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# Golden Dragon®

## 1 Watt LED

### LA W57B, LY W57B



#### Besondere Merkmale

- **Gehäusertyp:** weißes SMD-Gehäuse
- **Besonderheit des Bauteils:** Punktlichtquelle mit hoher Lichtausbeute bei geringem Platzbedarf
- **Wellenlänge:** 617 nm (amber), 587 nm (gelb)
- **Abstrahlwinkel:** Lambertscher Strahler (120°)
- **Technologie:** InGaAlP
- **optischer Wirkungsgrad:** 20 lm/W
- **Gruppierungsparameter:** Lichtstrom, Wellenlänge
- **Verarbeitungsmethode:** für alle SMT-Bestücktechniken geeignet
- **Lötmethode:** IR Reflow Löten
- **Vorbehandlung:** nach JEDEC Level 4
- **Gurtung:** 24-mm Gurt mit 800/Rolle, ø180 mm
- **ESD-Festigkeit:** ESD-sicher bis 2 kV nach EOS/ESD-5.1-1993

#### Anwendungen

- Verkehrssignale
- Hinterleuchtung (Werbebeleuchtung, Allgemeinbeleuchtung)
- Innen- und Außenbeleuchtung im Automobilbereich (z.B. Instrumentenbeleuchtung, Heckleuchte, Blinkleuchte)
- Ersatz von Kleinst-Glühlampen
- Tragbare Beleuchtung z. B. am Fahrrad, Taschenlampe
- Dekorative Lichtleiter-Anwendungen
- Signal- und Symbolleuchten zur Orientierung
- Markierungsbeleuchtung (z.B. Stufen, Fluchtwege, u.ä.)
- Fassadenbeleuchtung im Innen- und Außenbereich

#### Features

- **package:** white SMD package
- **feature of the device:** Point lightsource with high luminous efficiency and low space
- **wavelength:** 617 nm (amber), 587 nm (yellow)
- **viewing angle:** Lambertian Emitter (120°)
- **technology:** InGaAlP
- **optical efficiency:** 20 lm/W
- **grouping parameter:** luminous flux, wavelength
- **assembly methods:** suitable for all SMT assembly methods
- **soldering methods:** IR reflow soldering
- **preconditioning:** acc. to JEDEC Level 4
- **taping:** 24-mm tape with 800/reel, ø180 mm
- **ESD-withstand voltage:** up to 2 kV acc. to EOS/ESD-5.1-1993

#### Applications

- traffic signaling
- backlighting (illuminated advertising, general lighting)
- Interior and exterior automotive lighting (e.g. dashboard backlighting, rear combination lamp (RCL))
- substitution of micro incandescent lamps
- portable light source (e. g. bicycle, flashlight)
- decorative and entertainment lighting (incl. fiber optic illumination)
- signal and symbol luminaire for orientation
- marker lights (e.g. steps, exit ways, etc.)
- indoor and outdoor commercial and residential architectural lighting

Typ	Emissions- farbe	Farbe der Lichtaustritts- fläche	Lichtstrom	Lichtstärke	Bestellnummer
Type	Color of Emission	Color of the Light Emitting Area	Luminous Flux $I_F = 400 \text{ mA}$ $\Phi_V \text{ (mlm)}$	Luminous Intensity $I_F = 400 \text{ mA}$ $I_V \text{ (mcd)}$	Ordering Code
LA W57B-FYGY-24	amber	colorless clear	13000 ... 24000	6000 (typ.)	Q65110A0371
LY W57B-FYGY-26	yellow	colorless clear	13000 ... 24000	6000 (typ.)	Q65110A0372

Anm.: -26 gesamter Farbbereich, Lieferung in Einzelgruppen (siehe **Seite 5**)

*Die Standardlieferform von Serientypen beinhaltet eine Familiengruppe, die aus 4 Drittelgruppen besteht. Einzelne Drittelgruppen sind nicht erhältlich.*

*In einer Verpackungseinheit / Gurt ist immer nur eine Drittelgruppe enthalten.*

*Dimmverhältnis im Gleichstrom-Betrieb max. 5:1.*

Note: -26 Total color tolerance range, delivery in single groups (please see **page 5**)

*The standard shipping format for serial types includes a family group of 4 individual third groups. Individual third groups are not available.*

*No packing unit / tape ever contains more than one luminous intensity third group.*

*Dimming range for direct current mode max. 5:1*



**Grenzwerte**  
**Maximum Ratings**

Bezeichnung Parameter	Symbol Symbol	Wert Value		Einheit Unit
		LA	LY	
Betriebstemperatur Operating temperature range	$T_{op}$	- 40 ... + 100		°C
Lagertemperatur Storage temperature range	$T_{stg}$	- 40 ... + 100		°C
Sperrschichttemperatur Junction temperature	$T_j$	+ 125		°C
Durchlassstrom Forward current	$I_F$	400		mA
Stoßstrom Surge current $t \leq 10 \mu s, D = 0.005$	$I_{FM}$	500		mA
Sperrspannung <sup>1)</sup> Reverse voltage	$V_R$	12		V
Leistungsaufnahme Power consumption	$P_{tot}$	1.2		W
Wärmewiderstand* Thermal resistance* Sperrschicht/Lötpad Junction/soldering point	$R_{th JS}$	24		K/W

<sup>1)</sup> für kurzzeitigen Betrieb geeignet / suitable for short term application

\*Montage auf PC-Board - Metallkernplatine,  $\lambda = 1.3 \text{ W}/(\text{m}^*\text{K})$ , für weitere Informationen siehe Applikationsschrift im Internet ([www.osram-os.com](http://www.osram-os.com)).

\*Mounted on PC board - metall core PCB,  $\lambda = 1.3 \text{ W}/(\text{m}^*\text{K})$ , for further information please find the application note on our web site ([www.osram-os.com](http://www.osram-os.com)).

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

Bezeichnung Parameter	Symbol Symbol	Werte Value		Einheit Unit
		LA	LY	
Wellenlänge des emittierten Lichtes (typ.) Wavelength at peak emission $I_F = 400\text{ mA}$	$\lambda_{\text{peak}}$	624	594	nm
Dominantwellenlänge <sup>1)</sup> (typ.) Dominant wavelength <sup>1)</sup> $I_F = 400\text{ mA}$	$\lambda_{\text{dom}}$	617 -5/+7	587 -7/+8	nm
Spektrale Bandbreite bei 50 % $I_{\text{rel max}}$ (typ.) Spectral bandwidth at 50 % $I_{\text{rel max}}$ $I_F = 400\text{ mA}$	$\Delta\lambda$	18	15	nm
Abstrahlwinkel bei 50 % $I_V$ (Vollwinkel) (typ.) Viewing angle at 50 % $I_V$	$2\phi$	120	120	Grad deg.
Durchlassspannung <sup>2)</sup> (typ.) Forward voltage <sup>2)</sup> (max.) $I_F = 400\text{ mA}$	$V_F$ $V_F$	2.2 2.6	2.2 2.6	V V
Sperrstrom (typ.) Reverse current (max.) $V_R = 12\text{ V}$	$I_R$ $I_R$	0.01 10	0.01 10	$\mu\text{A}$ $\mu\text{A}$
Temperaturkoeffizient von $\lambda_{\text{peak}}$ (typ.) Temperature coefficient of $\lambda_{\text{peak}}$ $I_F = 400\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_{\lambda_{\text{peak}}}$	0.13	0.13	nm/K
Temperaturkoeffizient von $\lambda_{\text{dom}}$ (typ.) Temperature coefficient of $\lambda_{\text{dom}}$ $I_F = 400\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_{\lambda_{\text{dom}}}$	0.06	0.10	nm/K
Temperaturkoeffizient von $V_F$ (typ.) Temperature coefficient of $V_F$ $I_F = 400\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_V$	- 3.0	- 3.0	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 400\text{ mA}$	$\eta_{\text{opt}}$	20	20	lm/W

<sup>1)</sup> Wellenlängen werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von  $\pm 1\text{ nm}$  ermittelt.  
Wavelengths are tested at a current pulse duration of 25 ms and a tolerance of  $\pm 1\text{ nm}$ .

<sup>2)</sup> Spannungswerte werden mit einer Stromeinprägedauer von 1 ms und einer Genauigkeit von  $\pm 0,1\text{ V}$  ermittelt.  
Voltages are tested at a current pulse duration of 1 ms and a tolerance of  $\pm 0.1\text{ V}$ .

<sup>1)</sup>Wellenlängengruppen / Wavelength groups

Gruppe Group	yellow		amber		Einheit Unit
	min.	max.	min.	max.	
2	580	583	612	616	nm
3	583	586	616	620	nm
4	586	589	620	624	nm
5	589	592			nm
6	592	595			nm

Wellenlängen werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von ±1 nm ermittelt.  
Wavelengths are tested at a current pulse duration of 25 ms and a tolerance of ±1 nm.

**Helligkeits-Gruppierungsschema**  
**Luminous Intensity Groups**

Lichtgruppe Luminous Intensity Group	Lichtstrom Luminous Flux $\Phi_V$ (lm)	Lichtstärke Luminous Intensity $I_V$ (mcd)
FY	13000 ...15000	4700 (typ.)
FZ	15000 ...18000	5500 (typ.)
GX	18000 ...21000	6500 (typ.)
GY	21000 ...24000	7500 (typ.)

Lichtstromwerte werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von ± 11% ermittelt.  
Luminous Flux is tested at a current pulse duration of 25 ms and a tolerance of ± 11%.

**Gruppenbezeichnung auf Etikett**  
**Group Name on Label**

Beispiel: FZ-3  
Example: FZ-3

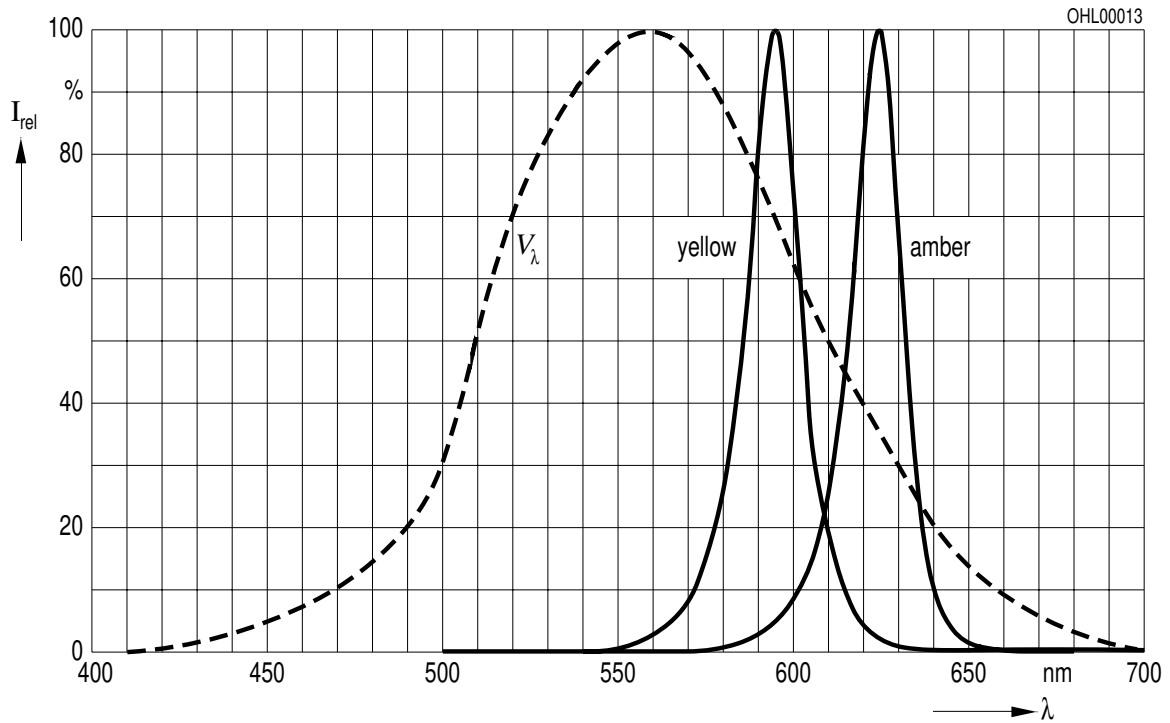
Lichtgruppe Luminous Intensity Group	Drittelgruppe Third Group	Wellenlänge Wavelength
F	Z	3

Relative spektrale Emission  $I_{rel} = f(\lambda)$ ,  $T_A = 25\text{ °C}$ ,  $I_F = 400\text{ mA}$

**Relative Spectral Emission**

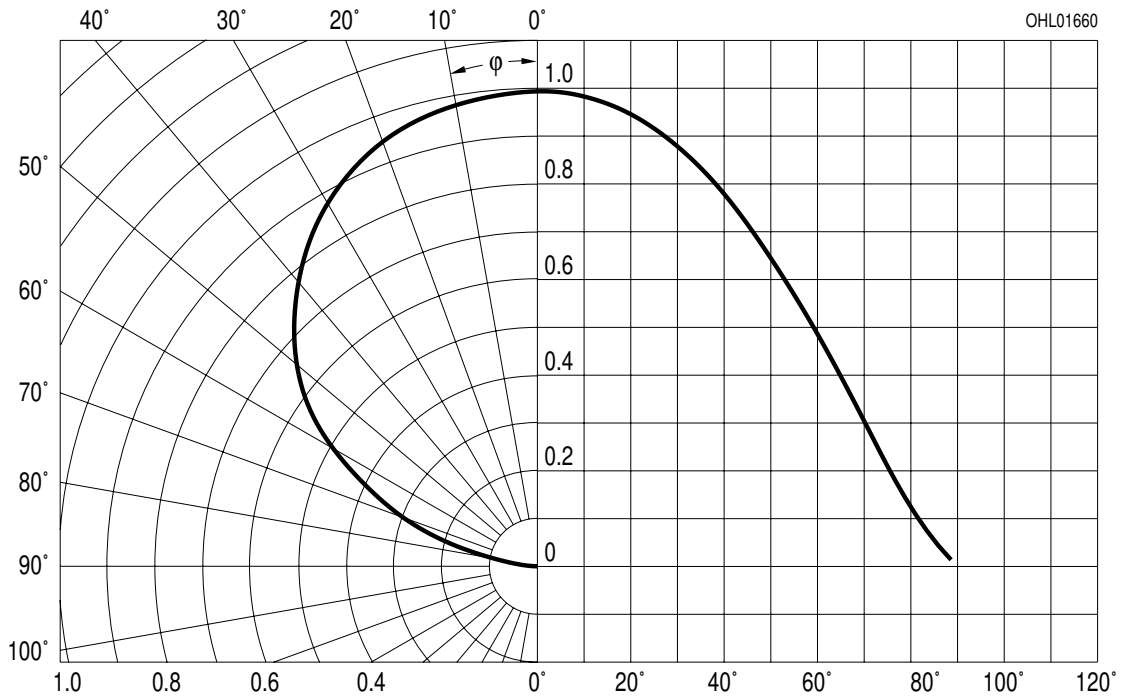
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



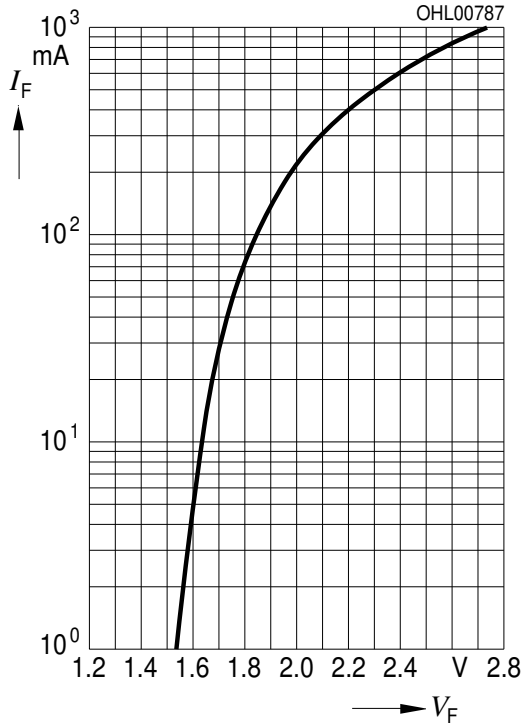
Abstrahlcharakteristik  $I_{rel} = f(\varphi)$

**Radiation Characteristic**



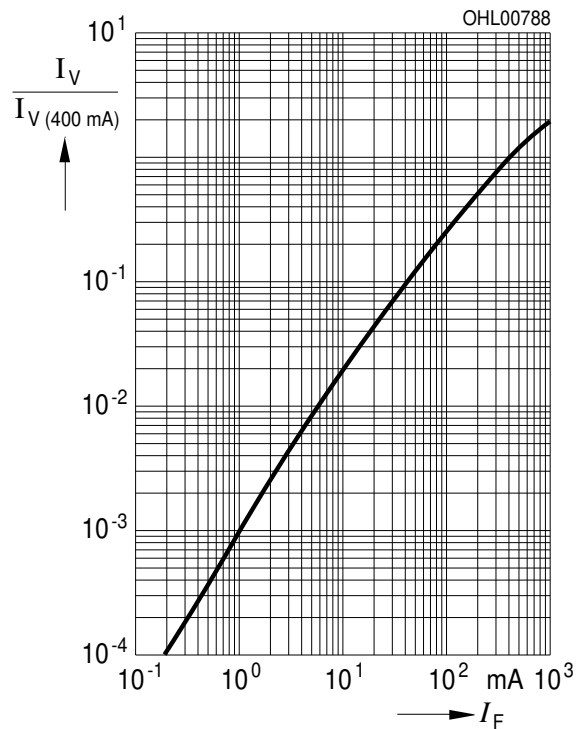
**Durchlassstrom  $I_F = f(V_F)$**   
**Forward Current**

$T_A = 25\text{ °C}$

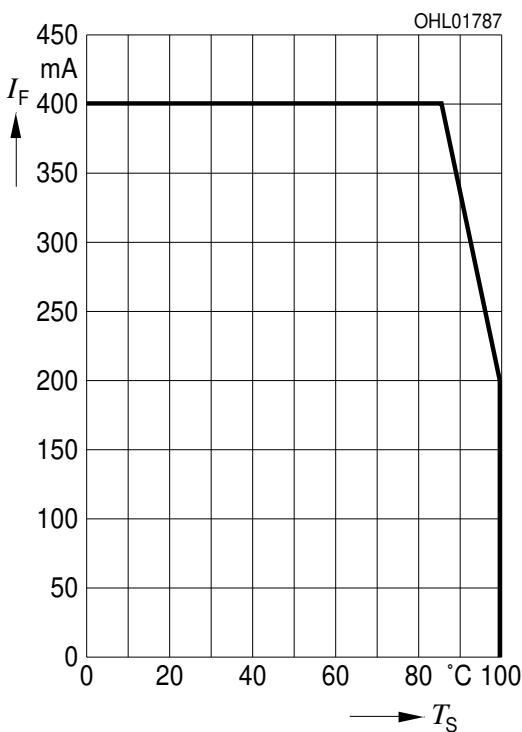


**Relative Lichtstärke  $I_V/I_{V(400\text{ mA})} = f(I_F)$**   
**Relative Luminous Intensity**

$T_A = 25\text{ °C}$

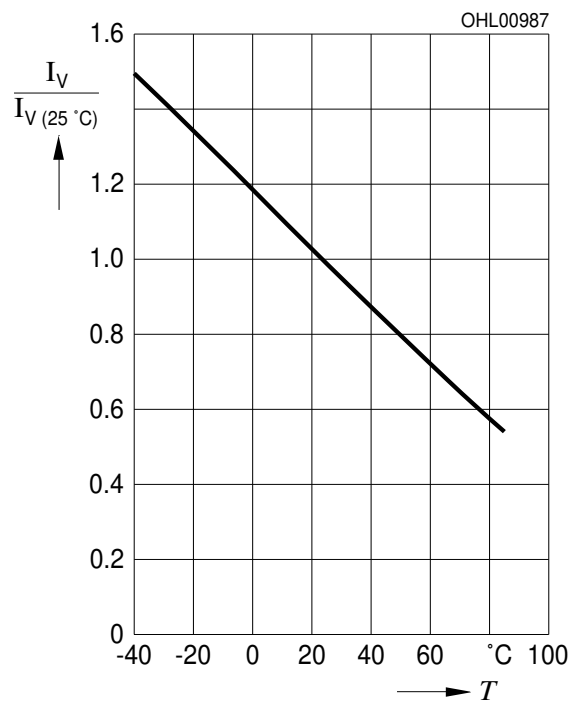


**Maximal zulässiger Durchlassstrom  $I_F = f(T_S)$**   
**Max. Permissible Forward Current**



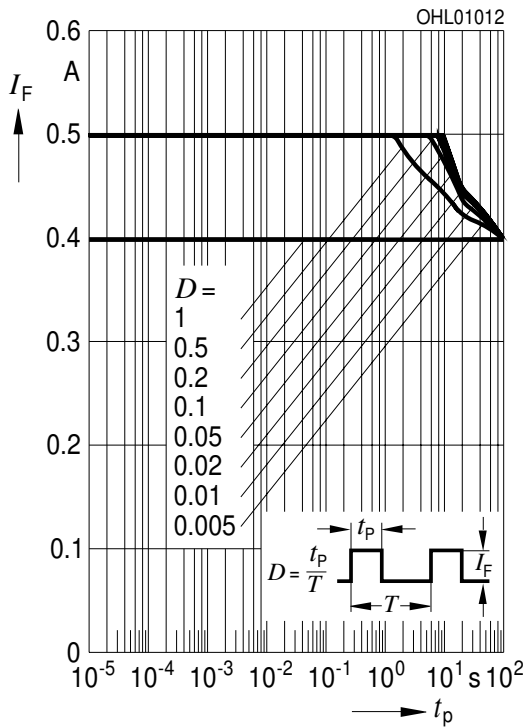
**Relative Lichtstärke  $I_V / I_{V(25\text{ °C})} = f(T_S)$**   
**Relative Luminous Intensity**

$I_F = 400\text{ mA, amber}$





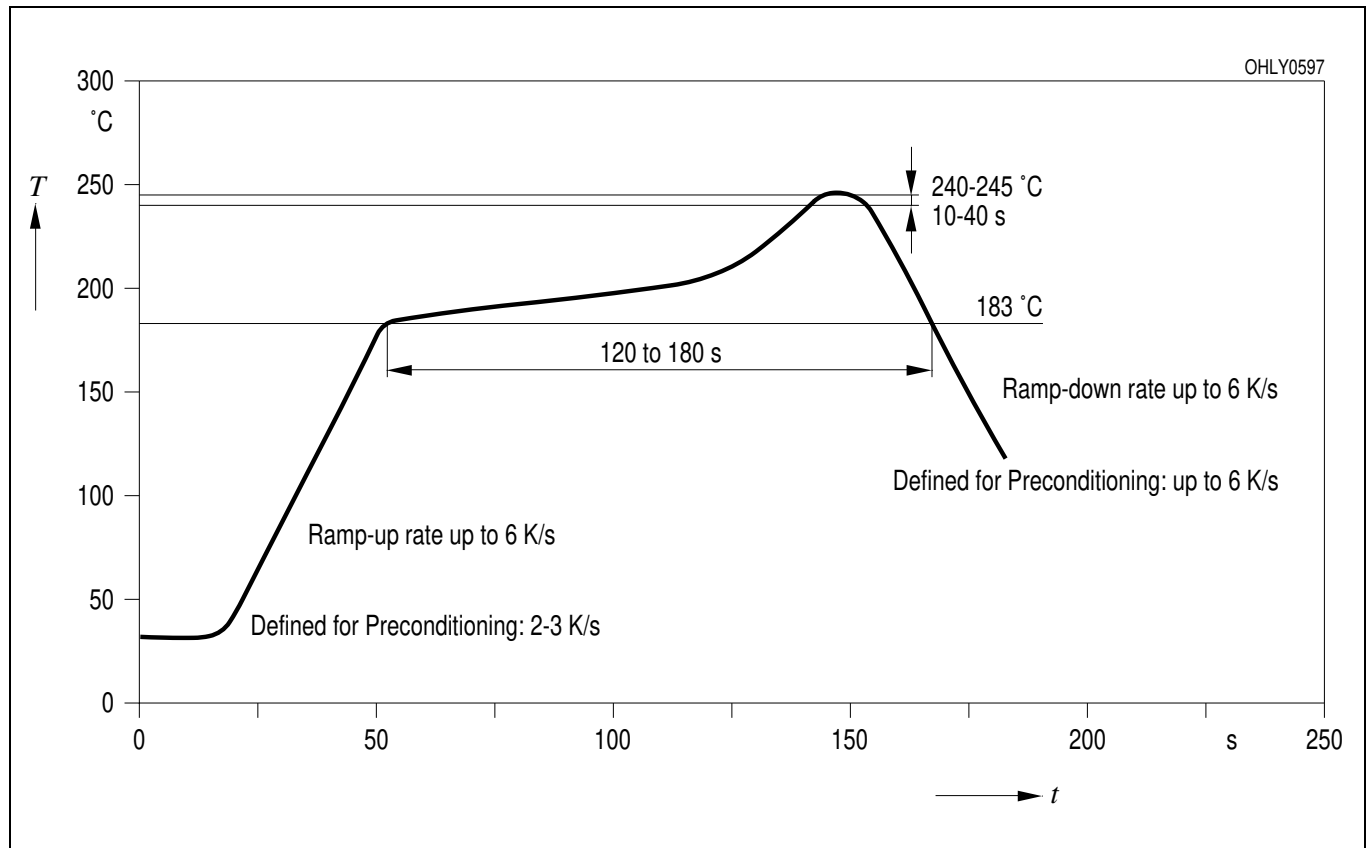
**Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$**   
**Permissible Pulse Handling Capability**  
 Duty cycle  $D =$  parameter,  $T_A = 25\text{ °C}$   
**LA**



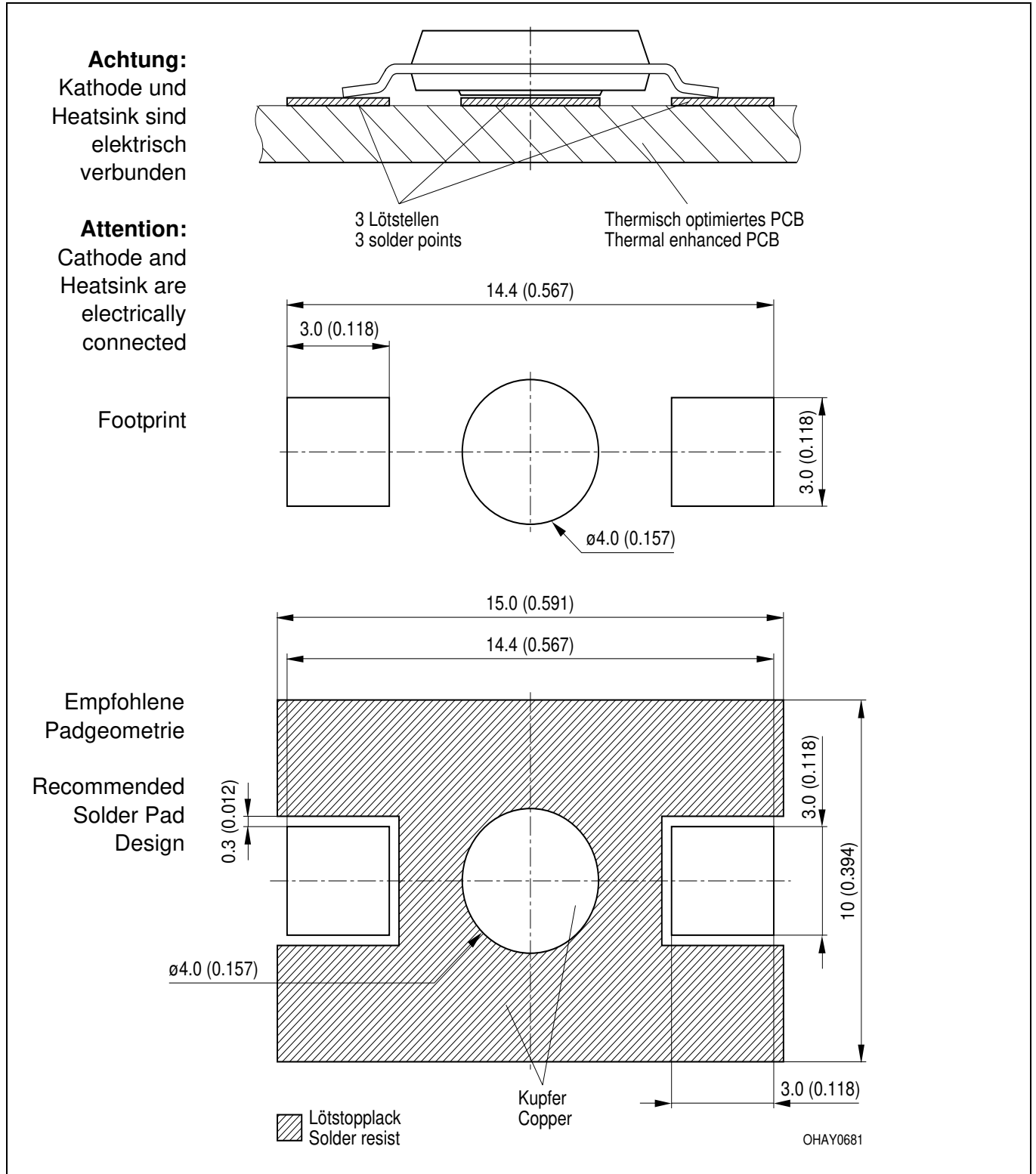


**Lötbedingungen** Vorbehandlung nach JEDEC Level 4  
**Soldering Conditions** Preconditioning acc. to JEDEC Level 4

**IR-Reflow Lötprofil** (nach IPC 9501)  
**IR Reflow Soldering Profile** (acc. to IPC 9501)



**Empfohlenes Lötpaddesign** IR-Reflow Lötén  
**Recommended Solder Pad** IR Reflow Soldering



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

Montage auf PC-Board - Metallkernplatte,  $\lambda = 1.3 \text{ W}/(\text{m}^*\text{K})$ , für weitere Informationen siehe Applikationsschrift im Internet ([www.osram-os.com](http://www.osram-os.com)).

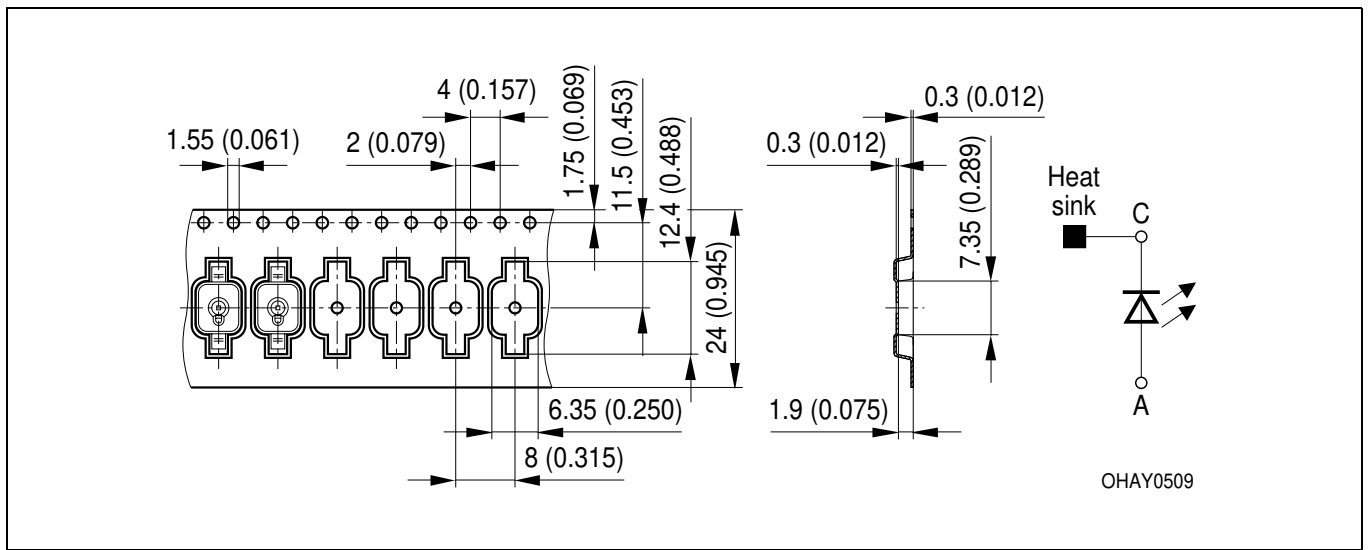
Mounted on PC board - metall core PCB,  $\lambda = 1.3 \text{ W}/(\text{m}^*\text{K})$ , for further Information please find the application note on our web site ([www.osram-os.com](http://www.osram-os.com)).

**Gurtung / Polarität und Lage**

Verpackungseinheit 800/Rolle,  $\varnothing 180 \text{ mm}$

**Method of Taping / Polarity and Orientation**

Packing unit 800/reel,  $\varnothing 180 \text{ mm}$



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



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Revision History: 2003-05-08		Date of change
Previous Version:		
Page	Subjects (major changes since last revision)	

Published by OSRAM Opto Semiconductors GmbH  
Wernerwerkstrasse 2, D-93049 Regensburg

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**Attention please!**

The information describes the type of component and shall not be considered as assured characteristics. All typical data and graphs are basing on representative samples, but don't represent the production range. If requested, e.g. because of technical improvements, these typ. data will be changed without any further notice. 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. If printed or downloaded, please find the latest version in the Internet.

**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.

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<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 the 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.

*Anm.: Gemäß IEC 60825-1 (EN 60825-1) gilt:*

LED STRAHLUNG  
NICHT DIREKT MIT OPTISCHEN INSTRUMENTEN BETRACHTEN  
LED KLASSE 1M

*Note: according IEC 60825-1 (EN 60825-1):*

LED RADIATION  
DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS  
CLASS 1M LED PRODUCT