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

SFH 4600
SFH 4605

SFH 4600

SFH 4605

Vorläufige Daten / Preliminary Data

Wesentliche Merkmale

- Leistungsstarke GaAs-LED (35mW) mit typischer Emissionswellenlänge 950nm
- Enger Abstrahlwinkel (±20°) bei geringer Bauhöhe
- Als Toplooker und Sidelooker einsetzbar
- SFH 4600: Gurtung als Toplooker
  SFH 4605: Gurtung als Sidelooker
- SFH 3600: Gehäuse identisch mit SFH 4600
- SFH 3605: Gehäuse identisch mit SFH 4605

Features

- High Power GaAs-LED (35mW) with typical peak wavelength of 950nm
- Small halfangle (±20°) in low profile component
- Usable as top-looking and side-looking device
- SFH 4600: Taping as Toplooker
  SFH 4605: Taping as Sidelooker
- SFH 3600: same package as SFH 4600
- SFH 3605: same package as SFH 4605

Anwendungen

- Lichtschranken, Lichtvorhänge
- Sensorik
- IR Scheinwerfer

Applications

- Interrupters, Lightcurtains
- Sensors
- IR floodlight

Typ **Type**	**Bestellnummer** **Ordering Code**	**Strahlstärkegruppierung** [1] (I_F = 100mA, t_p = 20 ms) **Radiant intensity grouping** [1] I_e (mW/sr)
SFH 4600	Q65110A1575	typ. 30
SFH 4605	Q65110A1576	typ. 30

[1] gemessen bei einem Raumwinkel Ω = 0.01 sr
measured at a slod 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, τ = 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}	450	K/W
Wärmewiderstand Sperrschicht[2)] Thermal resistance junction	R_{thJS}	≈ 200	K/W

[1)] Umgebung bei Montage auf FR4 Platine, Padgröße je 16 mm^2
ambience when mounted on PC-board (FR4), padsize 16 mm^2 each
[2)] Lötstelle bei Montage auf Metall-Block
soldering point when 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}	950	nm
Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} I_F = 100 mA, t_p = 20 ms	$\Delta\lambda$	40	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

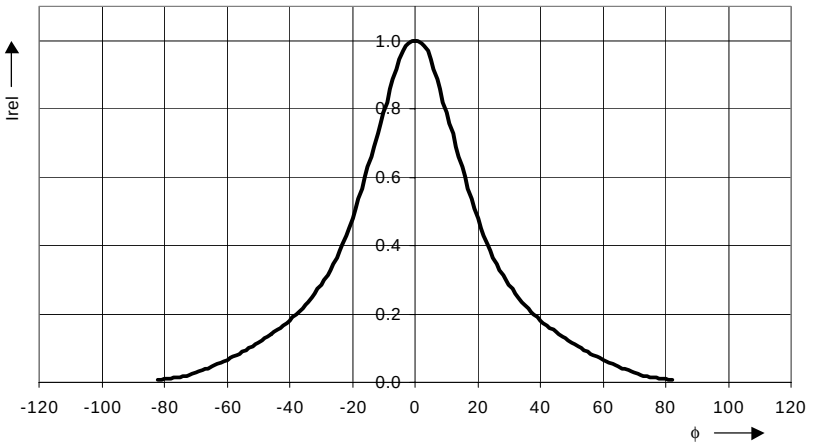
Kennwerte (T_A = 25 °C)
Characteristics (cont'd)

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Schaltzeiten, I_e von 10% auf 90% und von 90% auf 10%, Switching times, I_e from 10% to 90% and from 90% to10%, I_F = 100 mA, t_p = 20 ms, R_L = 50 Ω	t_r, t_f	10	ns
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) 3.2 (≤4.3)	 V V
Sperrstrom Reverse current V_R = 3 V	I_R	0.01 (≤10)	µA
Gesamtstrahlungsfluß Total radiant flux I_F = 100 mA, t_p = 20 ms	Φ_e	35	mW

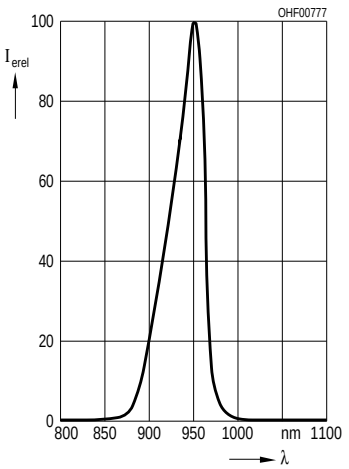
Strahlstärke I_e in Achsrichtung
gemessen bei einem Raumwinkel Ω = 0.01 sr
Radiant Intensity I_e in Axial Direction
at a solid angle of Ω = 0.01 sr

Bezeichnung **Parameter**	**Symbol**	**Werte** **Values**	**Einheit** **Unit**
Strahlstärke Radiant intensity I_F = 100 mA, t_p = 20 ms	$I_{e\ typ.}$	typ.30	mW/sr
Strahlstärke Radiant intensity I_F = 1 A, t_p = 100 µs	$I_{e\ typ.}$	typ.180	mW/sr

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

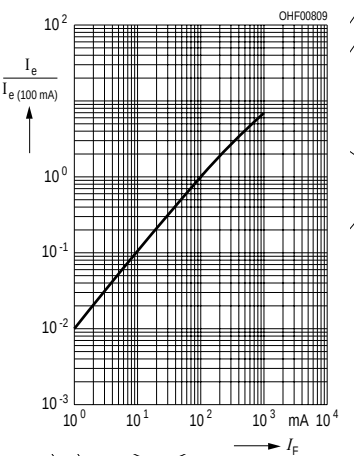


Relative Spectral Emission
$I_{rel} = f(\lambda)$

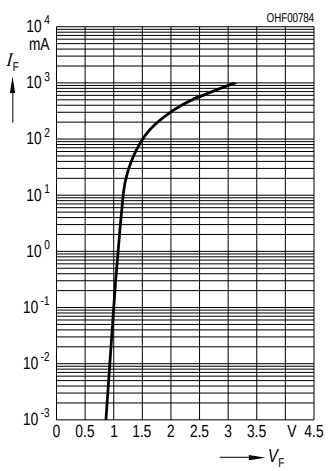


Radiant Intensity $\frac{I_e}{I_e\,100\ mA} = f(I_F)$

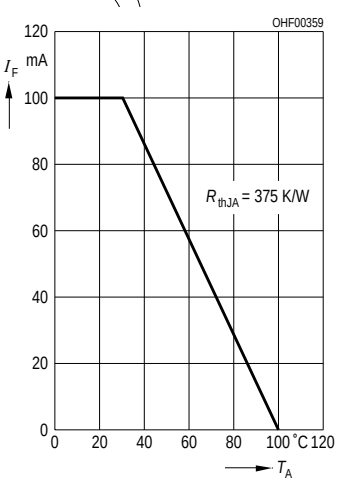
Single pulse, t_p = 20 µs



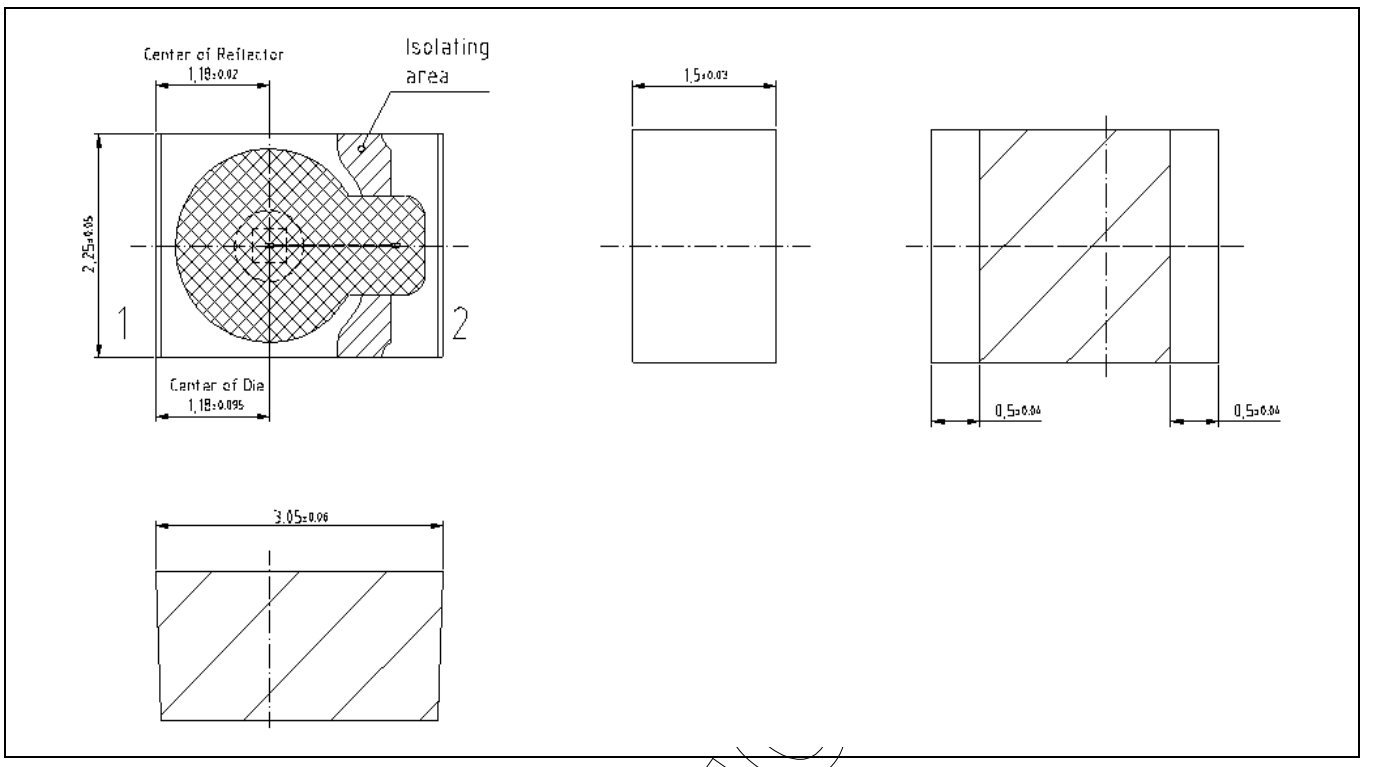
Forward Current I_F
$= f(V_F)$ single pulse, t_p = 20 µs



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



Maßzeichnung
Package Outlines

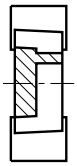


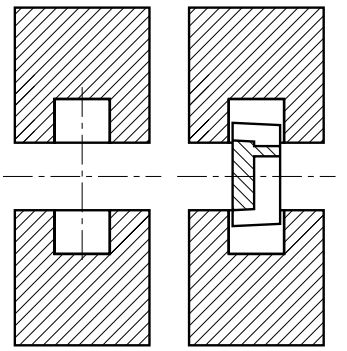
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch)

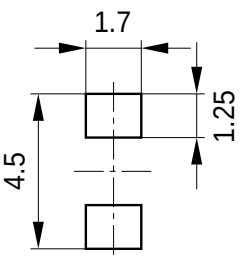
Anode: Anschluss 1 in der Zeichnung / Anode: pin 1 in drawing

Empfohlenes Lötpaddesign
Recommended Solderpad Design

Bauteil positioniert
Component location on pad







Padgeometrie für
verbesserte Wärmeableitung

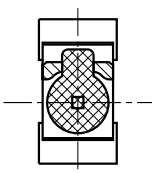
Paddesign for improved
heat dissipation

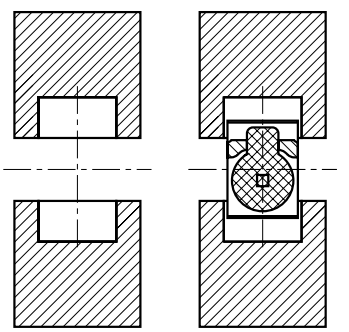
Cu-Fläche > 16 mm^2
Cu-area

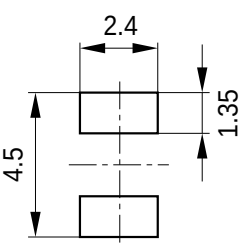
Lötstopplack
Solder resist

OHF02421

Bauteil positioniert
Component location on pad







Padgeometrie für
verbesserte Wärmeableitung

Paddesign for improved
heat dissipation

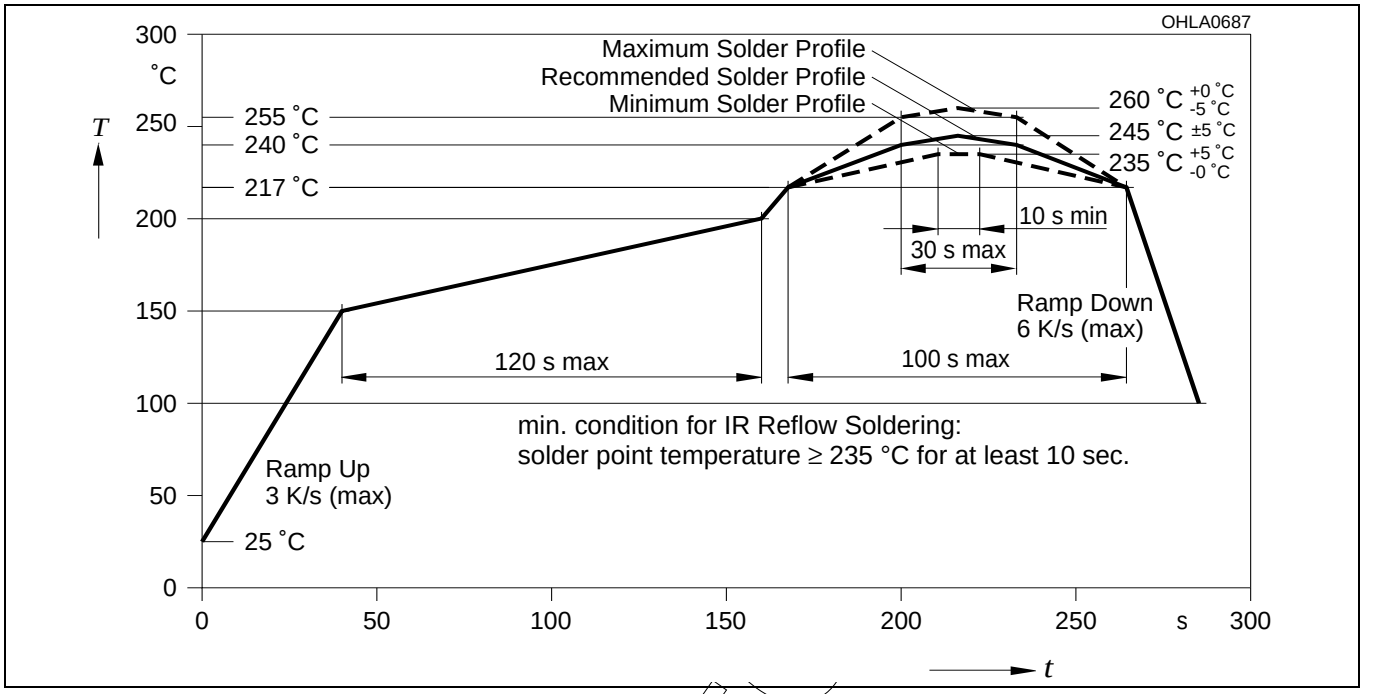
Cu-Fläche > 16 mm^2
Cu-area

Lötstopplack
Solder resist

OHF02422

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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The information describes the type of component and shall not be considered as assured characteristics.
Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our Sales Organization.

Packing

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

Components used in life-support devices or systems must be expressly authorized for such purpose! Critical components [1] , may only be used in life-support devices or systems [2] with the express written approval of OSRAM OS.

[1] A critical component is a component usedin a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or effectiveness of that device or system.

[2] Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered.