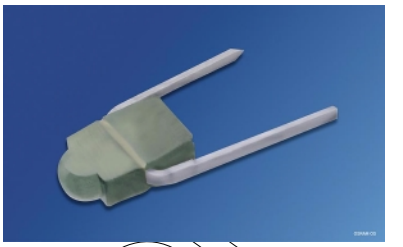
GaAs-IR-Lumineszenzdiode
GaAs Infrared Emitter

SFH 405



Wesentliche Merkmale

- GaAs-IR-Lumineszenzdiode
- Hohe Zuverlässigkeit
- Gruppiert lieferbar
- Gehäusegleich mit SFH 305
- Miniatur-Gehäuse

Anwendungen

- Miniaturlichtschranken für Gleich- und Wechsellichtbetrieb
- Barcodeleser
- Industrieelektronik
- „Messen/Steuern/Regeln“
- Sensorik
- Drehzahlsteuerung

Features

- GaAs infrared emitting diode
- High reliability
- Available in groups
- Same package as SFH 305
- Miniature package

Applications

- Miniature photointerrupters
- Barcode readers
- Industrial electronics
- For control and drive ciruits
- Sensor technology
- Speed controller

Typ Type	Bestellnummer Ordering Code	Gehäuse Package
SFH 405	Q62702-P835	Miniatur-Leiterbandgehäuse, klares Epoxy-Gießharz, linsenförmig, Anschluß im 2.54-mm-Raster ($^1/_{10}$''), Kathodenkennzeichnung: abgeschrägte Anschlüsse Miniature lead frame, transparent epoxy resin, solder tabs lead spacing 2.54 mm ($^1/_{10}$''), cathode marking: bevelled leads

Grenzwerte (T_A = 25 °C)
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebs- und Lagertemperatur Operating and storage temperature range	T_{op}; T_{stg}	– 40 … + 80	°C
Sperrspannung Reverse voltage	V_R	5	V
Durchlaßstrom Forward current	I_F	40	mA
Stoßstrom, $\tau \leq 10$ µs, $D = 0$ Surge current	I_{FSM}	1.6	A
Verlustleistung Power dissipation	P_{tot}	65	mW
Wärmewiderstand Thermal resistance	R_{thJA} R_{thJL}	950 850	K/W K/W

Kennwerte (T_A = 25 °C)
Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength at peak emission I_F = 40 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 = 50 mA, t_p = 20 ms	$\Delta\lambda$	55	nm
Abstrahlwinkel Half angle	φ	± 16	Grad deg.
Aktive Chipfläche Active chip area	A	0.25	mm^2
Abmessungen der aktiven Chipfläche Dimensions of the active chip area	$L \times B$ $L \times W$	0.5 × 0.5	mm
Abstand Chipoberfläche bis Linsenscheitel Distance chip surface to lens top	H	1.3 … 1.9	mm
Schaltzeiten, I_e von 10% auf 90% und von 90% auf 10%, bei I_F = 40 mA, R_L = 50 Ω Switching times, I_e from 10% to 90% and from 90% to 10%, I_F = 40 mA, R_L = 50 Ω	t_r, t_f	1	µs

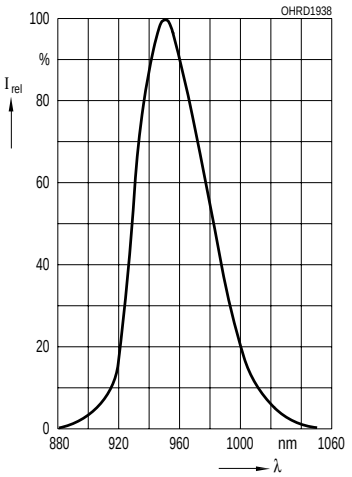
Kennwerte (T_A = 25 °C)
Characteristics (cont'd)

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Kapazität, Capacitance V_R = 0 V, f = 1 MHz	C_o	40	pF
Durchlaßspannung, Forward voltage I_F = 40 mA	V_F	1.25 (≤ 1.4)	V
Sperrstrom, Reverse current V_R = 5 V	I_R	0.01 (≤ 1)	µA
Gesamtstrahlungsfluß, Total radiant flux I_F = 40 mA, t_p = 20 ms	Φ_e	7	mW
Temperaturkoeffizient von I_e bzw. Φ_e, I_F = 40 mA Temperature coefficient of I_e or Φ_e, I_F = 40 mA	TC_I	– 0.55	%/K
Temperaturkoeffizient von V_F, I_F = 40 mA Temperature coefficient of V_F, I_F = 40 mA	TC_V	– 1.5	mV/K
Temperaturkoeffizient von λ_{peak}, I_F = 40 mA Temperature coefficient of λ_{peak}, I_F = 40 mA	TC_λ	+ 0.3	nm/K

Strahlstärke I_e in Achsrichtung
gemessen bei einem Raumwinkel Ω = 0.01 sr
Radiant Intensity I_e in Axial Direction
at a solid angle of Ω = 0.01 sr

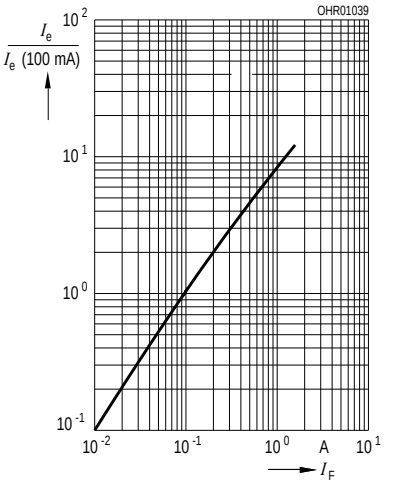
Bezeichnung **Parameter**	**Symbol**	**Werte** **Values**	**Einheit** **Unit**
Strahlstärke Radiant intensity I_F = 40 mA, t_p = 20 ms	I_e	2.5 (> 1.6)	mW/sr

Relative Spectral Emission
$I_{rel} = f(\lambda)$

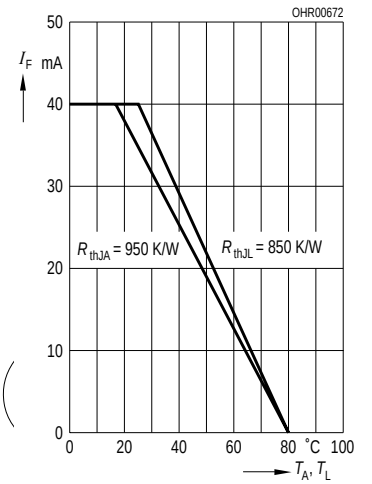


Radiant Intensity $\frac{I_e}{I_e\ 100\ mA} = f(I_F)$

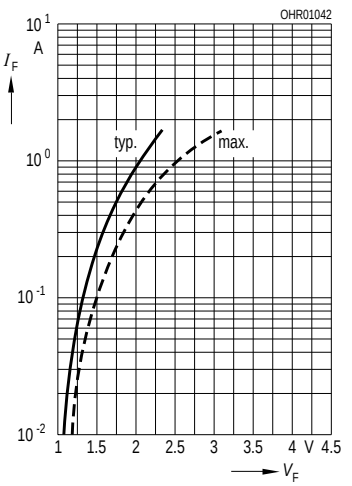
Single pulse, t_p = 20 µs



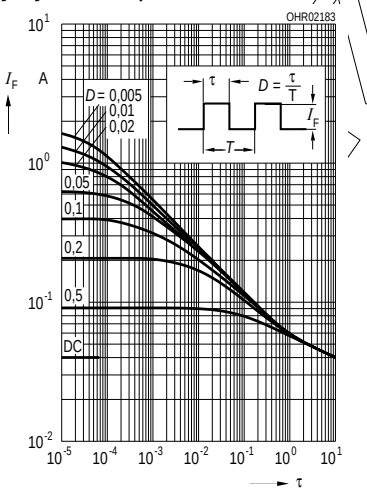
Max. Permissible Forward Current
$I_F = f(T_A)$



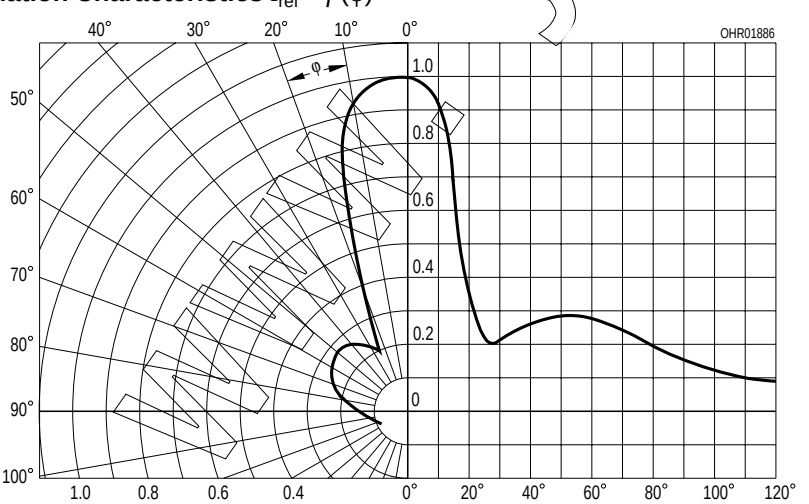
Forward Current
$I_F = f(V_F)$, Single pulse, t_p = 20 µs



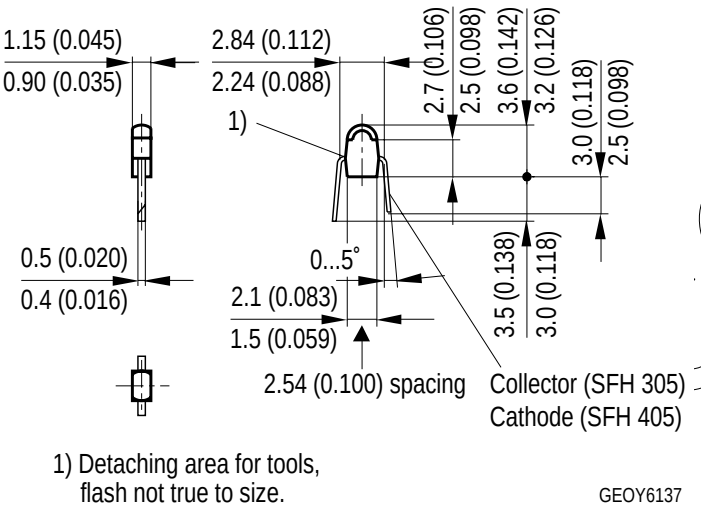
Permissible Pulse Handling Capability $I_F = f(\tau)$, T_A = 25 °C, duty cycle D = parameter



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



Maßzeichnung
Package Outlines



Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

Published by OSRAM Opto Semiconductors GmbH & Co. OHG
Wernerwerkstrasse 2, D-93049 Regensburg

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