



THE DATASHEET OF SFH 4510-Z



GaAs-IR-Lumineszenzdioden (950 nm) in SMR[®] Gehäuse
GaAs Infrared Emitters (950 nm) in SMR[®] Package
Lead (Pb) Free Product - RoHS Compliant

SFH 4510
SFH 4515



SFH 4510



SFH 4515

Wesentliche Merkmale

- GaAs-LED mit sehr hohem Wirkungsgrad
- SMR[®] (Surface Mount Radial) Gehäuse
- Für Oberflächenmontage geeignet
- Gegurtet lieferbar
- Gehäusegleich mit Fotodiode SFH 2500/ SFH 2505
- Hohe Zuverlässigkeit
- Gute spektrale Anpassung an Si-Fotoempfänger

Anwendungen

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

Features

- Very highly efficient GaAs-LED
- SMR[®] (Surface Mount Radial) package
- Suitable for surface mounting (SMT)
- Available on tape and reel
- Same package as photodiode SFH 2500/ SFH 2505
- High reliability
- Spectral match with silicon photodetectors

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
- Discrete optocouplers

Typ Type	Bestellnummer Ordering Code	Gehäuse Package
SFH 4510	Q65110A2630	5-mm-SMR [®] -Gehäuse (T 1 3/4), schwarzes Epoxy-Gießharz, Anschlüsse (SFH 4510 gebogen, SFH 4515 gerade) im 2.54-mm-Raster (1/10"), Kathodenkennzeichnung: siehe Maßzeichnung. 5 mm SMR [®] package (T 1 3/4), black-colored epoxy resin, solder tabs (SFH 4510 bent, SFH 4515 straight) lead spacing 2.54 mm (1/10"), cathode marking: see package outline.
SFH 4515	Q65110A2633	

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 (DC)	100	mA
Stoßstrom, $t_p = 10\ \mu\text{s}$, $D = 0$ Surge current	I_{FSM}	3	A
Verlustleistung Power dissipation	P_{tot}	150	mW
Wärmewiderstand Sperrschicht - Umgebung bei Montage auf FR4 Platine, Padgröße je $20\ \text{mm}^2$ Thermal resistance junction - ambient mounted on PC-board (FR4), padsizes $20\ \text{mm}^2$ each	R_{thJA}	300	K/W

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

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength at peak emission $I_F = 100\ \text{mA}$	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	± 14	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^2
Schaltzeiten, I_e von 10% auf 90% und von 90% auf 10%, bei $I_F = 100\ \text{mA}$, $R_L = 50\ \Omega$ Switching times, I_e from 10% to 90% and from 90% to 10%, $I_F = 100\ \text{mA}$, $R_L = 50\ \Omega$	t_r, t_f	0.5	μs

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

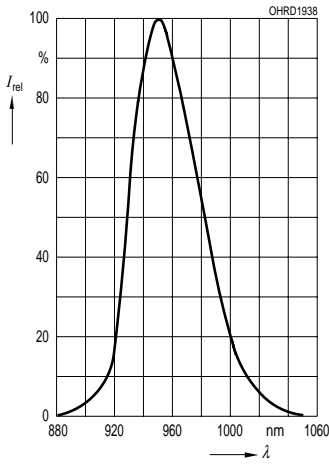
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Kapazität Capacitance $V_R = 0\text{ V}, f = 1\text{ MHz}$	C_o	25	pF
Durchlassspannung Forward voltage $I_F = 100\text{ mA}, t_p = 20\text{ ms}$ $I_F = 1\text{ A}, t_p = 100\text{ }\mu\text{s}$	V_F V_F	1.30 (≤ 1.5) 2.30 (≤ 2.8)	V V
Sperrstrom 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
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 $\Omega = 0.01$ sr**Radiant Intensity I_e in Axial Direction**at a solid angle of $\Omega = 0.01$ sr

Bezeichnung Parameter	Symbol	Werte Values	Einheit Unit
Strahlstärke Radiant intensity $I_F = 100$ mA, $t_p = 20$ ms	$I_{e \text{ typ}}$ $I_{e \text{ min}}$	50 ≥ 25	mW/sr mW/sr
Strahlstärke Radiant intensity $I_F = 1$ A, $t_p = 100$ μ s	$I_{e \text{ typ}}$	450	mW/sr

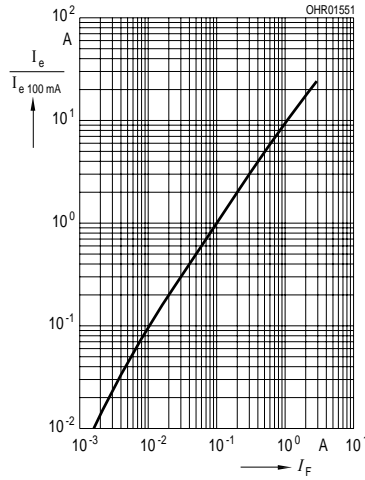
Relative Spectral Emission

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



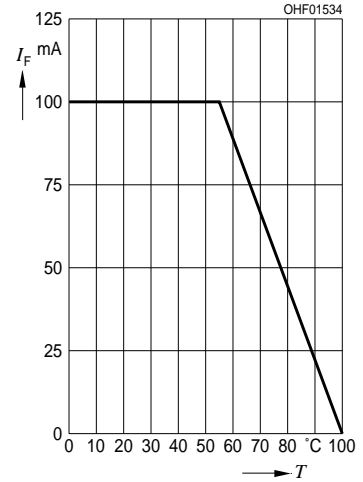
Radiant Intensity $\frac{I_e}{I_e 100 \text{ mA}} = f(I_F)$

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



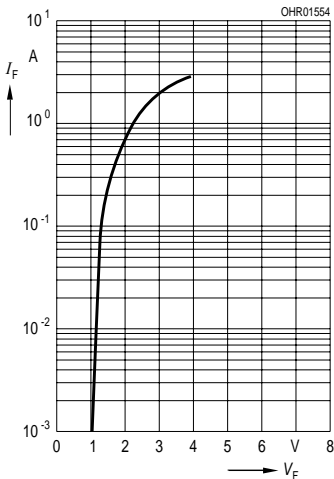
Max. Permissible Forward Current

$I_F = f(T_A)$



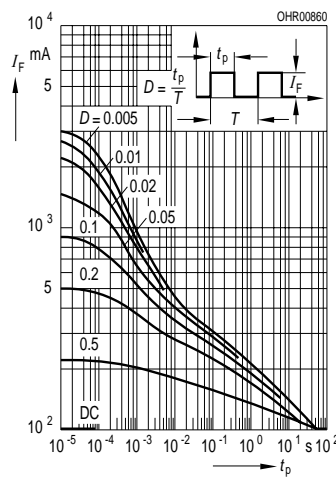
Forward Current

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

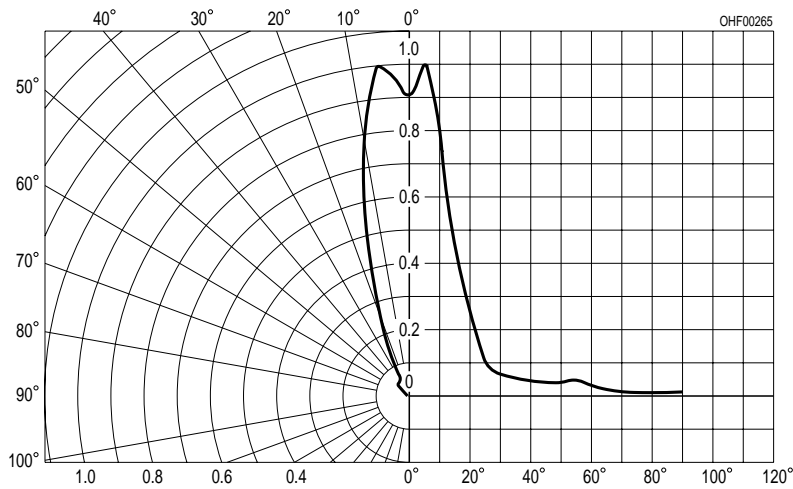


Permissible Pulse Handling Capability

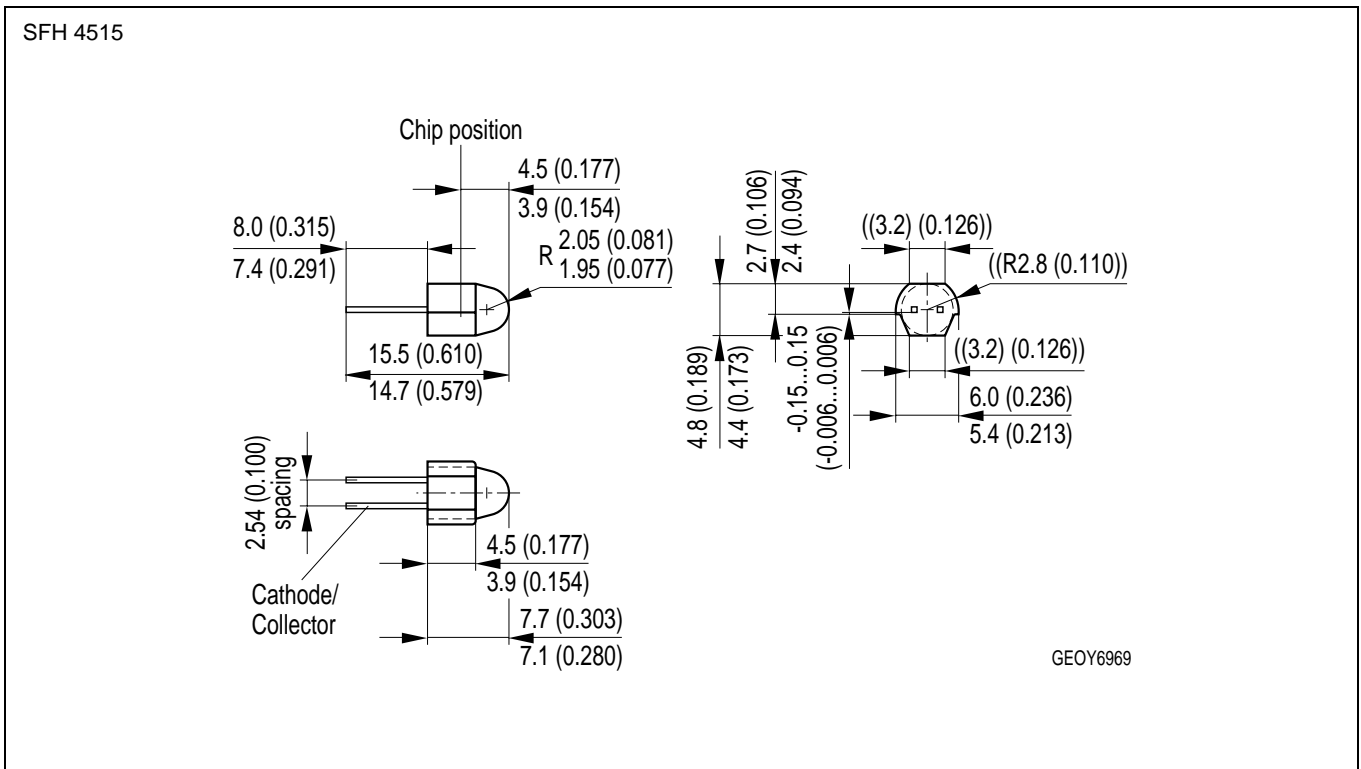
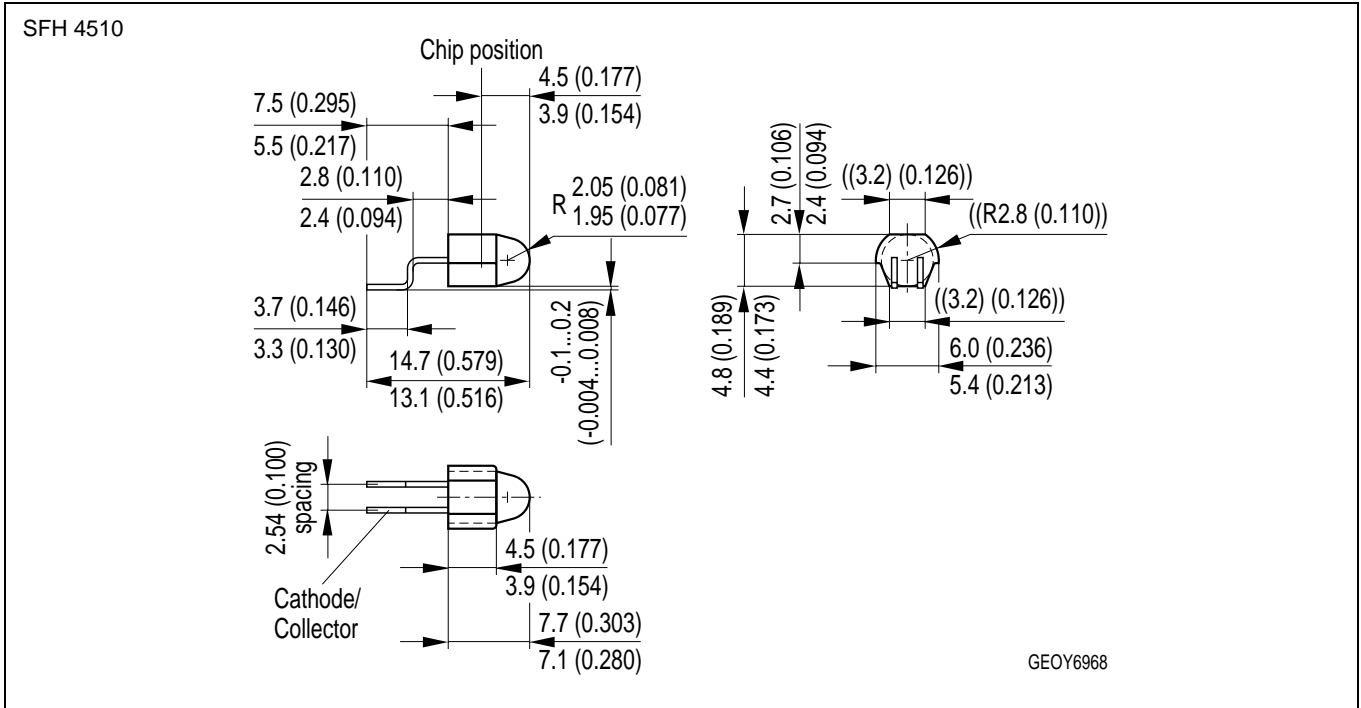
$I_F = f(\tau)$, $T_A = 25 \text{ }^\circ\text{C}$, duty cycle $D =$ parameter



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



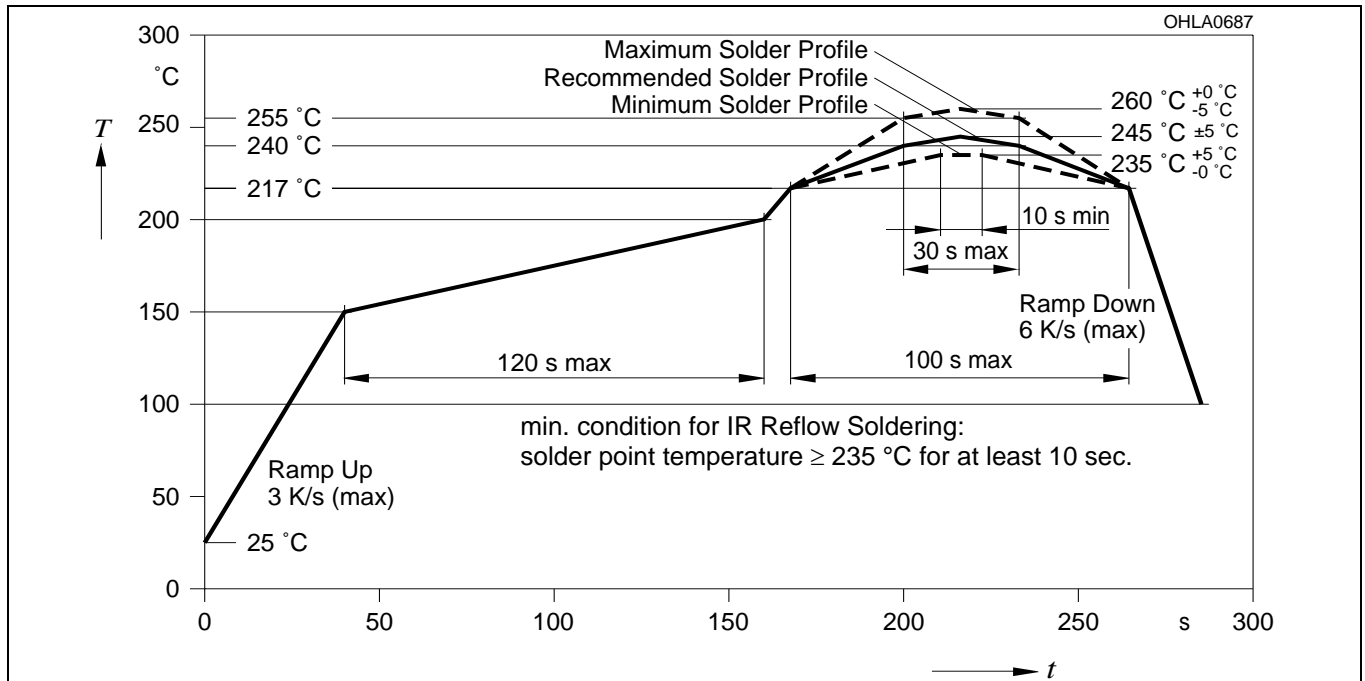
Maßzeichnung
Package Outlines



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

Lötbedingungen
Soldering Conditions
Reflow Lötprofil für bleifreies Löten
Reflow Soldering Profile for lead free soldering

Vorbehandlung nach JEDEC Level 3
 Preconditioning acc. to JEDEC Level 3
 (nach J-STD-020C)
 (acc. to J-STD-020C)



Published by
OSRAM Opto Semiconductors GmbH
 Wernerwerkstrasse 2, D-93049 Regensburg
www.osram-os.com
 © All Rights Reserved.

EU RoHS and China RoHS compliant product



此产品符合欧盟 RoHS 指令的要求；

按照中国的相关法规和标准，不含有毒有害物质或元素。

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 components¹, may only be used in life-support devices or systems² 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.

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View SFH 4510-Z on WIN SOURCE](#)
-  [OSRAM Opto Semiconductors Inc. Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management