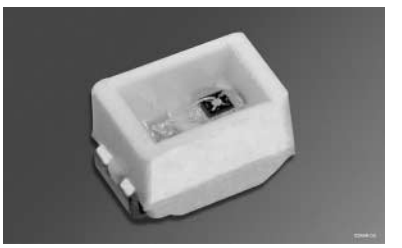
Leistungsstarke IR-Lumineszenzdiode
High Power Infrared Emitter
Lead (Pb) Free Product - RoHS Compliant

SFH 4203



Wesentliche Merkmale

- Leistungsstarke GaAs-LED (35 mW)
- Hoher Wirkungsgrad bei kleinen Strömen
- Homogene Abstrahlung
- Typische Peakwellenlänge 950 nm

Features

- High Power GaAs-LED (35 mW)
- High Efficiency at low currents
- Homogeneous Radiation Pattern
- Typical peak wavelength 950 nm

Anwendungen

- Industrieelektronik
- „Messen/Steuern/Regeln“
- Automobiltechnik
- Sensorik
- Alarm- und Sicherungssysteme
- IR-Freiraumübertragung

Applications

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

Typ **Type**	**Bestellnummer** **Ordering Code**	**Strahlstärkegruppierung**[1] (I_F = 100 mA, t_p = 20 ms) **Radiant Intensity Grouping**[1] I_e (mW/sr)
SFH 4203	Q65110A2499	8 (> 4)

[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	3	V
Durchlassstrom Forward current	I_F (DC)	100	mA
Stoßstrom, t_p = 10 µs, D = 0 Surge current	I_{FSM}	1	A
Verlustleistung Power dissipation	P_{tot}	180	mW
Wärmewiderstand Sperrschicht - Umgebung bei Montage auf FR4 Platine, Padgröße je 16 mm² Thermal resistance junction - ambient mounted on PC-board (FR4), padsize 16 mm² 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, t_p = 20 ms	$\Delta\lambda$	40	nm
Abstrahlwinkel Half angle	φ	± 65	Grad deg.
Aktive Chipfläche Active chip area	A	0.09	mm²
Abmessungen der aktiven Chipfläche Dimensions of the active chip area	$L \times B$ $L \times W$	0.3 × 0.3	mm

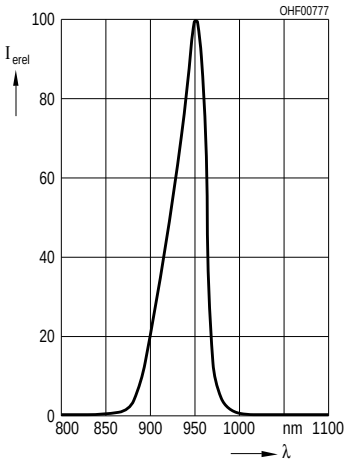
Kennwerte (T_A = 25 °C)
Characteristics (cont'd)

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, t_p = 20 ms, R_L = 50 Ω 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
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	– 0.44	%/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	+ 0.2	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

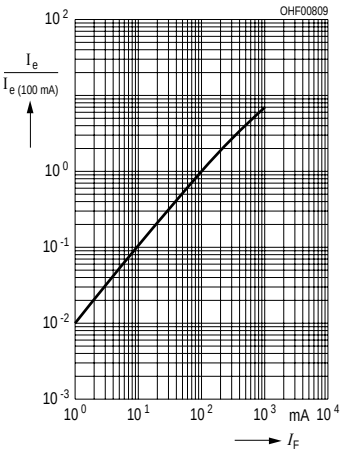
Bezeichnung Parameter	Symbol	Werte Values	Einheit Unit
Strahlstärke Radiant intensity I_F = 100 mA, t_p = 20 ms	$I_{e\ min.}$ $I_{e\ typ.}$	4 8	mW/sr mW/sr
Strahlstärke Radiant intensity I_F = 1 A, t_p = 100 µs	$I_{e\ typ.}$	48	mW/sr

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

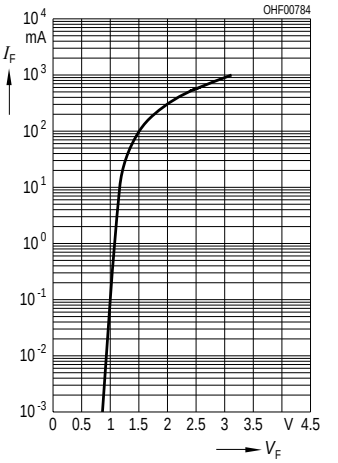


Radiant Intensity $\frac{I_e}{I_e\ 100\ mA} = f(I_F)$

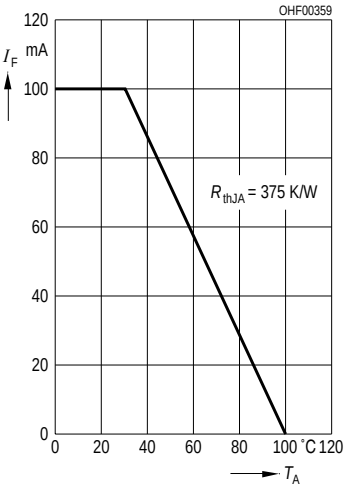
Single pulse, t_p = 20 µs



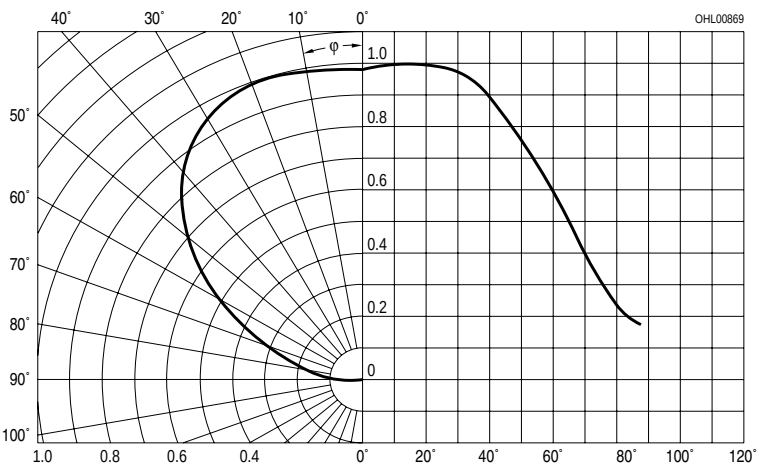
Forward Current $I_F = f(V_F)$
single pulse, t_p = 20 µs



Max. Permissible Forward Current
$I_F = f(T_A)$, R_{thJA} [1)]

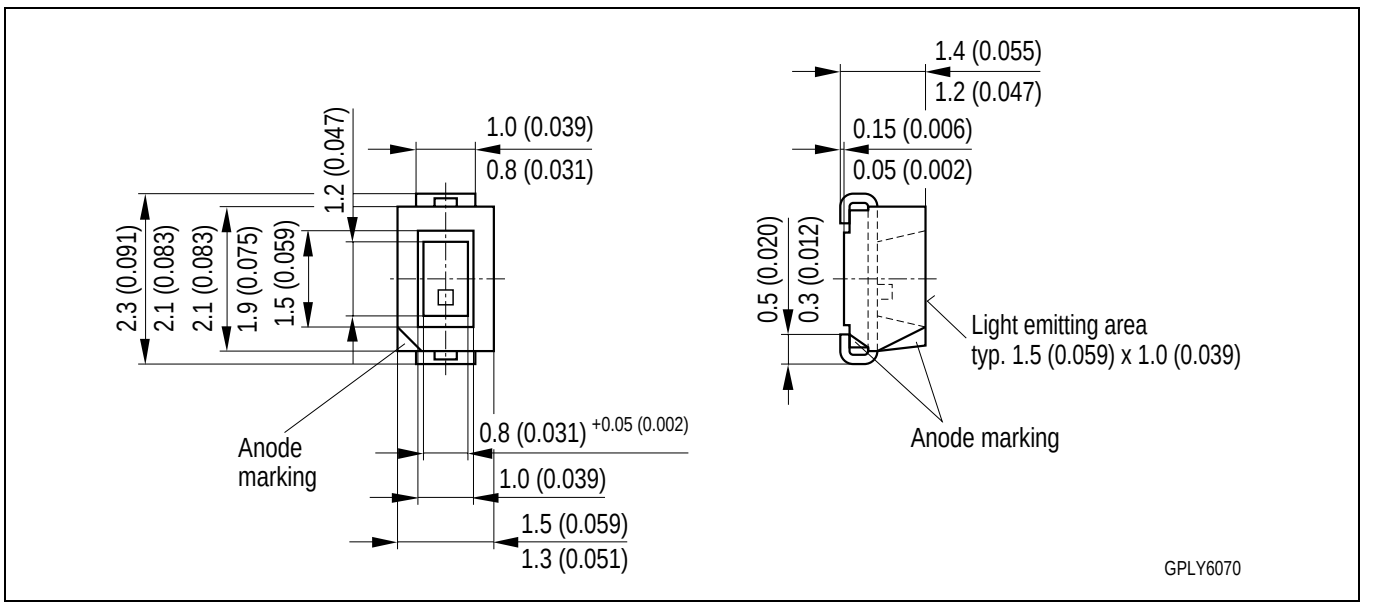


Radiation Characteristics $I_{rel} = f(\varphi)$



1) Thermal resistance junction - ambient mounted on PC-board (FR4), pad size 16 mm^2 (each).

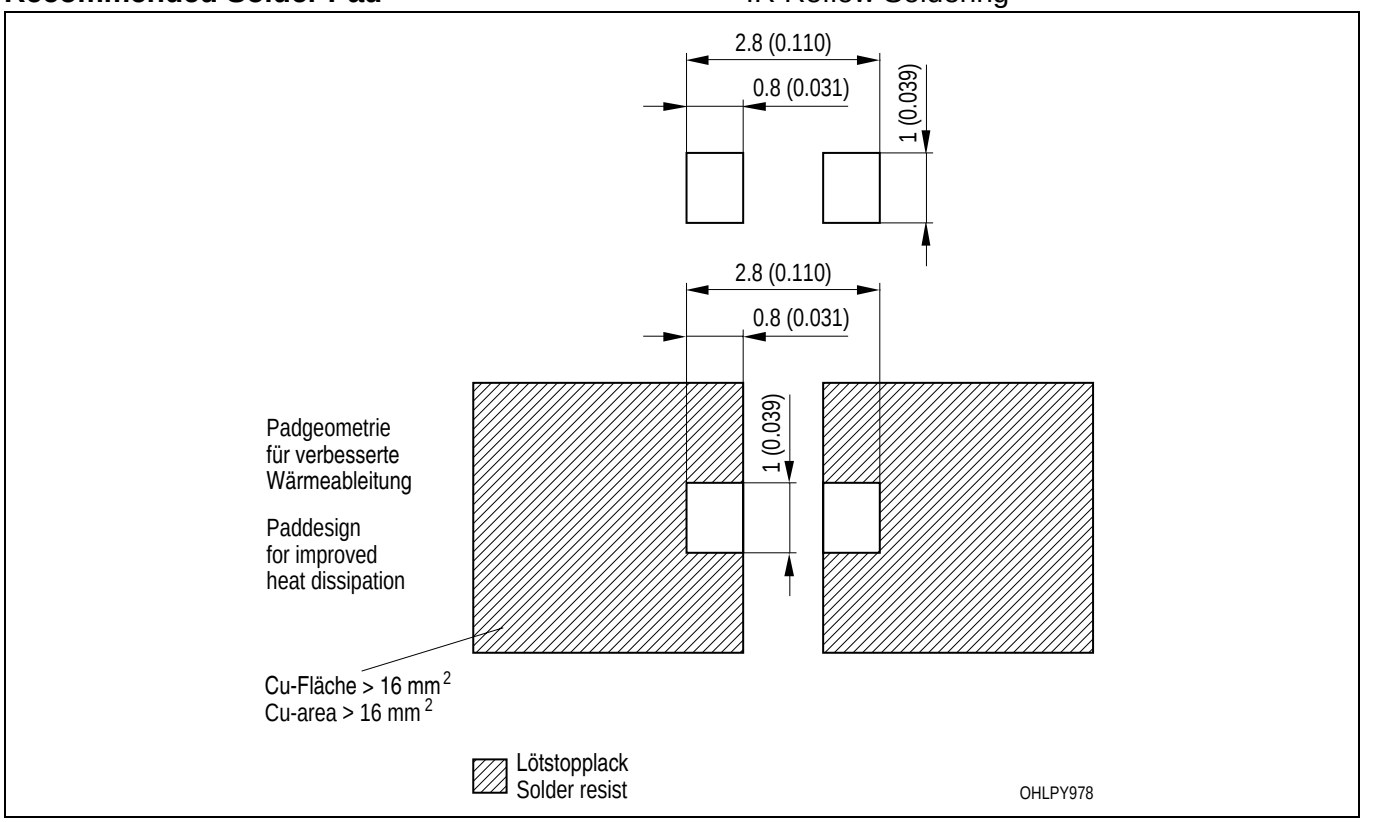
Maßzeichnung
Package Outlines



Maße in mm, wenn nicht anders angegeben / Dimensions in mm, unless otherwise specified.

Empfohlenes Lötpaddesign
Recommended Solder Pad

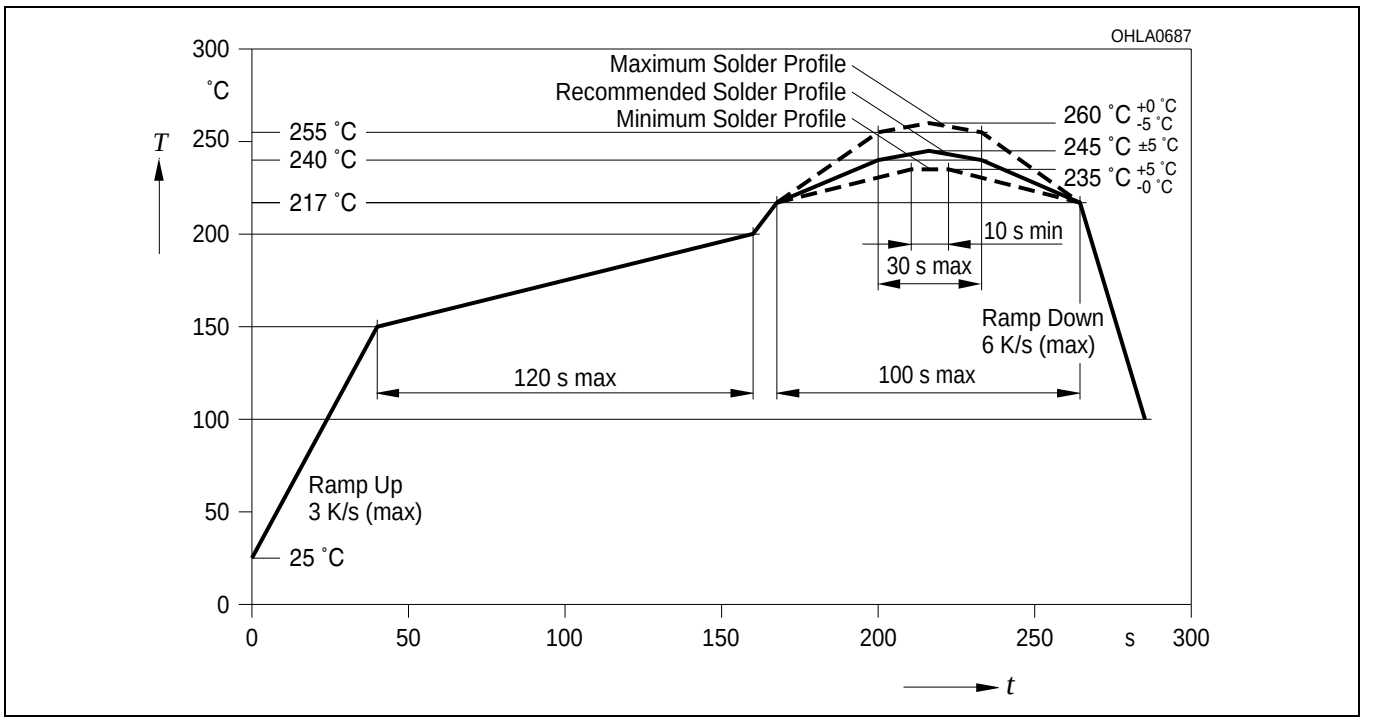
IR-Reflow Löten
IR Reflow Soldering



Maße in mm, wenn nicht anders angegeben / Dimensions in mm, unless otherwise specified.

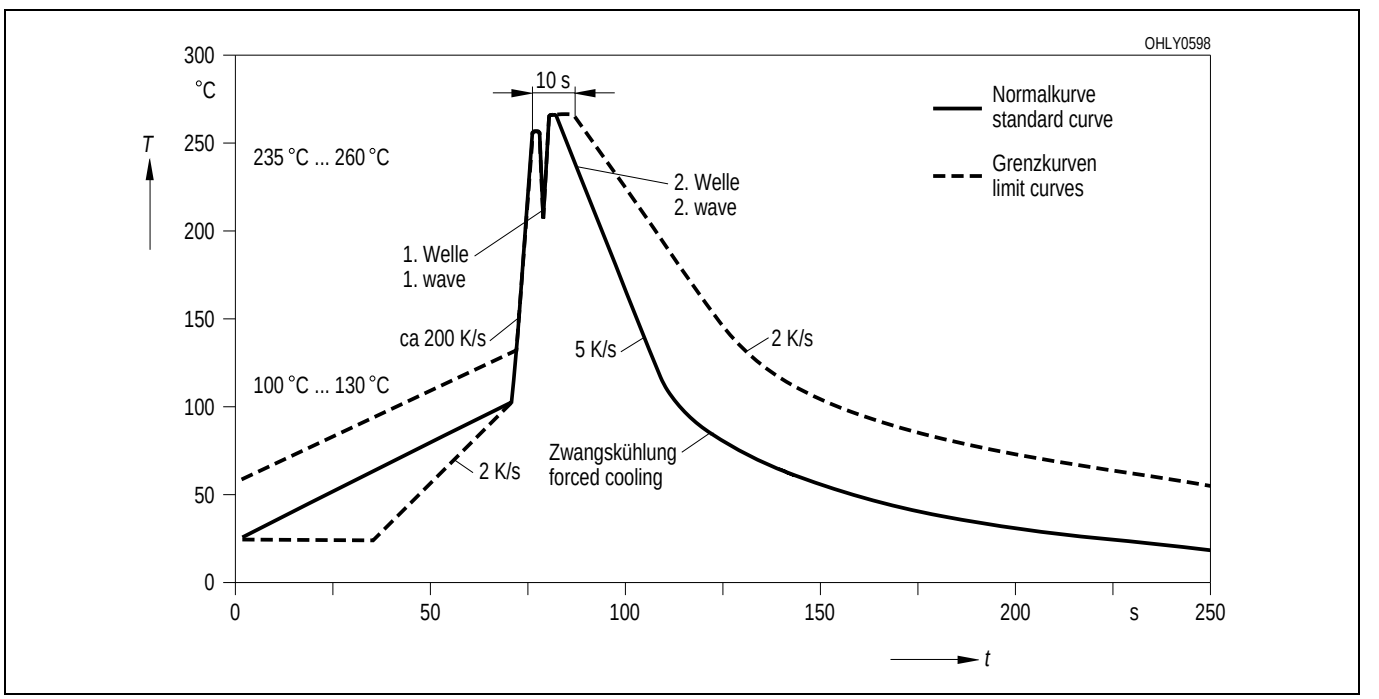
Lötbedingungen
Soldering Conditions
IR-Reflow Lötprofil für bleifreies Löten
IR Reflow Soldering Profile for lead free soldering

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



Wellenlöten (TTW)
TTW Soldering

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



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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.

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[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.