

**GaAlAs-Lumineszenzdiode (660 nm)**  
**GaAlAs Light Emitting Diode (660 nm)**  
**Lead (Pb) Free Product - RoHS Compliant**  
**SFH 4860**



**Wesentliche Merkmale**

- Hergestellt im Schmelzepitaxieverfahren
- Kathode galvanisch mit dem Gehäuseboden verbunden
- Hohe Zuverlässigkeit
- Gute spektrale Anpassung an Si-Fotoempfänger
- Hermetisch dichtes Metallgehäuse

**Anwendungen**

- Lichtschranken für Gleich- und Wechsellichtbetrieb
- IR-Gerätefernsteuerungen
- Sensorik
- Lichtgitter

**Features**

- Fabricated in a liquid phase epitaxy process
- Cathode is electrically connected to the case
- High reliability
- Matches all Si-Photodetectors
- Hermetically sealed package

**Applications**

- Photointerrupters
- IR remote control
- Sensor technology
- Light curtains

Typ Type	Bestellnummer Ordering Code	Gehäuse Package
SFH 4860	Q62702P5053	18 A3 DIN 41876 (TO-18), Bodenplatte, Plankappe, Anschlüsse im 2.54-mm-Raster ( $\frac{1}{10}$ "") Anodenkennzeichnung: Nase am Gehäuseboden 18 A3 DIN 870 (TO-18), flat glass cap, lead spacing 2.54 mm ( $\frac{1}{10}$ "") anode making: projection at package bottom

**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
Sperrschichttemperatur Junction temperature	$T_j$	125	°C
Sperrspannung Reverse voltage	$V_R$	3	V
Durchlassstrom Forward current	$I_F$	50	mA
Stoßstrom, $t_p = 10\text{ }\mu\text{s}$ , $D = 0$ Surge current	$I_{FSM}$	1	A
Verlustleistung Power dissipation	$P_{tot}$	140	mW
Wärmewiderstand Thermal resistance	$R_{thJA}$ $R_{thJC}$	450 160	K/W K/W

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

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength at peak emission $I_F = 50\text{ mA}$	$\lambda_{peak}$	660	nm
Spektrale Bandbreite bei 50% von $I_{max}$ Spectral bandwidth at 50% of $I_{max}$ $I_F = 50\text{ mA}$	$\Delta\lambda$	25	nm
Abstrahlwinkel Half angle	$\varphi$	$\pm 50$	Grad deg.
Aktive Chipfläche Active chip area	$A$	0.106	mm <sup>2</sup>
Abmessungen der aktiven Chipfläche Dimension of the active chip area	$L \times B$ $L \times W$	$0.325 \times 0.325$	mm <sup>2</sup>
Schaltzeiten, $I_e$ von 10% auf 90% und von 90% auf 10%, bei $I_F = 50\text{ mA}$ , $R_L = 50\text{ }\Omega$ Switching times, $I_e$ from 10% to 90% and from 90% to 10%, $I_F = 50\text{ mA}$ , $R_L = 50\text{ }\Omega$	$t_r, t_f$	100	ns

Kennwerte ( $T_A = 25\text{ °C}$ )

Characteristics (cont'd)

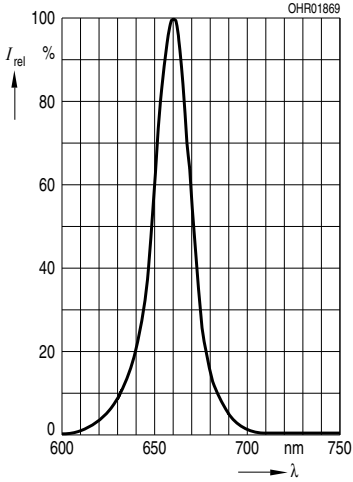
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Kapazität, $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$ Capacitance	$C_o$	25	pF
Durchlassspannung, $I_F = 50\text{ mA}$ , $t_p = 20\text{ ms}$ Forward voltage	$V_F$	2 ( $\leq 2.8$ )	V
Sperrstrom, $V_R = 3\text{ V}$ Reverse current	$I_R$	0.01 ( $\leq 10$ )	$\mu\text{A}$
Gesamtstrahlungsfluss, $I_F = 50\text{ mA}$ , $t_p = 20\text{ ms}$ Total radiant flux	$\Phi_e$	3	mW
Temperaturkoeffizient von $I_e$ bzw. $\Phi_e$ , $I_F = 50\text{ mA}$ Temperature coefficient of $I_e$ or $\Phi_e$ , $I_F = 50\text{ mA}$	$TC_I$	- 0.4	%/K
Temperaturkoeffizient von $V_F$ , $I_F = 50\text{ mA}$ Temperature coefficient of $V_F$ , $I_F = 50\text{ mA}$	$TC_V$	- 3	mV/K
Temperaturkoeffizient von $\lambda$ , $I_F = 50\text{ mA}$ Temperature coefficient of $\lambda$ , $I_F = 50\text{ mA}$	$TC_\lambda$	+ 0.16	nm/K

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

Bezeichnung Parameter	Symbol	Werte Values	Einheit Unit
Strahlstärke Radiant intensity $I_F = 50\text{ mA}$ , $t_p = 20\text{ ms}$	$I_{e\text{ min}}$ $I_{e\text{ typ}}$	$\geq 0.63$ 1.3	mW/sr mW/sr
Strahlstärke Radiant intensity $I_F = 1\text{ A}$ , $t_p = 100\text{ }\mu\text{s}$	$I_{e\text{ typ}}$	15	mW/sr

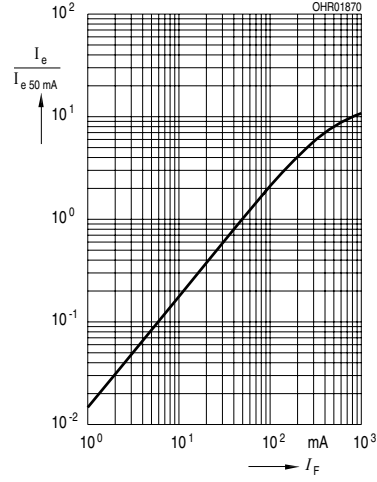
**Relative Spectral Emission**

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



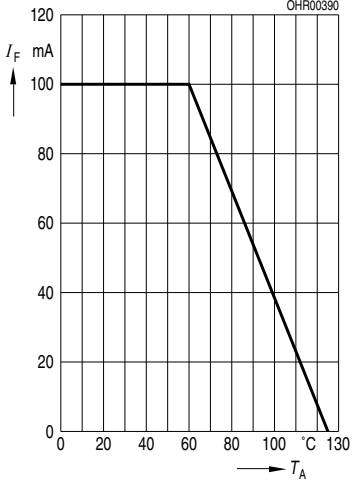
**Radiant Intensity**  $\frac{I_e}{I_{e, 50 \text{ mA}}} = f(I_F)$

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



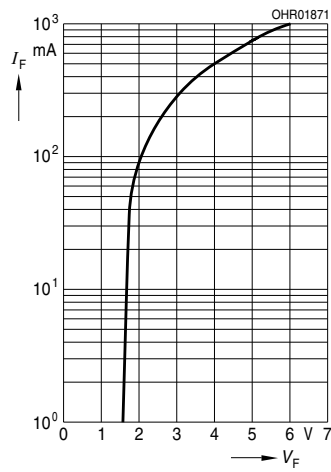
**Max. Permissible Forward Current**

$I_F = f(T_C), R_{thJC} = 160 \text{ K/W}$

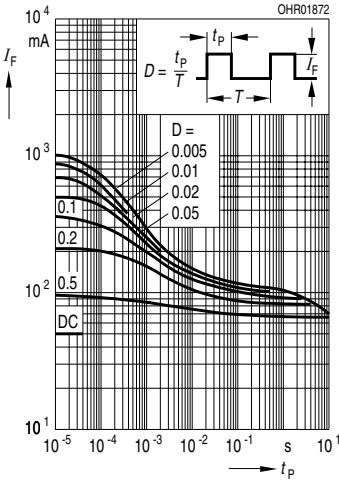


**Forward Current**

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

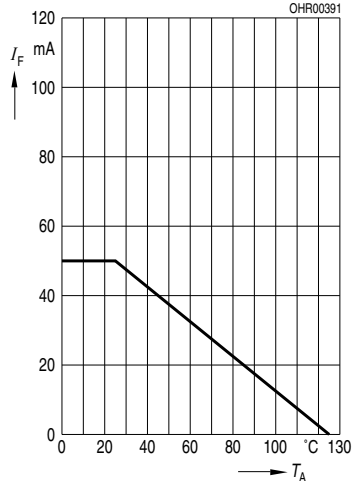


**Permissible Pulse Handling Capability**  $I_F = f(\tau), T_A = 25 \text{ }^\circ\text{C}$ , duty cycle  $D = \text{parameter}$

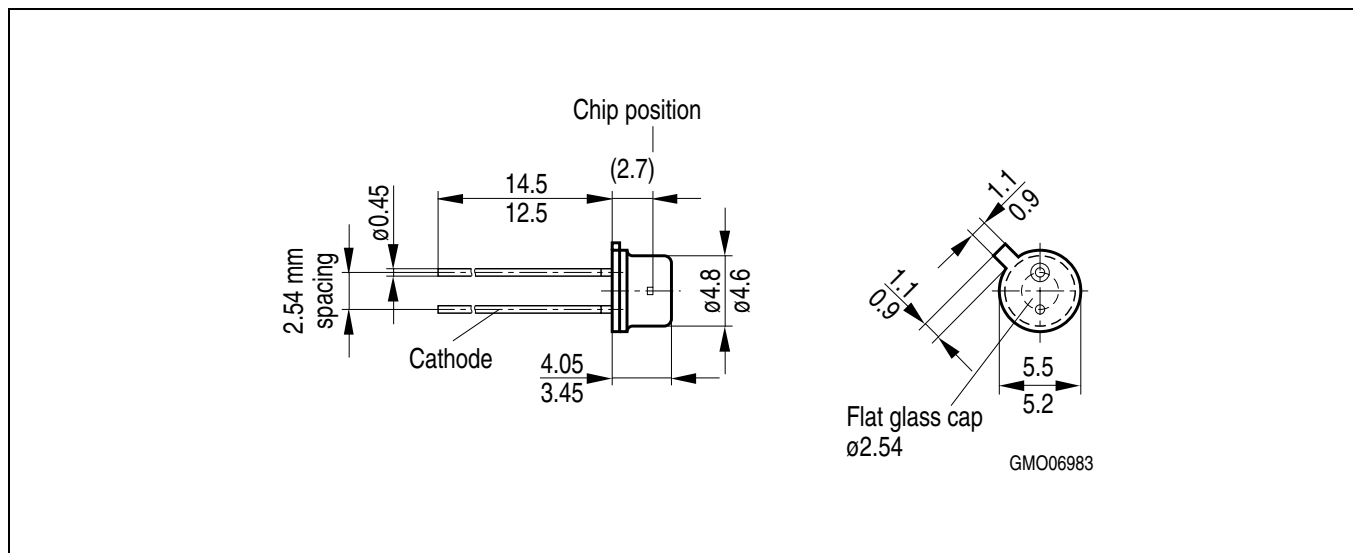


**Max. Permissible Forward Current**

$I_F = f(T_A), R_{thJA} = 450 \text{ K/W}$



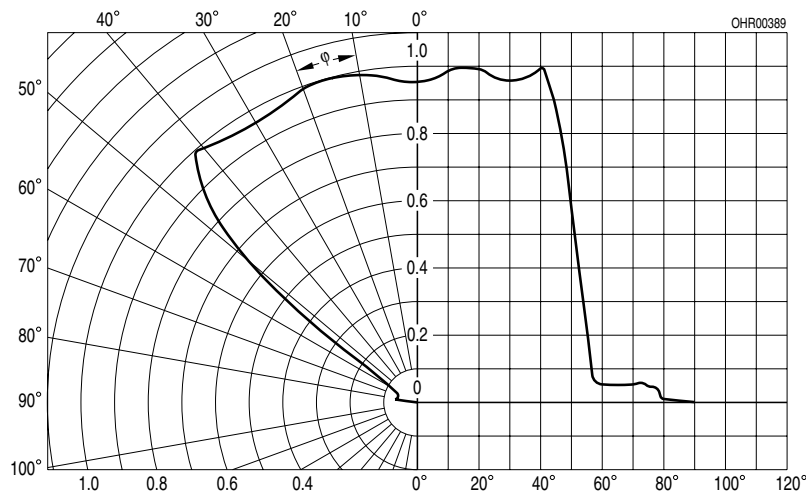
**Maßzeichnung  
Package Outlines**



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

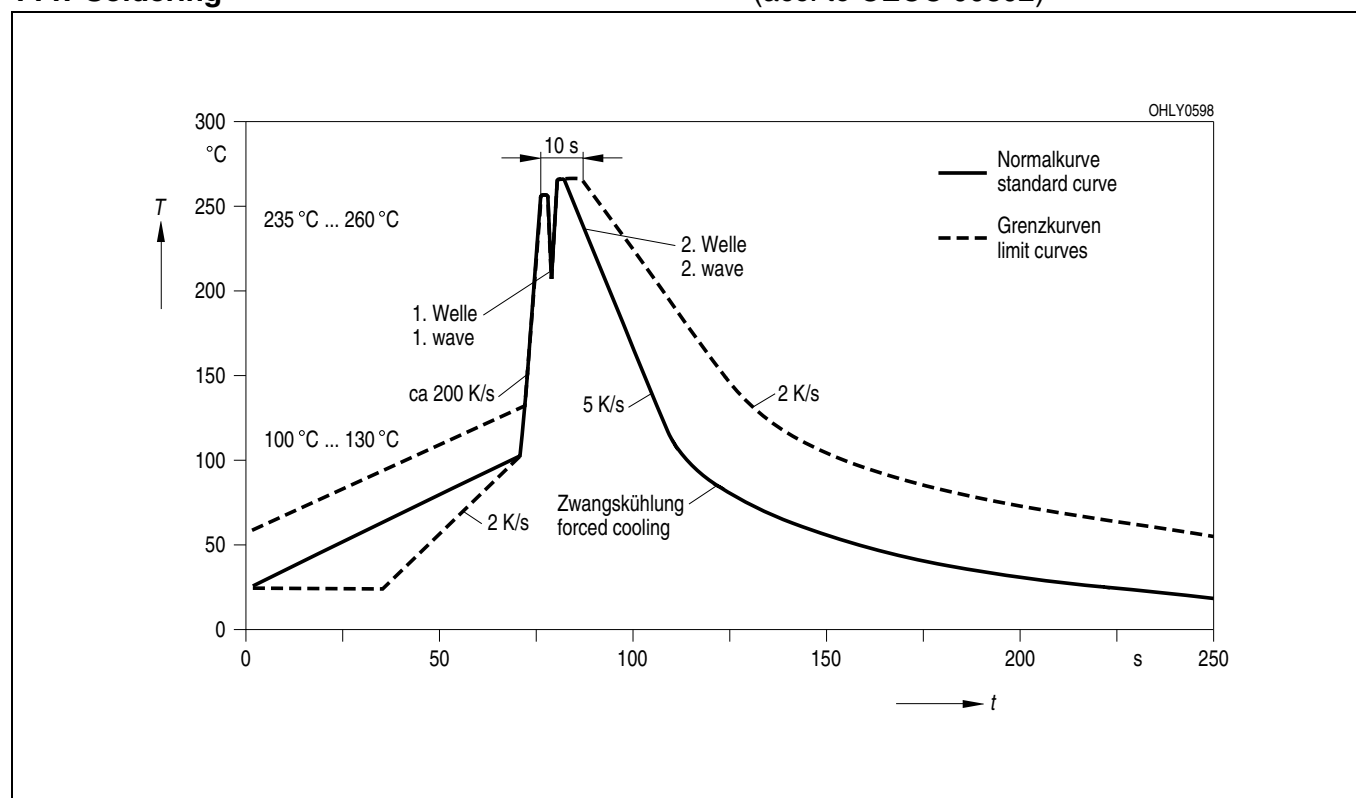
**Radiation Characteristics**

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



**Lötbedingungen**  
**Soldering Conditions**  
**Wellenlöten (TTW)**  
**TTW Soldering**

(nach CECC 00802)  
(acc. to CECC 00802)



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