

# BLUE LINE™ Hyper Micro SIDELED® Hyper-Bright LED

LB Y876



## Vorläufige Daten / Preliminary Data

### Besondere Merkmale

- **Gehäusotyp:** weißes SMT Gehäuse
- **Besonderheit des Bauteils:** kleine Bauform mit extrem breiter Abstrahlcharakteristik; ideal für Hinterleuchtungen und Einkopplungen in Lichtleiter
- **Wellenlänge:** 465 nm
- **Abstrahlwinkel:** Lambertscher Strahler (120°)
- **Technologie:** GaN
- **optischer Wirkungsgrad:** 1 lm/W
- **Gruppierungsparameter:** Lichtstärke
- **Verarbeitungsmethode:** für alle SMT-Bestücktechniken geeignet
- **Lötmethode:** IR Reflow Löten und Wellenlöten (TTW)
- **Vorbehandlung:** nach JEDEC Level 2
- **Gurtung:** 8 mm Gurt mit 3000/Rolle, ø180 mm oder 10000/Rolle, ø330 mm
- **ESD-Festigkeit:** ESD-sicher bis 2 kV nach EOS/ESD-5.1-1993

### Anwendungen

- optimale Einkopplung in Lichtleiter
- Hinterleuchtung (LCD, Mobiltelefone, Tasten, Allgemeinbeleuchtung, Werbebeleuchtung)
- Signal- und Symbolleuchten
- Automobilbereich (z. B. Instrumentenbeleuchtung)

### Features

- **package:** white SMT package
- **feature of the device:** small package with extremely wide viewing angle; ideal for backlighting and coupling in light guides
- **wavelength:** 465 nm
- **viewing angle:** Lambertian Emitter (120°)
- **technology:** GaN
- **optical efficiency:** 1 lm/W
- **grouping parameter:** luminous intensity
- **assembly methods:** suitable for all SMT assembly methods
- **soldering methods:** IR reflow soldering and TTW soldering
- **preconditioning:** acc. to JEDEC Level 2
- **taping:** 8 mm tape with 3000/reel, ø180 mm or 10000/reel, ø330 mm
- **ESD-withstand voltage:** up to 2 kV acc. to EOS/ESD-5.1-1993

### Applications

- optimized coupling into light guides
- backlighting (LCD, cellular phones, keys, general lighting, illuminated advertising)
- signal and symbol luminaire
- automotive (e. g. car radio backlighting)

Typ	Emissions- farbe	Farbe der Lichtaustritts- fläche	Lichtstärke	Lichtstrom	Bestellnummer
Type	Color of Emission	Color of the Light Emitting Area	Luminous Intensity $I_F = 10 \text{ mA}$ $I_V \text{ (mcd)}$	Luminous Flux $I_F = 10 \text{ mA}$ $\Phi_V \text{ (lm)}$	Ordering Code
LB Y876-J1K1-1	blue	colorless clear	4.5 ... 9.0	20 (typ.)	Q62703Q6185
LB Y876-K1L2-1			7.1 ... 18.0	36 (typ.)	Q62703Q6186

Anm.: - 1 gesamter Farbbereich (siehe **Seite 4**)

*Die Standardlieferform von Serientypen beinhaltet eine untere bzw. eine obere Familiengruppe, die aus nur 3 bzw. 4 Halbgruppen besteht. Einzelne Halbgruppen sind nicht erhältlich.  
In einer Verpackungseinheit / Gurt ist immer nur eine Halbgruppe enthalten.*

Note: - 1 Total color tolerance range (see **page 4**)

*The standard shipping format for serial types includes a lower or upper family group of 3 or 4 individual groups. Individual half groups are not available.  
No packing unit / tape ever contains more than one luminous intensity half group.*

**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
Sperrschichttemperatur Junction temperature	$T_j$	+ 100	°C
Durchlassstrom Forward current	$I_F$	20	mA
Stoßstrom Surge current $t \leq 10 \mu s, D = 0.005$	$I_{FM}$	t.b.d.	A
Sperrspannung <sup>1)</sup> Reverse voltage	$V_R$	5	V
Leistungsaufnahme Power consumption $T_A \leq 25 \text{ °C}$	$P_{tot}$	90	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/air Sperrschicht/Lötpad Junction/solder point Montage auf PC-Board FR 4 (Padgröße $\geq 5 \text{ mm}^2$ ) mounted on PC board FR 4 (pad size $\geq 5 \text{ mm}^2$ )	$R_{th JA}$  $R_{th JS}$	630  350	K/W  K/W

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

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

Bezeichnung Parameter	Symbol Symbol	Werte Values	Einheit Unit
Wellenlänge des emittierten Lichtes (typ.) Wavelength at peak emission $I_F = 10\text{ mA}$	$\lambda_{\text{peak}}$	428	nm
Dominantwellenlänge <sup>1)</sup> Dominant wavelength <sup>1)</sup> $I_F = 10\text{ mA}$	$\lambda_{\text{dom}}$	$465 \pm 3$	nm nm
Spektrale Bandbreite bei 50 % $I_{\text{rel max}}$ (typ.) Spectral bandwidth at 50 % $I_{\text{rel max}}$ $I_F = 10\text{ mA}$	$\Delta\lambda$	60	nm
Abstrahlwinkel bei 50 % $I_V$ (Vollwinkel) (typ.) Viewing angle at 50 % $I_V$	$2\phi$	120	Grad deg.
Durchlassspannung <sup>2)</sup> (typ.) Forward voltage <sup>2)</sup> (max.) $I_F = 10\text{ mA}$	$V_F$ $V_F$	3.5 4.1	V V
Sperrstrom (typ.) Reverse current (max.) $V_R = 5\text{ V}$	$I_R$ $I_R$	0.01 10	$\mu\text{A}$ $\mu\text{A}$
Temperaturkoeffizient von $\lambda_{\text{peak}}$ (typ.) Temperature coefficient of $\lambda_{\text{peak}}$ $I_F = 10\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_{\lambda_{\text{peak}}}$	0.004	nm/K
Temperaturkoeffizient von $\lambda_{\text{dom}}$ (typ.) Temperature coefficient of $\lambda_{\text{dom}}$ $I_F = 10\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_{\lambda_{\text{dom}}}$	0.03	nm/K
Temperaturkoeffizient von $V_F$ (typ.) Temperature coefficient of $V_F$ $I_F = 10\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_V$	- 3.1	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 10\text{ mA}$	$\eta_{\text{opt}}$	1	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  $\pm 0.1\text{ V}$ .

### Helligkeits-Gruppierungsschema Luminous Intensity Groups

Lichtgruppe Luminous Intensity Group	Lichtstärke Luminous Intensity $I_v$ (mcd)	Lichtstrom Luminous Flux $\Phi_v$ (lm)
J1	4.5 ... 5.6	15 (typ.)
J2	5.6 ... 7.1	19 (typ.)
K1	7.1 ... 9.0	24 (typ.)
K2	9.0 ... 11.2	30 (typ.)
L1	11.2 ... 14.0	40 (typ.)
L2	14.0 ... 18.0	50 (typ.)

Helligkeitswerte werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von  $\pm 11\%$  ermittelt.  
Luminous intensity is tested at a current pulse duration of 25 ms and a tolerance of  $\pm 11\%$ .

### Gruppenbezeichnung auf Etikett Group Name on Label

Beispiel: K2

Example: K2

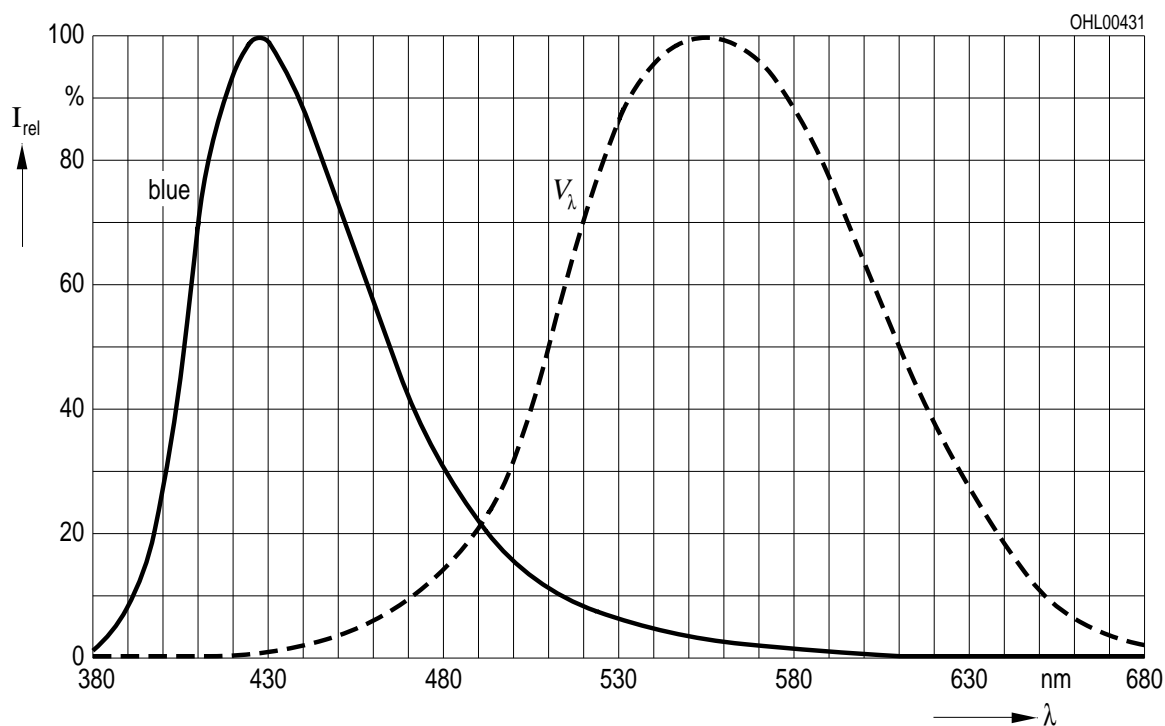
Lichtgruppe Luminous Intensity Group	Halbgruppe Half Group
K	2

**Relative spektrale Emission**  $I_{\text{rel}} = f(\lambda)$ ,  $T_A = 25\text{ °C}$ ,  $I_F = 10\text{ mA}$

### Relative Spectral Emission

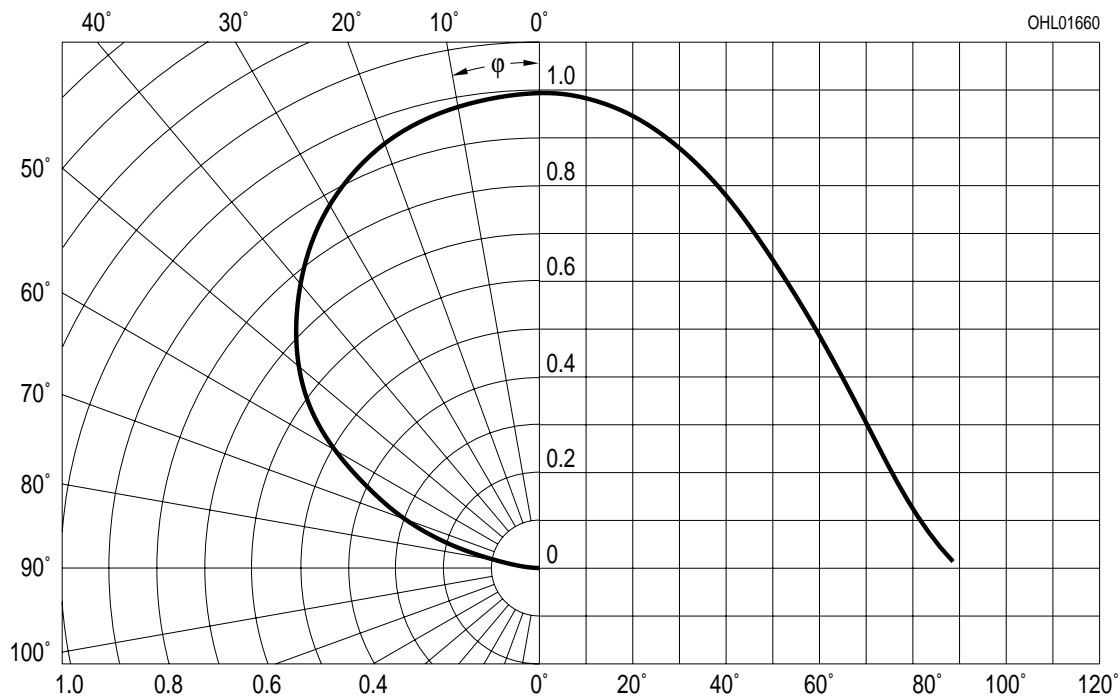
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



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

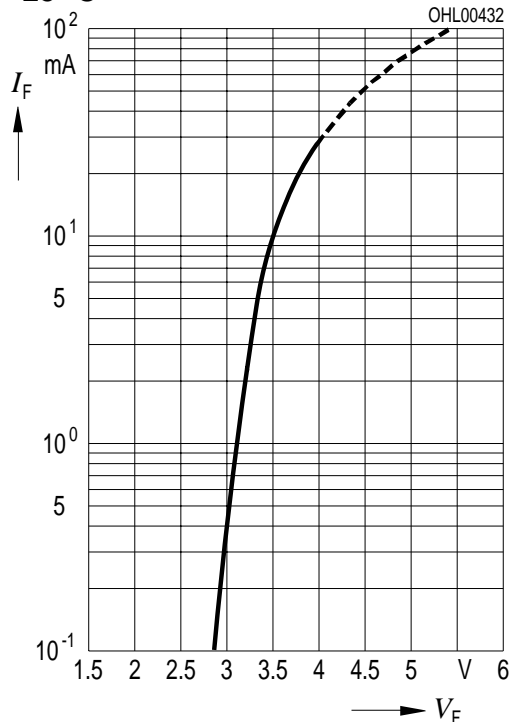
### Radiation Characteristic



Durchlassstrom  $I_F = f(V_F)$

Forward Current

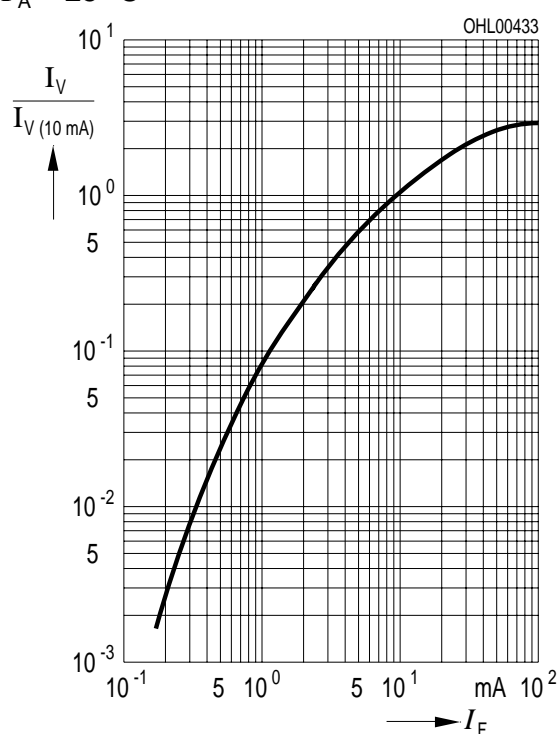
$T_A = 25\text{ °C}$



Relative Lichtstärke  $I_V/I_{V(10\text{ mA})} = f(I_F)$

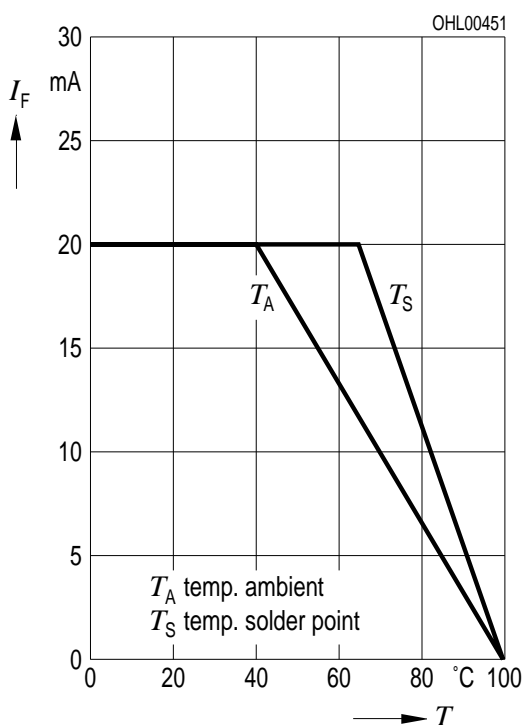
Relative Luminous Intensity

$T_A = 25\text{ °C}$



Maximal zulässiger Durchlassstrom  $I_F = f(T)$

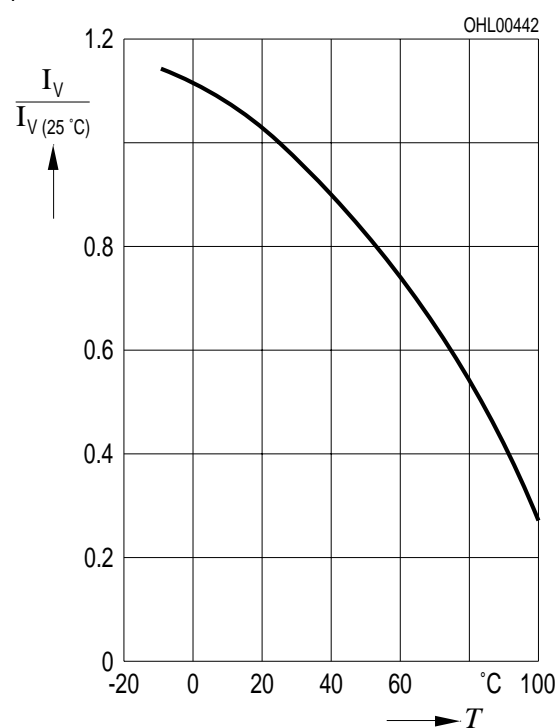
Max. Permissible Forward Current



Relative Lichtstärke  $I_V/I_{V(25\text{ °C})} = f(T_A)$

Relative Luminous Intensity

$I_F = 10\text{ mA}$

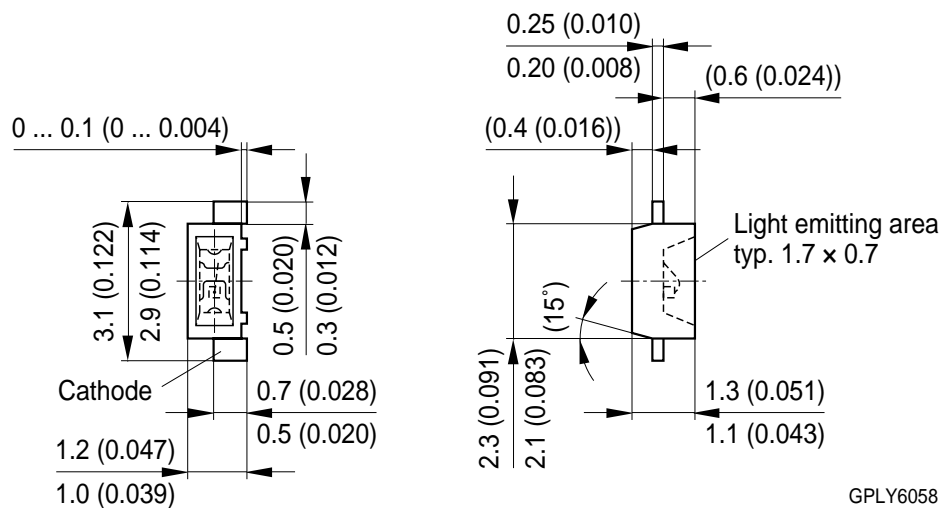


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**Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$**   
**Permissible Pulse Handling Capability**  
Duty cycle  $D = \text{parameter}$ ,  $T_A = 25\text{ °C}$

**Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$**   
**Permissible Pulse Handling Capability**  
Duty cycle  $D = \text{parameter}$ ,  $T_A = 85\text{ °C}$

# Maßzeichnung Package Outlines

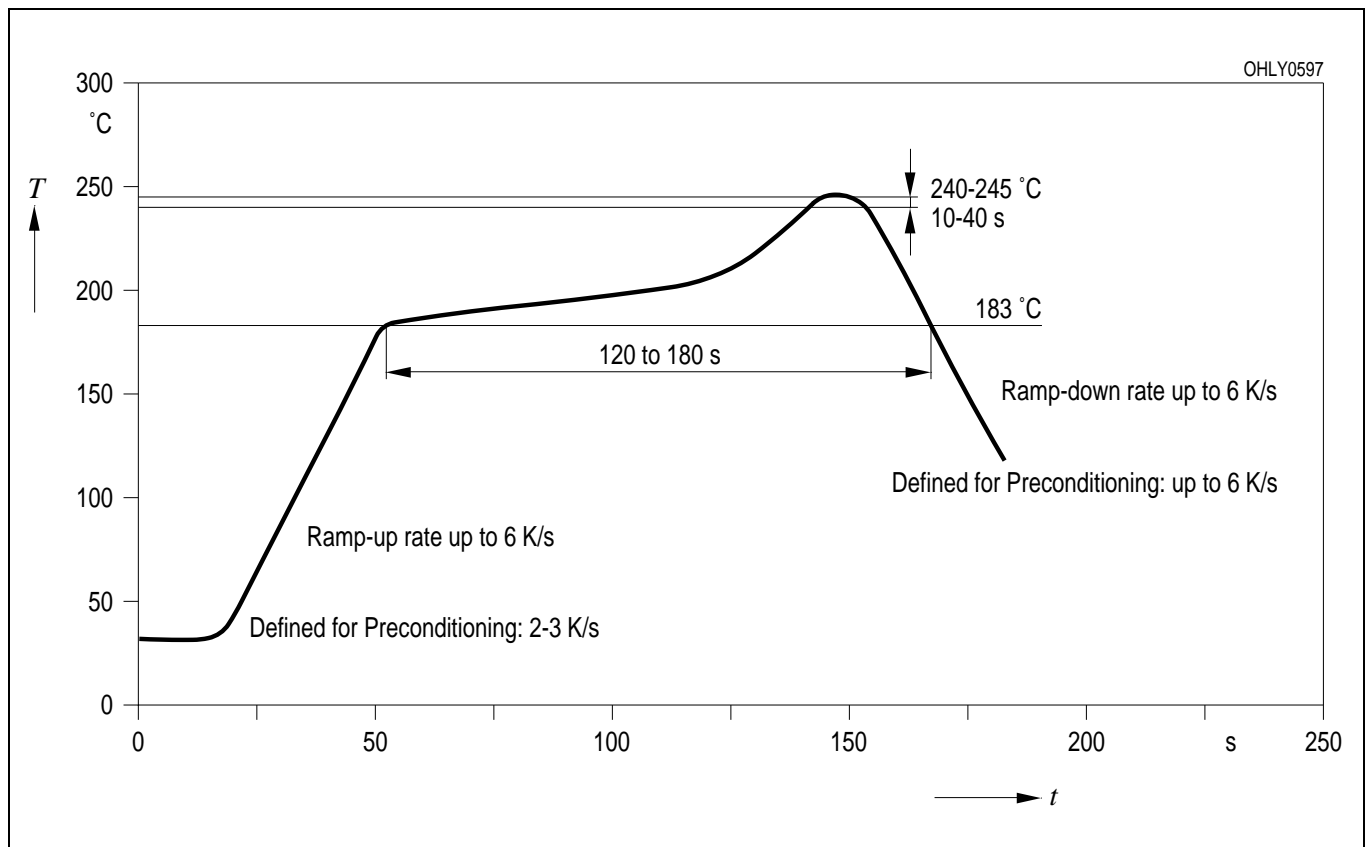


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

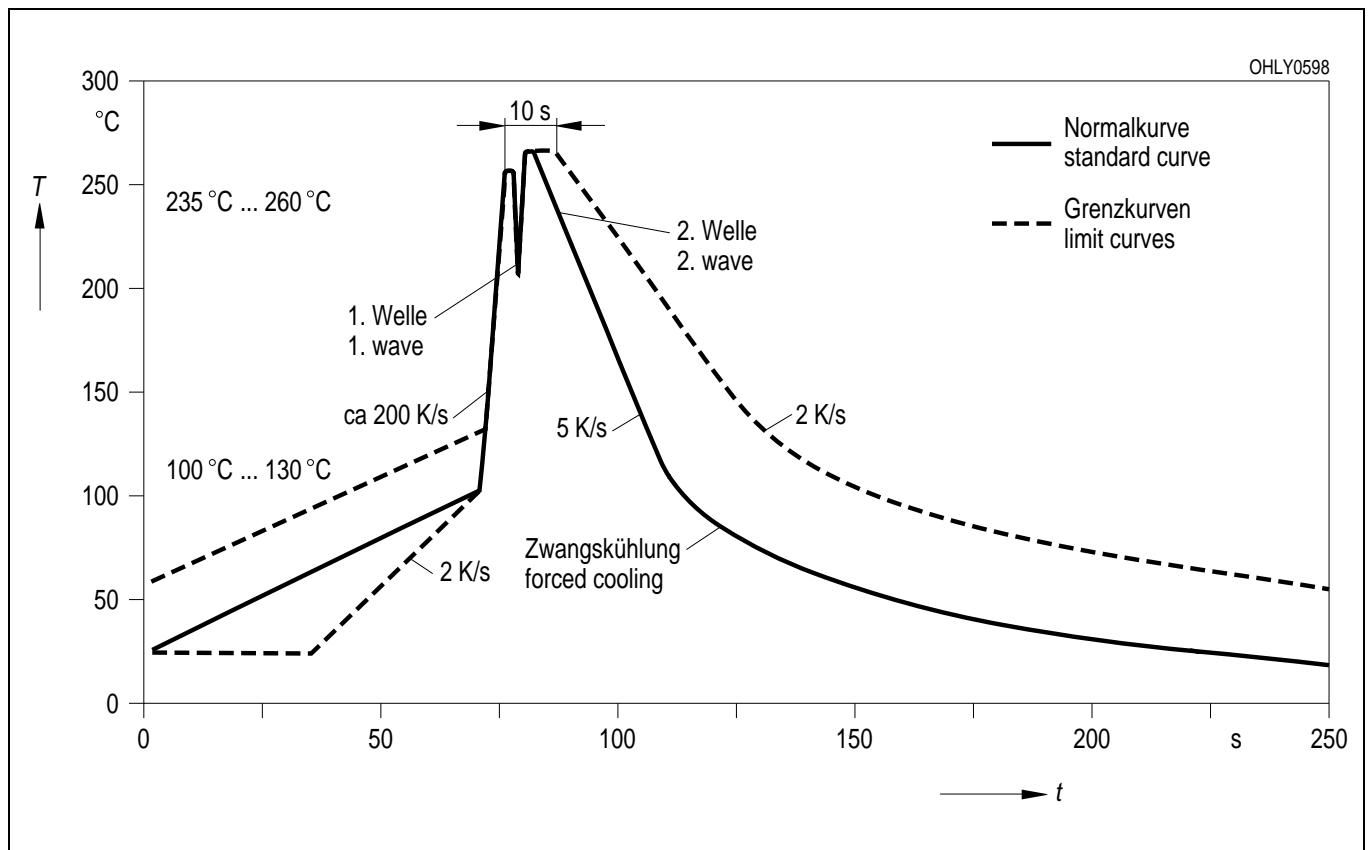
**Gewicht / Approx. weight:** 6 mg

**Lötbedingungen** Vorbehandlung nach JEDEC Level 2  
**Soldering Conditions** Preconditioning acc. to JEDEC Level 2

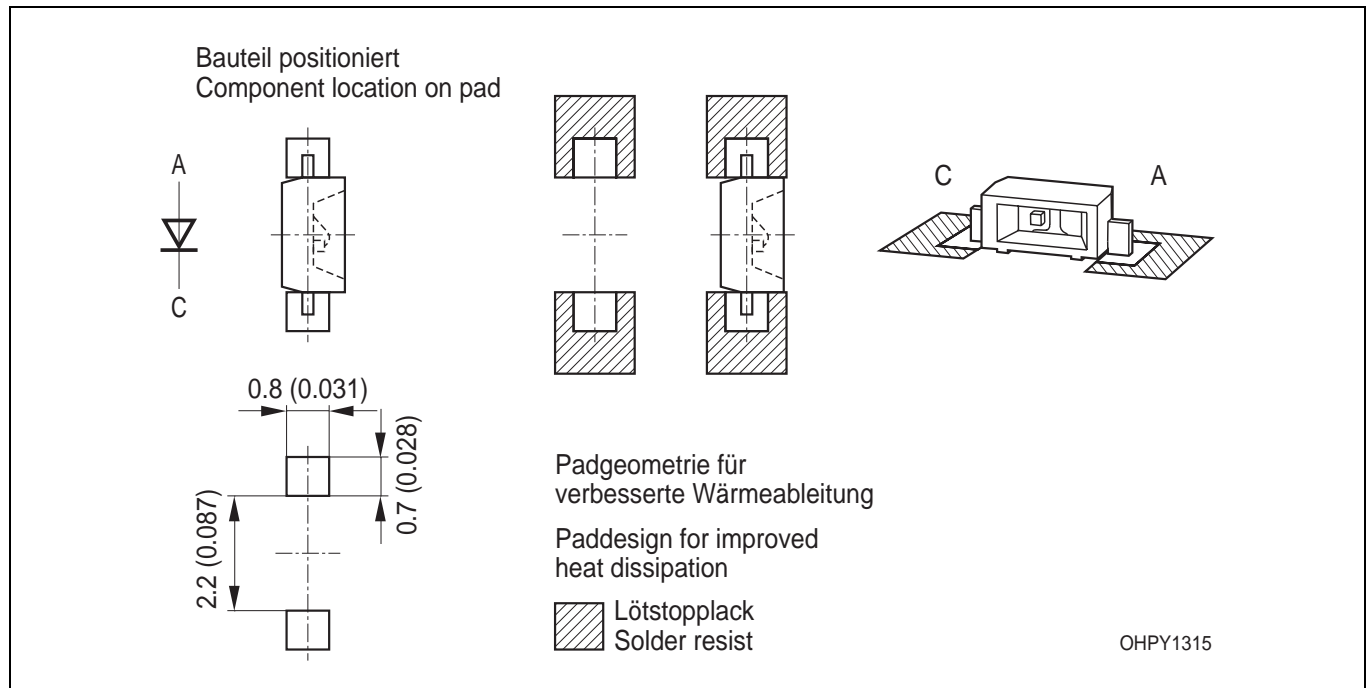
**IR-Reflow Lötprofil** (nach IPC 9501)  
**IR Reflow Soldering Profile** (acc. to IPC 9501)



**Wellenlöten (TTW)** (nach CECC 00802)  
**TTW Soldering** (acc. to CECC 00802)



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



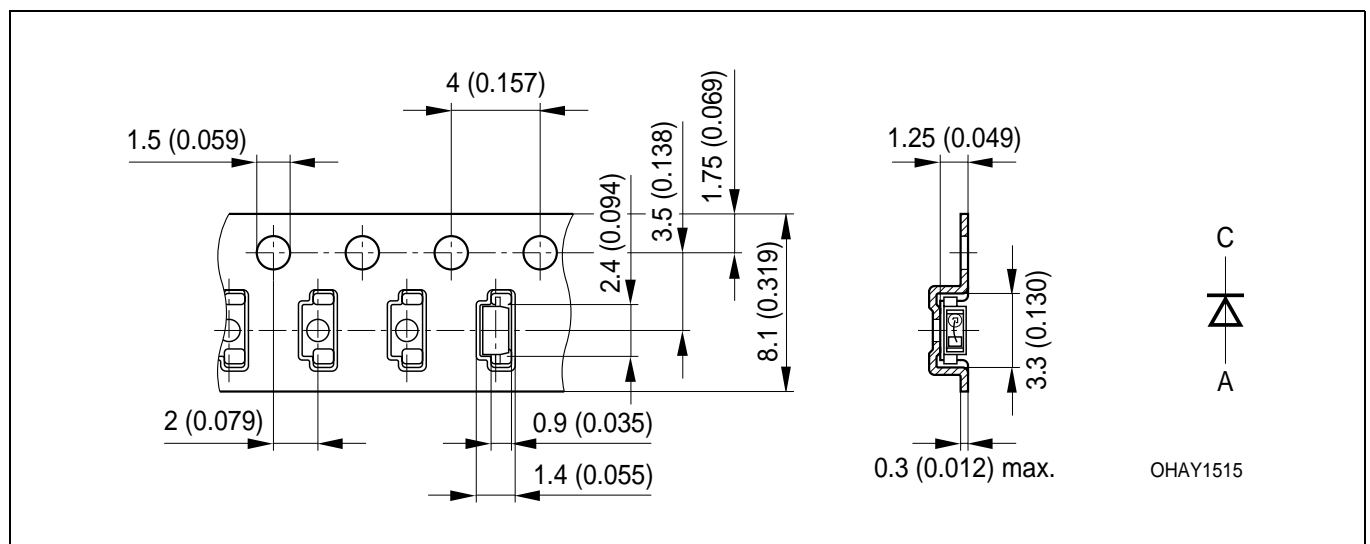
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).  
 Gehäuse hält TTW-Löthitze aus / Package able to withstand TTW-soldering heat

**Gurtung / Polarität und Lage**

Verpackungseinheit 3000/Rolle, ø180 mm oder  
 10000/Rolle, ø330 mm

**Method of Taping / Polarity and Orientation**

Packing unit 3000/reel, ø180 mm  
 or 10000/reel, ø330 mm



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

Revision History: 2003-01-14		Date of change
Previous Version: 2002-10-18		
Page	Subjects (major changes since last revision)	
4	Dominant wavelength	
3	pad size from 16 mm <sup>2</sup> to 5 mm <sup>2</sup>	
13	annotations	2002-07-23
2	total color tolerance range	2002-09-16

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#### Attention please!

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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 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.