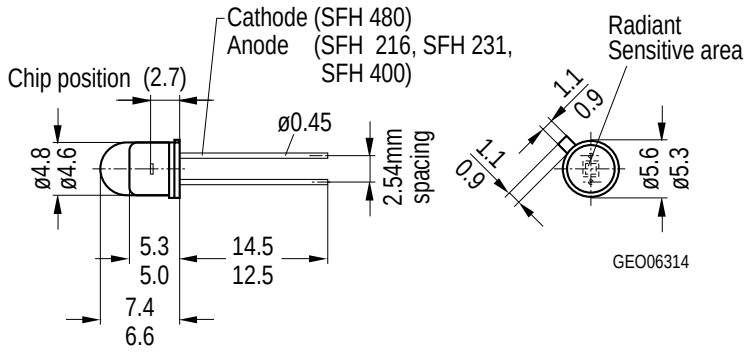
SIEMENS

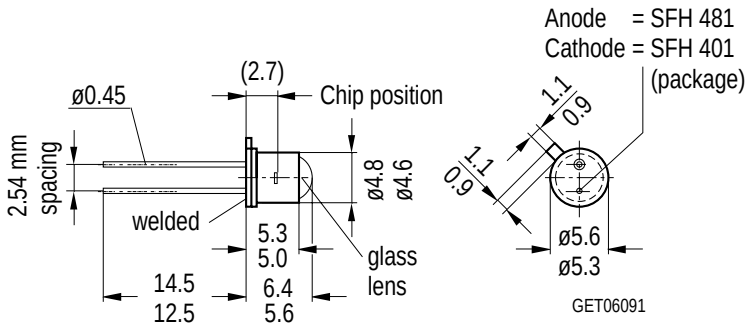
GaAs-IR-Lumineszenzdiode
GaAs Infrared Emitter

SFH 400
SFH 401
SFH 402



Approx. weight 0.5 g

fet06090



Approx. weight 0.35 g

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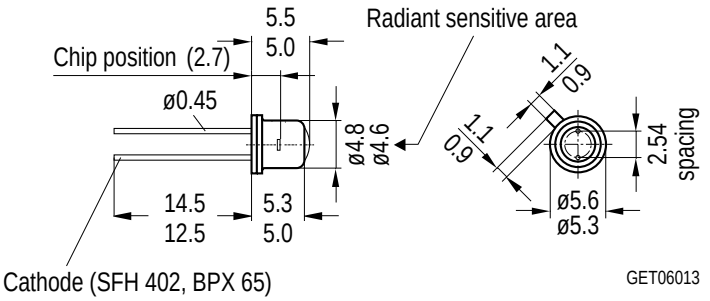

Approx. weight 0.5 g

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Maße in mm, wenn nicht anders angegeben/Dimensions in mm, unless otherwise specified.

Wesentliche Merkmale

- Hergestellt im Schmelzepitaxieverfahren
- Kathode galvanisch mit dem Gehäuseboden verbunden
- Hohe Zuverlässigkeit
- SFH 400: Gehäusegleich mit SFH 216
- SFH 401: Gehäusegleich mit BPX 43, BPY 62
- SFH 402: Gehäusegleich mit BPX 38, BPX 65

Anwendungen

- Lichtschranken für Gleich- und Wechsellichtbetrieb
- IR-Fernsteuerungen
- Industrieelektronik
- “Messen/Steuern/Regeln”

Features

- Fabricated in a liquid phase epitaxy process
- Cathode is electrically connected to the case
- High reliability
- SFH 400: Same package as SFH 216
- SFH 401: Same package as BPX 43, BPY 62
- SFH 402: Same package as BPX 38, BPX 65

Applications

- Photointerrupters
- IR remote control
- Industrial electronics
- For drive and control circuits

Typ Type	Bestellnummer Ordering Code	Gehäuse Package
SFH 400	Q62702-P96	18 A3 DIN 41876 (TO-18), Glaslinse, hermetisch dichtes Gehäuse, Anschlüsse im 2.54-mm-Raster ($^1/_{10}$'')
SFH 400-3	Q62702-P784	18 A3 DIN 41876 (TO-18) glass lens, hermetically sealed package, solder tabs lead spacing 2.54 mm ($^1/_{10}$'')
SFH 401-2	Q62702-P786	
SFH 401-3	Q62702-P787	
SFH 402	Q62702-P98	
SFH 402-3	Q62702-P790	
SFH 402-2	on request	

Grenzwerte (T_C = 25 °C)
Maximum Ratings

Bezeichnung **Description**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
SFH 401: Betriebs- und Lagertemperatur Operating and storage temperature range	T_{op}; T_{stg}	– 55 ... + 100	°C
SFH 400, SFH 402: Betriebs- und Lagertemperatur Operating and storage temperature range	T_{op}; T_{stg}	– 55 ... + 125	°C
Sperrschichttemperatur Junction temperature	T_j	100	°C
Sperrspannung Reverse voltage	V_R	5	V
Durchlaßstrom Forward current	I_F	300	mA
Stoßstrom, t_p = 10 µs, D = 0 Surge current	I_{FSM}	3	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 °C)
Characteristics

Bezeichnung **Description**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Wellenlänge der Strahlung Wavelength at peak emission I_F = 100 mA, t_p = 20 ms	λ_{peak}	950	nm
Spektrale Bandbreite bei 50 % von I_{max} Spectral bandwidth at 50 % of I_{max} I_F = 100 mA, t_p = 20 ms	$\Delta\lambda$	55	nm
Abstrahlwinkel Half angle SFH 400 SFH 401 SFH 402	 φ φ φ	 ± 6 ± 15 ± 40	 Grad deg.
Aktive Chipfläche Active chip area	A	0.25	mm^2

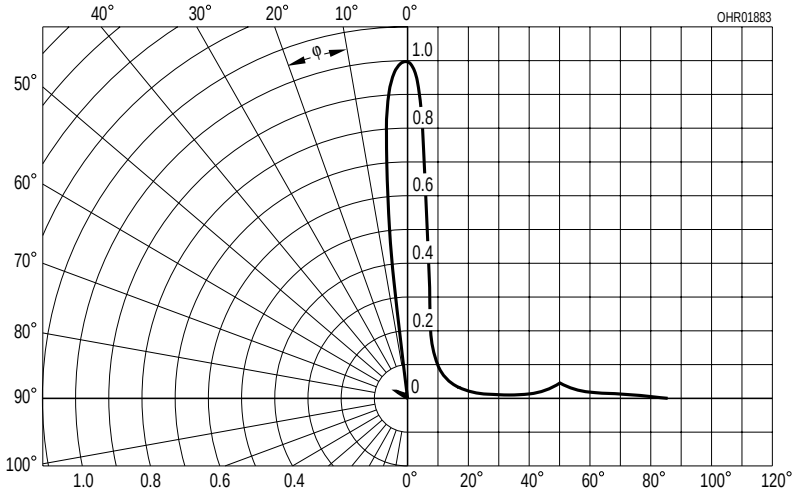
Kennwerte (T_A = 25 °C)
Characteristics

Bezeichnung **Description**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Abmessungen der aktiven Chipfläche Dimension of the active chip area	$L \times B$ $L \times W$	0.5 × 0.5	mm
Abstand Chipoberfläche bis Linsenscheitel Distance chip front to lens top SFH 400 SFH 401 SFH 402	 H H H	 4.0 ... 4.8 2.8 ... 3.7 2.1 ... 2.7	 mm mm mm
Schaltzeiten, I_e von 10 % auf 90 % und von 90 % auf 10 %, bei I_F = 100 mA, R_L = 50 Ω Switching times, I_e from 10 % to 90 % and from 90 % to 10 %, I_F = 100 mA, R_L = 50 Ω	t_r, t_f	1	µs
Kapazität Capacitance V_R = 0 V, f = 1 MHz	C_o	40	pF
Durchlaßspannung Forward voltage I_F = 100 mA, t_p = 20 ms I_F = 1 A, t_p = 100 µs	 V_F V_F	 1.30 (≤ 1.5) 1.90 (≤ 2.5)	 V V
Sperrstrom Reverse current V_R = 5 V	I_R	0.01 (≤ 1)	µA
Gesamtstrahlungsfluß Total radiant flux I_F = 100 mA, t_p = 20 ms	Φ_e	8	mW
Temperaturkoeffizient von I_e bzw. Φ_e, I_F = 100 mA Temperature coefficient of I_e or Φ_e, I_F = 100 mA	TC_I	– 0.55	%/K
Temperaturkoeffizient von V_F, I_F = 100 mA Temperature coefficient of V_F, I_F = 100 mA	TC_V	– 1.5	mV/K
Temperaturkoeffizient von λ, I_F = 100 mA Temperature coefficient of λ, I_F = 100 mA	TC_λ	+ 0.3	nm/K

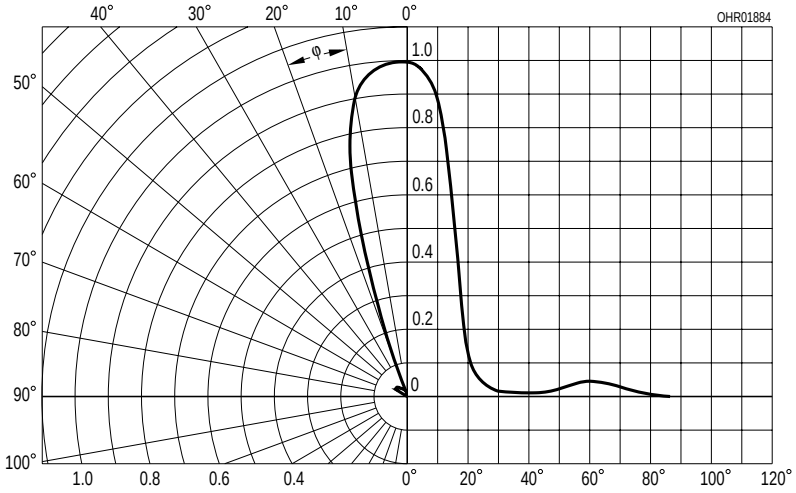
Gruppierung der Strahlstärke I_e in Achsrichtung
gemessen bei einem Raumwinkel Ω = 0.01 sr
Grouping of radiant intensity I_e in axial direction
at a solid angle of Ω = 0.01 sr

Bezeichnung **Description**	**Symbol** **Symbol**	**Wert** **Value**							**Einheit** **Unit**
		SFH 400	**SFH 400-3**	**SFH 401-2**	**SFH 401-3**	**SFH 402**	**SFH 402-2**	**SFH 402-3**	
Strahlstärke Radiant intensity I_F = 100 mA, t_p = 20 ms	 $I_{e\ min}$ $I_{e\ max}$	 20 –	 32 –	 10 20	 16 –	 2.5 –	 2.5 –	 4 –	 mW/sr mW/sr
Strahlstärke Radiant intensity I_F = 1 A, t_p = 100 µs	 $I_{e\ typ.}$	 300	 320	 120	 190	 40	 40	 40	 mW/sr

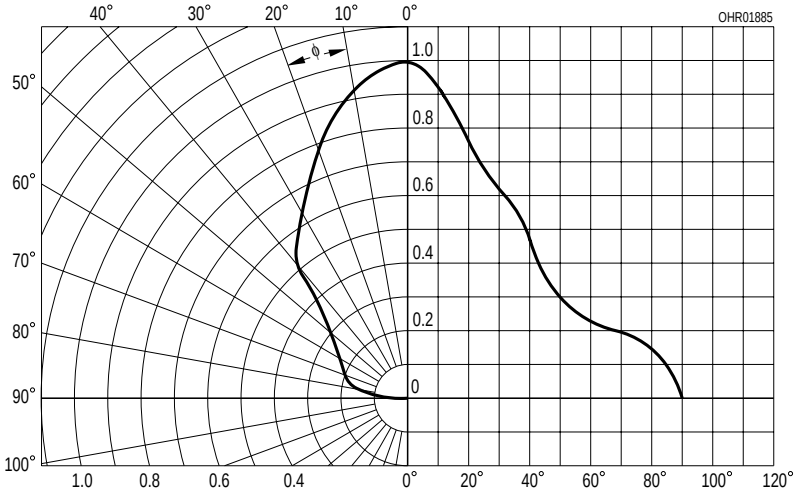
Radiation characteristics, SFH 400 $I_{rel} = f(\varphi)$



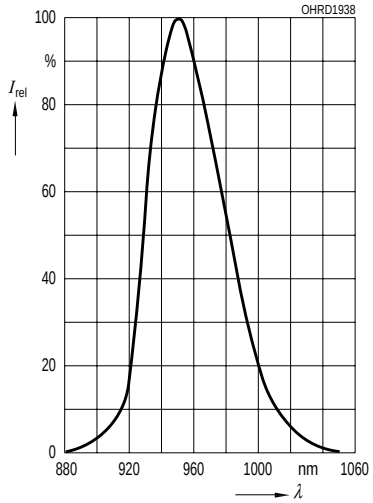
Radiation characteristics, SFH 401 $I_{rel} = f(\varphi)$



Radiation characteristics, SFH 402 $I_{rel} = f(\varphi)$

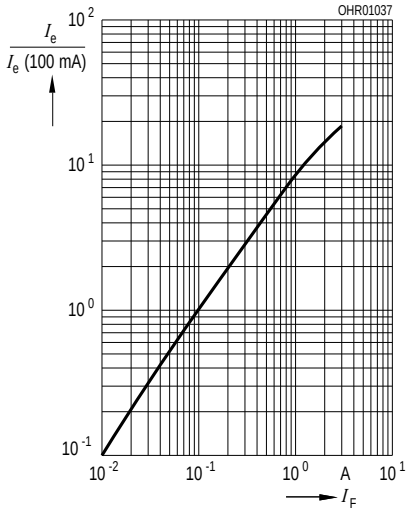


Relative spectral emission
$I_{rel} = f(\lambda)$

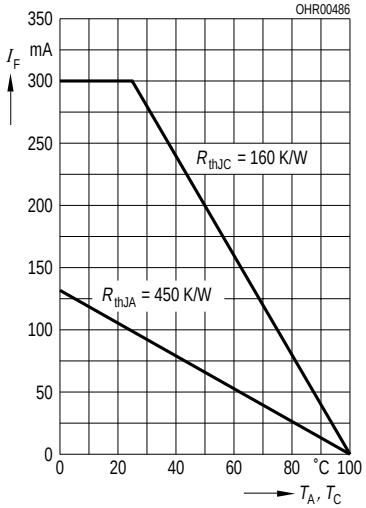


Radiant intensity $\frac{I_e}{I_e\ 100\ mA} = f(I_F)$

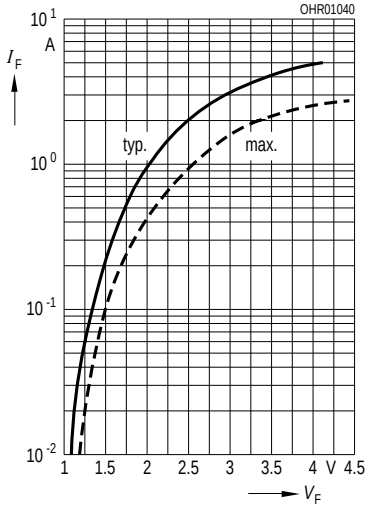
Single pulse, t_p = 20 µs



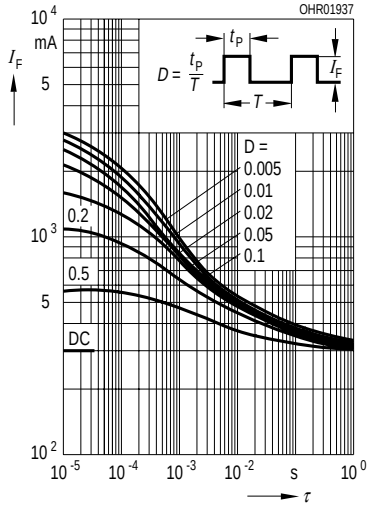
Max. permissible forward current
SFH 401, $I_F = f(T_A)$



Forward current, $I_F = f(V_F)$
Single pulse, t_p = 20 µs



Permissible pulse handling capability
$I_F = f(\tau)$, T_C = 25 °C,
R_{thJC} = 160 K/W, duty cycle D = parameter



Max. permissible forward current
SFH 400, SFH 402, $I_F = f(T_A)$