

# Multi TOPLED® Cathodes On One Side

## LSG T677



### Besondere Merkmale

- **Gehäusotyp:** weißes SMT Gehäuse
- **Besonderheit des Bauteils:**  
2 Leuchtdiodenchips getrennt ansteuerbar
- **Wellenlänge:** 628 nm (super-rot),  
570 nm (grün)
- **Abstrahlwinkel:** Lambertischer Strahler (120°)
- **Technologie:** GaAlP
- **optischer Wirkungsgrad:** 1,5 lm/W (super-rot),  
2,5 lm/W (grün)
- **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 2000/Rolle,  $\varnothing$ 180 mm  
oder 8000/Rolle,  $\varnothing$ 330 mm

### Anwendungen

- optischer Indikator
- Einkopplung in Lichtleiter
- Hinterleuchtung (LCD, Schalter, Tasten,  
Displays, Werbebeleuchtung,  
Allgemeinbeleuchtung)
- Innenbeleuchtung im Automobilbereich  
(z.B. Instrumentenbeleuchtung, u.ä.)

### Features

- **package:** white SMT package
- **feature of the device:** 2 chips can be  
controlled separately
- **wavelength:** 628 nm (super-red),  
570 nm (green)
- **viewing angle:** Lambertian Emitter (120°)
- **technology:** GaAlP
- **optical efficiency:** 1.5 lm/W (super-red),  
2.5 lm/W (green)
- **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 2000/reel,  $\varnothing$ 180 mm or  
8000/reel,  $\varnothing$ 330 mm

### Applications

- optical indicators
- coupling into light guides
- backlighting (LCD, switches, keys, displays,  
illuminated advertising, general lighting)
- interior automotive lighting (e.g. dashboard  
backlighting, etc.)

Type	Emissionsfarbe	Farbe der Lichtaustrittsfläche	Lichtstärke		Bestellnummer
Type	Color of Emission	Color of the Light Emitting Area	Luminous Intensity $I_F = 10 \text{ mA}$ $I_V \text{ (mcd)}$		Ordering Code
			super-red	green	
LSG T677	super-red / green	colorless clear	4.5 ... 18.0	4.5 ... 18.0	Q62703Q4327
J+J			4.5 ... 7.1	4.5 ... 7.1	
J+K			4.5 ... 7.1	7.1 ... 11.2	
J+L			4.5 ... 7.1	11.2 ... 18.0	
K+J			7.1 ... 11.2	4.5 ... 7.1	
K+K			7.1 ... 11.2	7.1 ... 11.2	
K+L			7.1 ... 11.2	11.2 ... 18.0	
L+J			11.2 ... 18.0	4.5 ... 7.1	
L+K			11.2 ... 18.0	7.1 ... 11.2	
L+L			11.2 ... 18.0	11.2 ... 18.0	

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 eine Familiengruppe. Einzelne Gruppen sind nicht erhältlich.  
In einer Verpackungseinheit / Gurt ist immer nur eine Gruppe pro Farbe enthalten.*

*Note: The standard shipping format for serial types includes a family group. Individual groups are not available.  
No packing unit / tape ever contains more than one luminous intensity group per color.*

**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	$I_F$	30	mA
Stoßstrom Surge current $t \leq 10 \mu s, D = 0.005$	$I_{FM}$	0.5	A
Sperrspannung <sup>1)</sup> Reverse voltage	$V_R$	12	V
Leistungsaufnahme Power consumption	$P_{tot}$	95	mW
Wärmewiderstand Thermal resistance			
Sperrschicht/Umgebung Junction/ambient	1 chip on $R_{th JA}$	480	K/W
	2 chips on $R_{th JA}$	650	K/W
Sperrschicht/Löt看垫 Junction/solder point	1 chip on $R_{th JS}$	260	K/W
	2 chips on $R_{th JS}$	360	K/W
Montage auf PC-Board FR 4 (Padgröße $\geq 16 \text{ mm}^2$ ) mounted on PC board FR 4 (pad size $\geq 16 \text{ mm}^2$ )			

<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
		LS	LG	
Wellenlänge des emittierten Lichtes (typ.) Wavelength at peak emission $I_F = 10\text{ mA}$	$\lambda_{\text{peak}}$	635	572	nm
Dominantwellenlänge <sup>1)</sup> (typ.) Dominant wavelength $I_F = 10\text{ mA}$	$\lambda_{\text{dom}}$	628 $\pm 6$	570 $\pm 6$	nm
Spektrale Bandbreite bei 50 % $I_{\text{rel max}}$ (typ.) Spectral bandwidth at 50 % $I_{\text{rel max}}$ $I_F = 10\text{ mA}$	$\Delta\lambda$	45	25	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 (max.) $I_F = 10\text{ mA}$	$V_F$ $V_F$	2.0 2.5	2.0 2.5	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 $\lambda_{\text{peak}}$ $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_{\lambda_{\text{peak}}}$	0.11	0.11	nm/K
Temperaturkoeffizient von $\lambda_{\text{dom}}$ (typ.) Temperature coefficient of $\lambda_{\text{dom}}$ $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_{\lambda_{\text{dom}}}$	0.07	0.07	nm/K
Temperaturkoeffizient von $V_F$ (typ.) Temperature coefficient of $V_F$ $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_V$	- 1.9	- 1.4	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 10\text{ mA}$	$\eta_{\text{opt}}$	1.5	2.5	lm/W

<sup>1)</sup> Wellenlängen werden mit einer Stromeinprägungsdauer 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  $\pm 1\text{ nm}$ .

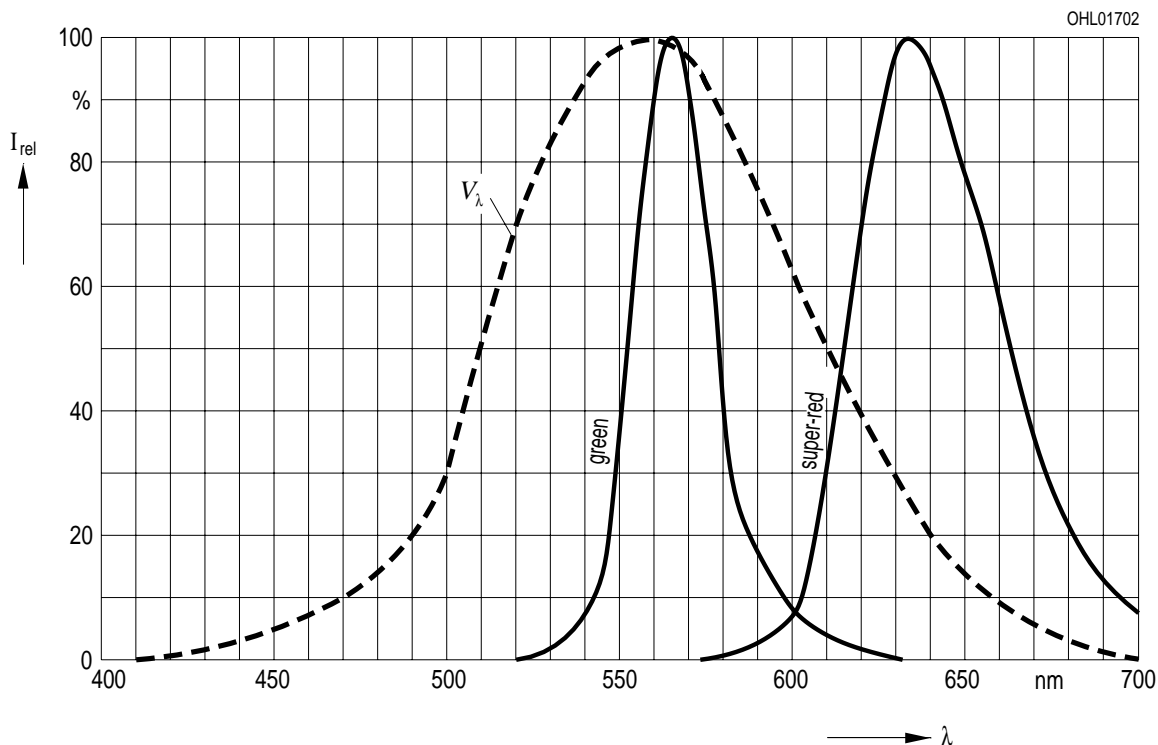
<sup>2)</sup> Spannungswerte werden mit einer Stromeinprägungsdauer von 1 ms und einer Genauigkeit von  $\pm 0,1\text{ V}$  ermittelt.  
Voltages are tested at a current pulse duration of 1 ms and a tolerance of  $\pm 0.1\text{ V}$ .

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

Relative Spectral Emission

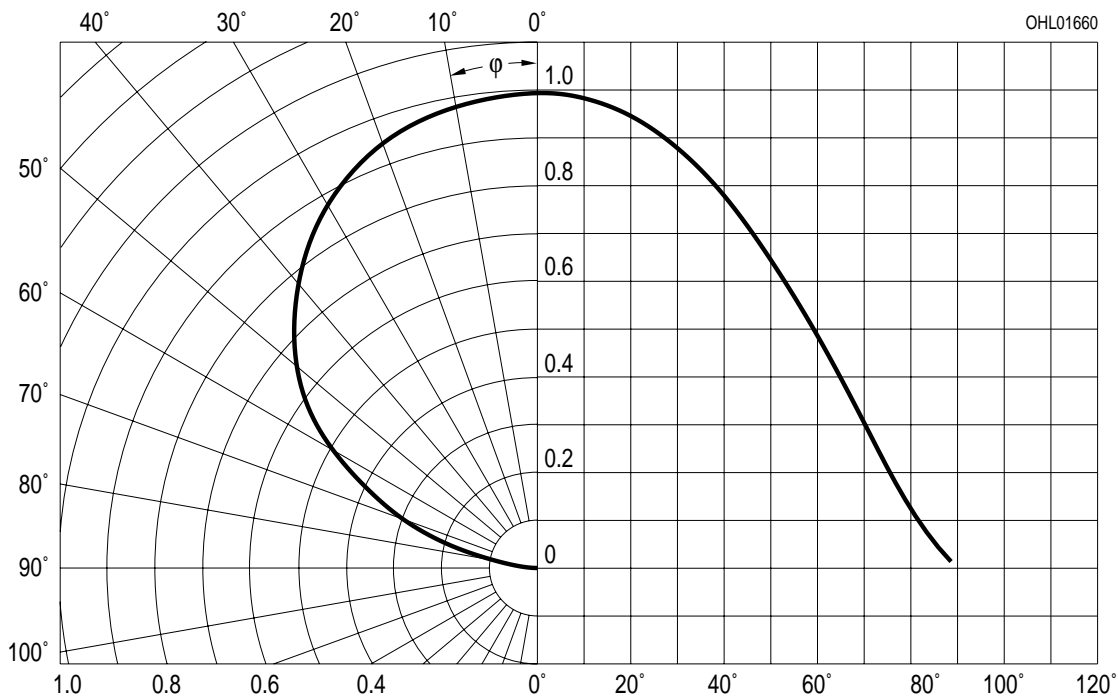
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



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

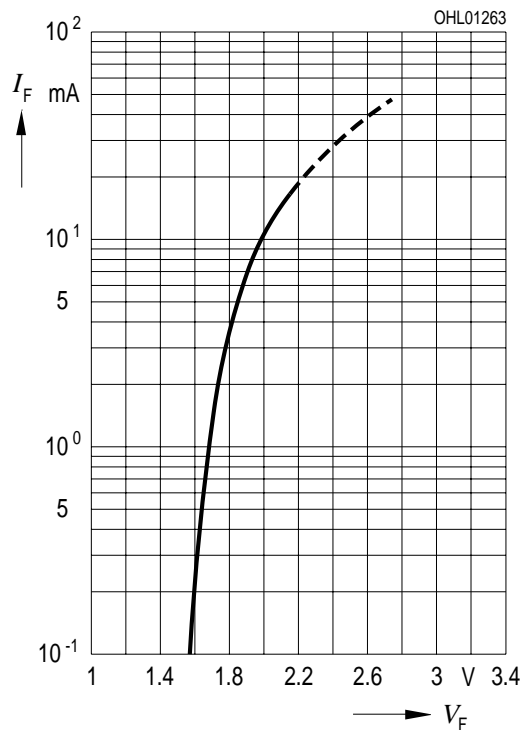
Radiation Characteristic



Durchlassstrom  $I_F = f(V_F)$

Forward Current

$T_A = 25\text{ °C}$

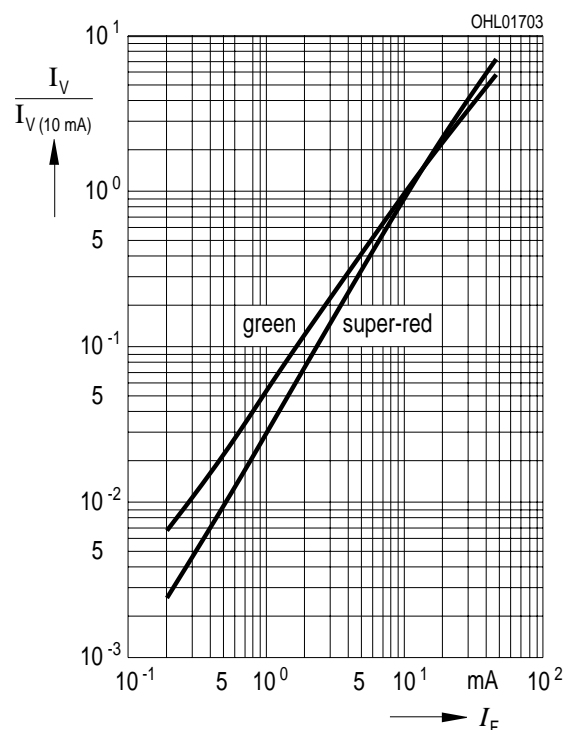


Maximal zulässiger Durchlassstrom  $I_F = f(T)$   
Max. Permissible Forward Current

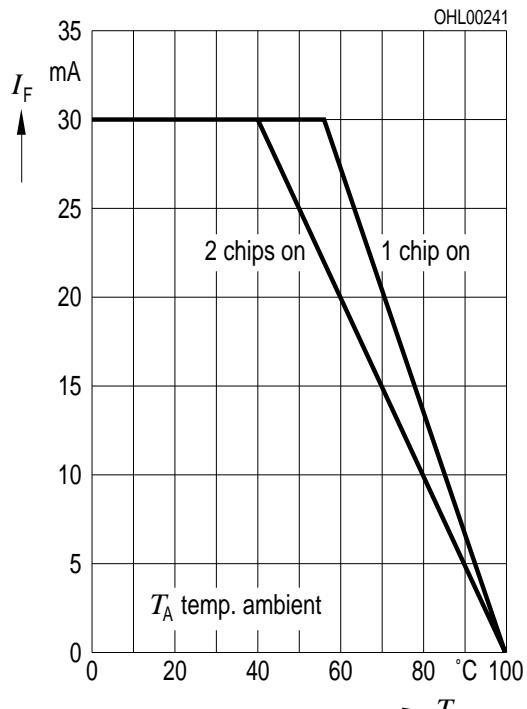
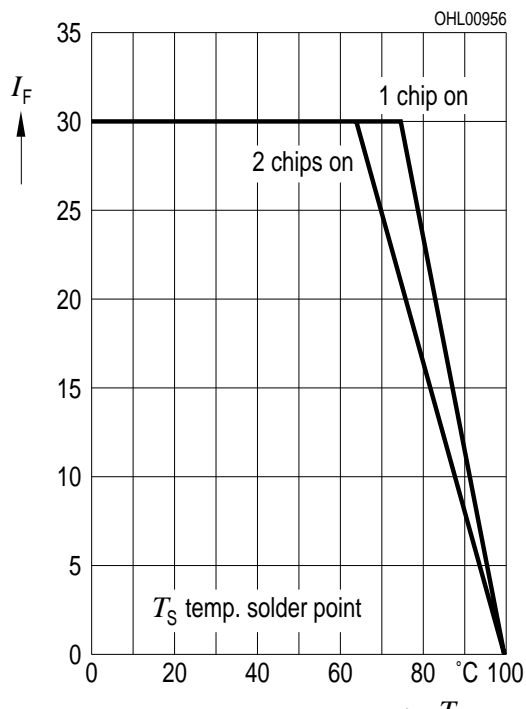
Relative Lichtstärke  $I_V/I_{V(10\text{ mA})} = f(I_F)$

Relative Luminous Intensity

$T_A = 25\text{ °C}$



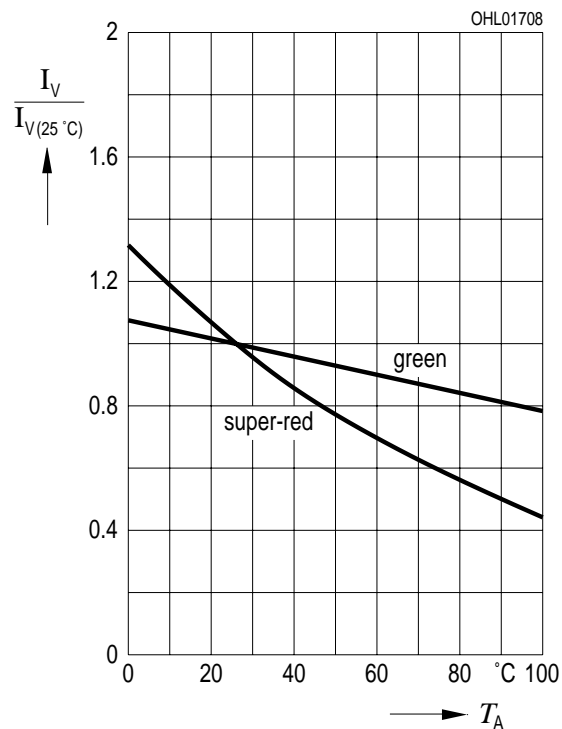
Maximal zulässiger Durchlassstrom  $I_F = f(T)$   
Max. Permissible Forward Current



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

Relative Luminous Intensity

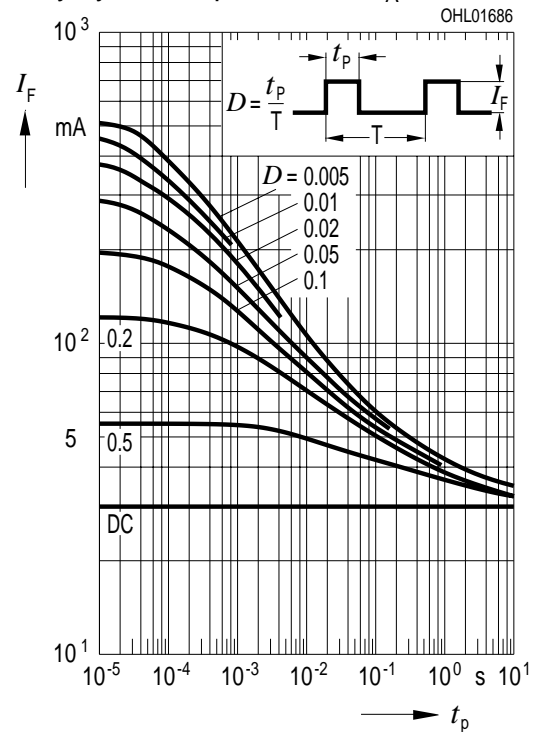
$I_F = 10\text{ mA}$



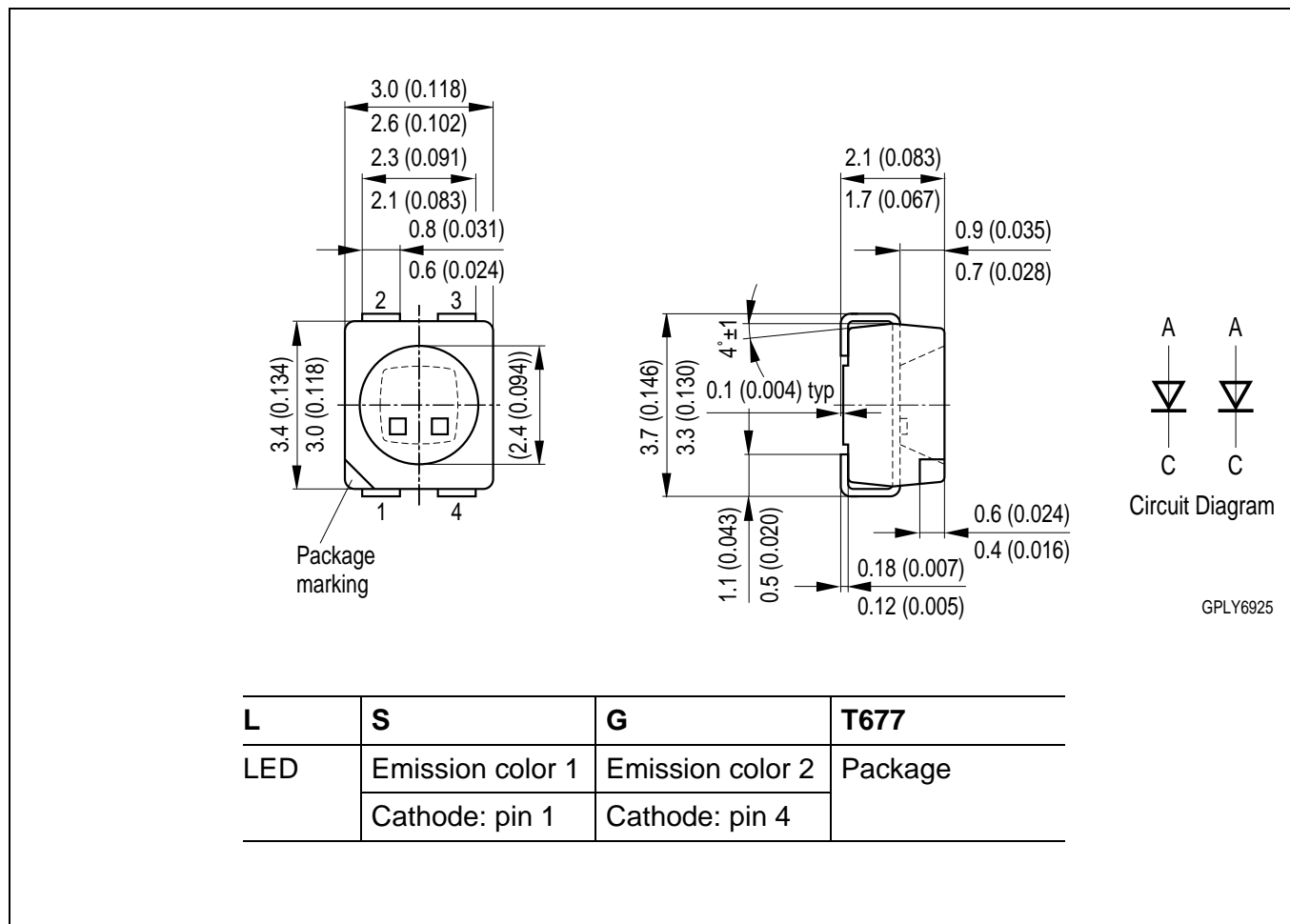
Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$

Permissible Pulse Handling Capability

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



**Maßzeichnung  
Package Outlines**



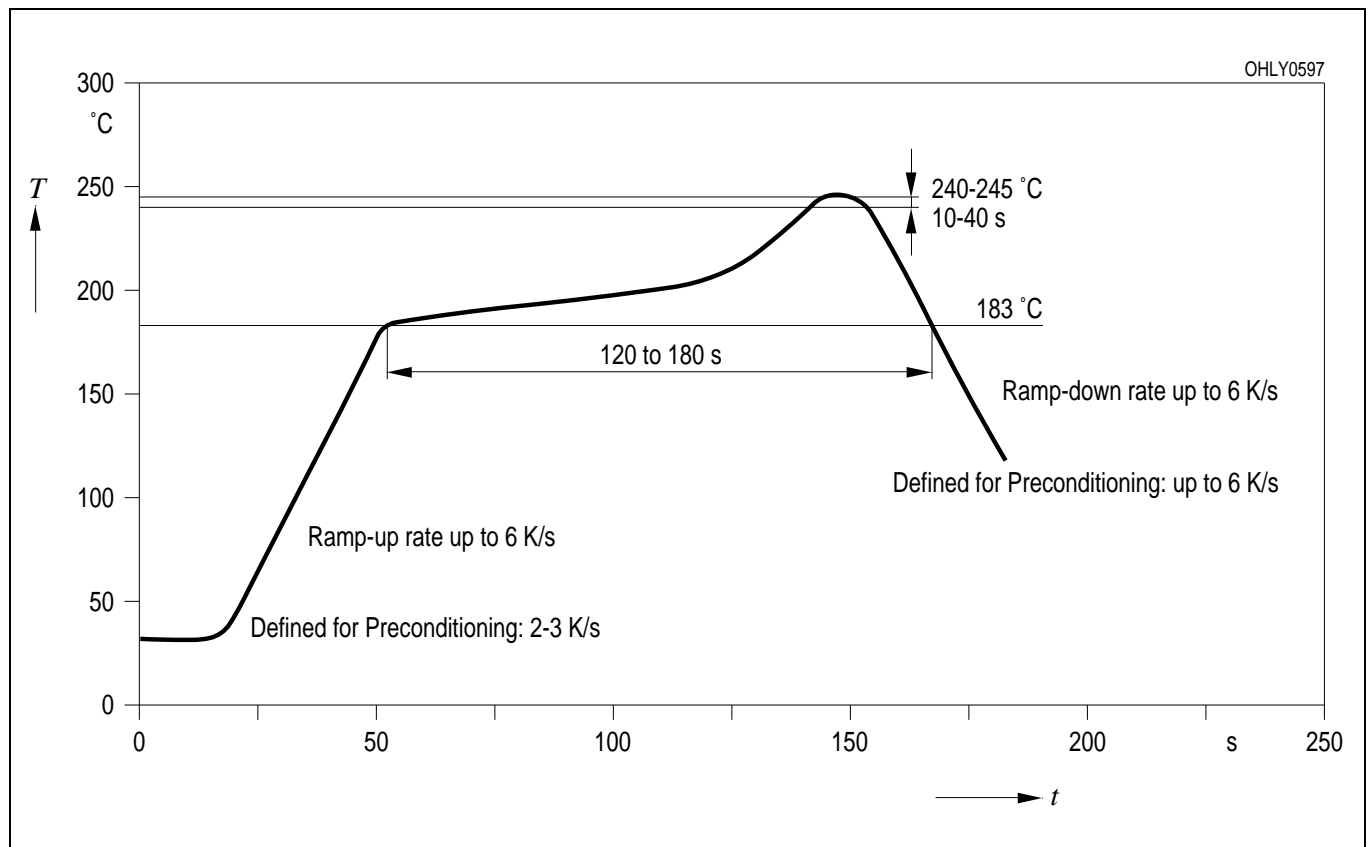
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

**Gewicht / Approx. weight:** 35 mg

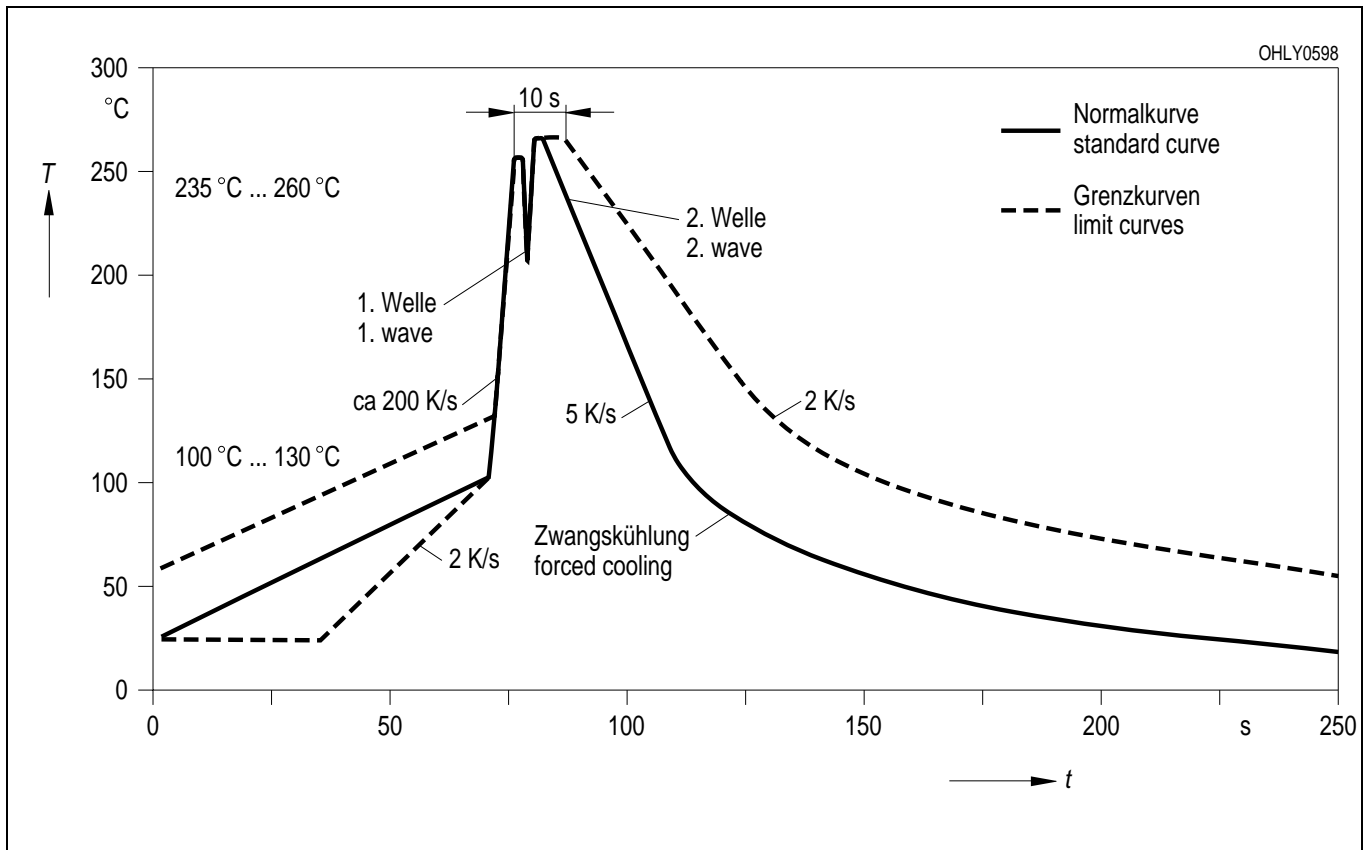


**Lötbedingungen** Vorbehandlung nach JEDEC Level 2  
**Soldering Conditions** Preconditioning acc. to JEDEC Level 2

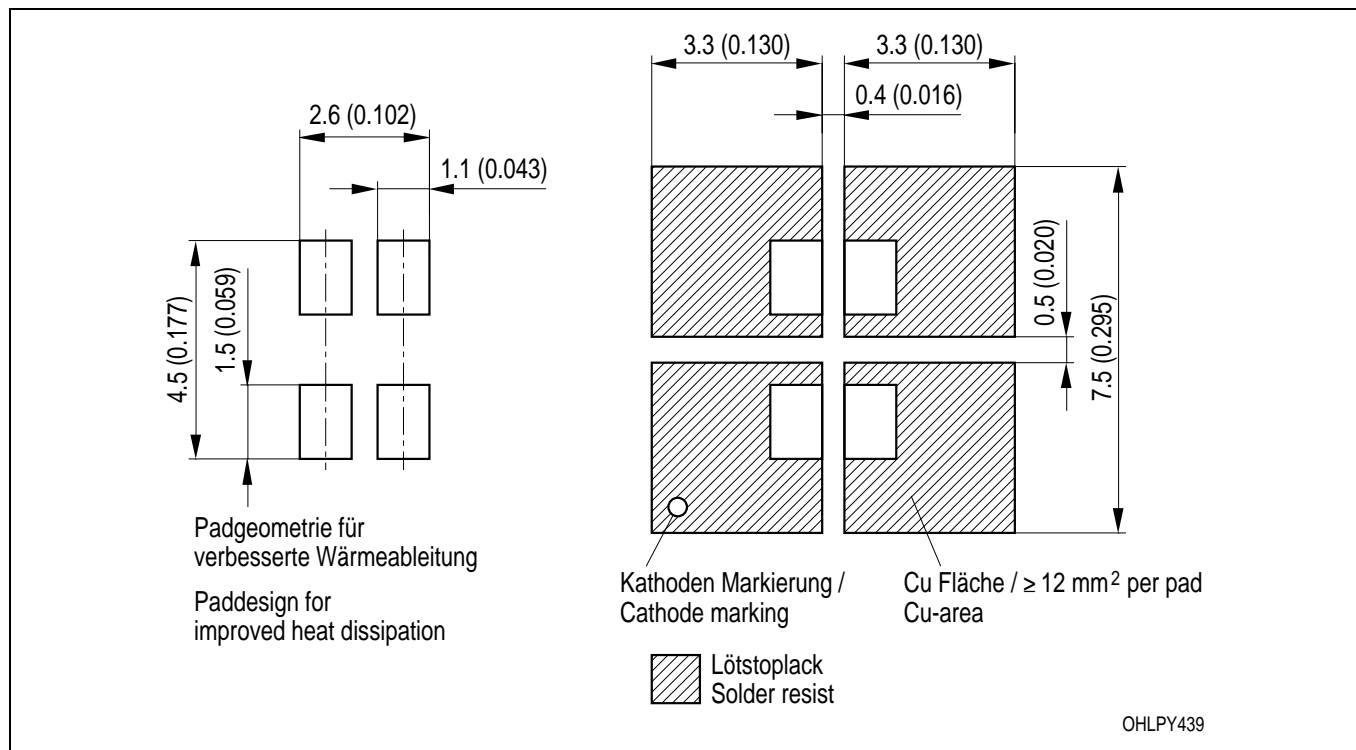
**IR-Reflow Lötprofil** (nach IPC 9501)  
**IR Reflow Soldering Profile** (acc. to IPC 9501)



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



**Empfohlenes Lötpad Design** IR Reflow Löten / Wellenlöten (TTW)  
**Recommended Solder Pad** IR Reflow Soldering / TTW Soldering



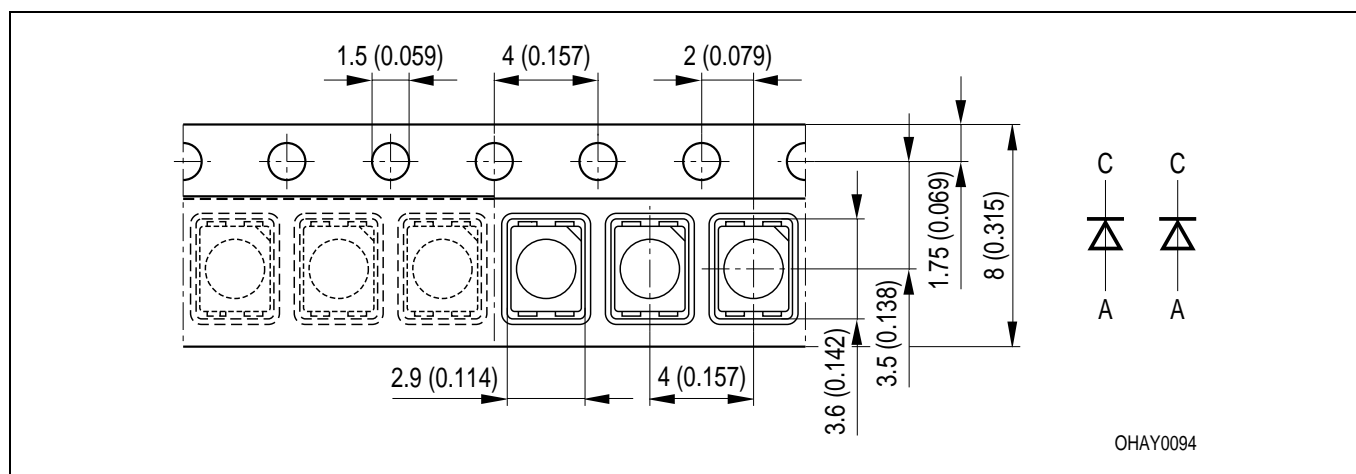
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

**Gurtung / Polarität und Lage**

Verpackungseinheit 2000/Rolle,  $\varnothing 180 \text{ mm}$   
 oder 8000/Rolle,  $\varnothing 330 \text{ mm}$

**Method of Taping / Polarity and Orientation**

Packing unit 2000/reel,  $\varnothing 180 \text{ mm}$   
 or 8000/reel,  $\varnothing 330 \text{ mm}$



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

<b>Revision History: 2003-03-04</b>		<b>Date of change</b>
Previous Version: 2002-09-18		
<b>Page</b>	<b>Subjects (major changes since last revision)</b>	
10	TTW soldering	
12	annotations	2002-07-25
3, 4	value (reverse voltage from 5 V to 12 V)	2002-09-18

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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.