

**IR-Lumineszenzdiode (880 nm) im TO-46-Gehäuse**  
**Infrared Emitter (880 nm) in TO-46 Package**  
**Lead (Pb) Free Product - RoHS Compliant**

**SFH 4881**  
**SFH 4883**



SFH 4881



SFH 4883

**Wesentliche Merkmale**

- Hergestellt im Schmelzepitaxieverfahren
- Anode 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

**Features**

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

**Applications**

- Photointerrupters
- IR remote control
- Sensor technology

Typ Type	Bestellnummer Ordering Code	Strahlstärke ( $I_F = 100 \text{ mA}$ , $t_p = 20 \text{ ms}$ ) Radiant Intensity) $I_e$ (mW/sr)
SFH 4881	Q62702P5302	$\geq 40$ (typ. 72)
SFH 4883	Q62702P5303	$\geq 4$ (typ. 8)

**Grenzwerte ( $T_C = 25\text{ °C}$ )****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	$I_F$	200	mA
Stoßstrom Surge current $t_p = 10\ \mu\text{s}, D = 0.01$	$I_{FSM}$	2.5	A
Verlustleistung Power dissipation	$P_{tot}$	470	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 of peak emission	$\lambda_{peak}$	880	nm
Spektrale Bandbreite bei 50% von $I_{max}$ Spectral bandwidth at 50% of $I_{max}$	$\Delta\lambda$	80	nm
Abstrahlwinkel Half angle SFH 4881 SFH 4883	$\varphi$ $\varphi$	$\pm 5$ $\pm 35$	Grad deg.
Aktive Chipfläche Active chip area	$A$	0.16	mm <sup>2</sup>
Abmessungen der aktiven Chipfläche Dimension of the active chip area	$L \times B$ $L \times W$	$0.4 \times 0.4$	mm <sup>2</sup>

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

**Characteristics**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
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% $I_F = 100\text{ mA}$ , $R_L = 50\ \Omega$	$t_r$ , $t_f$	500	ns
Kapazität Capacitance $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$	$C_o$	25	pF
Durchlaßspannung Forward voltage $I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$ $I_F = 1\text{ A}$ , $t_p = 100\ \mu\text{s}$ $I_F = 1.5\text{ A}$ , $t_p = 100\ \mu\text{s}$	$V_F$ $V_F$ $V_F$	1.5 ( $\leq 1.8$ ) 2.4 ( $\leq 3.0$ ) 2.9 ( $\leq 3.4$ )	V V V
Sperrstrom Reverse current $V_R = 5\text{ V}$	$I_R$	0.01 ( $\leq 10$ )	$\mu\text{A}$
Gesamtstrahlungsfluß Total radiant flux $I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$ SFH 4881 SFH 4883	$\Phi_e$ $\Phi_e$	12 15	mW mW

**Strahlstärke  $I_e$  in Achsrichtung**

gemessen bei einem Raumwinkel von  $\Omega = 0.01\text{ sr}$

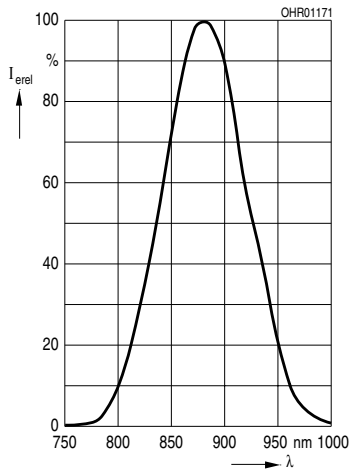
**Radiant Intensity  $I_e$  in Axial Direction**

measured at a solid angle of  $\Omega = 0.01\text{ sr}$

Bezeichnung Parameter	Symbol Symbol	Wert Value		Einheit Unit
		SFH 4881	SFH 4883	
Strahlstärke Radiant intensity $I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$	$I_{e\text{ min}}$	40	4	mW/sr
	$I_{e\text{ typ}}$	72	8	mW/sr
Strahlstärke Radiant intensity $I_F = 1\text{ A}$ , $t_p = 100\ \mu\text{s}$	$I_{e\text{ typ}}$	630	70	mW/sr

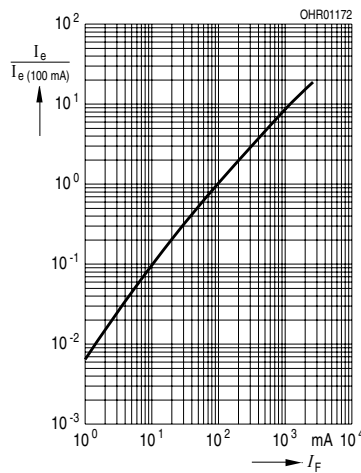
**Relative Spectral Emission**

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



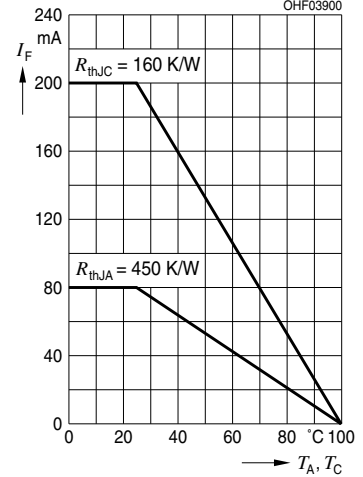
**Radiant Intensity**

$I_e/I_e(100 \text{ mA}) = f(I_F)$



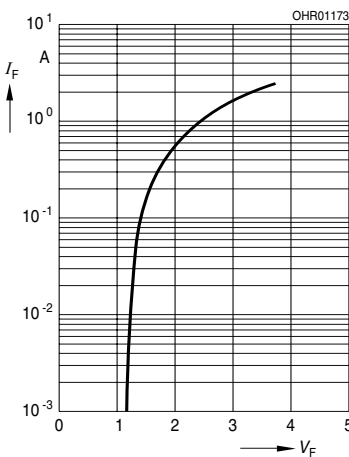
**Max. Permissible Forward Current**

$I_F = f(T_A, T_C)$



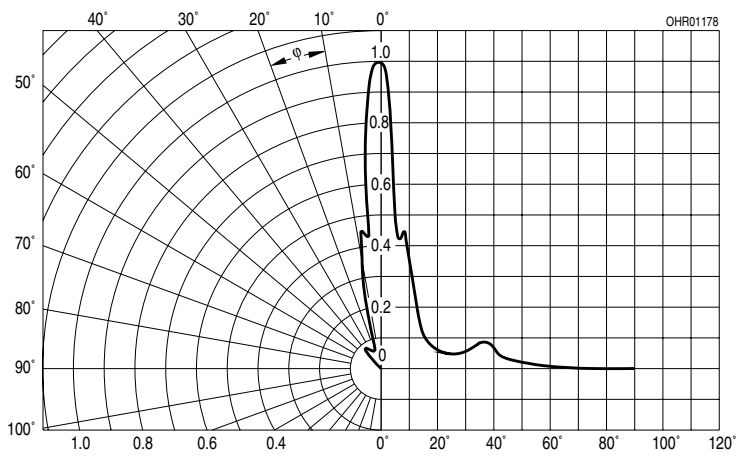
**Forward Current**

$I_F = f(V_F)$

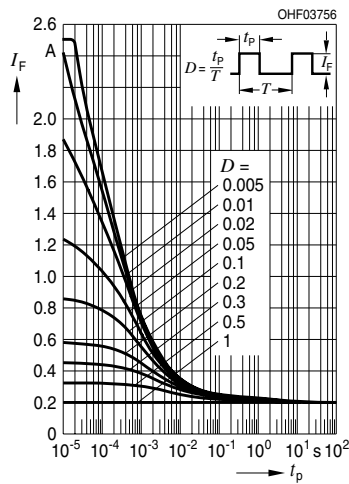


**Radiation Characteristics**

**SFH 4881,  $I_{\text{erel}} = f(\varphi)$**

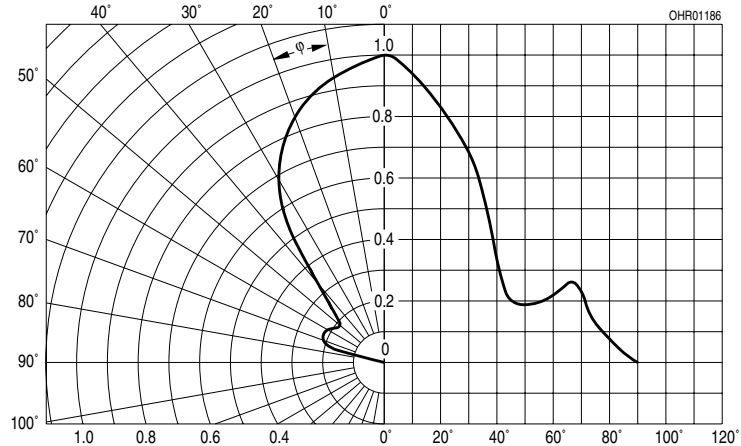


**Permissible Pulse Handling Capability  $I_F = f(\tau)$ ,  $T_C = 25^\circ\text{C}$ ,  $R_{\text{thJC}} = 160 \text{ K/W}$ , duty cycle  $D =$  parameter**

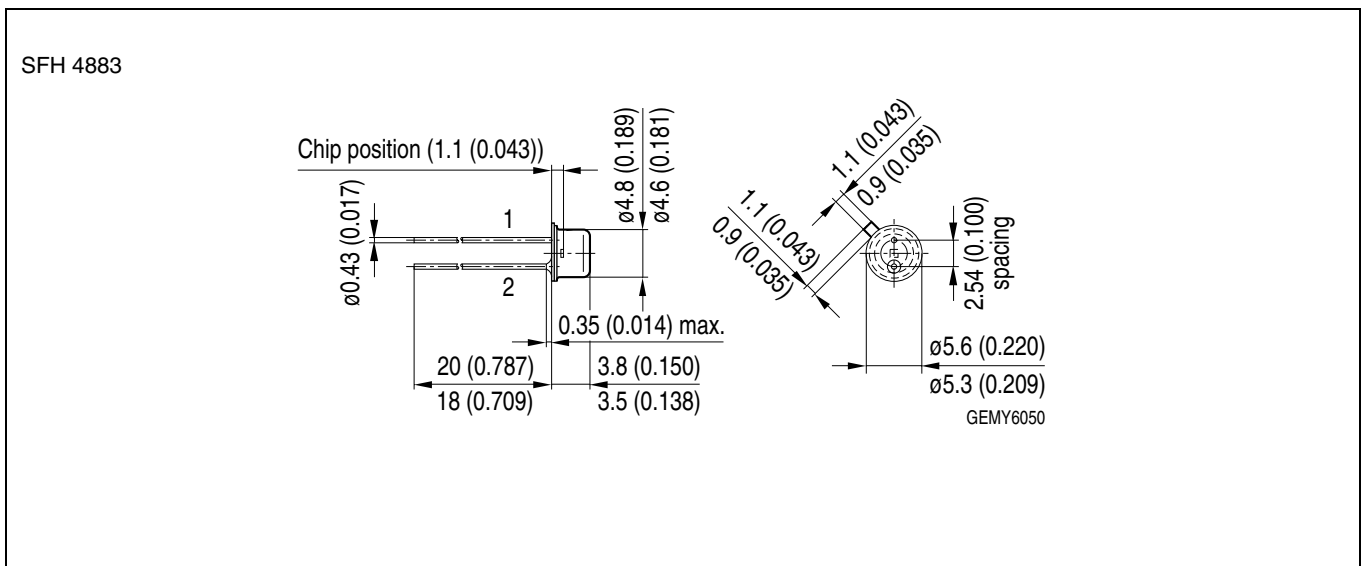
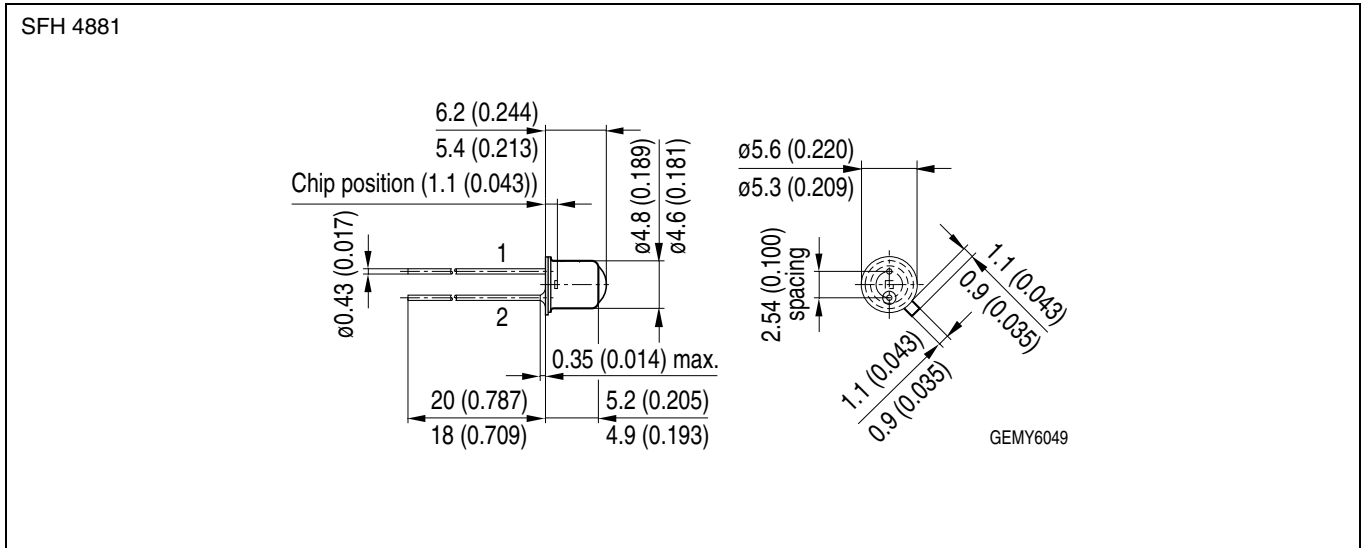


**Radiation Characteristics**

**SFH 4883,  $I_{\text{erel}} = f(\varphi)$**



Maßzeichnungen  
Package Outlines

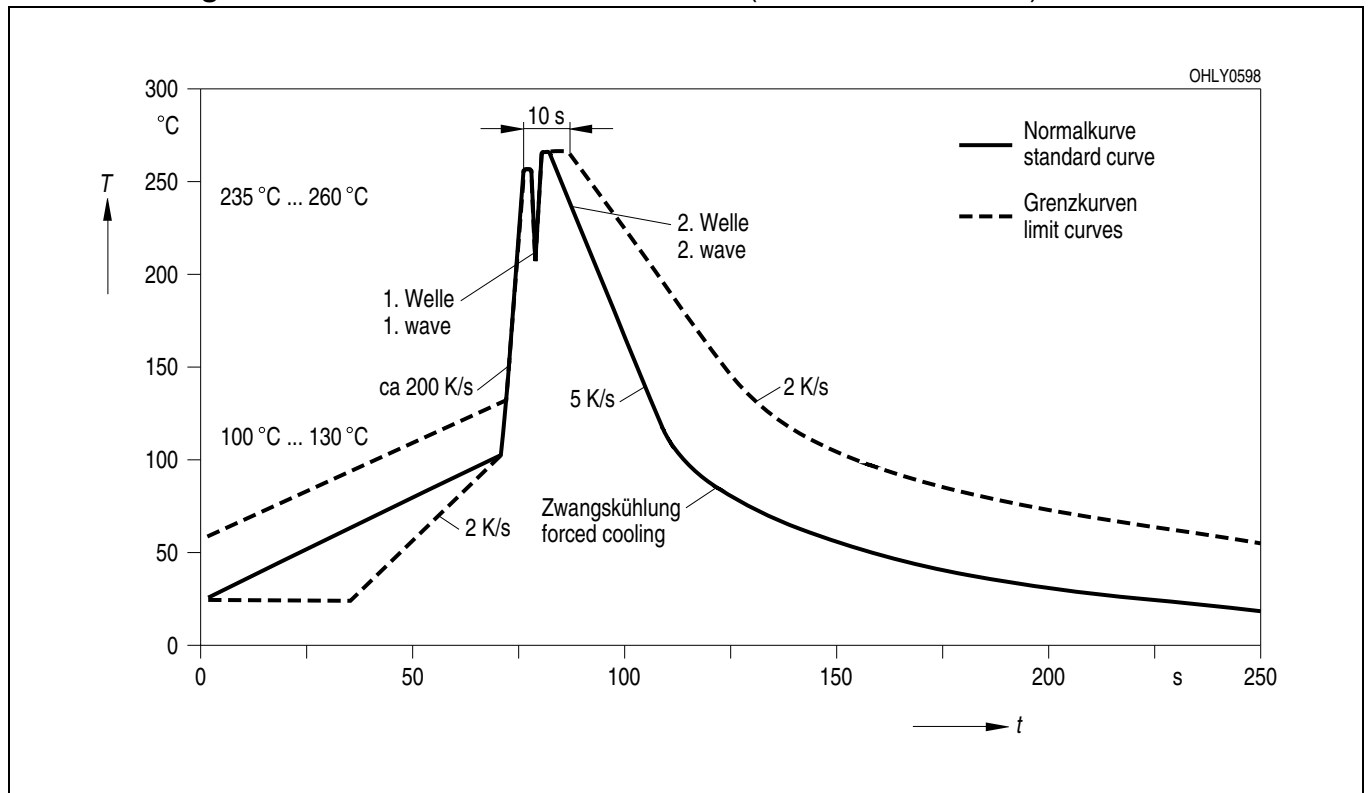


Maße in mm (inch) / Dimensions in mm (inch).

Gehäuse Package	TO-46-Metallgehäuse, Glaslinse, hermetisch dicht, Anschlüsse im 2.54-mm-Raster ( $1/10''$ ) TO-46-metal-package, glass lens, hermetically sealed, solder tabs lead spacing 2.54 mm ( $1/10''$ )
Anschlussbelegung Pin configuration	Anschluss 2: Kathode Pin 2 : cathode

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

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



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