

Grenzwerte ($T_A = 25\text{ °C}$)**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
Vorwärtsgleichstrom Forward current	I_F	100	mA
Stoßstrom, $t_p = 100\text{ }\mu\text{s}$, $D = 0$ Surge current	I_{FSM}	2.2	A
Verlustleistung Power dissipation	P_{tot}	180	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

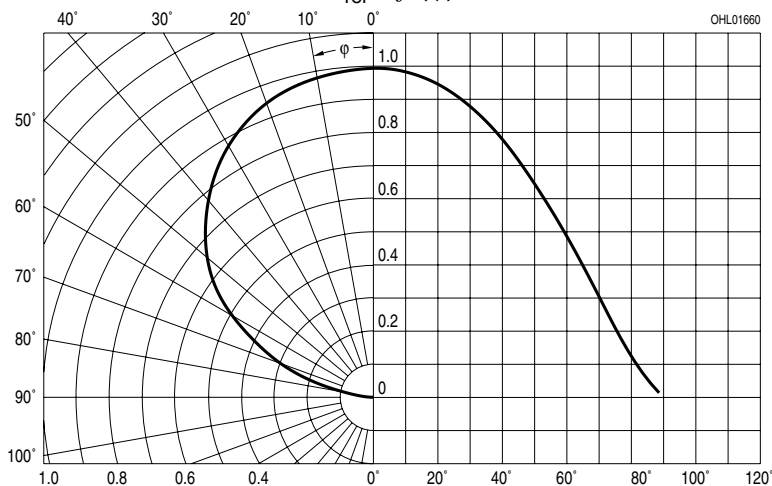
Kennwerte ($T_A = 25\text{ °C}$)**Characteristics**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength at peak emission $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	λ_{peak}	950	nm
Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	$\Delta\lambda$	40	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 ²
Schaltzeiten, I_e von 10% auf 90% und von 90% auf 10%, bei $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$, $R_L = 50\text{ }\Omega$ Switching times, I_e from 10% to 90% and from 90% to 10%, $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$, $R_L = 50\text{ }\Omega$	t_r , t_f	10	ns
Durchlassspannung Forward voltage $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$ $I_F = 1\text{ A}$, $t_p = 100\text{ }\mu\text{s}$	V_F V_F	1.5 (≤ 1.8) 3.2 (≤ 4.3)	V V
Sperrstrom Reverse current $V_R = 3\text{ V}$	I_R	0.01 (≤ 10)	μA
Gesamtstrahlungsfluss Total radiant flux $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	$\Phi_{e\text{ typ}}$	35	mW
Temperaturkoeffizient von I_e bzw. Φ_e , $I_F = 100\text{ mA}$ Temperature coefficient of I_e or Φ_e , $I_F = 100\text{ mA}$	TC_I	- 0.44	%/K
Temperaturkoeffizient von V_F , $I_F = 100\text{ mA}$ Temperature coefficient of V_F , $I_F = 100\text{ mA}$	TC_V	- 1.5	mV/K
Temperaturkoeffizient von λ , $I_F = 100\text{ mA}$ Temperature coefficient of λ , $I_F = 100\text{ mA}$	TC_λ	+ 0.2	nm/K

Strahlstärke I_e in Achsrichtung¹⁾gemessen bei einem Raumwinkel $\Omega = 0.01$ sr**Radiant Intensity I_e in Axial Direction**at a solid angle of $\Omega = 0.01$ sr

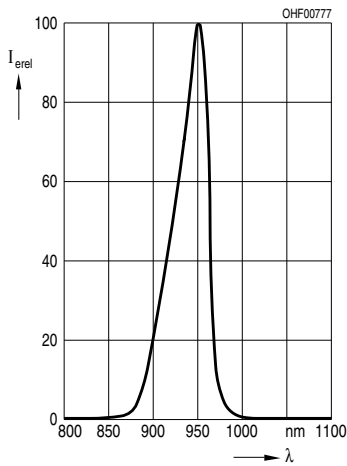
Bezeichnung Parameter	Symbol	Werte Values			Einheit Unit
		-P	-Q	-R	
Strahlstärke Radiant intensity $I_F = 100$ mA, $t_p = 20$ ms	$I_{e \text{ min}}$ $I_{e \text{ max}}$	4 8	6.3 12.5	10 20	mW/sr mW/sr
Strahlstärke Radiant intensity $I_F = 1$ A, $t_p = 100$ μ s	$I_{e \text{ typ}}$	40	60	80	mW/sr

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

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

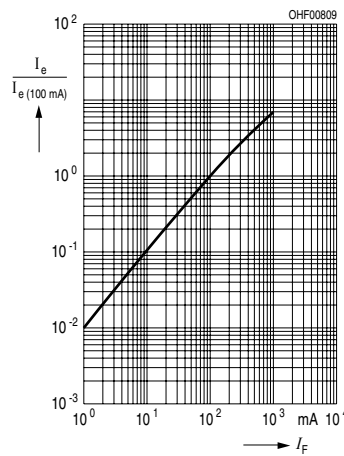
Relative Spectral Emission

$$I_{\text{rel}} = f(\lambda)$$



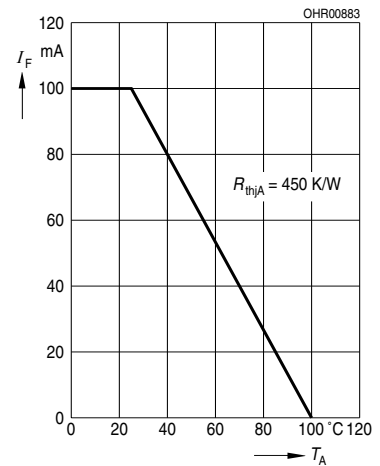
$$\text{Radiant Intensity } \frac{I_e}{I_e 100 \text{ mA}} = f(I_F)$$

Single pulse, $t_p = 20 \mu\text{s}$



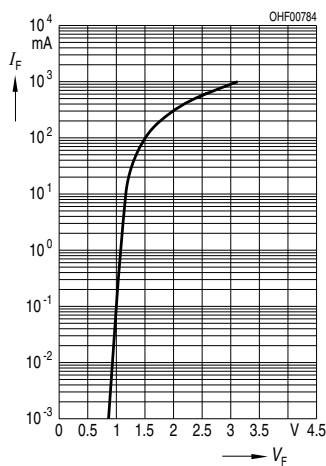
Max. Permissible Forward Current

$$I_F = f(T_A), R_{\text{thJA}} = 450 \text{ K/W}$$



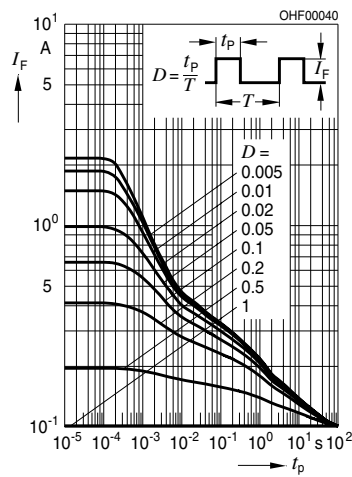
Forward Current $I_F = f(V_F)$

single pulse, $t_p = 20 \mu\text{s}$



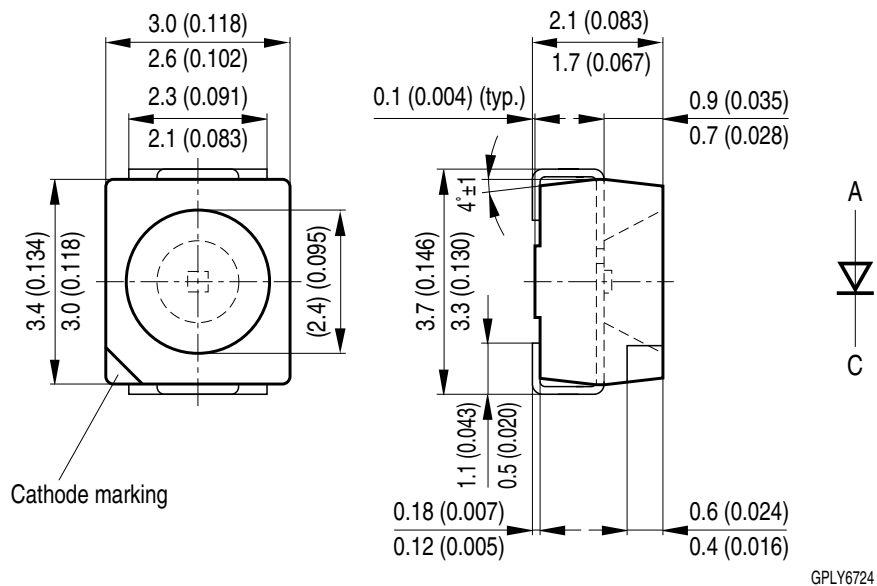
Permissible Pulse Handling Capability

$I_F = f(\tau), T_A = 25^\circ\text{C}$,
duty cycle $D = \text{parameter}$

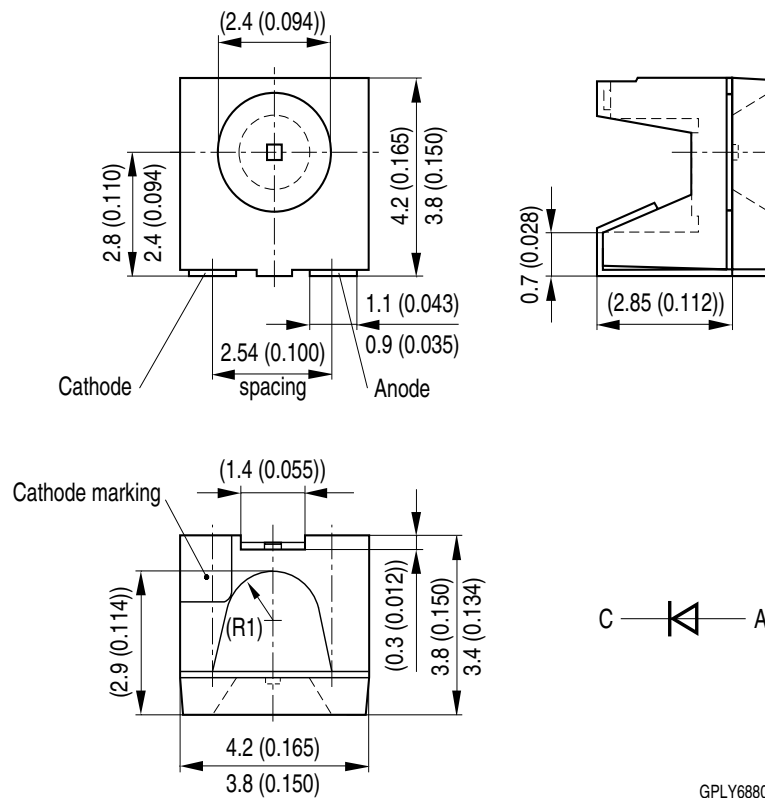


Maßzeichnung Package Outlines

SFH 4200



SFH 4205



Maße in mm (inch) / Dimensions in mm (inch).

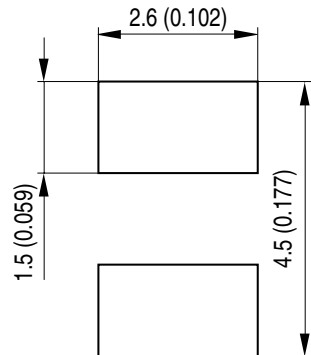
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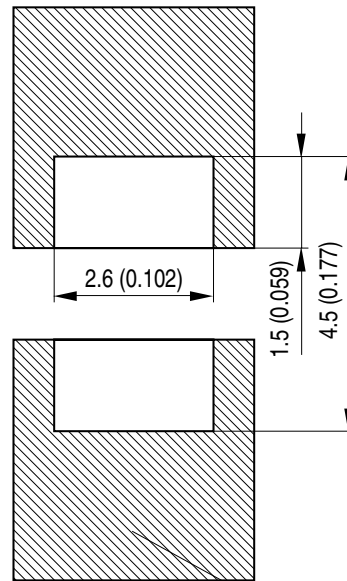
Empfohlenes Lötpaddesign Recommended Solder Pad

Reflow Löten Reflow Soldering

SFH 4200



Padgeometrie für
verbesserte Wärmeableitung
Paddesign for
improved heat dissipation

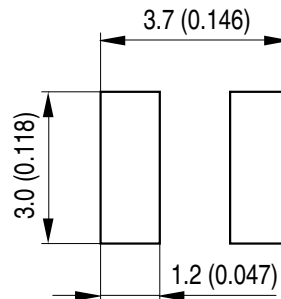


 Lötstopplack
Solder resist

Cu-Fläche > 16 mm²
 Cu-area > 16 mm²

OHLPY970

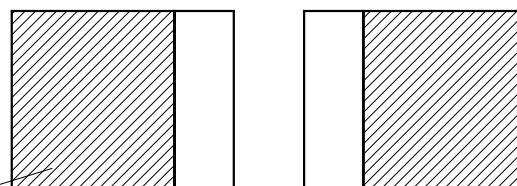
SFH 4205



Padgeometrie
für verbesserte
Wärmeableitung

Paddesign
for improved
heat dissipation

Cu-Fläche > 16 mm²
 Cu-area > 16 mm²



 Lötstopplack
Solder resist

OHLPY965

Maße in mm (inch) / Dimensions in mm (inch).

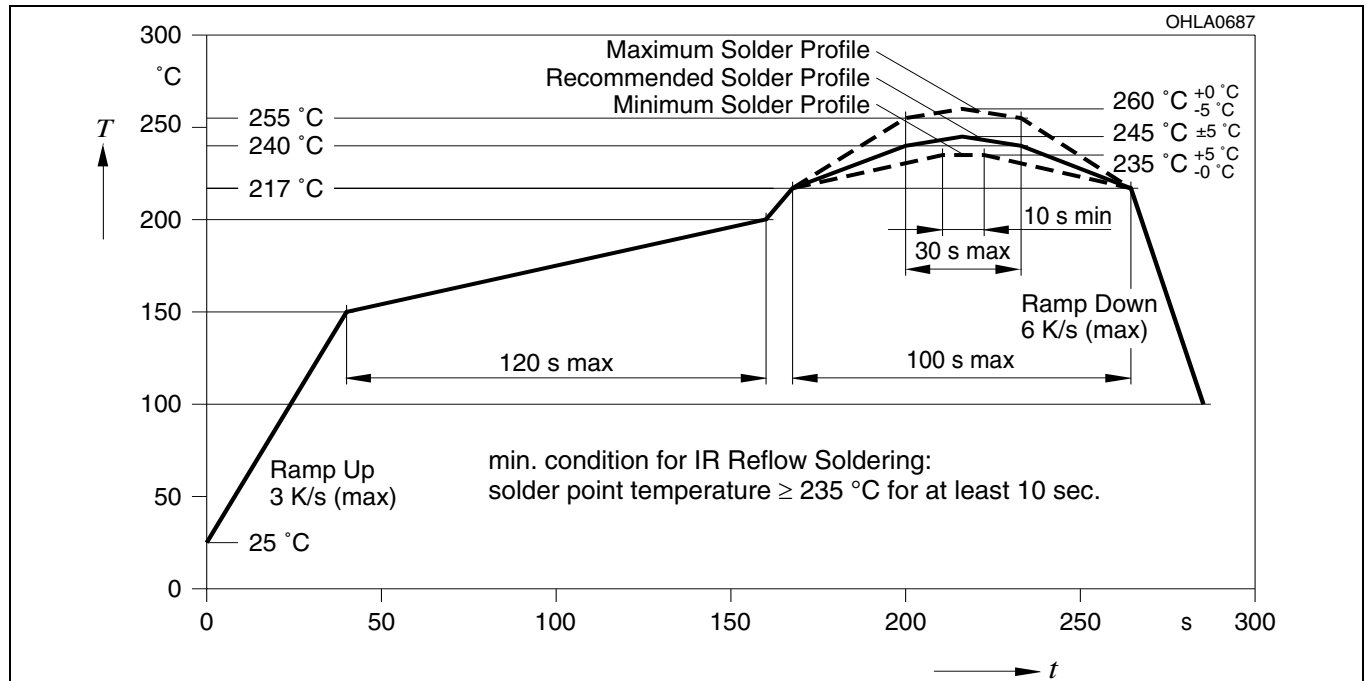
Lötbedingungen**Soldering Conditions****Reflow Lötprofil für bleifreies Löt****Reflow Soldering Profile for lead free soldering**

Vorbehandlung nach JEDEC Level 2

Preconditioning acc. to JEDEC Level 2

(nach J-STD-020C)

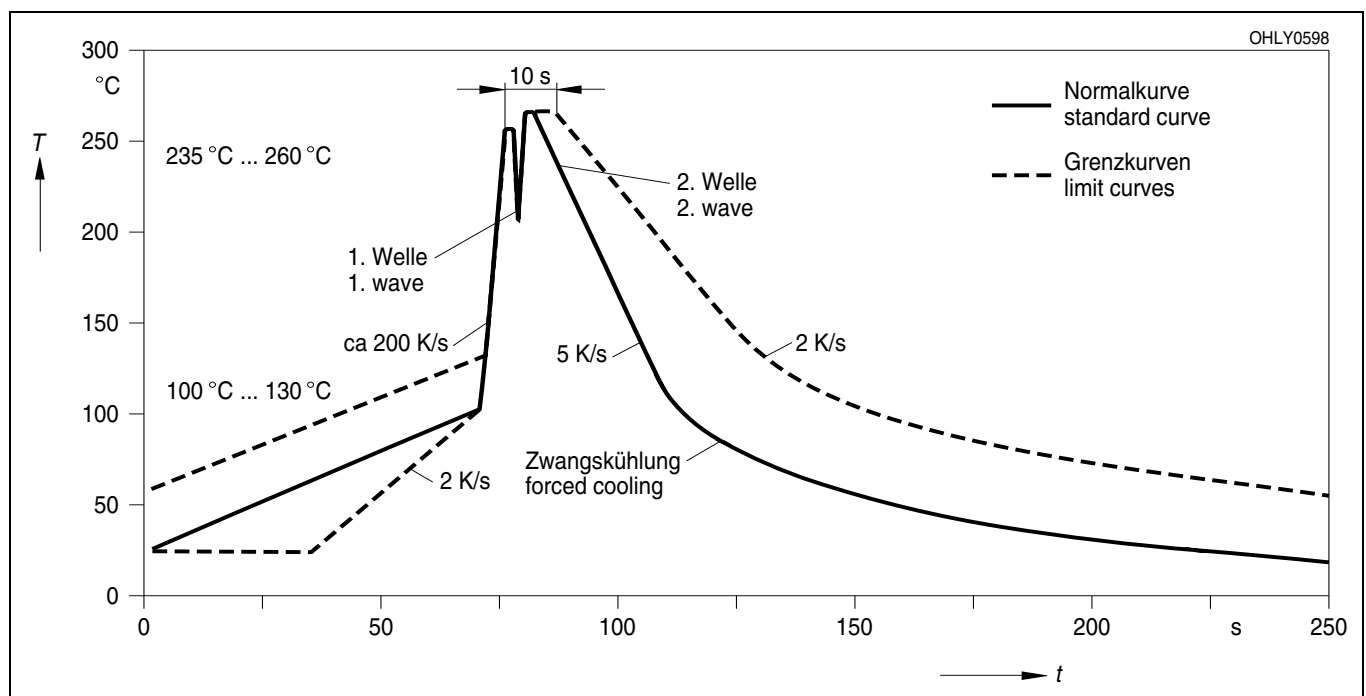
(acc. to J-STD-020C)

**Wellenlöt (TTW)**

(nach CECC 00802)

TTW Soldering

(acc. to CECC 00802)



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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.