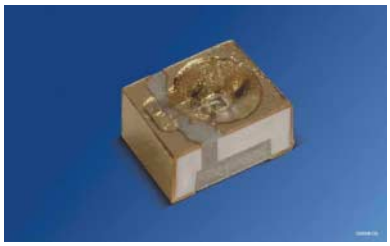
Engwinklige LED in MIDLED-Gehäuse
Narrow beam LED in MIDLED-package
Lead (Pb) Free Product - RoHS Compliant

SFH 4680
SFH 4685



SFH 4680

SFH 4685

Vorläufige Daten / Preliminary Data

Wesentliche Merkmale

- GaAlAs-LED mit typischer Emissionswellenlänge 880 nm
- Enger Abstrahlwinkel (± 20°)
- geringe Bauhöhe
- Als Toplooker und Sidelooker einsetzbar
- SFH 4680: Gurtung als Toplooker
  SFH 4685: Gurtung als Sidelooker

Features

- GaAlAs-LED with typical peak wavelength of 880 nm
- Narrow halfangle (± 20°)
- low profile component
- Usable as top-looking and side-looking device
- SFH 4680: Taping as Toplooker
  SFH 4685: Taping as Sidelooker

Anwendungen

- Sensorik in der Automobiltechnik
- Datenübertragung
- Fernsteuerung

Applications

- Automotive sensors
- Data transmission
- Remote controls

Typ **Type**	**Bestellnummer** **Ordering Code**	**Strahlstärkegruppierung** [1] (I_F = 100 mA, t_p = 20 ms) **Radiant Intensity Grouping** [1] I_e (mW/sr)
SFH 4680	Q65110A1570	>10 (typ. 20)
SFH 4685	Q65110A1571	>10 (typ. 20)

[1] gemessen bei einem Raumwinkel Ω = 0.01 sr
measured at a solid angle of Ω = 0.01 sr

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, $\tau = 10$ µs, $D = 0$ Surge current	I_{FSM}	1	A
Verlustleistung Power dissipation	P_{tot}	180	mW
Wärmewiderstand Sperrschicht[1)] Thermal resistance junction	R_{thJA}	340	K/W
Wärmewiderstand Sperrschicht[2)] Thermal resistance junction	R_{thJS}	180	K/W

[1)] Umgebung bei Montage auf FR4 Platine, Padgröße je 16 mm^2
ambient mounted on PC-board (FR4), padsize 16 mm^2 each
[2)] Lötstelle bei Montage auf Metall-Block
soldering point, mounted on metal block

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}	880	nm
Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} I_F = 100 m A	$\Delta\lambda$	80	nm
Abstrahlwinkel Half angle	φ	± 20	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
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 mA, R_L = 50 Ω	t_r, t_f	0.5	µs
Kapazität Capacitance V_R = 0 V, f = 1 MHz	C_o	15	pF
Durchlassspannung Forward voltage I_F = 100 mA, t_p = 20 ms I_F = 1 A, t_p = 100 µs	 V_F V_F	 1.5 (≤ 1.8) 3.0 (≤ 3.8)	 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	23	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	– 0.5	%/K

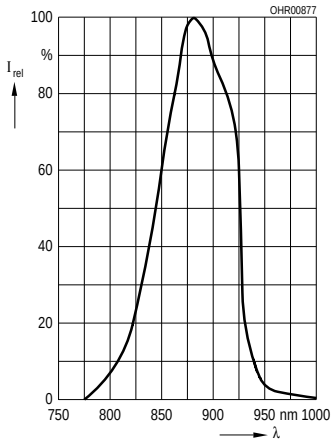
Kennwerte (T_A = 25 °C)
Characteristics (cont'd)

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Temperaturkoeffizient von V_F, I_F = 100 mA Temperature coefficient of V_F, I_F = 100 mA	TC_V	– 2	mV/K
Temperaturkoeffizient von λ, I_F = 100 mA Temperature coefficient of λ, I_F = 100 mA	TC_λ	+ 0.25	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

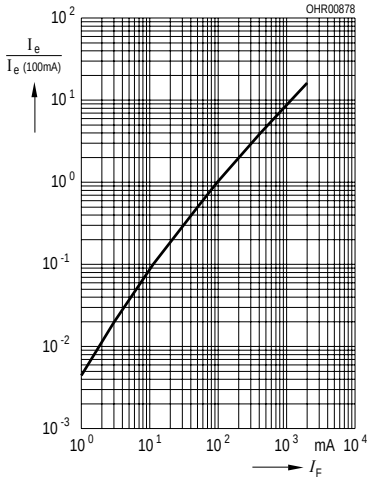
Bezeichnung Parameter	Symbol	Werte Values			Einheit Unit
		-R	-S	-T	
Strahlstärke Radiant intensity I_F = 100 mA, t_p = 20 ms	$I_{e\ min}$ $I_{e\ max}$	10 20	16 32	25 50	mW/sr mW/sr
Strahlstärke Radiant intensity I_F = 1 A, t_p = 100 µs	$I_{e\ typ}$	130	160	240	mW/sr

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

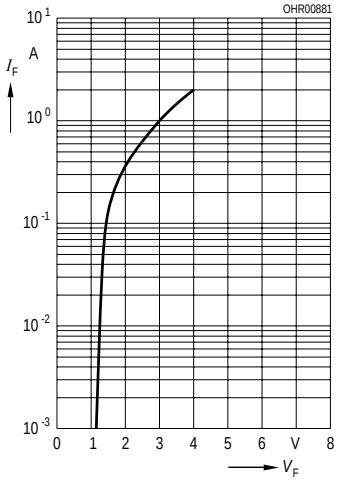


Radiant Intensity $\frac{I_e}{I_e\ 100\ mA} = f(I_F)$

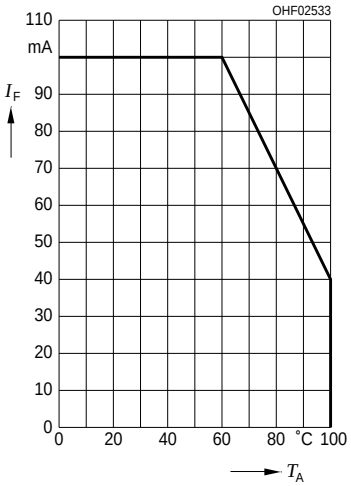
Single pulse, t_p = 20 µs



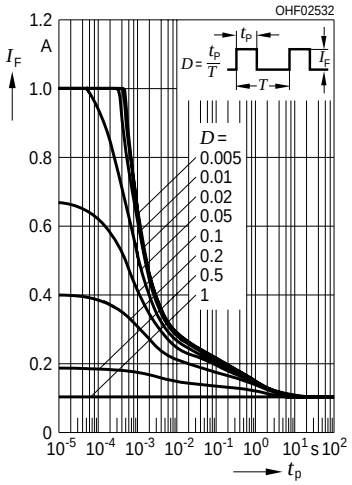
Forward Current
$I_F = f(V_F)$ single pulse, t_p = 20 µs



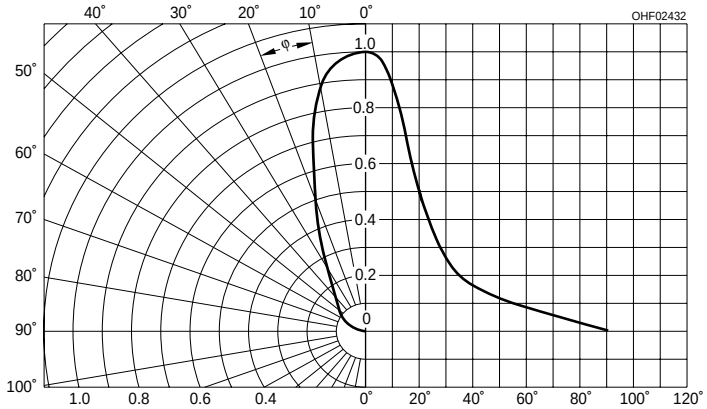
Max. Permissible Forward Current
$I_F = f(T_A)$



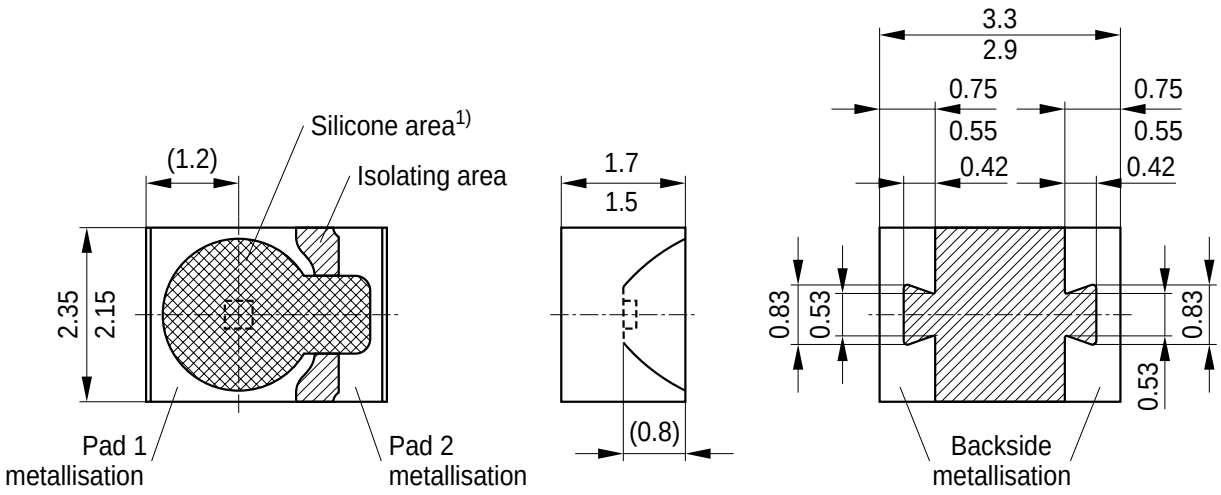
Permissible Pulse Handling Capability $I_F = f(t_p)$, T_A = 25 °C
duty cycle D = parameter



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



Maßzeichnung
Package Outlines



1) Device casted with silicone.
Avoid mechanical stress on silicone surface.

OHF02956

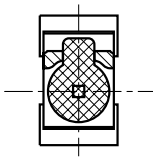
Maße werden in mm angegeben. / Dimensions are specified in mm.

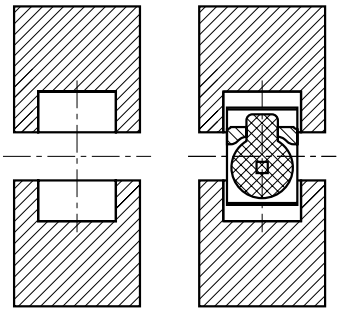
Gehäuse **package**	MID mit klarem Silikonverguss MID casted with clear Silicone
Anschlussbelegung **Pin configuration**	Pad 1 = Anode (anode) Pad 2 = Kathode (cathode)

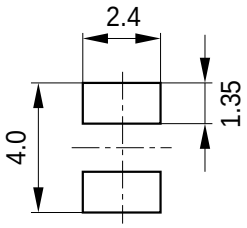
Empfohlenes Lötpaddesign
Recommended Solderpad Design

SFH 4680

Bauteil positioniert
Component location on pad







Padgeometrie für
verbesserte Wärmeableitung

Paddesign for improved
heat dissipation

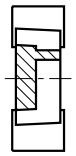
Cu-Fläche > 16 mm^2
Cu-area

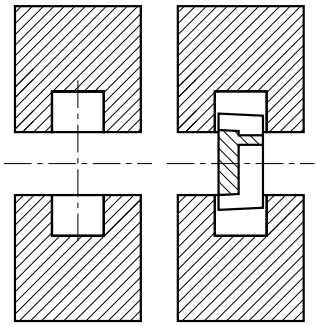
Lötstopplack
Solder resist

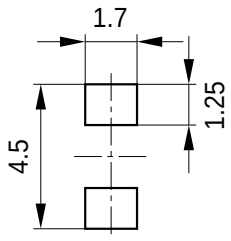
OHF02422

SFH 4685

Bauteil positioniert
Component location on pad







Padgeometrie für
verbesserte Wärmeableitung

Paddesign for improved
heat dissipation

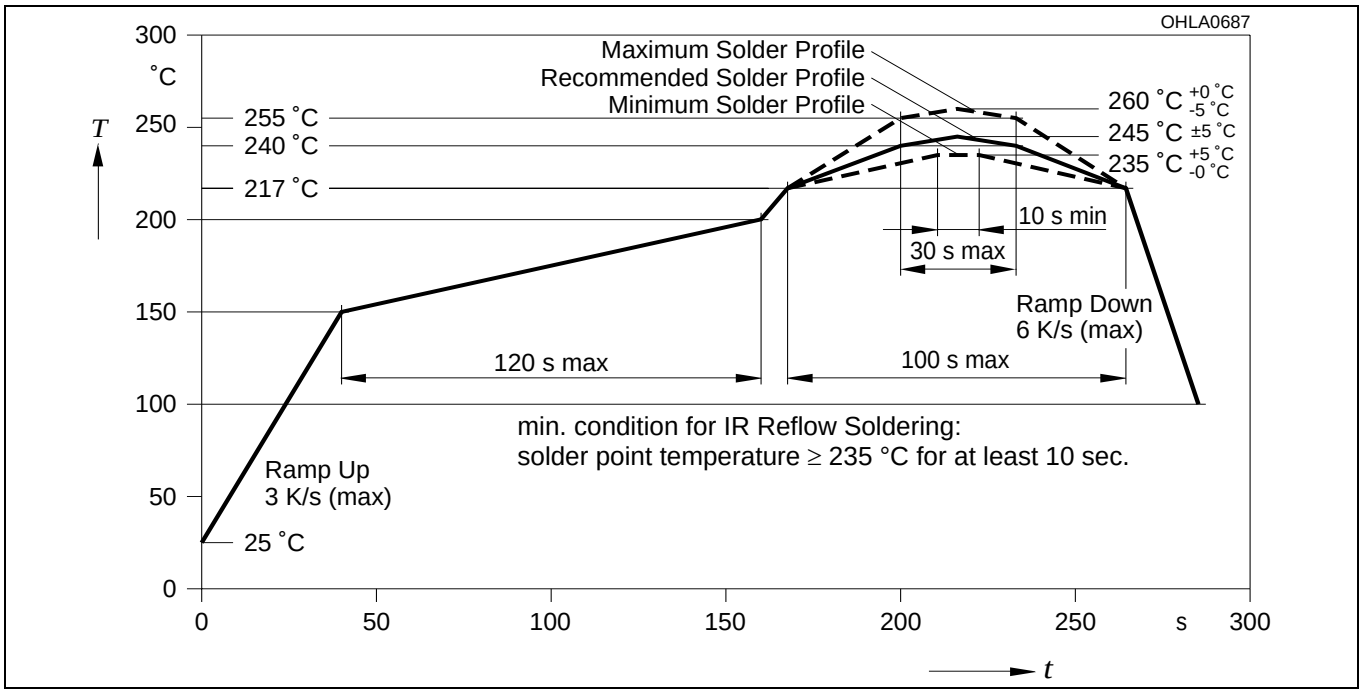
Cu-Fläche > 16 mm^2
Cu-area

Lötstopplack
Solder resist

OHF02421

Lötbedingungen
Soldering Conditions
IR-Reflow Lötprofil für bleifreies Löten
IR Reflow Soldering Profile for lead free soldering

Vorbehandlung nach JEDEC Level 2
Preconditioning acc. to JEDEC Level 2
(nach J-STD-020B)
(acc. to J-STD-020B)



Verarbeitungshinweis:

Das Gehäuse ist mit Silikon vergossen. Mechanischer Streß auf der Bauteiloberfläche sollte so gering wie möglich gehalten werden.

Handling indication:

The package is casted with silicone. Mechanical stress at the surface of the unit should be as low as possible.

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