

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
- Gehäusegleich mit Fotodiode SFH 2500/ SFH 2505
- Hohe Zuverlässigkeit
- UL Version erhältlich
- Gute spektrale Anpassung an Si-Fotoempfänger

Anwendungen

- IR-Fernsteuerungen
- Rauchmelder
- Sensorik
- Diskrete Lichtschranken
- Diskrete Optokoppler

Features

- Very highly efficient GaAs-LED
- SMR® (Surface Mount Radial) package
- Suitable for surface mounting (SMT)
- Same package as photodiode SFH 2500/ SFH 2505
- High reliability
- UL version available
- Spectral match with silicon photodetectors

Applications

- IR remote controls
- Smoke detectors
- 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 4510 E9548 (UL)	Q65110A5375	
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, $t_p = 10\text{ }\mu\text{s}$, $D = 0$ Surge current	I_{FSM}	3	A
Verlustleistung Power dissipation	P_{tot}	150	mW
Wärmewiderstand Sperrschicht - Umgebung bei Montage auf FR4 Platine, Padgröße je 20 mm ² Thermal resistance junction - ambient mounted on PC-board (FR4), padsize 20 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 $I_F = 100\text{ mA}$, $R_L = 50\text{ }\Omega$ 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)

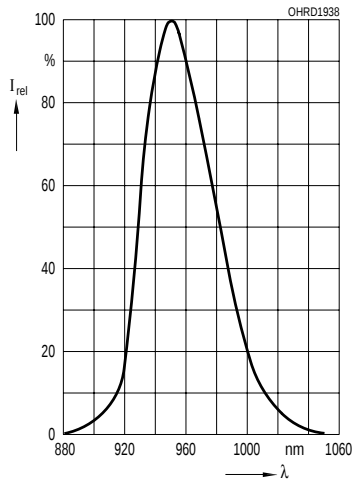
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Kapazität Capacitance $V_R = 0\text{ V}$, $f = 1\text{ MHz}$	C_o	25	pF
Durchlassspannung Forward voltage $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$ $I_F = 1\text{ A}$, $t_p = 100\text{ }\mu\text{s}$	V_F V_F	1.30 (≤ 1.5) 2.30 (≤ 2.8)	V V
Sperrstrom 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

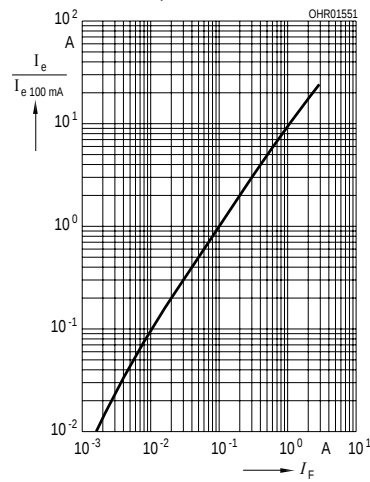
Relative Spectral Emission

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



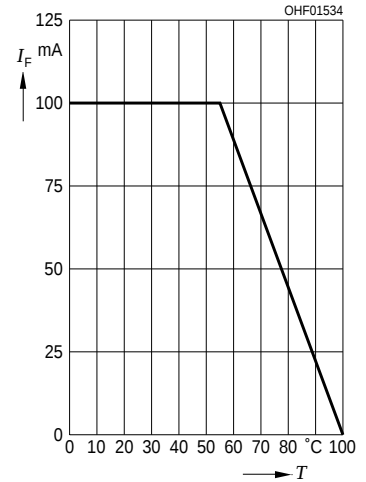
$$\text{Radiant Intensity } \frac{I_e}{I_{e, 100 \text{ mA}}} = f(I_F)$$

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



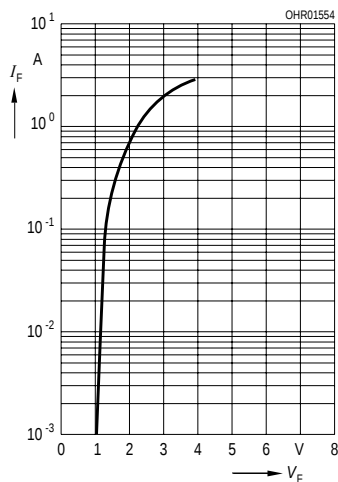
Max. Permissible Forward Current

$$I_F = f(T_A)$$



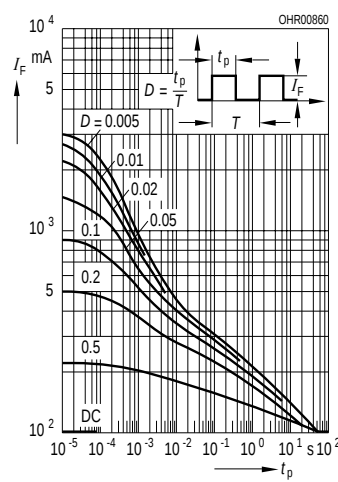
Forward Current

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



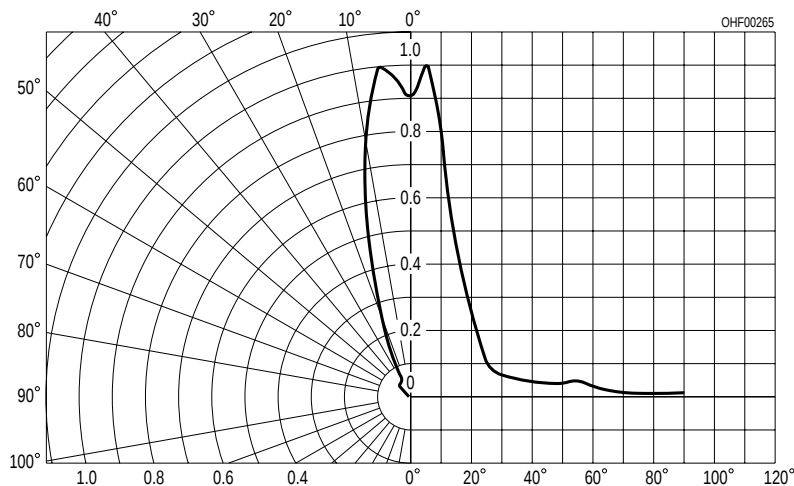
Permissible Pulse Handling

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



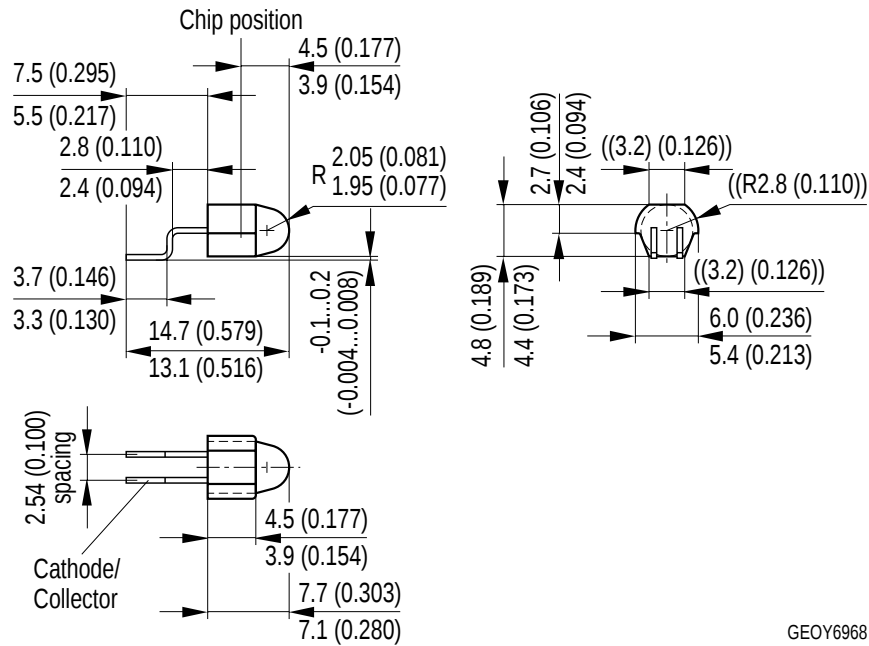
Radiation Characteristics

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

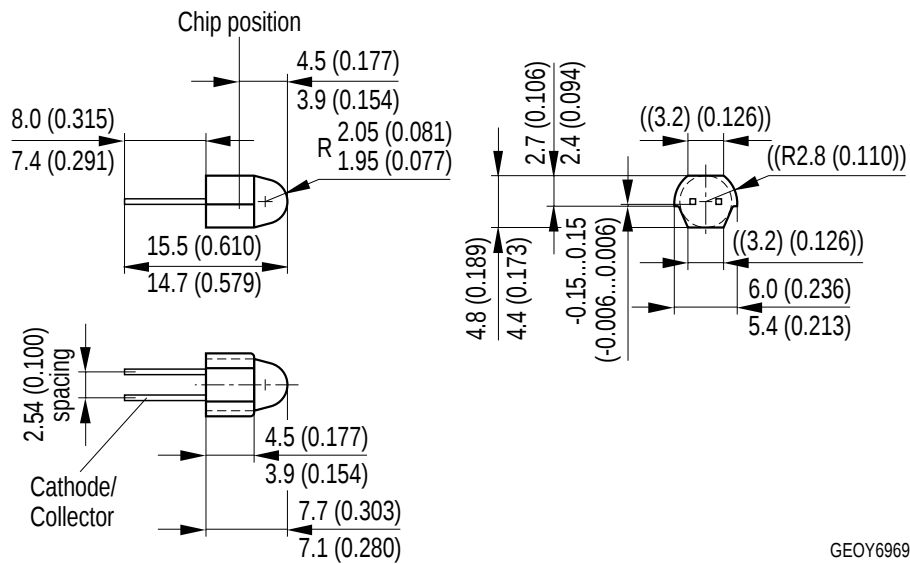


Maßzeichnung Package Outlines

SFH 4510

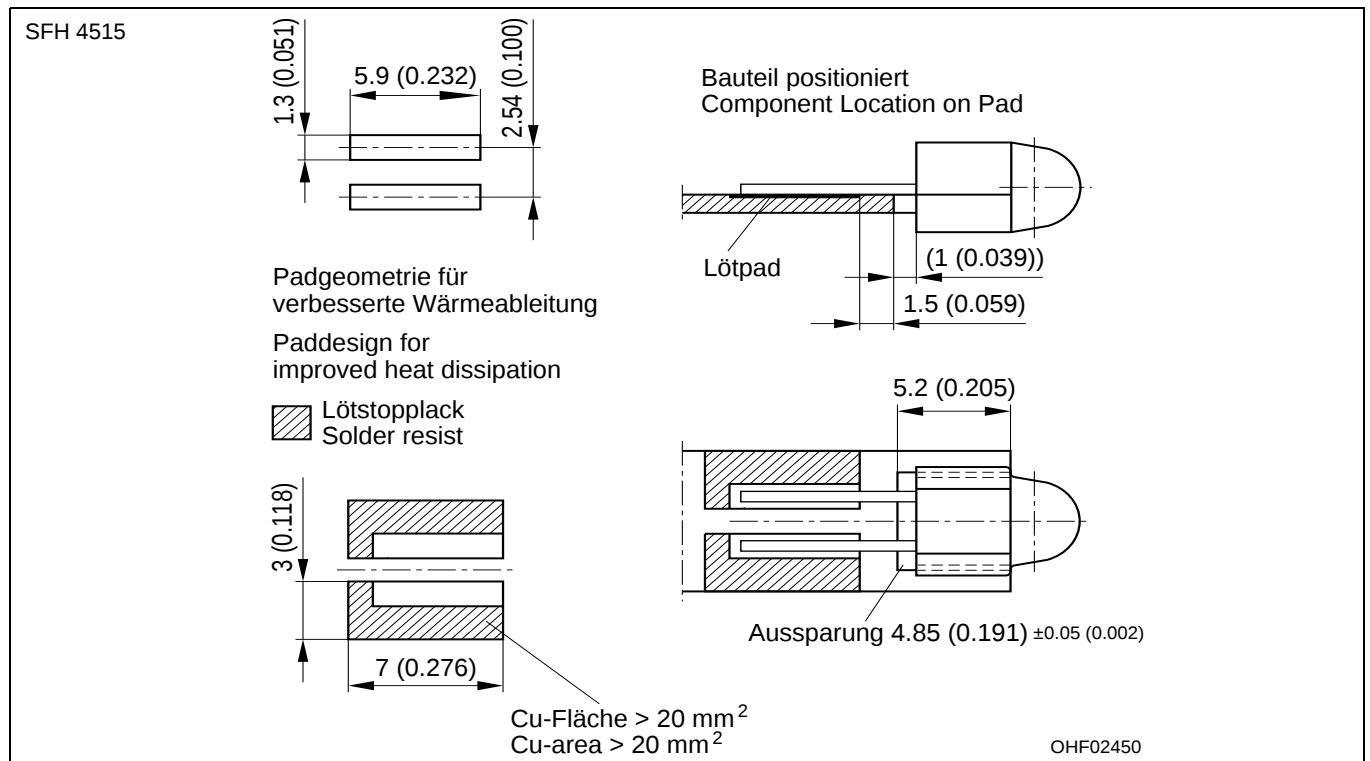
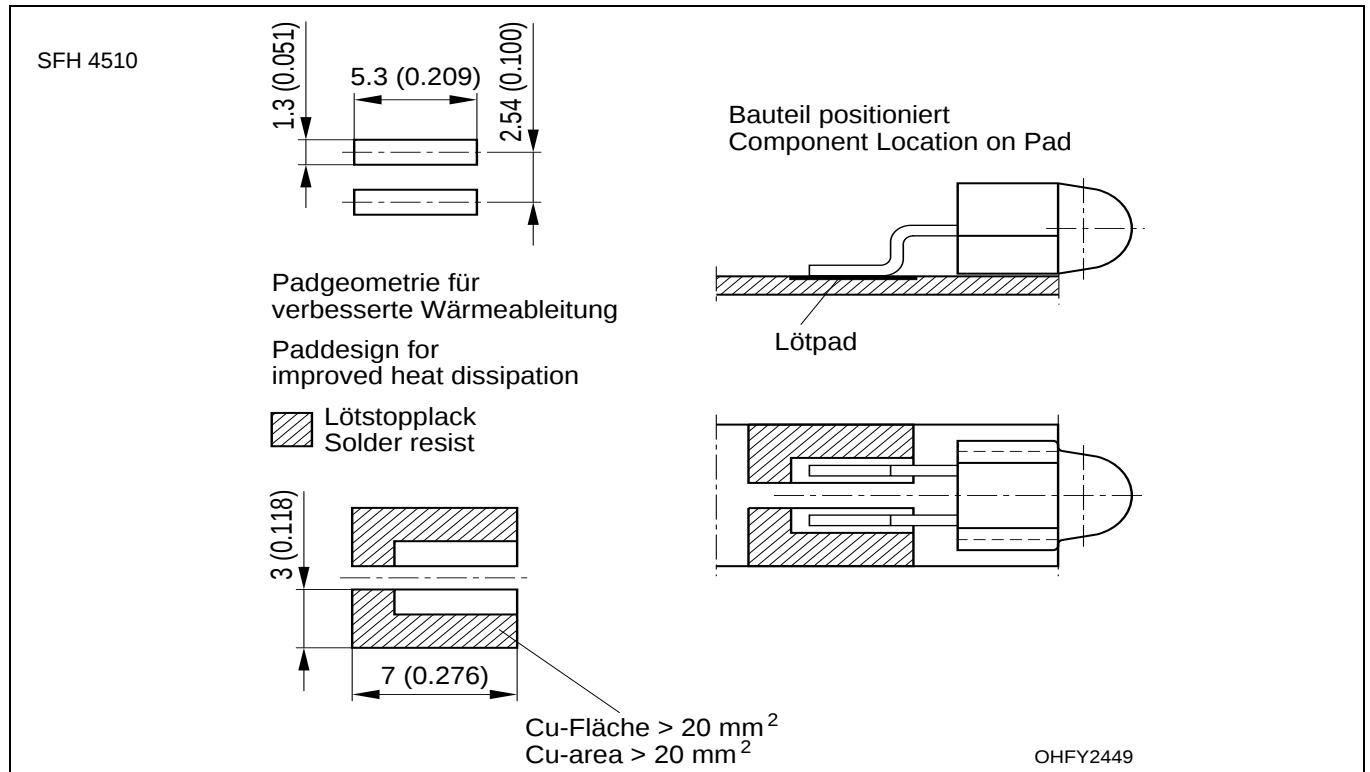


SFH 4515



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

Empfohlenes Lötpaddesign Recommended Solder Pad



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

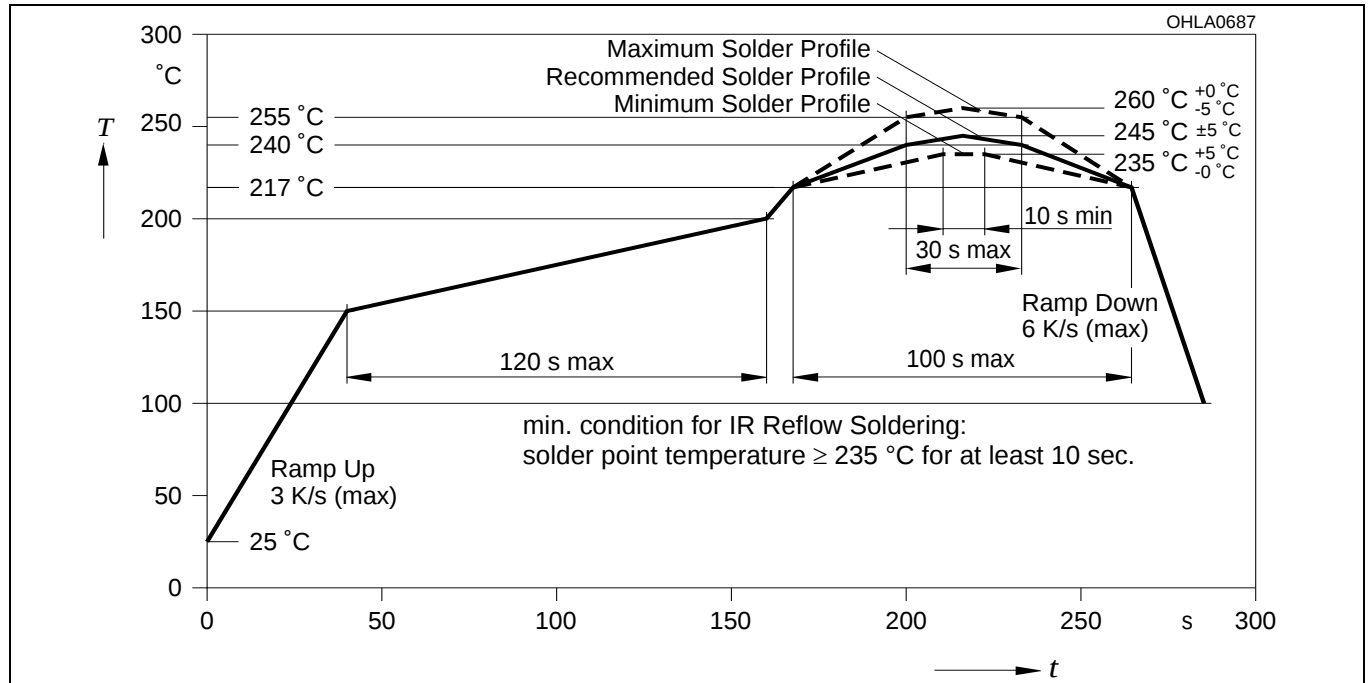
Lötbedingungen**Soldering Conditions****Reflow Lötprofil für bleifreies Löten****Reflow Soldering Profile for lead free soldering**

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
Leibnizstrasse 4, D-93055 Regensburg
www.osram-os.com

© All Rights Reserved.

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.

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。

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Osram Opto Semiconductor:](#)

[SFH 4515-Z](#) [SFH 4510-Z](#)