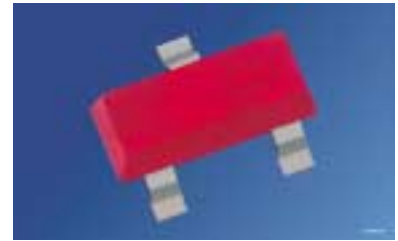


## LC SOT-23 LED, Diffused Low Current LED

LS S269, LY S269, LG S269



### Nicht für Neuentwicklungen / Not for New Designs

#### Besondere Merkmale

- **Gehäusotyp:** eingefärbtes, diffuses SOT-23 Gehäuse
- **Besonderheit des Bauteils:** hohe Lichtstärke bei kleinen Strömen
- **Wellenlänge:** 628 nm (super-rot), 587 nm (gelb), 570 nm (grün)
- **Abstrahlwinkel:** 140°
- **Technologie:** GaAsP
- **optischer Wirkungsgrad:** 2 lm/W
- **Gruppierungsparameter:** Lichtstärke
- **Verarbeitungsmethode:** für alle SMT-Bestücktechniken geeignet
- **Lötmethode:** IR Reflow Löten
- **Vorbehandlung:** nach JEDEC Level 2
- **Gurtung:** 8 mm Gurt mit 3000/Rolle, ø180 mm oder 12000/Rolle, ø330 mm

#### Anwendungen

- optischer Indikator
- Hinterleuchtung (LCD, Schalter, Tasten, Displays, Werbebeleuchtung, Allgemeinbeleuchtung)

#### Features

- **package:** colored, diffused SOT-23 package
- **feature of the device:** high luminous intensity at low currents
- **wavelength:** 628 nm (super-red), 587 nm (yellow), 570 nm (green)
- **viewing angle:** 140°
- **technology:** GaAsP
- **optical efficiency:** 2 lm/W
- **grouping parameter:** luminous intensity
- **assembly methods:** suitable for all SMT assembly methods
- **soldering methods:** IR reflow soldering
- **preconditioning:** acc. to JEDEC Level 2
- **taping:** 8 mm tape with 3000/reel, ø180 mm or 12000/reel, ø330 mm

#### Applications

- optical indicators
- backlighting (LCD, switches, keys, displays, illuminated advertising, general lighting)

Typ Type	Emissionsfarbe Color of Emission	Lichtstärke Luminous Intensity $I_F = 2 \text{ mA}$ $I_V \text{ (mcd)}$	Bestellnummer Ordering Code
LS S269-BO	super-red	$\geq 0.18$	Q62703Q1566
LY S269-BO	yellow	$\geq 0.18$	Q62703Q1568
LG S269-BO	green	$\geq 0.18$	Q62703Q1570

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  $\pm 11 \%$ .

*Anm.: Die Standardlieferform von Serientypen beinhaltet alle Gruppen. Einzelne Helligkeitsgruppen sind nicht bestellbar.*

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

*Note: The standard shipping format for serial types includes all groups. Individual luminous intensity groups cannot be ordered.*

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

**Grenzwerte**  
**Maximum Ratings**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebstemperatur Operating temperature range	$T_{op}$	- 55 ... + 100	°C
Lagertemperatur Storage temperature range	$T_{stg}$	- 55 ... + 100	°C
Sperrschichttemperatur Junction temperature	$T_j$	+ 100	°C
Durchlassstrom Forward current ( $T_A=25^\circ\text{C}$ )	$I_F$	7.5	mA
Stoßstrom Surge current $t \leq 10 \mu\text{s}, D = 0.005, T_A=25^\circ\text{C}$	$I_{FM}$	150	mA
Sperrspannung <sup>1)</sup> Reverse voltage ( $T_A=25^\circ\text{C}$ )	$V_R$	12	V
Leistungsaufnahme Power consumption ( $T_A=25^\circ\text{C}$ )	$P_{tot}$	20	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung <sup>2)</sup> Junction/ambient <sup>2)</sup>	$R_{th JA}$	750	K/W
Sperrschicht/Löt看pad Junction/solder point	$R_{th JS}$	350	K/W

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

<sup>2)</sup> Montage auf PC-Board FR 4 (Padgröße  $\geq 16 \text{ mm}^2$ )  
mounted on PC board FR 4 (pad size  $\geq 16 \text{ mm}^2$ )

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

Bezeichnung Parameter	Symbol Symbol	Werte Values			Einheit Unit
		LS	LY	LG	
Wellenlänge des emittierten Lichtes (typ.) Wavelength at peak emission $I_F = 2\text{ mA}$	$\lambda_{\text{peak}}$	635	586	572	nm
Dominantwellenlänge <sup>1)</sup> Dominant wavelength $I_F = 2\text{ mA}$	$\lambda_{\text{dom}}$	628 $\pm 6$	587 -7/+8	570 $\pm 6$	nm
Spektrale Bandbreite bei 50 % $I_{\text{rel max}}$ (typ.) Spectral bandwidth at 50 % $I_{\text{rel max}}$ $I_F = 2\text{ mA}$	$\Delta\lambda$	45	45	25	nm
Abstrahlwinkel bei 50 % $I_V$ (Vollwinkel) (typ.) Viewing angle at 50 % $I_V$	$2\phi$	140	140	140	Grad deg.
Durchlassspannung <sup>2)</sup> (typ.) Forward voltage (max.) $I_F = 2\text{ mA}$	$V_F$ $V_F$	1.8 2.5	2.0 2.6	1.9 2.5	V V
Sperrstrom (typ.) Reverse current (max.) $V_R = 12\text{ V}$	$I_R$ $I_R$	0.01 10	0.01 10	0.01 10	$\mu\text{A}$ $\mu\text{A}$
Temperaturkoeffizient von $\lambda_{\text{peak}}$ (typ.) Temperature coefficient of $\lambda_{\text{peak}}$ $I_F = 2\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_{\lambda_{\text{peak}}}$	0.11	0.10	0.11	nm/K
Temperaturkoeffizient von $\lambda_{\text{dom}}$ (typ.) Temperature coefficient of $\lambda_{\text{dom}}$ $I_F = 2\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_{\lambda_{\text{dom}}}$	0.07	0.07	0.07	nm/K
Temperaturkoeffizient von $V_F$ (typ.) Temperature coefficient of $V_F$ $I_F = 2\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_V$	-2.0	-1.6	-1.9	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 2\text{ mA}$	$\eta_{\text{opt}}$	2	2	2	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  $\pm 1\text{ nm}$ .

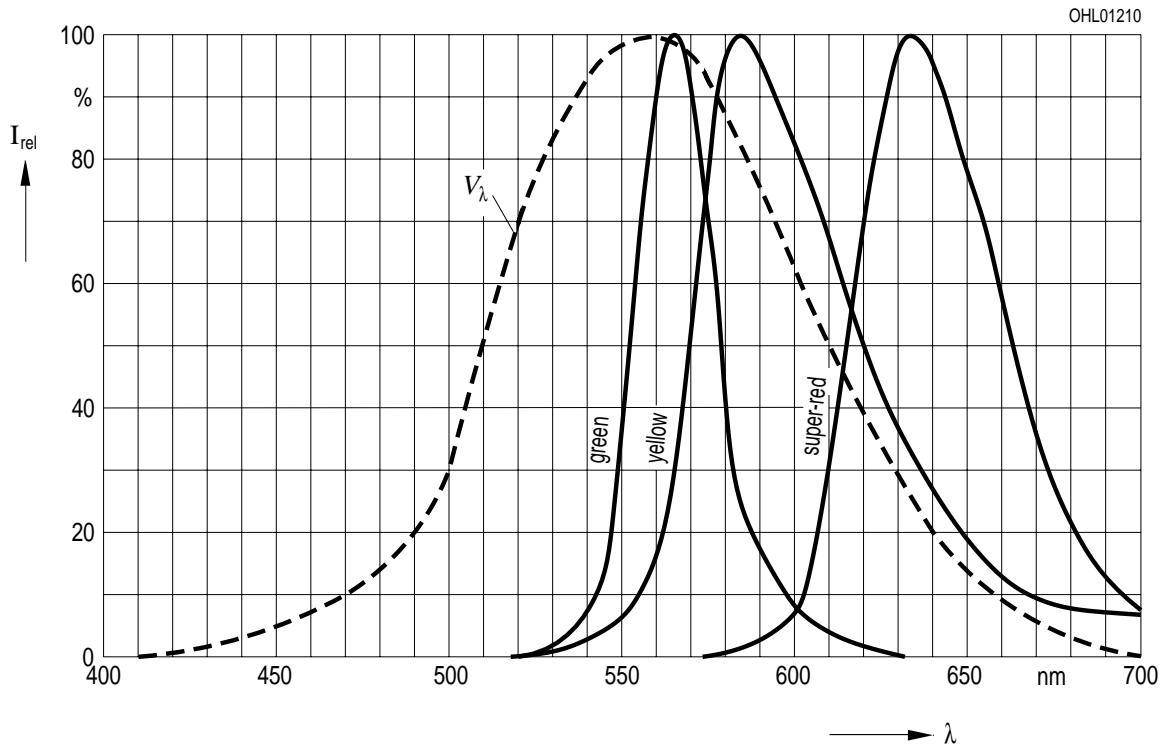
<sup>2)</sup> Spannungswerte werden mit einer Stromeinprägedauer von 1 ms und einer Genauigkeit von  $\pm 0,1\text{ V}$  ermittelt.  
Voltages are tested at a current pulse duration of 1 ms and a tolerance of  $\pm 0.1\text{ V}$ .

Relative spektrale Emission  $I_{rel} = f(\lambda)$ ,  $T_A = 25\text{ °C}$ ,  $I_F = 2\text{ mA}$

**Relative Spectral Emission**

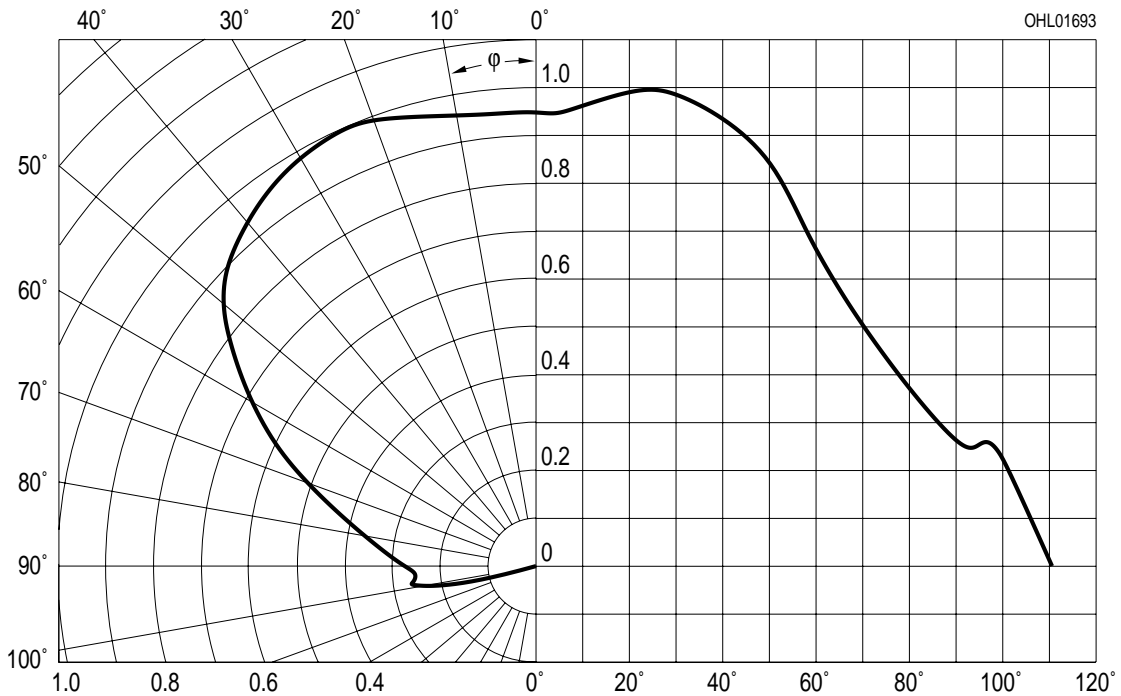
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



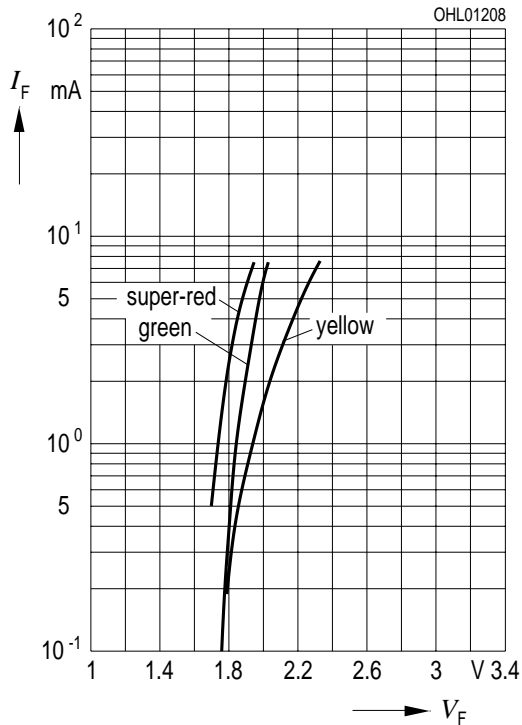
Abstrahlcharakteristik  $I_{rel} = f(\varphi)$

**Radiation Characteristic**



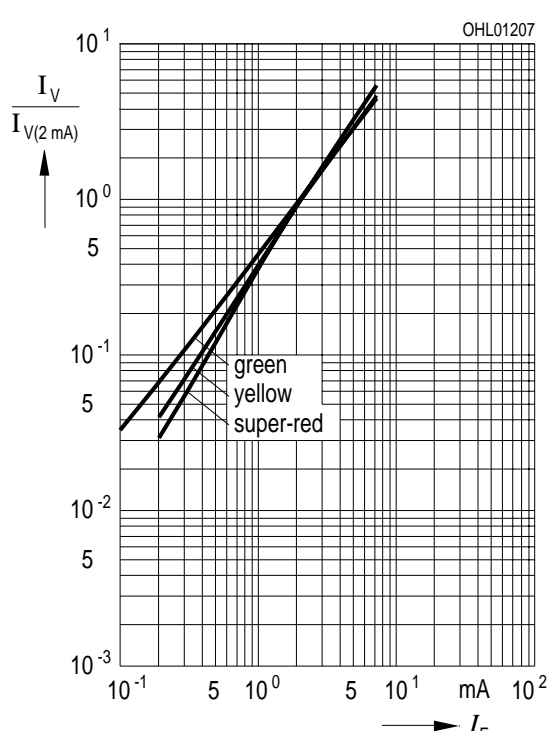
**Durchlassstrom  $I_F = f(V_F)$**   
**Forward Current**

$T_A = 25\text{ °C}$

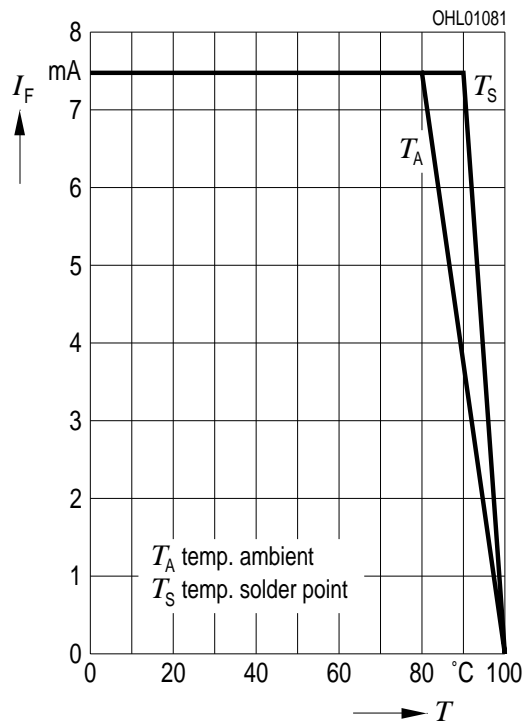


**Relative Lichtstärke  $I_V/I_{V(2\text{ mA})} = f(I_F)$**   
**Relative Luminous Intensity**

$T_A = 25\text{ °C}$

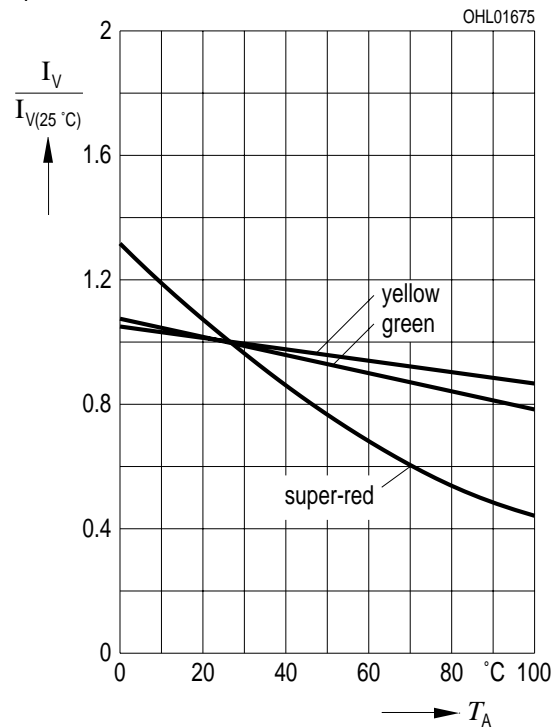


**Maximal zulässiger Durchlassstrom  $I_F = f(T)$**   
**Max. Permissible Forward Current**



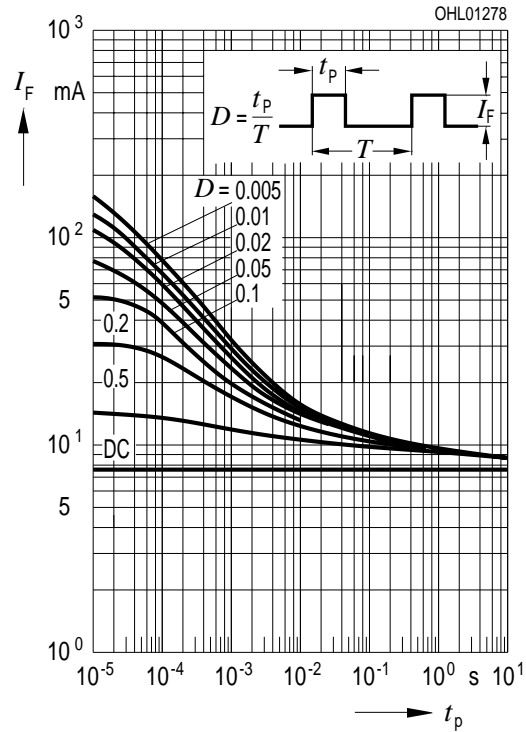
**Relative Lichtstärke  $I_V/I_{V(25\text{ °C})} = f(T_A)$**   
**Relative Luminous Intensity**

$I_F = 2\text{ mA}$

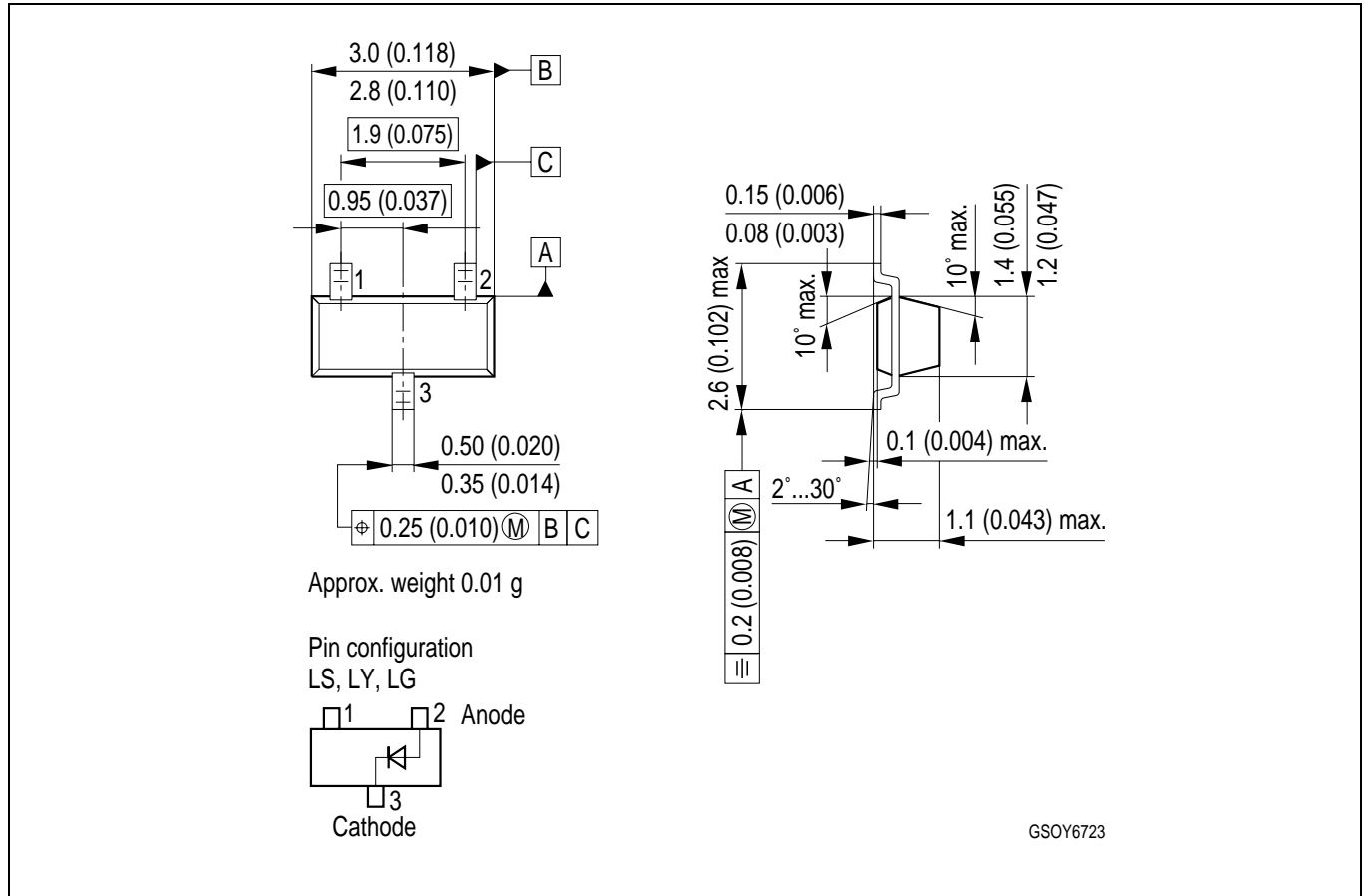


**Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$**   
**Permissible Pulse Handling Capability**

Duty cycle  $D =$  parameter,  $T_A = 25\text{ °C}$



Maßzeichnung  
Package Outlines



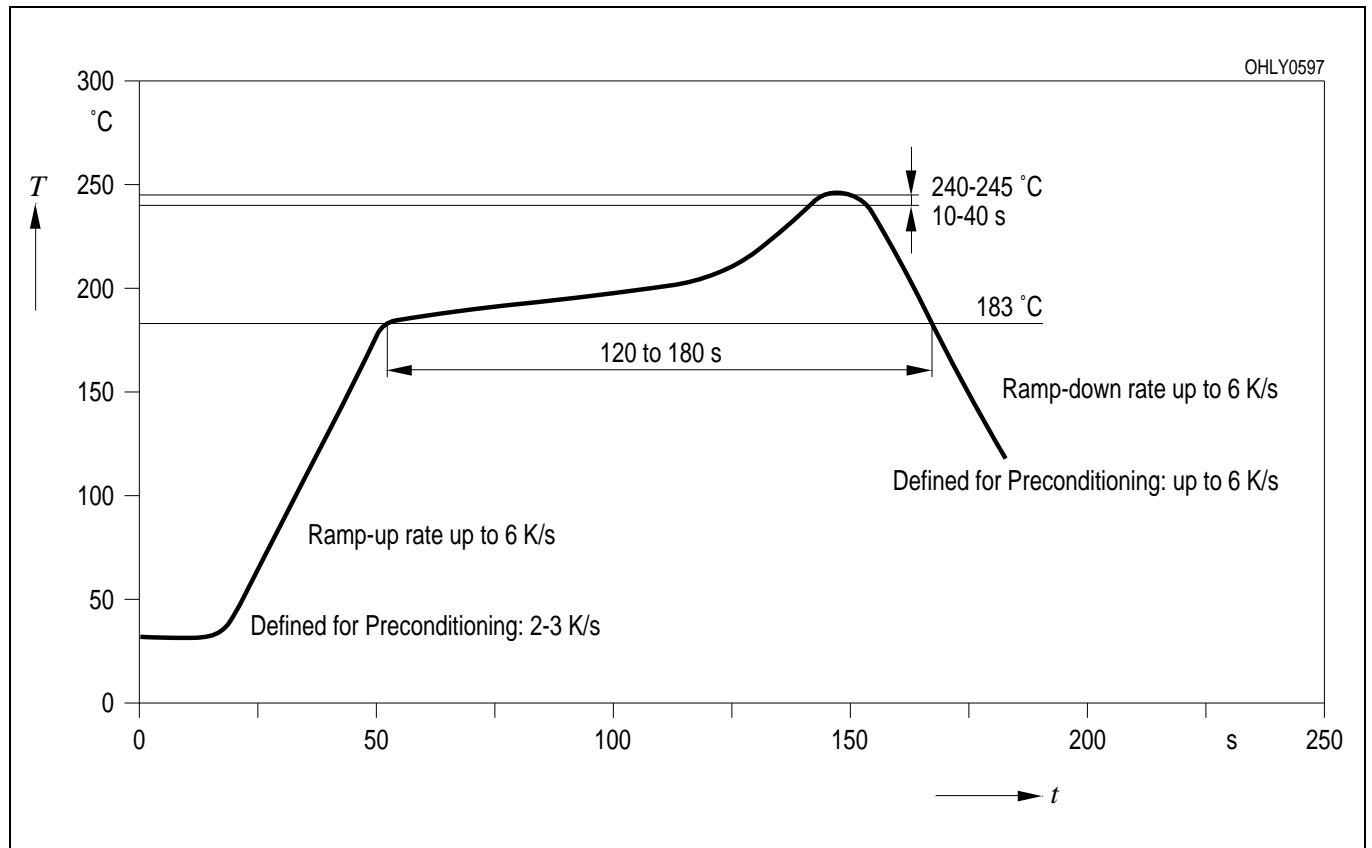
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

Gewicht / Approx. weight: 10 mg

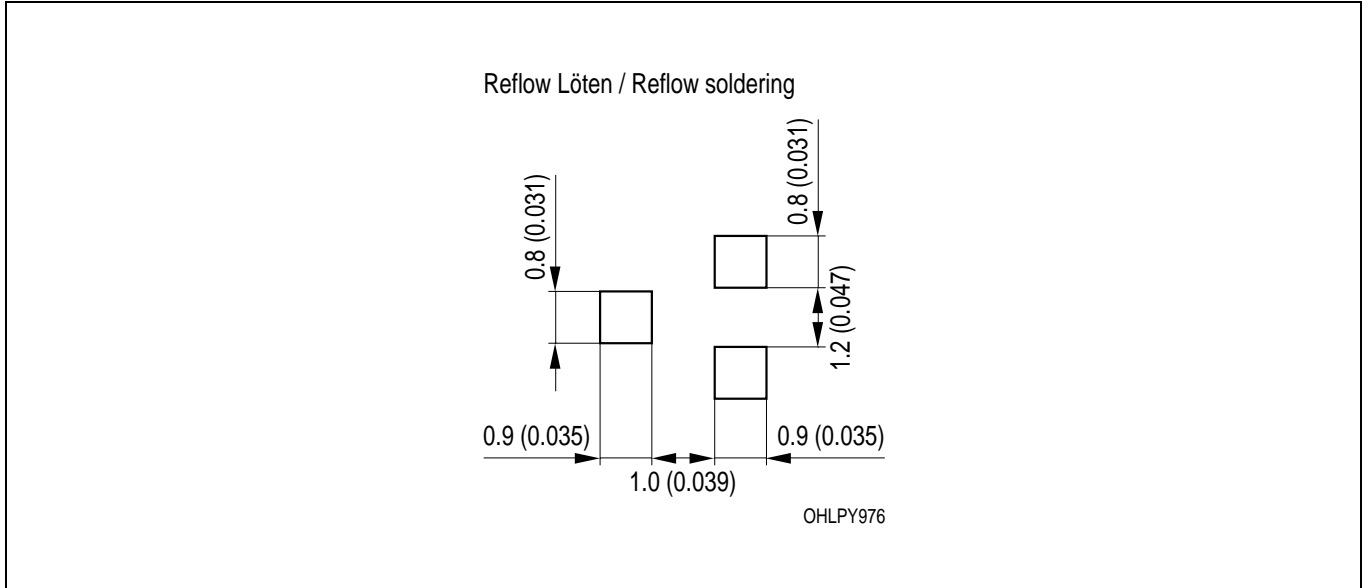


**Lötbedingungen** Vorbehandlung nach JEDEC Level 2  
**Soldering Conditions** Preconditioning acc. to JEDEC Level 2

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



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



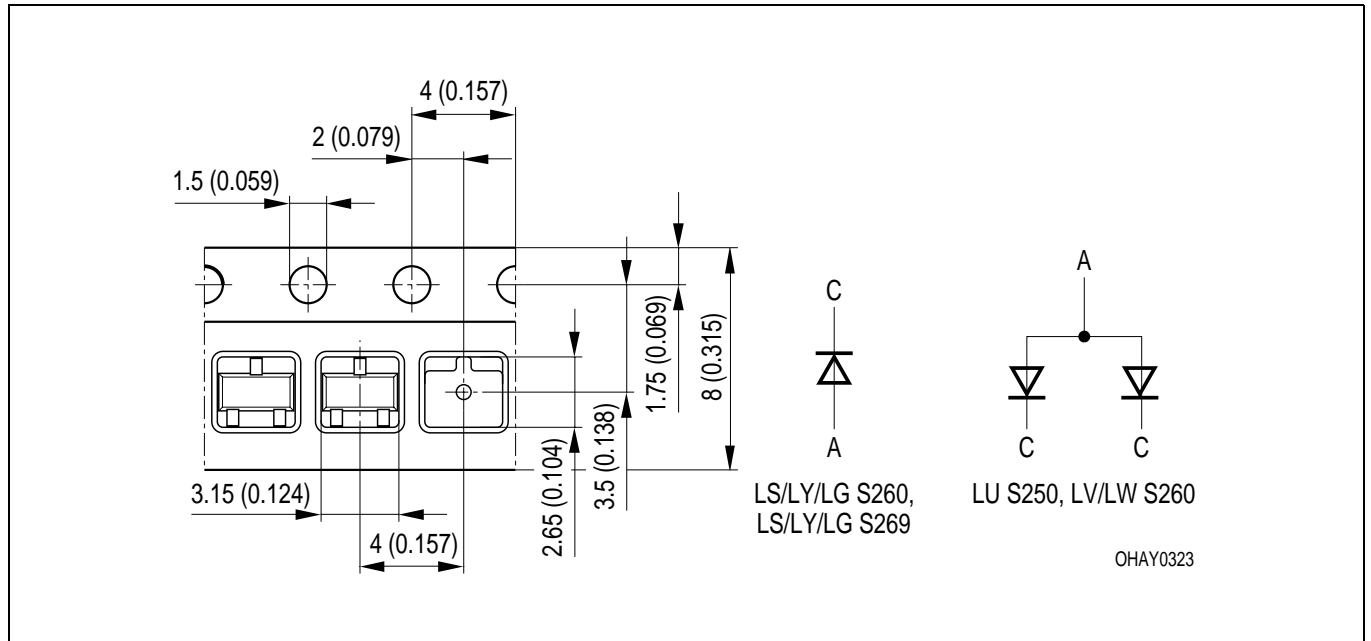
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

**Gurtung / Polarität und Lage**

Verpackungseinheit 3000/Rolle, ø180 mm  
oder 12000/Rolle, ø330 mm

**Method of Taping / Polarity and Orientation**

Packing unit 3000/reel, ø180 mm  
or 12000/reel, ø330 mm



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

*Anm.: Bezüglich Trockenverpackung finden Sie weitere Hinweise im Internet und in unserem Short Form Catalog im Kapitel "Gurtung und Verpackung" unter dem Punkt "Trockenverpackung". Hier sind Normenbezüge, unter anderem ein Auszug der JEDEC-Norm, enthalten.*

*Note: Regarding dry pack you will find further information in the internet and in the Short Form Catalog in chapter "Tape and Reel" under the topic "Dry Pack". Here you will also find the normative references like JEDEC.*

Revision History: 2003-09-04		Date of change
Previous Version: 2002-09-18		
Page	Subjects (major changes since last revision)	
11	annotations	2002-07-23
3, 4	value (reverse voltage from 5 V to 12 V)	2002-09-18
14	note: dry pack	2003-09-04
3	ambient temperature	2003-09-04

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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.

**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.