

**IR-Lumineszenzdiode (850 nm) mit hoher Ausgangsleistung**  
**High Power Infrared Emitter (850 nm)**  
**Lead (Pb) Free Product - RoHS Compliant**  
**SFH 4236**



**Vorläufige Daten / Preliminary Data**

**Wesentliche Merkmale**

- max. Gleichstrom 1 A
- niedriger Wärmewiderstand (9 K/W)
- Schwerpunktswellenlänge 850 nm
- ESD-sicher bis 2 kV nach JESD22-A114-E

**Anwendungen**

- Infrarotbeleuchtung für Kameras
- Überwachungssysteme
- Fahrer-Assistenz Systeme
- Beleuchtung für Bilderkennungssysteme

**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 Sicherheitsrichtlinien der IEC-Normen 60825-1 und 62471 behandelt werden.

**Features**

- max. DC-current 1 A
- Low thermal resistance (9 K/W)
- Center of spectral emission at 850 nm
- ESD save up to 2 kV acc. to JESD22-A114-E

**Applications**

- Infrared Illumination for cameras
- Surveillance systems
- Driver assistance systems
- Machine vision systems

**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 and IEC 62471.

Typ Type	Bestellnummer Ordering Code	Strahlstärkegruppierung <sup>1)</sup> ( $I_F = 1 \text{ A}$ , $t_p = 10 \text{ ms}$ ) Radiant Intensity Grouping <sup>1)</sup> $I_e$ (mW/sr)
SFH 4236	Q65110A9564	> 250 (typ. 630)

<sup>1)</sup> gemessen bei einem Raumwinkel  $\Omega = 0.01 \text{ sr}$  / measured at a solid angle of  $\Omega = 0.01 \text{ sr}$

**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 ... + 125	°C
Sperrschichttemperatur Junction temperature	$T_J$	+ 145	°C
Sperrspannung Reverse voltage	$V_R$	1	V
Vorwärtsgleichstrom Forward current	$I_F$	1	A
Stoßstrom, $t_p < 200\ \mu\text{s}$ , $D = 0$ Surge current	$I_{FSM}$	5	A
Leistungsaufnahme Power consumption	$P_{tot}$	1.8	W
Wärmewiderstand Sperrschicht - Lötstelle Thermal resistance junction - soldering point	$R_{thJS}$	9	K/W

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

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength at peak emission $I_F = 1\text{ A}$ , $t_p = 10\text{ ms}$	$\lambda_{peak}$	860	nm
Centroid-Wellenlänge der Strahlung Centroid wavelength $I_F = 1\text{ A}$ , $t_p = 10\text{ ms}$	$\lambda_{centroid}$	850	nm
Spektrale Bandbreite bei 50% von $I_{max}$ Spectral bandwidth at 50% of $I_{max}$ $I_F = 1\text{ A}$ , $t_p = 10\text{ ms}$	$\Delta\lambda$	30	nm
Abstrahlwinkel Half angle	$\varphi$	$\pm 20$	Grad deg.
Aktive Chipfläche Active chip area	$A$	1	mm <sup>2</sup>
Abmessungen der aktiven Chipfläche Dimension of the active chip area	$L \times B$ $L \times W$	$1 \times 1$	mm <sup>2</sup>

Kennwerte ( $T_A = 25\text{ °C}$ )

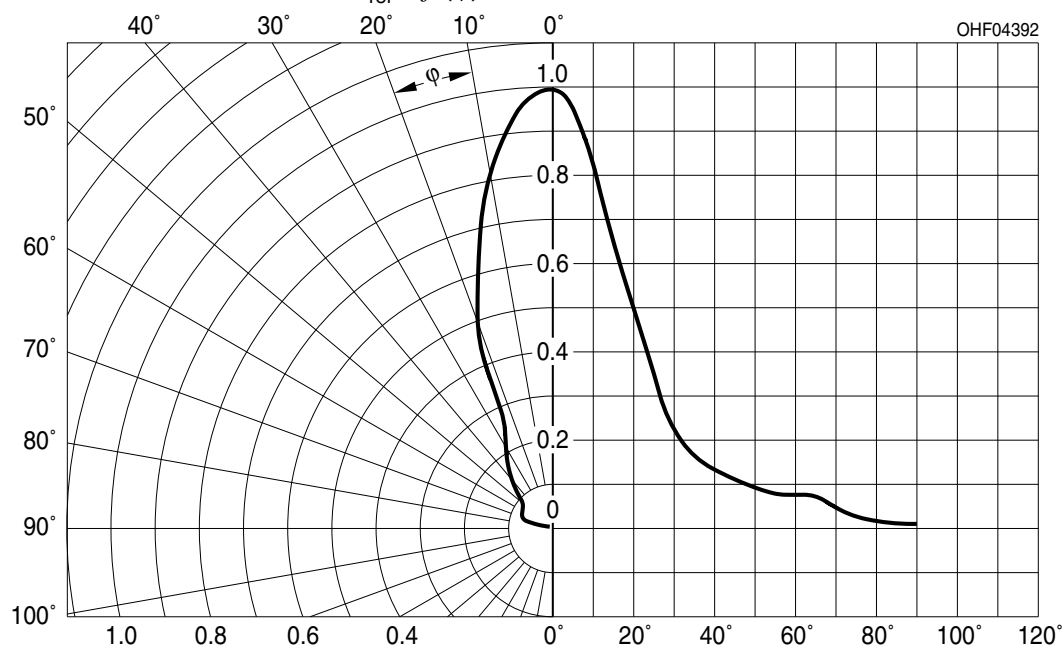
Characteristics (cont'd)

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Schaltzeiten, $I_e$ von 10% auf 90% und von 90% auf 10%, $I_F = 5\text{ A}$ , $R_L = 50\ \Omega$ Switching times, $I_e$ from 10% to 90% and from 90% to 10%, $I_F = 5\text{ A}$ , $R_L = 50\ \Omega$	$t_r / t_f$	7 / 14	ns
Durchlassspannung Forward voltage $I_F = 1\text{ A}$ , $t_p = 100\ \mu\text{s}$ $I_F = 5\text{ A}$ , $t_p = 100\ \mu\text{s}$	$V_F$ $V_F$	1.5 (< 1.8) 2.0 (< 2.9)	V V
Gesamtstrahlungsfluss Total radiant flux $I_F = 1\text{ A}$ , $t_p = 100\ \mu\text{s}$	$\Phi_e$	530	mW
Temperaturkoeffizient von $I_e$ bzw. $\Phi_e$ Temperature coefficient of $I_e$ or $\Phi_e$ $I_F = 1\text{ A}$ , $t_p = 10\text{ ms}$	$TC_I$	- 0.3	%/K
Temperaturkoeffizient von $V_F$ Temperature coefficient of $V_F$ $I_F = 1\text{ A}$ , $t_p = 10\text{ ms}$	$TC_V$	- 1	mV/K
Temperaturkoeffizient von $\lambda$ Temperature coefficient of $\lambda$ $I_F = 1\text{ A}$ , $t_p = 10\text{ ms}$	$TC_{\lambda, \text{centroid}}$	+ 0.3	nm/K

**Strahlstärke  $I_e$  in Achsrichtung<sup>1)</sup>**gemessen bei einem Raumwinkel  $\Omega = 0.01$  sr**Radiant Intensity  $I_e$  in Axial Direction**at a solid angle of  $\Omega = 0.01$  sr

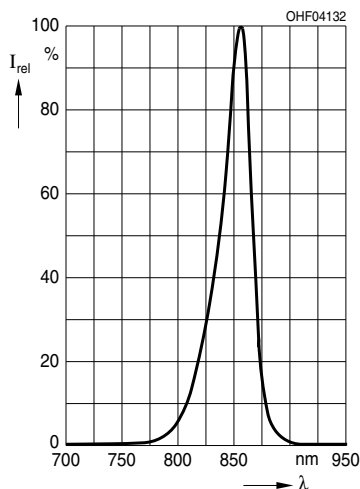
Bezeichnung Parameter	Symbol	Werte Values			Einheit Unit
		-CW	-DW	-EW	
Strahlstärke	$I_{e \text{ min}}$	250	400	630	mW/sr
Radiant intensity	$I_{e \text{ max}}$	500	800	1250	mW/sr
$I_F = 1$ A, $t_p = 10$ ms					

<sup>1)</sup> 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 spektrale Emission  
Relative Spectral Emission**

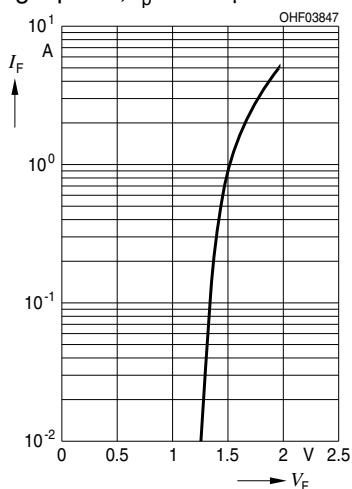
$I_{rel} = f(\lambda)$



**Durchlassstrom  
Forward Current**

$I_F = f(V_F)$

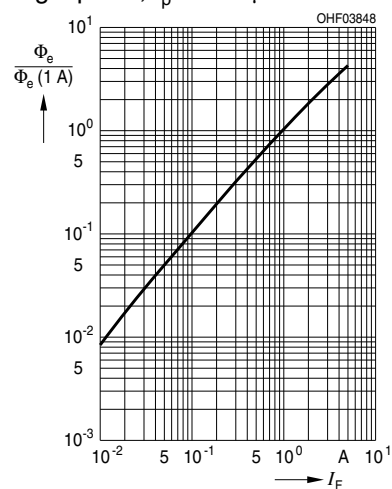
Single pulse,  $t_p = 100 \mu s$



**Relativer Gesamtstrahlungsfluss  
Relative Total Radiant Flux**

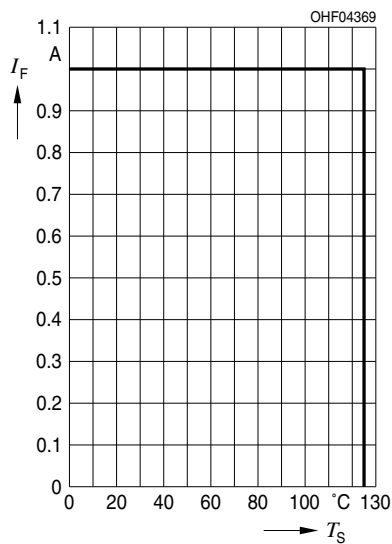
$\Phi_e / \Phi_e(1000mA) = f(I_F)$

Single pulse,  $t_p = 100 \mu s$



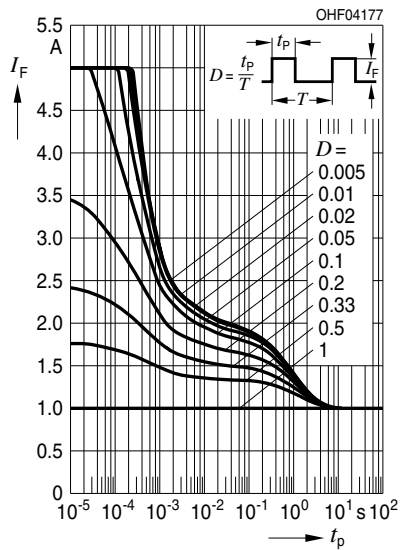
**Max. zulässiger Durchlassstrom  
Max. Permissible Forward Current**

$I_F = f(T_A), R_{thJS} = 9 \text{ K/W}$

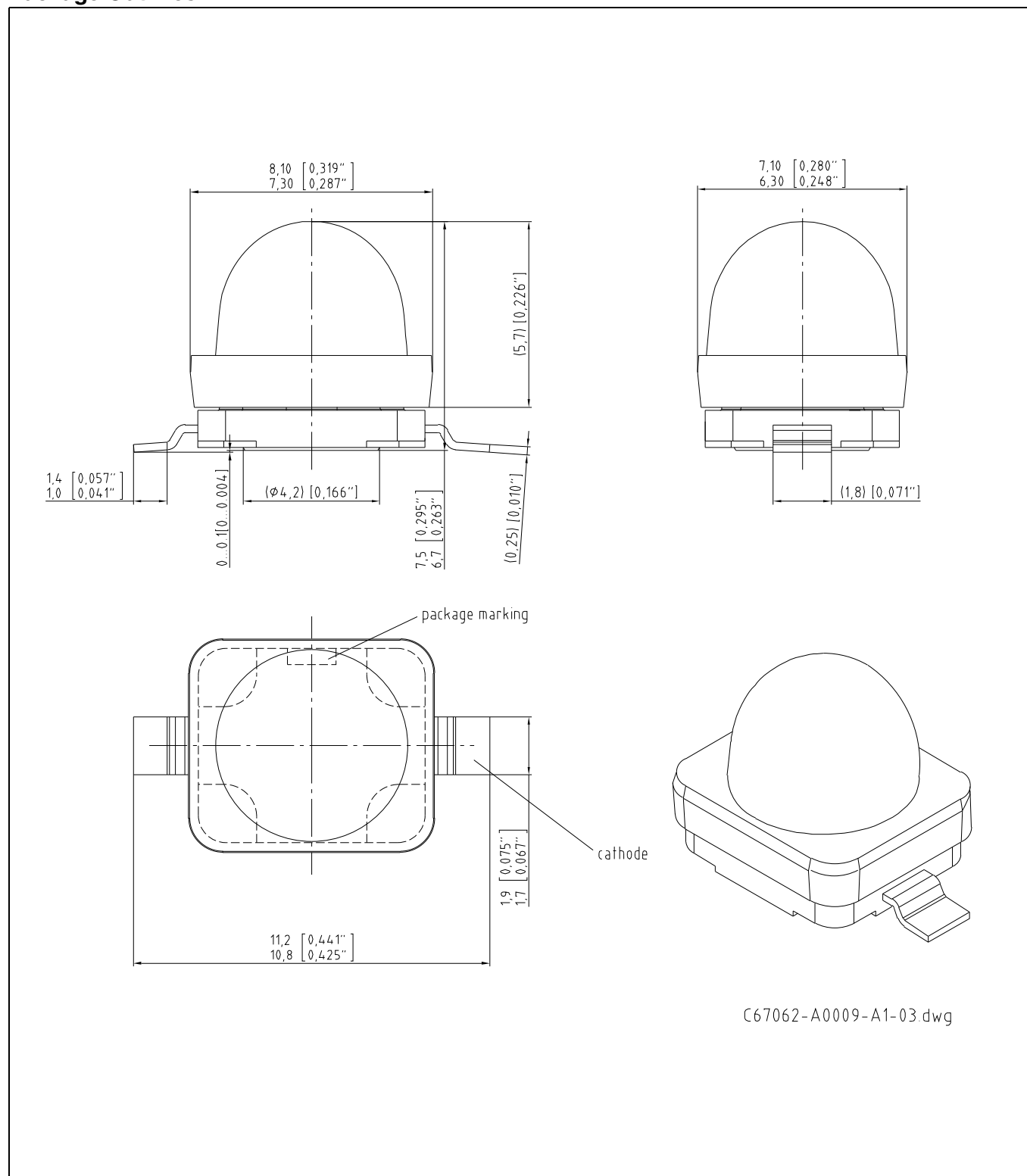


**Zulässige Impulsbelastbarkeit  
Permissible Pulse Handling**

Capability  $I_F = f(t_p), T_S = 85 \text{ }^\circ\text{C}$ ,  
Duty cycle  $D = \text{parameter}$



Maßzeichnung  
Package Outlines



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

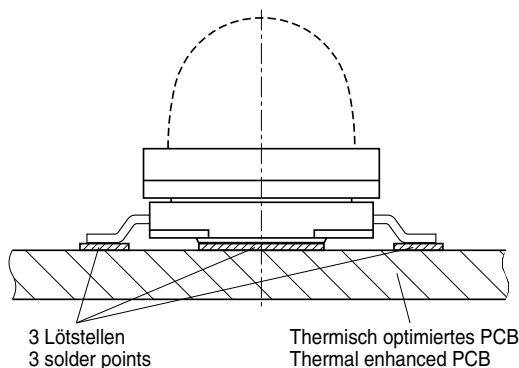
**Empfohlenes Lötpaddesign**  
**Recommended Solder Pad Design**

**Achtung:**

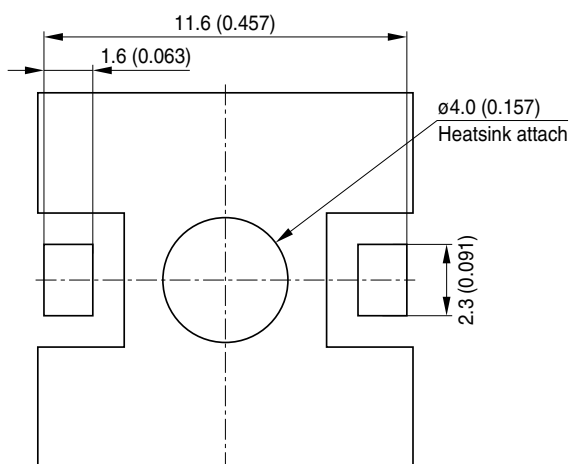
Anode und Heatsink sind elektrisch verbunden

**Attention:**

Anode and Heatsink are electrically connected

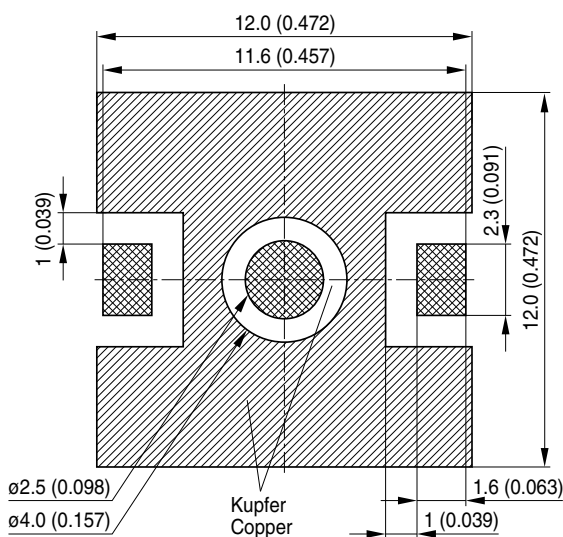





Footprint



Empfohlene Padgeometrie

Recommended Solder Pad Design



-  Lötstopplack  
Solder resist
-  Lötpasten Schablone  
Solder paste stencil
-  Freies Kupfer  
Bare Copper

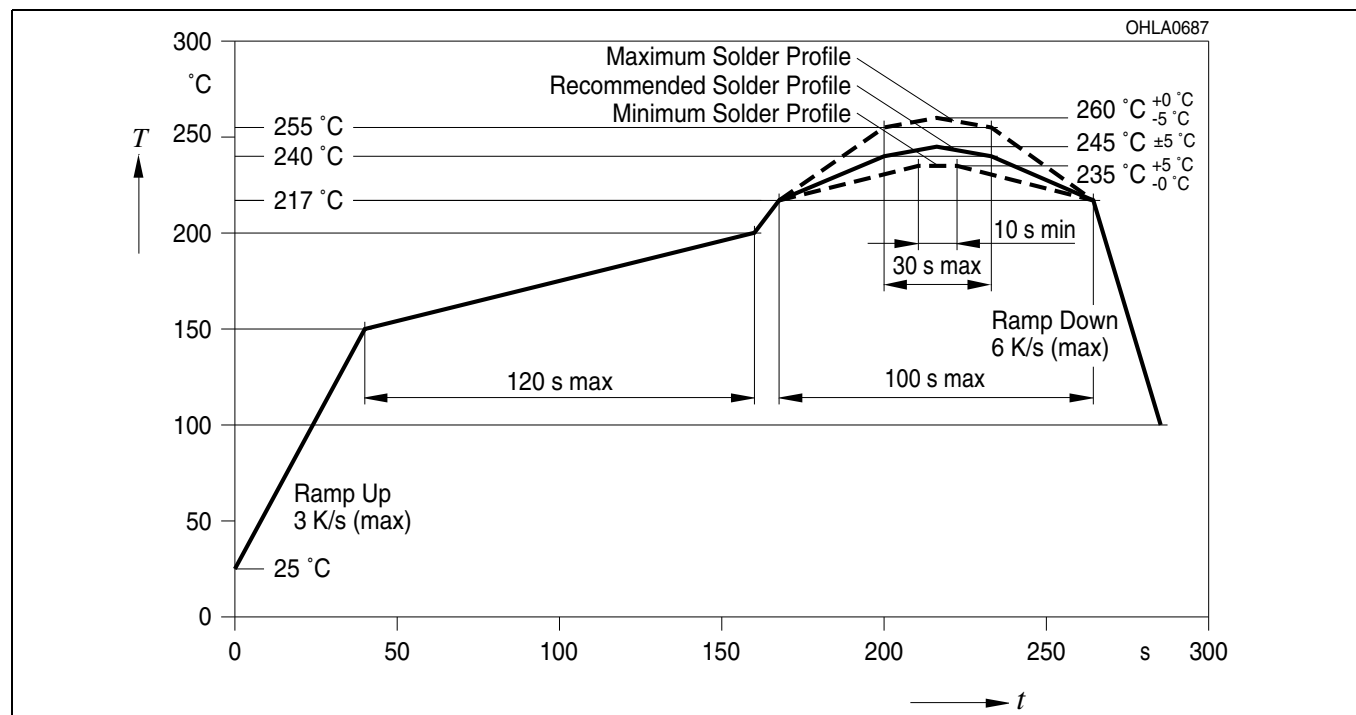
OHPY3638

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

## Lötbedingungen Soldering Conditions

Reflow Lötprofil für bleifreies Löten  
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)



Anm.: Das Gehäuse ist für Ultraschallreinigung nicht geeignet

Note: Package not suitable for ultra sonic cleaning

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### 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<sup>1</sup>, may only be used in life-support devices or systems<sup>2</sup> with the express written approval of OSRAM OS.

<sup>1</sup> A critical component is a component used in 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.

<sup>2</sup> 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.

EU RoHS and China RoHS compliant product



此产品符合欧盟 RoHS 指令的要求；

按照中国的相关法规和标准，不含有毒有害物质或元素。