

GaAs-IR-Lumineszenzdiode
GaAs Infrared Emitter
Lead (Pb) Free Product - RoHS Compliant

SFH 405



Wesentliche Merkmale

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

Features

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

Anwendungen

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

Applications

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

Typ Type	Bestellnummer Ordering Code	Gehäuse Package
SFH 405	Q62702P0835	Miniatur-Leiterbandgehäuse, klares Epoxy-Gießharz, linsenförmig, Anschluß im 2.54-mm-Raster ($\frac{1}{10}$ "), Kathodenkennzeichnung: abgeschrägte Anschlüsse Miniature lead frame, transparent epoxy resin, solder tabs lead spacing 2.54 mm ($\frac{1}{10}$ "), cathode marking: bevelled leads

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 ... + 80	°C
Sperrspannung Reverse voltage	V_R	5	V
Durchlassstrom Forward current	I_F	40	mA
Stoßstrom, $\tau \leq 10\ \mu\text{s}$, $D = 0$ 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 ($T_A = 25\text{ °C}$)**Characteristics**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength at peak emission $I_F = 40\text{ mA}$, $t_p = 20\text{ ms}$	λ_{peak}	950	nm
Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} $I_F = 50\text{ mA}$, $t_p = 20\text{ ms}$	$\Delta\lambda$	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 $I_F = 40\text{ mA}$, $R_L = 50\ \Omega$ Switching times, I_e from 10% to 90% and from 90% to 10%, $I_F = 40\text{ mA}$, $R_L = 50\ \Omega$	t_r , t_f	1	μs

Kennwerte ($T_A = 25\text{ °C}$)

Characteristics (cont'd)

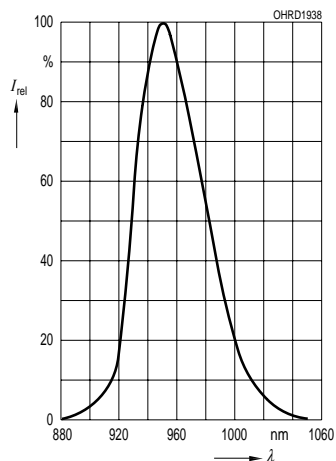
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Kapazität, Capacitance $V_R = 0\text{ V}, f = 1\text{ MHz}$	C_o	40	pF
Durchlassspannung Forward voltage $I_F = 40\text{ mA}$	V_F	1.25 (≤ 1.4)	V
Sperrstrom Reverse current $V_R = 5\text{ V}$	I_R	0.01 (≤ 1)	μA
Gesamtstrahlungsfluss Total radiant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

Strahlstärke I_e in Achsrichtunggemessen 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 $I_F = 40\text{ mA}, t_p = 20\text{ ms}$	I_e	2.5 (> 1.6)	mW/sr

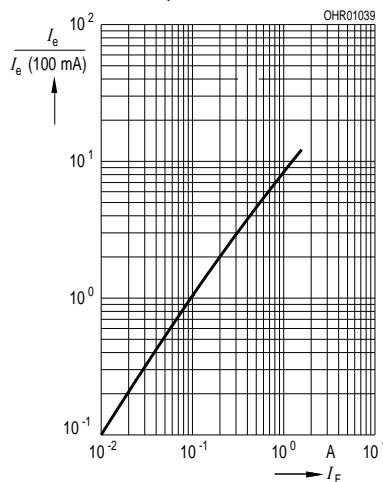
Relative Spectral Emission

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



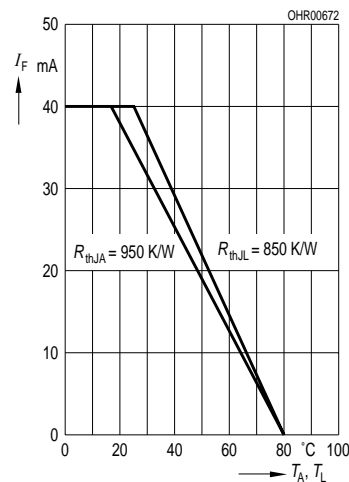
Radiant Intensity $\frac{I_e}{I_e 100 \text{ mA}} = f(I_F)$

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



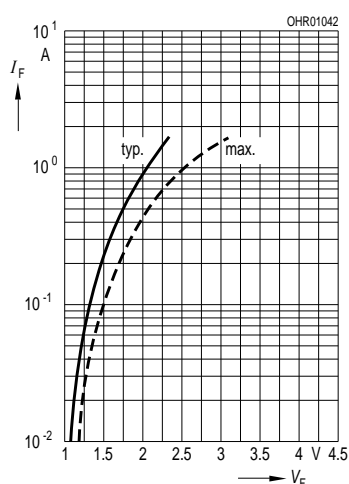
Max. Permissible Forward Current

$I_F = f(T_A)$



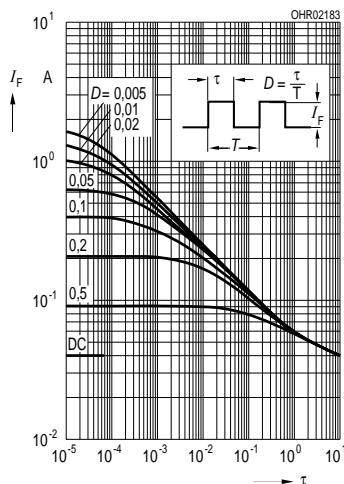
Forward Current

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



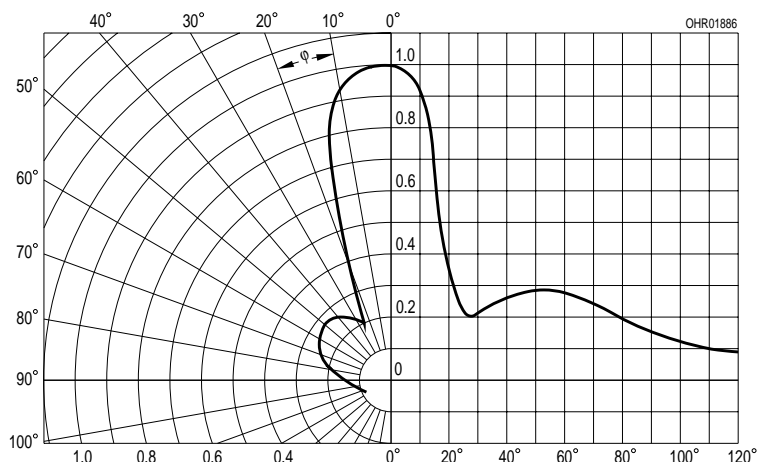
Permissible Pulse Handling Capability

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

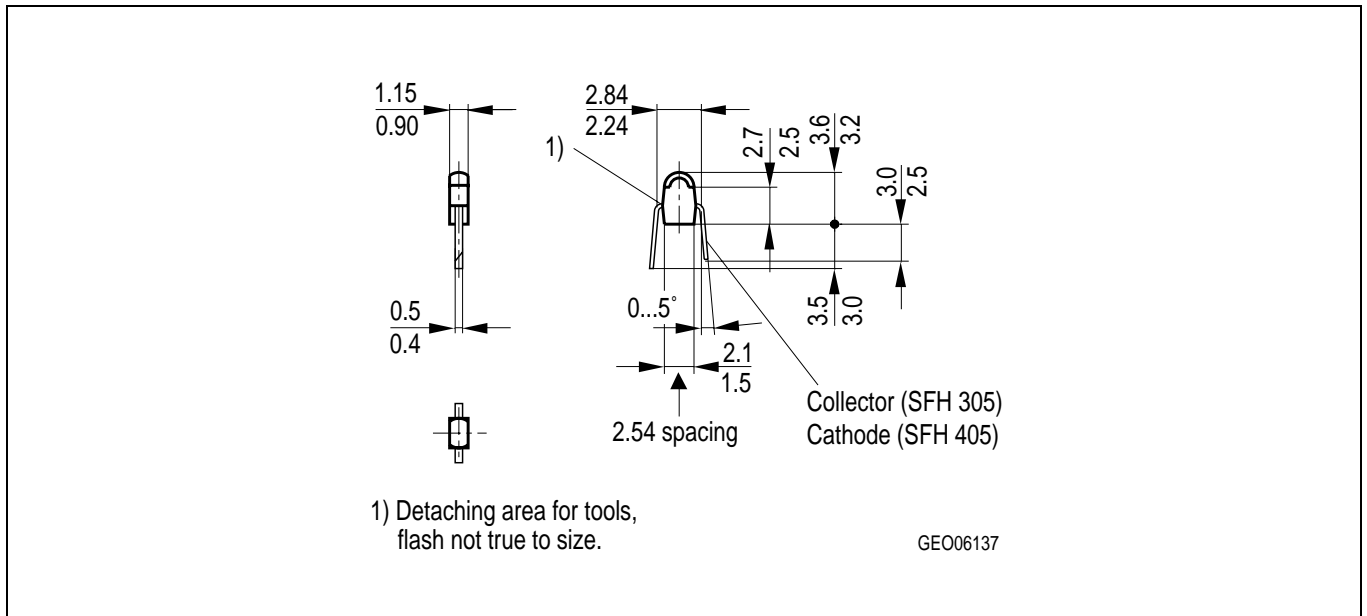


Radiation Characteristics

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



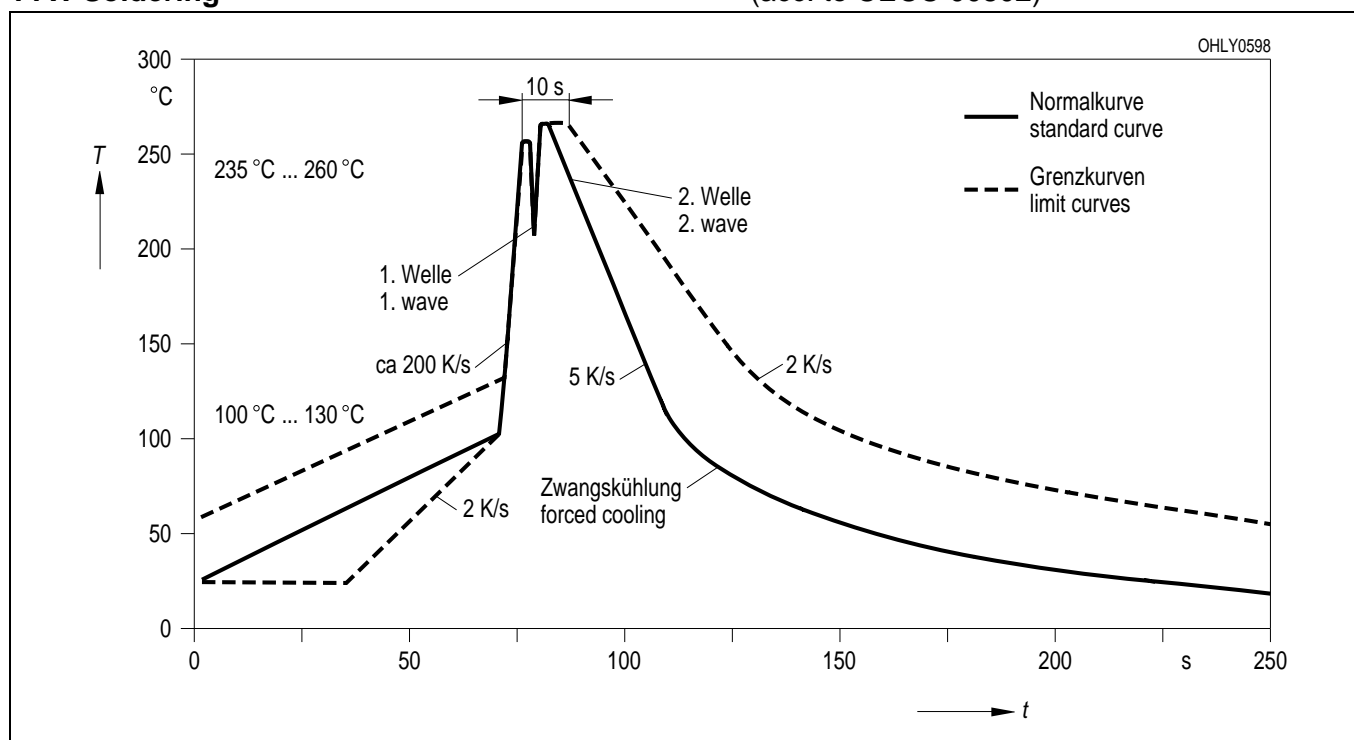
Maßzeichnung
Package Outlines



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

Lötbedingungen
Soldering Conditions
Wellenlöten (TTW)
TTW Soldering

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



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EU RoHS and China RoHS compliant product



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