Infrarot-LED mit hoher Ausgangsleistung
High Power Infrared LED
Lead (Pb) Free Product - RoHS Compliant

SFH 4550

preliminary data / vorläufige Daten

Wesentliche Merkmale

- Infrarot LED mit hoher Ausgangsleistung
- Enger Abstrahlwinkel
- Sehr hohe Strahlstärke
- Emissionswellenlänge typ. 850 nm

Features

- High Power Infrared LED
- Narrow emission angle
- Very high radiant intensity
- Peak wavelength typ. 850 nm

Anwendungen

- Infrarotbeleuchtung für CMOS Kameras
- Sensorik
- Datenübertragung

Applications

- Infrared Illumination for CMOS cameras
- Sensor technology
- Data transmission

Sicherheitshinweise

Je nach Betriebsart emittieren diese Bauteile hochkonzentrierte, nicht sichtbare Infrarot-Strahlung, die gefährlich für das menschliche Auge sein kann. Produkte, die diese Bauteile enthalten, müssen gemäß den Sicherheits-richtlinien der IEC-Norm 60825-1 behandelt werden.

Safety Advices

Depending on the mode of operation, these devices emit highly concentrated non visible infrared light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 “Safety of laser products”.

Typ **Type**	**Bestellnummer** **Ordering Code**	**Strahlstärkegruppierung** [1] (I_F = 100 mA, t_p = 20 ms) **Radiant Intensity Grouping** [1] I_e (mW/sr)
SFH 4550	Q65110A1772	≥ 400 (typ 700)

[1] gemessen bei einem Raumwinkel Ω = 0.001 sr measured at a solid angle of Ω = 0.001 sr

ATTENTION - Observe Precautions For Handling - Electrostatic Sensitive Device

Grenzwerte
Maximum Ratings

Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Betriebstemperatur Operating temperature range	T_{op}	– 40 … + 100	°C
Lagertemperatur Storage temperature range	T_{stg}	– 40 … + 100	°C
Sperrspannung Reverse voltage	V_R	3	V
Vorwärtsgleichstrom, $T_A \leq 25$ °C Forward current	I_F	100	mA
Stoßstrom, $t_p = 10$ µs, $D = 0$, $T_A = 25$ °C Surge current	I_{FSM}	1.5	A
Verlustleistung $T_A = 25$ °C Power dissipation	P_{tot}	180	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/ambient	R_{thJA}	450	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	λ_{peak}	850	nm
Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} $I_F = 100$ mA	$\Delta\lambda$	35	nm
Abstrahlwinkel Half angle	φ	± 3	Grad deg.
Aktive Chipfläche Active chip area	A	0.09	mm^2
Abmessungen der aktiven Chipfläche Dimension of the active chip area	$L \times B$ $L \times W$	0.3 × 0.3	mm

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

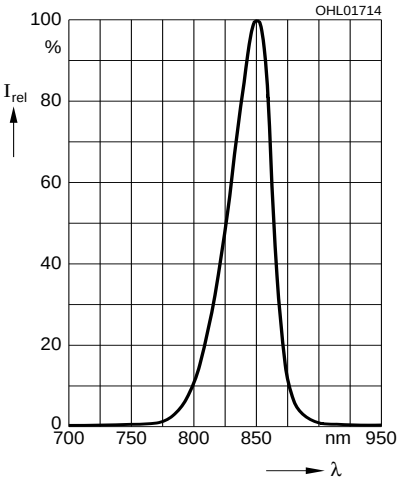
Bezeichnung **Parameter**	**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Schaltzeiten, I_e von 10% auf 90% und von 90% auf 10%, bei I_F = 100 mA, R_L = 50 Ω Switching times, I_e from 10% to 90% and from 90% to 10%, I_F = 100 mA, R_L = 50 Ω	t_r, t_f	12	ns
Durchlassspannung Forward voltage I_F = 100 mA, t_p = 20 ms I_F = 1 A, t_p = 100 µs	 V_F V_F	 1.5 (< 1.8) 2.4 (< 3.0)	 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	50	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
Temperaturkoeffizient von V_F, I_F = 100 mA Temperature coefficient of V_F, I_F = 100 mA	TC_V	– 0.7	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[1)]
gemessen bei einem Raumwinkel Ω = 0.001 sr
Radiant Intensity I_e in Axial Direction
at a solid angle of Ω = 0.001 sr

Bezeichnung Parameter	Symbol	Werte Values		Einheit Unit
		SFH 4550-DW	SFH 4550-EW	
Strahlstärke Radiant intensity I_F = 100 mA, t_p = 20 ms	$I_{e\ min}$ $I_{e\ max}$	400 800	630 1250	mW/sr mW/sr
Strahlstärke Radiant intensity I_F = 1A, t_p = 100 µs	$I_{e\ typ.}$	5000	7000	mW/sr

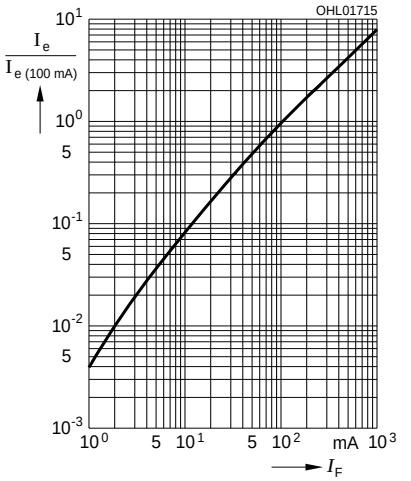
1) Nur eine Gruppe in einer Verpackungseinheit (Streuung kleiner 2:1)
Only one group in one packing unit (variation lower 2:1)

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

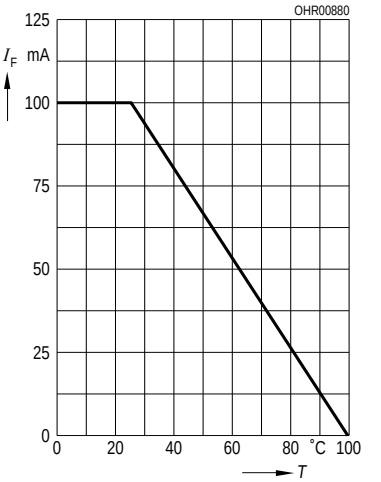


Radiant Intensity $\frac{I_e}{I_e\ 100\ mA} = f(I_F)$

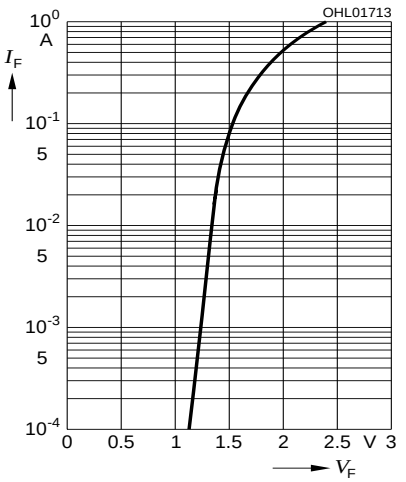
Single pulse, t_p = 20 µs



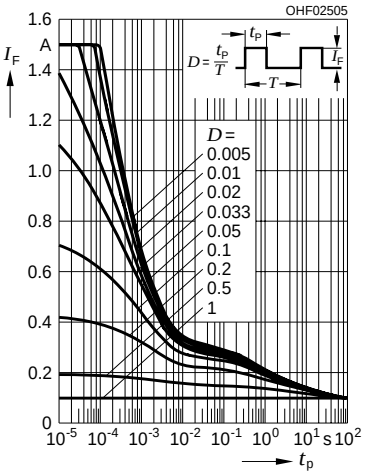
Max. Permissible Forward Current
$I_F = f(T_A)$, R_{thJA} = 450 K/W



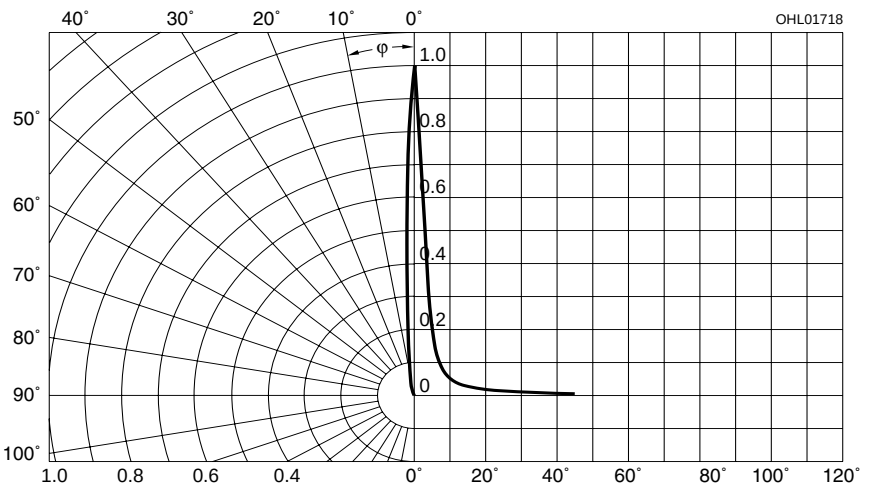
Forward Current $I_F = f(V_F)$
Single pulse, t_p = 20 µs



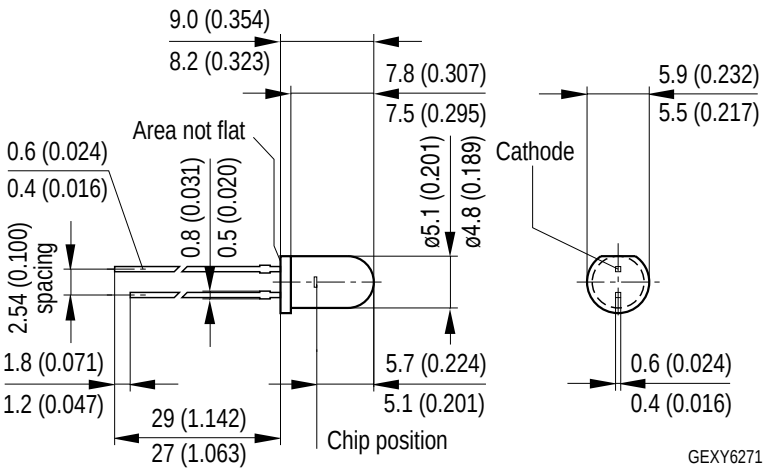
Permissible Pulse Handling Capability $I_F = f(\tau)$, T_A = 25 °C, duty cycle D = parameter



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

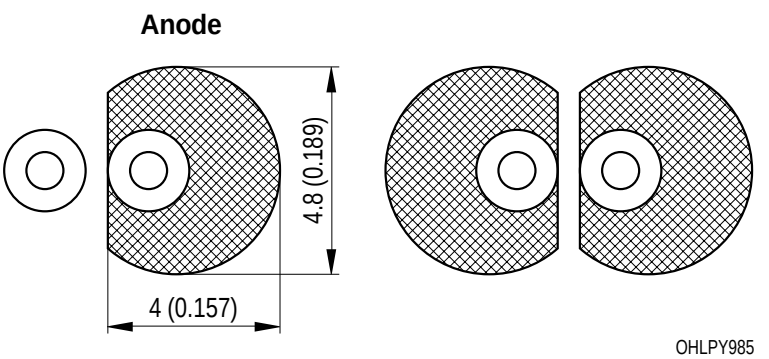


Maßzeichnung
Package Outlines



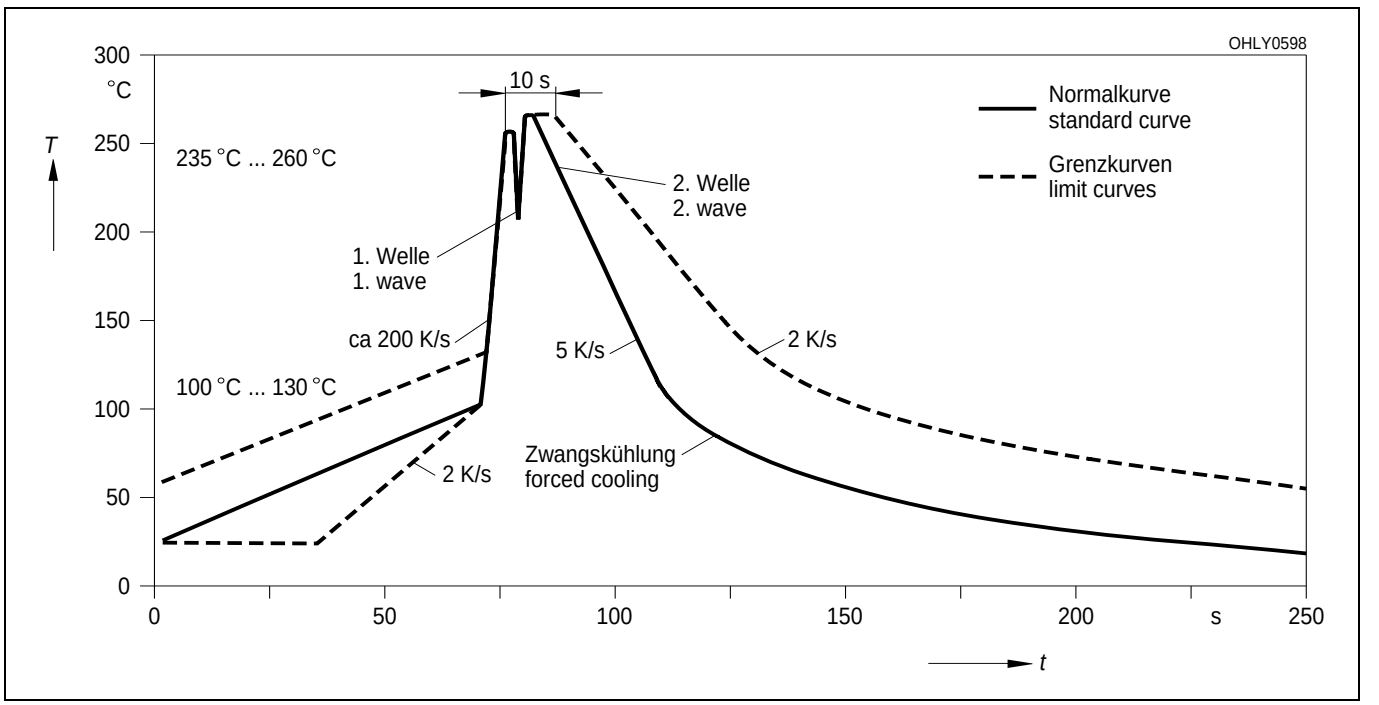
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

Empfohlenes Lötpaddesign Wellenlöten (TTW)
Recommended Solder Pad TTW Soldering



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

Lötbedingungen
Soldering Conditions
Wellenlöten (TTW) (nach CECC 00802)
TTW Soldering (acc. to CECC 00802)



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