Q62702-P5163	85 (>25)
SFH 4505	Q62702-P5164	85 (>25)

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	3	V
Durchlaßstrom Forward current	I_F (DC)	100	mA
Stoßstrom Surge current $t_p = 10\text{ }\mu\text{s}, D = 0$	I_{FSM}	2.2	A
Verlustleistung Power dissipation	P_{tot}	180	mW
Wärmewiderstand Sperrschicht - Umgebung, freie Beinchenlänge max. 10 mm Thermal resistance junction - ambient, lead length between package bottom and PCB max. 10 mm	R_{thJA}	375	K/W

Kennwerte ($T_A = 25\text{ °C}$)

Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength of 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} $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	$\Delta\lambda$	40	nm
Abstrahlwinkel Half angle	φ	± 10	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
Schaltzeiten, I_e von 10% auf 90% und von 90% auf 10% Switching times, I_e from 10% to 90% and from 90% to 10% $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$, $R_L = 50\ \Omega$	t_r , t_f	10	ns
Kapazität Capacitance $V_R = 0\text{ V}$, $f = 1\text{ MHz}$	C_o	35	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	1.5 (≤ 1.8) 3.2 (≤ 4.3)	V V
Sperrstrom Reverse current $V_R = 3\text{ V}$	I_R	0.01 (≤ 10)	μA
Gesamtstrahlungsfluß Total radiant flux $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	Φ_e	40	mW
Temperaturkoeffizient von I_e bzw. Φ_e Temperature coefficient of I_e or Φ_e $I_F = 100\text{ mA}$	TC_1	- 0.44	%/K

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

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Temperaturkoeffizient von V_F Temperature coefficient of V_F $I_F = 100\text{ mA}$	TC_V	- 1.5	mV/K
Temperaturkoeffizient von λ Temperature coefficient of λ $I_F = 100\text{ mA}$	TC_λ	+ 0.2	nm/K

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

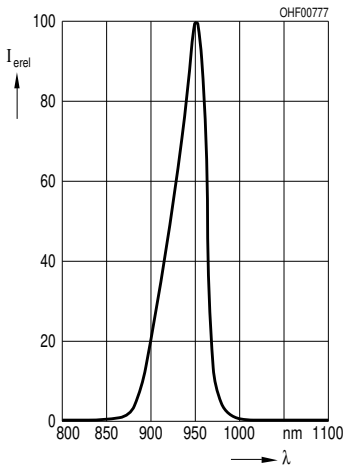
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Strahlstärke Radiant intensity $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	$I_{e\text{ min}}$ $I_{e\text{ typ}}$	25 85	mW/sr mW/sr
Strahlstärke Radiant intensity $I_F = 1\text{ A}$, $t_p = 100\text{ }\mu\text{s}$	$I_{e\text{ typ}}$	550	mW/sr

Lötbedingungen**Soldering Conditions**

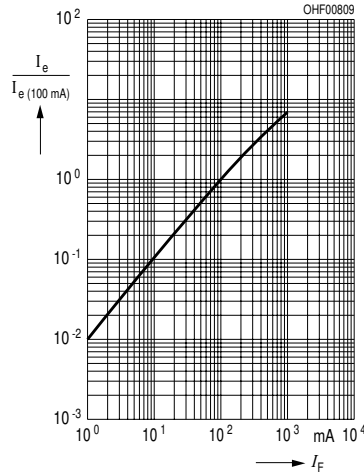
Reflowlötung Reflow Soldering		Kolbenlötung (mit 1,5-mm-Kolbenspitze) Iron Soldering (with 1.5-mm-bit)		
Lötzonen- temperatur Temperature of Soldering Zone	Maximale Durchlaufzeit Max. Transit Time	Temperatur des Kolbens Temperature of the Solder- ing Iron	Maximale zulässige Lötzeit Max. Permis- sible Solder- ing Time	Abstand Lötstelle – Gehäuse Distance between Solder Joint and Case
245 °C	10 s	300 °C	3 s	$\geq 1.5\text{ mm}$

Relative Spectral Emission

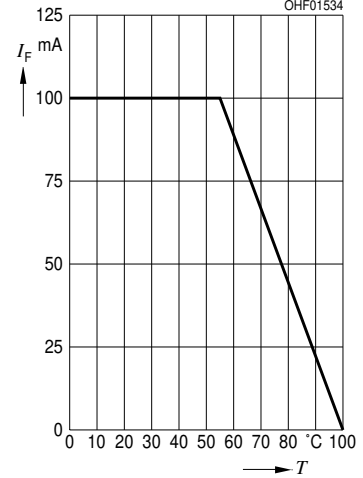
$I_{\text{erel}} = f(\lambda)$



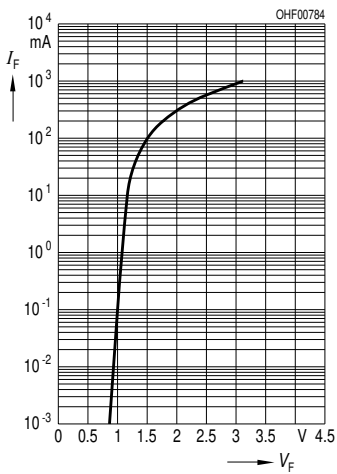
Radiant Intensity $I_e/I_{e(100 \text{ mA})} = f(I_F)$
Single pulse, $t_p = 20 \mu\text{s}$



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

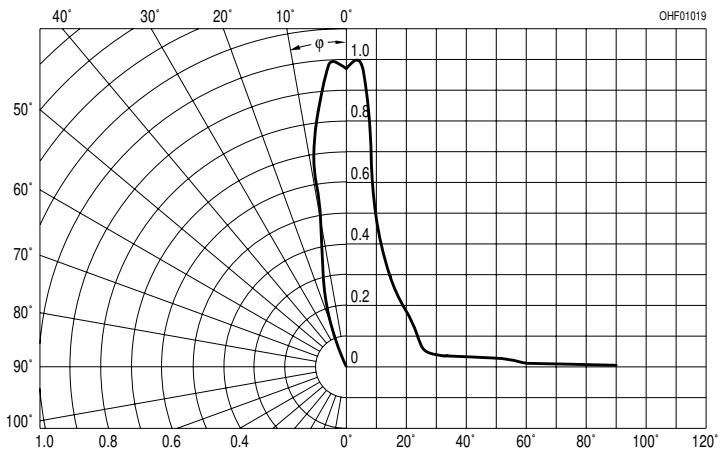


Forward Current $I_F = f(V_F)$
single pulse, $t_p = 20 \mu\text{s}$

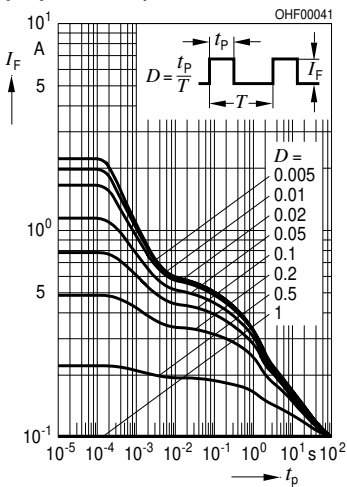


Radiation Characteristic

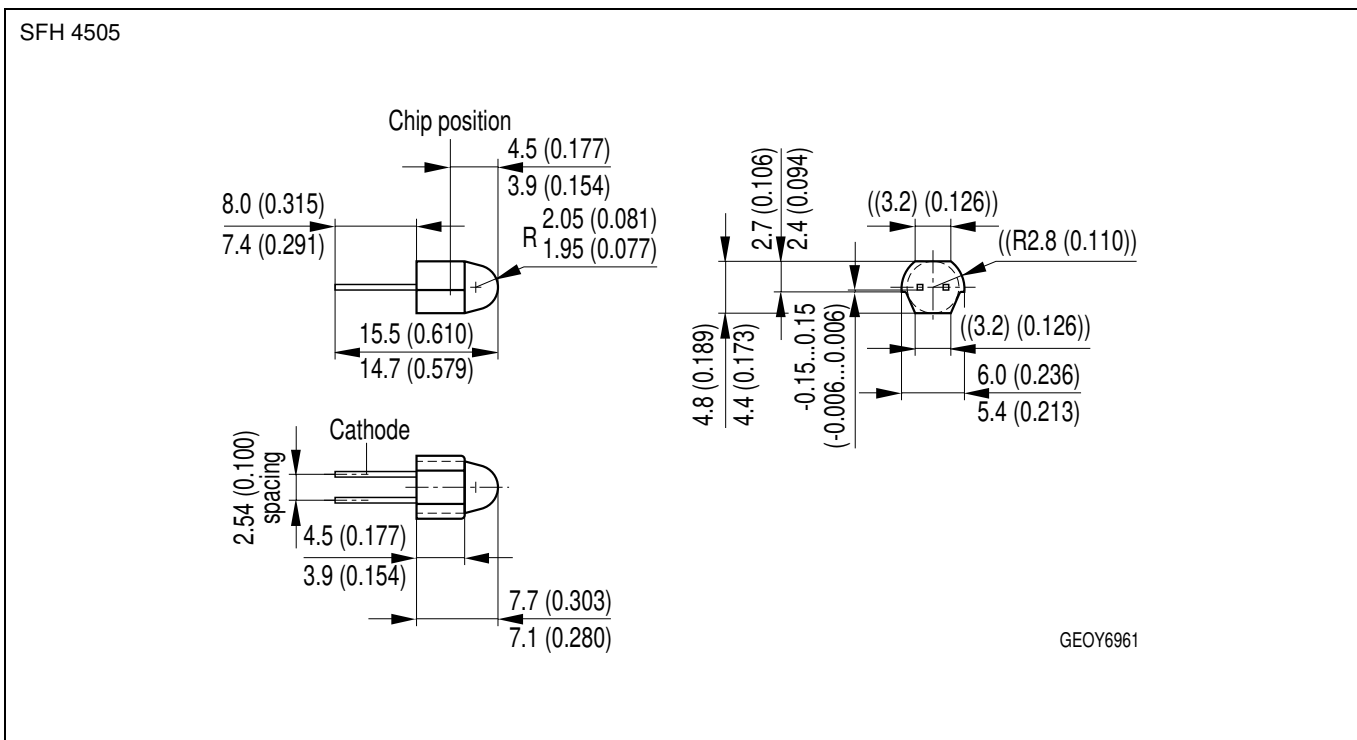
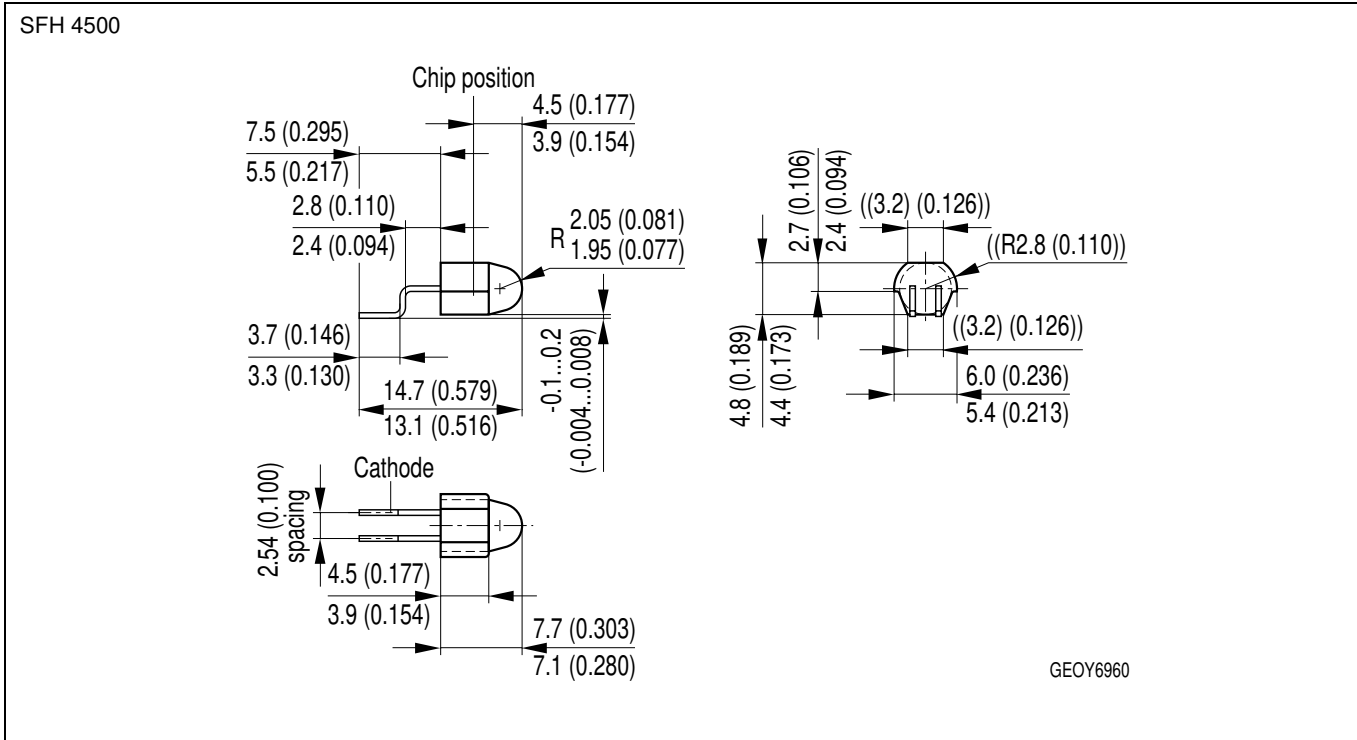
$I_{\text{erel}} = f(\varphi)$



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



Maßzeichnungen
Package Outlines



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

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Attention please!

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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 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.

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.