GaAs-IR-Lumineszenzdiode in SMT-Gehäuse
GaAs Infrared Emitter in SMT Package

SFH 420
SFH 425

SFH 420

SFH 425

Wesentliche Merkmale

- GaAs-LED mit sehr hohem Wirkungsgrad
- Gute Linearität ($I_e = f[I_F]$) bei hohen Strömen
- Gleichstrom- (mit Modulation) oder Impulsbetrieb möglich
- Hohe Zuverlässigkeit
- Hohe Impulsbelastbarkeit
- Oberflächenmontage geeignet
- Gegurtet lieferbar
- SFH 420 Gehäusegleich mit SFH 320
  SFH 425 Gehäusegleich mit SFH 325
- SFH 425: Nur für IR-Reflow-Lötung geeignet.

Features

- Very highly efficient GaAs-LED
- Good Linearity ($I_e = f[I_F]$) at high currents
- DC (with modulation) or pulsed operations are possible
- High reliability
- High pulse handling capability
- Suitable for surface mounting (SMT)
- Available on tape and reel
- SFH 420 same package as SFH 320
  SFH 425 same package as SFH 325
- SFH 425: Suitable only for IR-reflow soldering.

Anwendungen

- Miniaturlichtschranken für Gleich- und Wechsellichtbetrieb, Lochstreifenleser
- Industrieelektronik
- „Messen/Steuern/Regeln“
- Automobiltechnik
- Sensorik
- Alarm- und Sicherungssysteme
- IR-Freiraumübertragung

Applications

- Miniature photointerrupters
- Industrial electronics
- For drive and control circuits
- Automotive technology
- Sensor technology
- Alarm and safety equipment
- IR free air transmission

Typ Type	Bestellnummer Ordering Code	Gehäuse Package
SFH 420	Q62702-P1690	Kathodenkennzeichnung: abgesetzte Ecke cathode marking: bevelled edge TOPLED®
SFH 425	Q62702-P0330	SIDELED

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 … + 100	°C
Sperrspannung Reverse voltage	V_R	5	V
Durchlaßstrom Forward current	I_F	100	mA
Stoßstrom, τ = 10 µs, D = 0 Surge current	I_{FSM}	3	A
Verlustleistung Power dissipation	P_{tot}	160	mW
Wärmewiderstand Sperrschicht - Umgebung bei Montage auf FR4 Platine, Padgröße je 16 mm^2 Thermal resistance junction - ambient mounted on PC-board (FR4), padsize 16 mm^2 each	R_{thJA}	450	K/W
Wärmewiderstand Sperrschicht - Lötstelle bei Montage auf Metall-Block Thermal resistance junction - soldering point, mounted on metal block	R_{thJS}	200	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 = 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	$\Delta\lambda$	55	nm
Abstrahlwinkel Half angle	φ	± 60	Grad deg.
Aktive Chipfläche Active chip area	A	0.09	mm^2
Abmessungen der aktiven Chipfläche Dimensions of the active chip area	$L \times B$ $L \times W$	0.3 × 0.3	mm

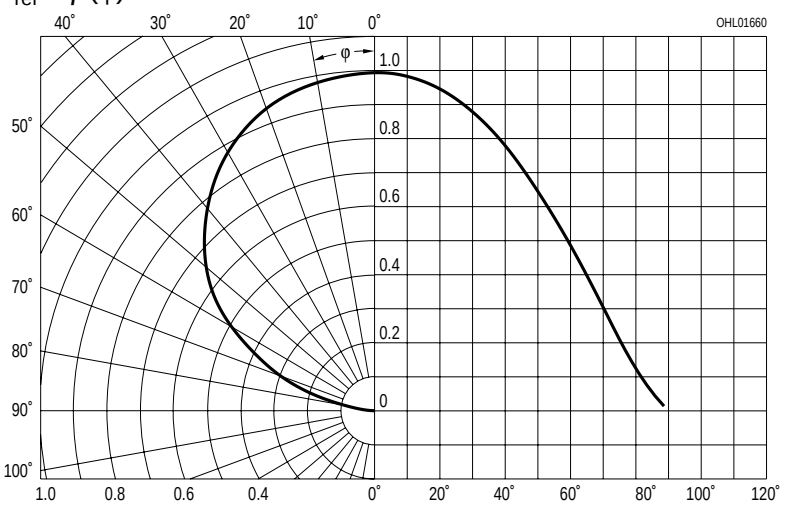
Kennwerte (T_A = 25 °C)
Characteristics (cont'd)

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
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	0.5	µs
Kapazität, Capacitance V_R = 0 V, f = 1 MHz	C_o	25	pF
Durchlaßspannung, Forward voltage I_F = 100 mA, t_p = 20 ms I_F = 1 A, t_p = 100 µs	 V_F V_F	 1.3 (≤ 1.5) 1.9 (≤ 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	14	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

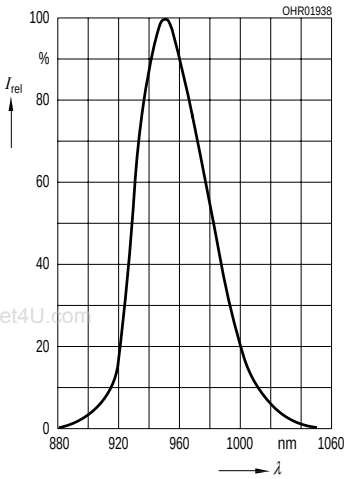
Strahlstärke I_e in Achsrichtung
gemessen bei einem Raumwinkel Ω = 0.01 sr
Radiant Intensity I_e in Axial Direction
at a solid angle of Ω = 0.01 sr

Bezeichnung **Parameter**	**Symbol**	**Werte** **Values**	**Einheit** **Unit**
Strahlstärke Radiant intensity I_F = 100 mA, t_p = 20 ms	I_e	> 2.5	mW/sr
Strahlstärke Radiant intensity I_F = 1 A, t_p = 100 µs	$I_{e\ typ.}$	38	mW/sr

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

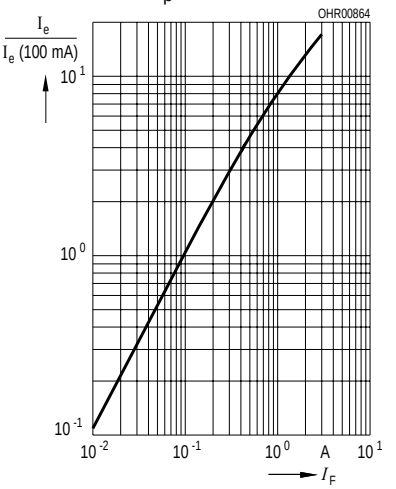


Relative Spectral Emission
$I_{rel} = f(\lambda)$

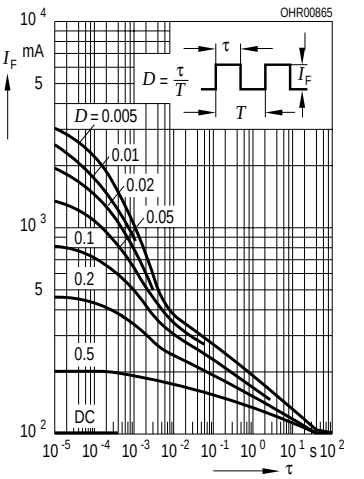


Radiant Intensity $\frac{I_e}{I_e\ 100\ mA} = f(I_F)$

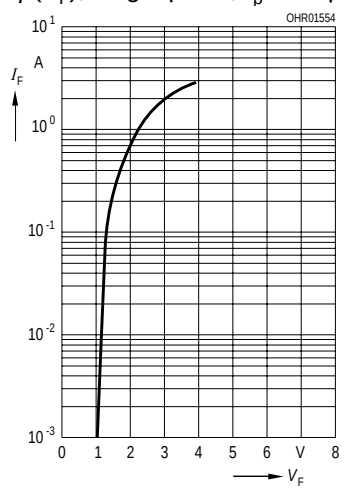
Single pulse, t_p = 20 µs



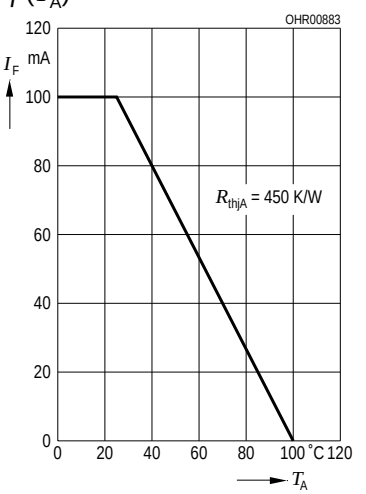
Permissible Pulse Handling Capability $I_F = f(t_p)$, duty cycle D = parameter, T_A = 20 °C



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

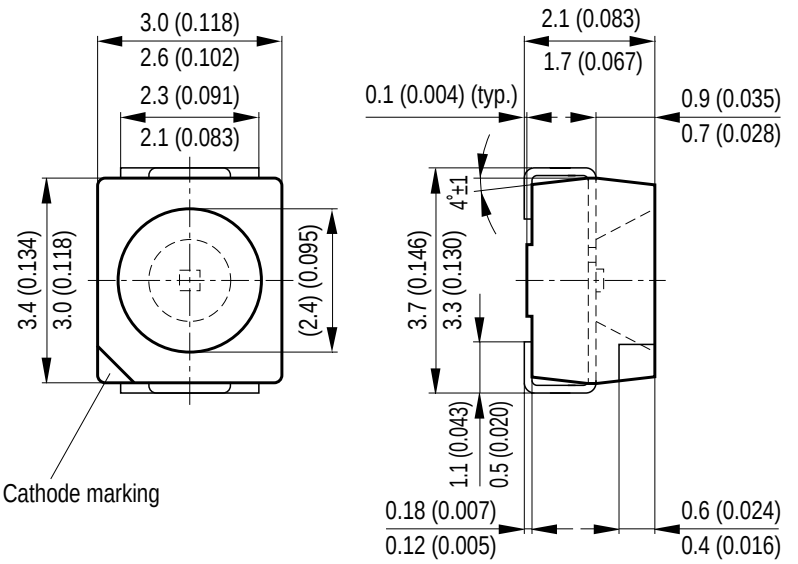


Max. Permissible Forward Current
$I_F = f(T_A)$

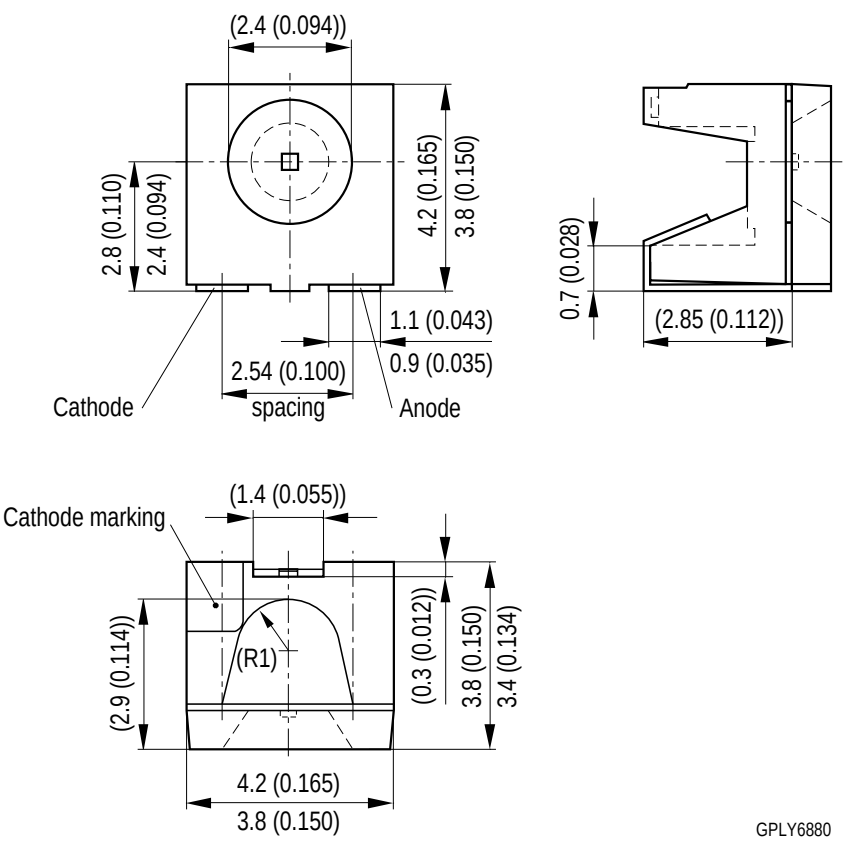


Maßzeichnung
Package Outlines

SFH 420



SFH 425



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

Löthinweise
Soldering Conditions

Bauform Types	Tauch-, Schwall- und Schlepplötung Dip, Wave and Drag Soldering			Reflowlötung Reflow Soldering	
	Lötbad-temperatur **Temperature of the Soldering Bath**	**Maximal zulässige Lötzeit** **Max. Perm. Soldering Time**	**Abstand Lötstelle – Gehäuse** **Distance between Solder Joint and Case**	**Lötzonen-temperatur** **Temperature of Soldering Zone**	**Maximale Durchlaufzeit** **Max. Transit Time**
TOPLED	260 °C	10 s	–	245 °C	10 s
SIDELED	–	–	–	≥ 225 °C	10 s

Zusätzliche Informationen über allgemeine Lötbedingungen erhalten Sie auf Anfrage.

For additional information on general soldering conditions please contact us.

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