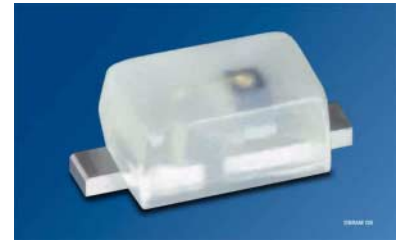


## LG L890



### Besondere Merkmale

- **Gehäusetypp:** SMT Gehäuse SCD 80
- **Besonderheit des Bauteils:** kleinste Bauform 1,7 mm x 0,8 mm x 0,65 mm (LxBxH)
- **Wellenlänge:** 570 nm
- **Abstrahlwinkel:** extrem breite Abstrahlcharakteristik (160°)
- **Technologie:** GaP
- **optischer Wirkungsgrad:** 2,5 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 5000/Rolle bzw. 10000/Rolle, ø180 mm

### Anwendungen

- Informationsanzeigen im Innenbereich
- optischer Indikator
- Flache Hinterleuchtung (LCD, Mobile Phone, Schalter, Display)
- Spielsachen

### Features

- **package:** SMT package SCD 80
- **feature of the device:** smallest package 1.7 mm x 0.8 mm x 0.65 mm (LxWxH)
- **wavelength:** 570 nm
- **viewing angle:** extremely wide (160°)
- **technology:** GaP
- **optical efficiency:** 2.5 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 5000/reel resp. 10000/reel, ø180 mm

### Applications

- indoor displays
- optical indicators
- flat backlighting (LCD, cellular phones, switches, displays)
- toys

Typ Type	Emissions- farbe Color of Emission	Gehäusefarbe Color of Package	Lichtstärke Luminous Intensity $I_F = 20 \text{ mA}$ $I_V \text{ (mcd)}$	Lichtstrom Luminous Flux $I_F = 20 \text{ mA}$ $\Phi_V \text{ (lm)}$	Bestellnummer Ordering Code
LG L890-K1L1-1	green	colorless	7.1 ... 14.0	40 (typ.)	Q62703Q6022
LG L890-L1M2-1		diffused	11.2 ... 28.0	80 (typ.)	Q62703Q6156

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	$T_j$	+ 110	°C
Durchlassstrom Forward current	$I_F$	20	mA
Stoßstrom Surge current $t_p = 10 \mu s, D = 0.1$	$I_{FM}$	100	mA
Sperrspannung <sup>1)</sup> Reverse voltage	$V_R$	12	V
Leistungsaufnahme Power consumption	$P_{tot}$	95	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/ambient	$R_{th JA}$	500	K/W
Sperrschicht/Löt-pad Junction/solder point Montage auf PC-Board FR 4 (Padgröße $\geq 5 \text{ mm}^2$ ) mounted on PC board FR 4 (pad size $\geq 5 \text{ mm}^2$ )	$R_{th JS}$	290	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	Wert Value	Einheit Unit
Wellenlänge des emittierten Lichtes Wavelength at peak emission $I_F = 20\text{ mA}$	(typ.)	$\lambda_{\text{peak}}$	572	nm
Dominantwellenlänge <sup>1)</sup> Dominant wavelength <sup>1)</sup> $I_F = 20\text{ mA}$	(typ.)	$\lambda_{\text{dom}}$	570 ± 6	nm
Spektrale Bandbreite Spectral bandwidth $I_F = 20\text{ mA}$	(typ.)	$\Delta\lambda$	25	nm
Abstrahlwinkel bei 50 % $I_V$ (Vollwinkel) Viewing angle at 50 % $I_V$	(typ.)	$2\phi$	160	Grad deg.
Durchlassspannung <sup>2)</sup> Forward voltage <sup>2)</sup> $I_F = 20\text{ mA}$	(typ.) (max.)	$V_F$ $V_F$	2.2 2.5	V V
Sperrstrom Reverse current $V_R = 12\text{ V}$	(typ.) (max.)	$I_R$ $I_R$	0.01 10	$\mu\text{A}$ $\mu\text{A}$
Temperaturkoeffizient von $\lambda_{\text{peak}}$ Temperature coefficient of $\lambda_{\text{peak}}$ $I_F = 20\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	(typ.)	$TC_{\lambda_{\text{peak}}}$	0.11	nm/K
Temperaturkoeffizient von $\lambda_{\text{dom}}$ Temperature coefficient of $\lambda_{\text{dom}}$ $I_F = 20\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	(typ.)	$TC_{\lambda_{\text{dom}}}$	0.07	nm/K
Temperaturkoeffizient von $V_F$ Temperature coefficient of $V_F$ $I_F = 20\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	(typ.)	$TC_V$	- 1.4	mV/K
Optischer Wirkungsgrad Optical efficiency $I_F = 20\text{ mA}$	(typ.)	$\eta_{\text{opt}}$	2.5	lm/W

<sup>1)</sup> 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.

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

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

<b>Lichtgruppe</b> <b>Luminous Intensity Group</b>	<b>Lichtstärke</b> <b>Luminous Intensity</b> <b>I<sub>v</sub> (mcd)</b>	<b>Lichtstrom</b> <b>Luminous Flux</b> <b>Φ<sub>v</sub> (lm)</b>
K1	7.1 ... 9.0	30 (typ.)
K2	9.0 ... 11.2	40 (typ.)
L1	11.2 ... 14.0	50 (typ.)
L2	14.0 ... 18.0	65 (typ.)
M1	18.0 ... 22.4	80 (typ.)
M2	22.4 ... 28.0	100(typ.)

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

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

Beispiel: K1  
 Example: K1

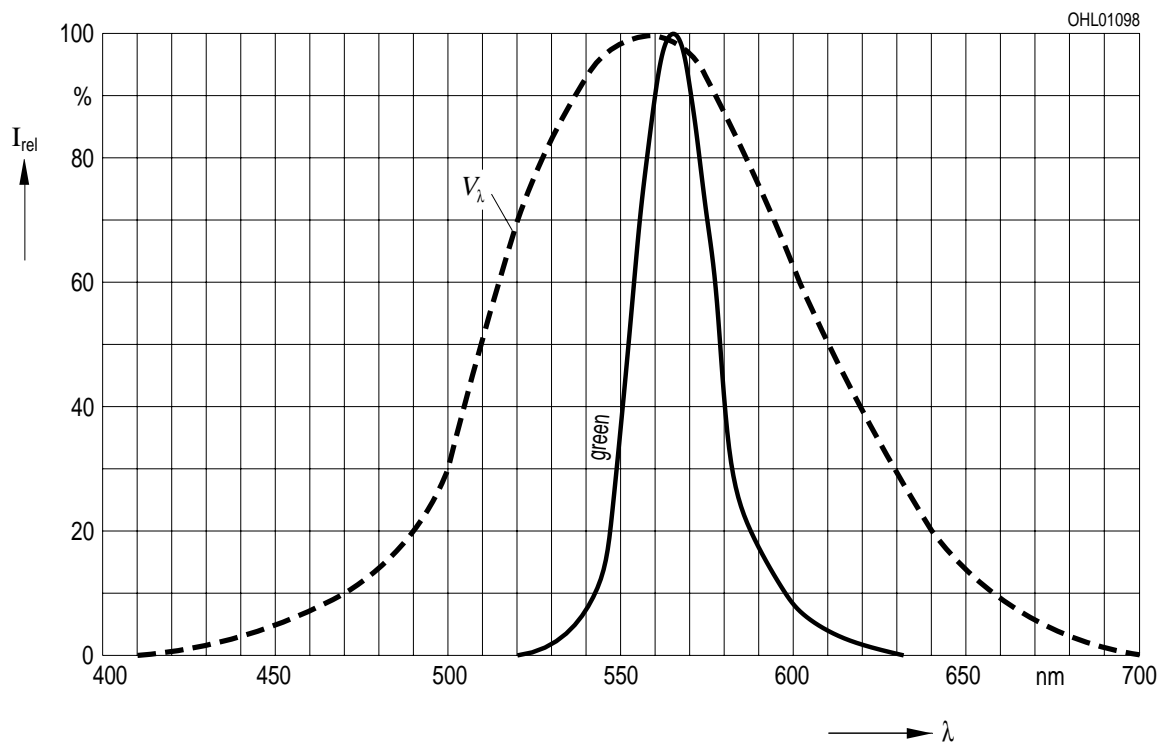
<b>Lichtgruppe</b> <b>Luminous Intensity Group</b>	<b>Halbgruppe</b> <b>Half Group</b>
K	1

Relative spektrale Emission  $I_{rel} = f(\lambda)$ ,  $T_A = 25\text{ °C}$ ,  $I_F = 20\text{ mA}$

Relative Spectral Emission

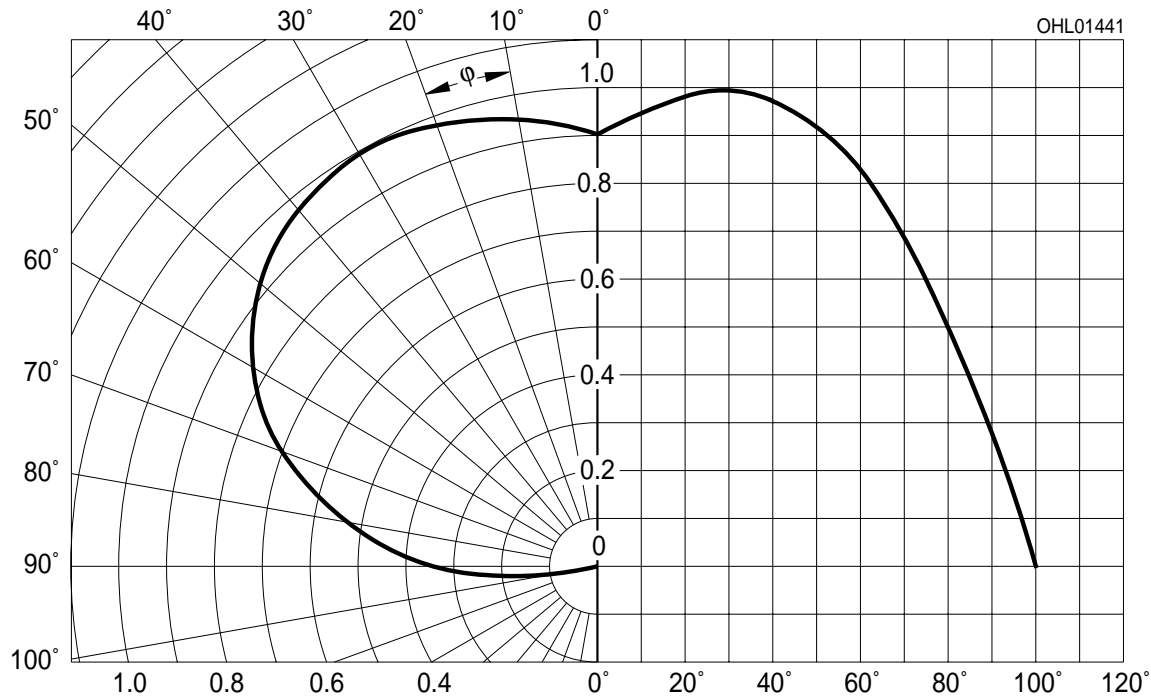
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



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

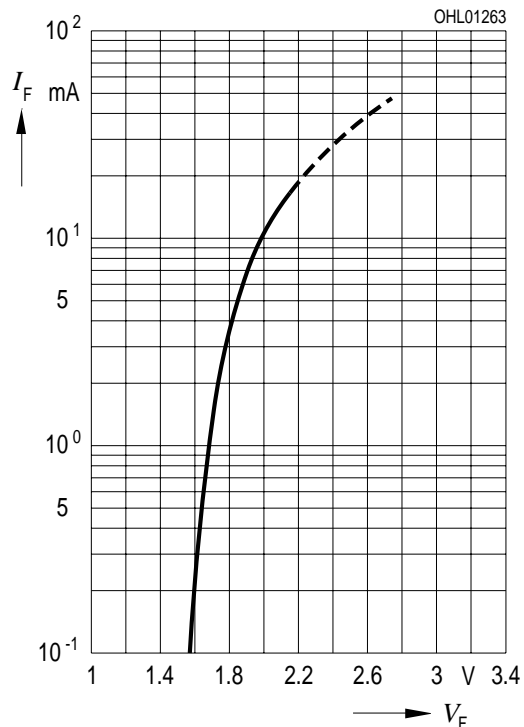
Radiation Characteristic



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

**Forward Current**

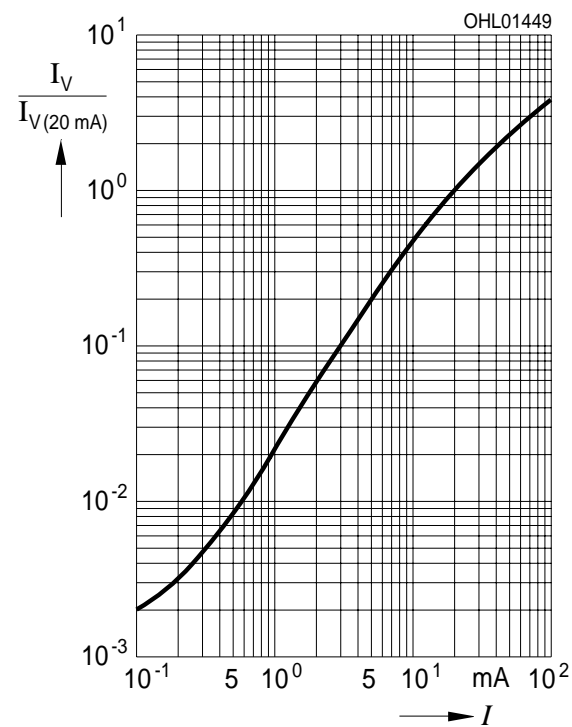
$T_A = 25\text{ °C}$



**Relative Lichtstärke  $I_V/I_{V(20\text{ mA})} = f(I_F)$**

**Relative Luminous Intensity**

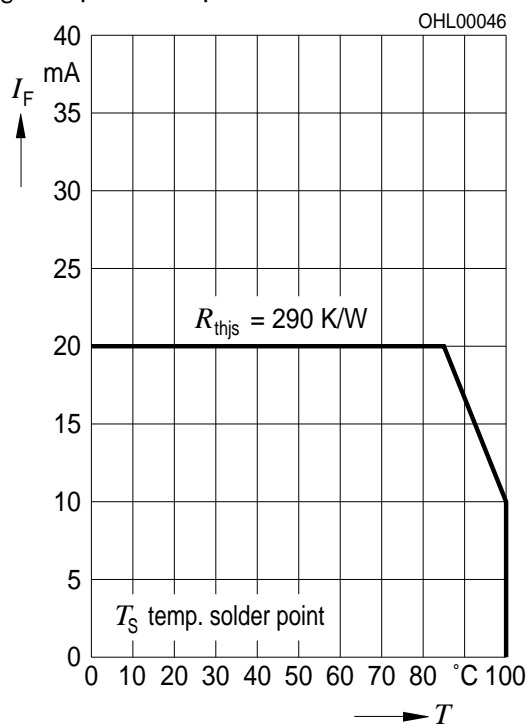
$T_A = 25\text{ °C}$



**Maximal zulässiger Durchlassstrom  $I_F = f(T_A)$**

**Max. Permissible Forward Current**

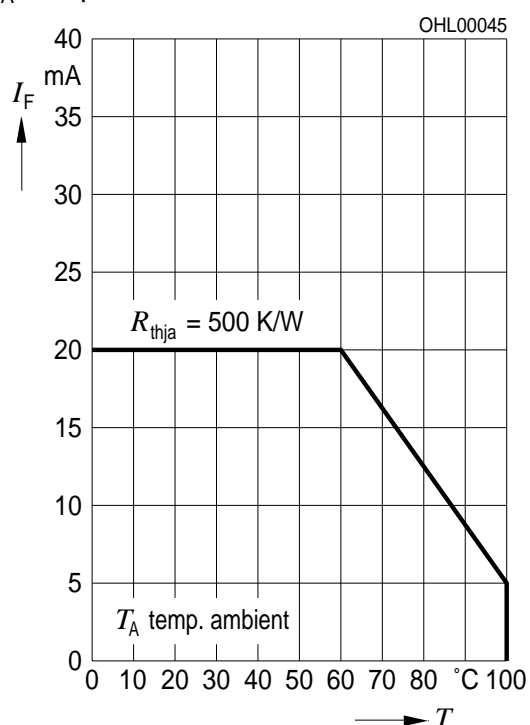
$T_S$ : temp. solder point



**Maximal zulässiger Durchlassstrom  $I_F = f(T_A)$**

**Max. Permissible Forward Current**

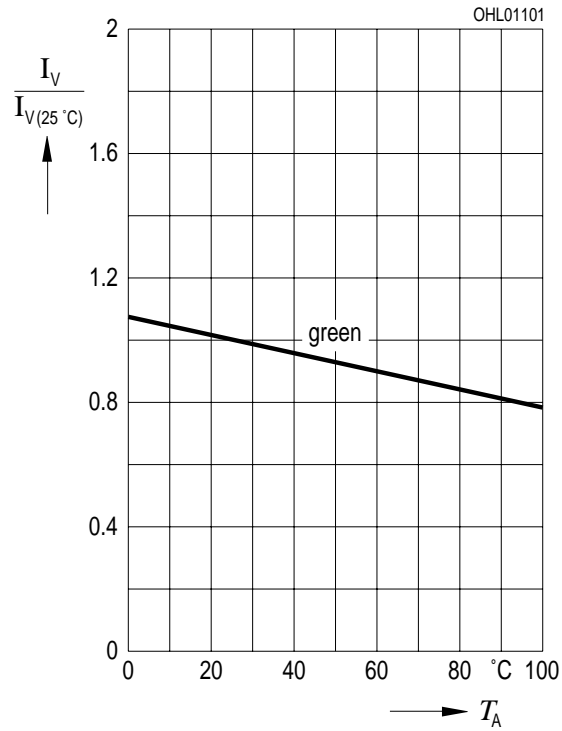
$T_A$ : temp. ambient



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

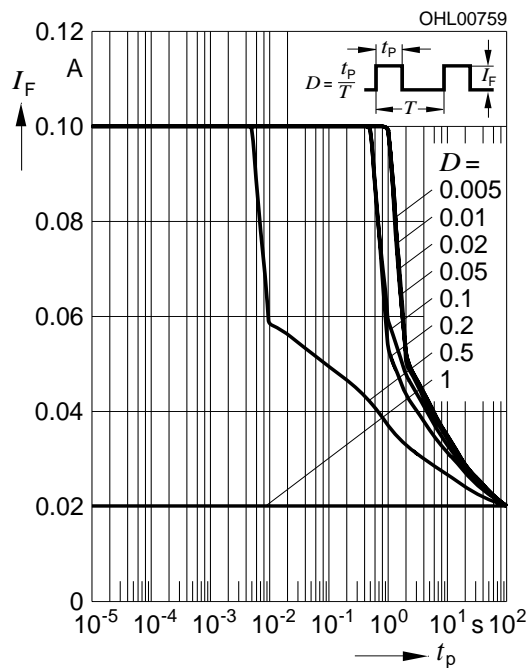
Relative Luminous Intensity

$I_F = 20\text{ mA}$

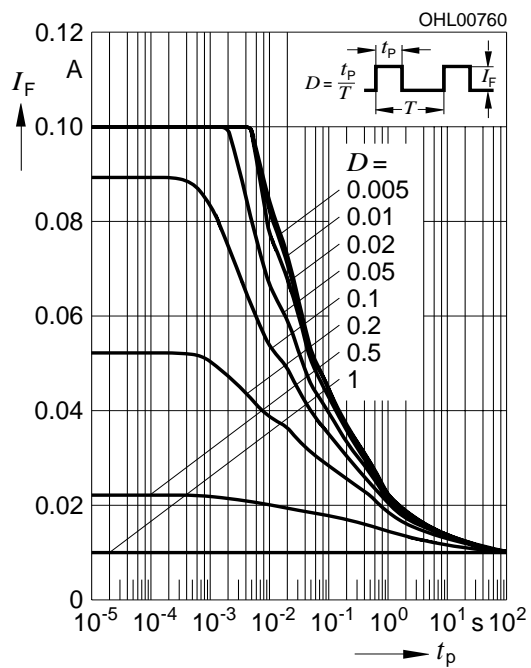




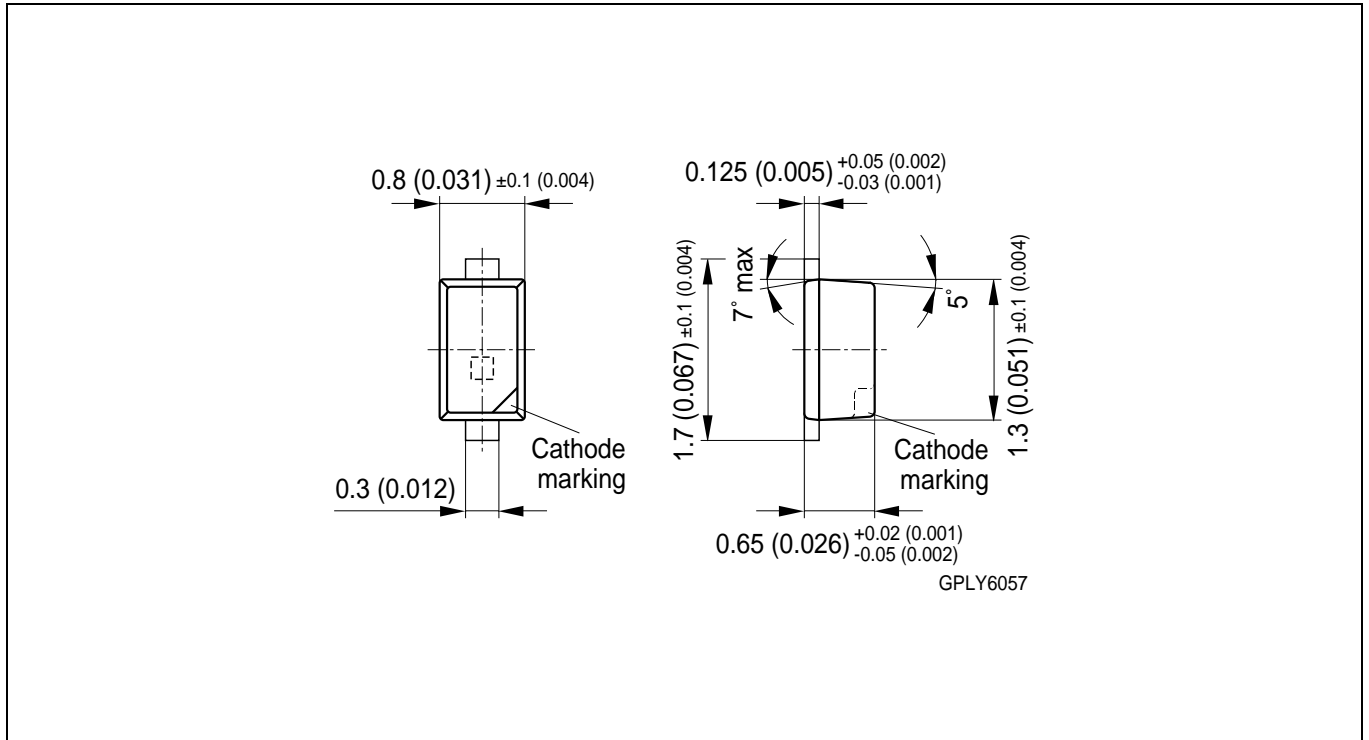
**Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$**   
**Permissible Pulse Handling Capability**  
 Duty cycle  $D =$  parameter,  $T_A = 25\text{ °C}$   
**LG**



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



**Maßzeichnung  
Package Outlines**

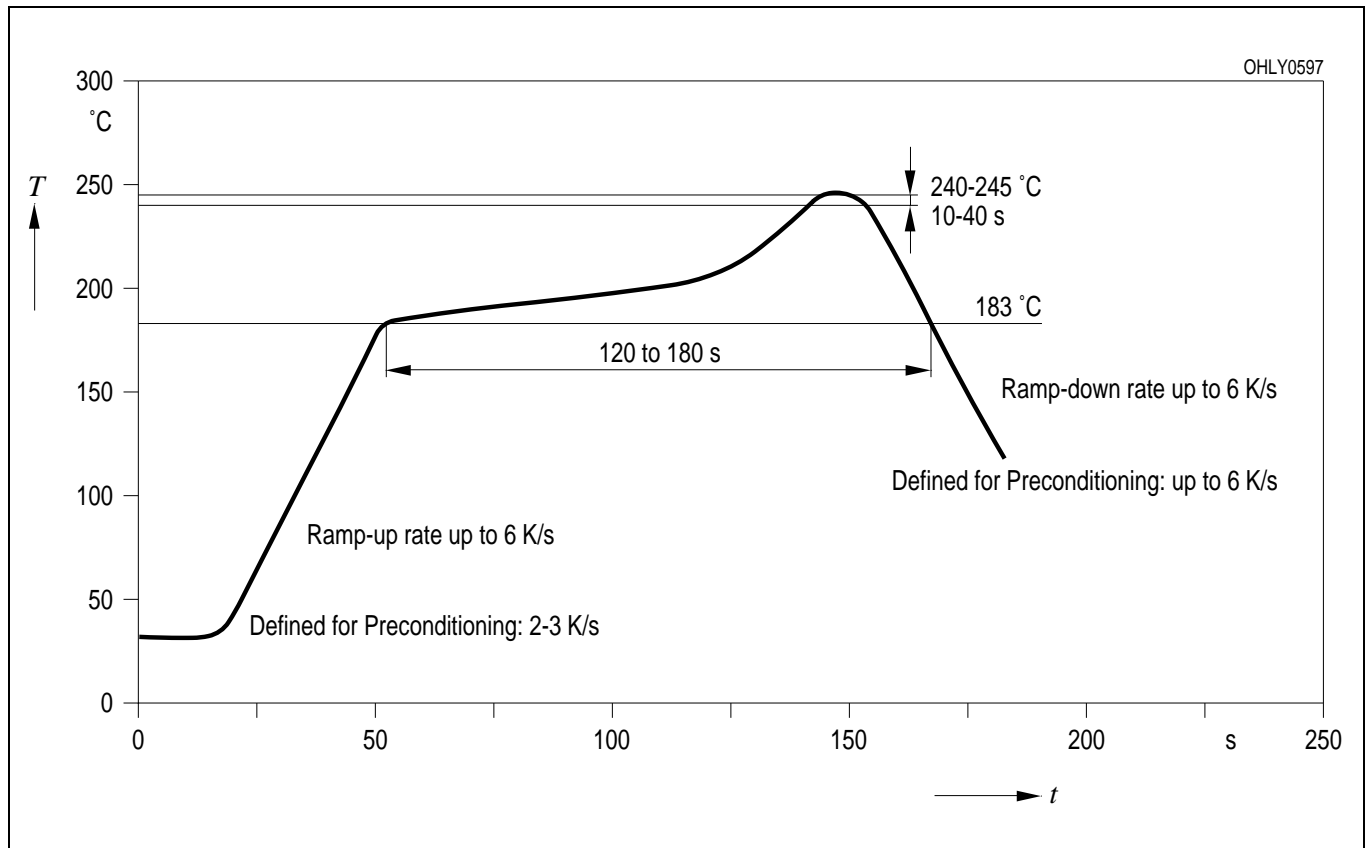


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

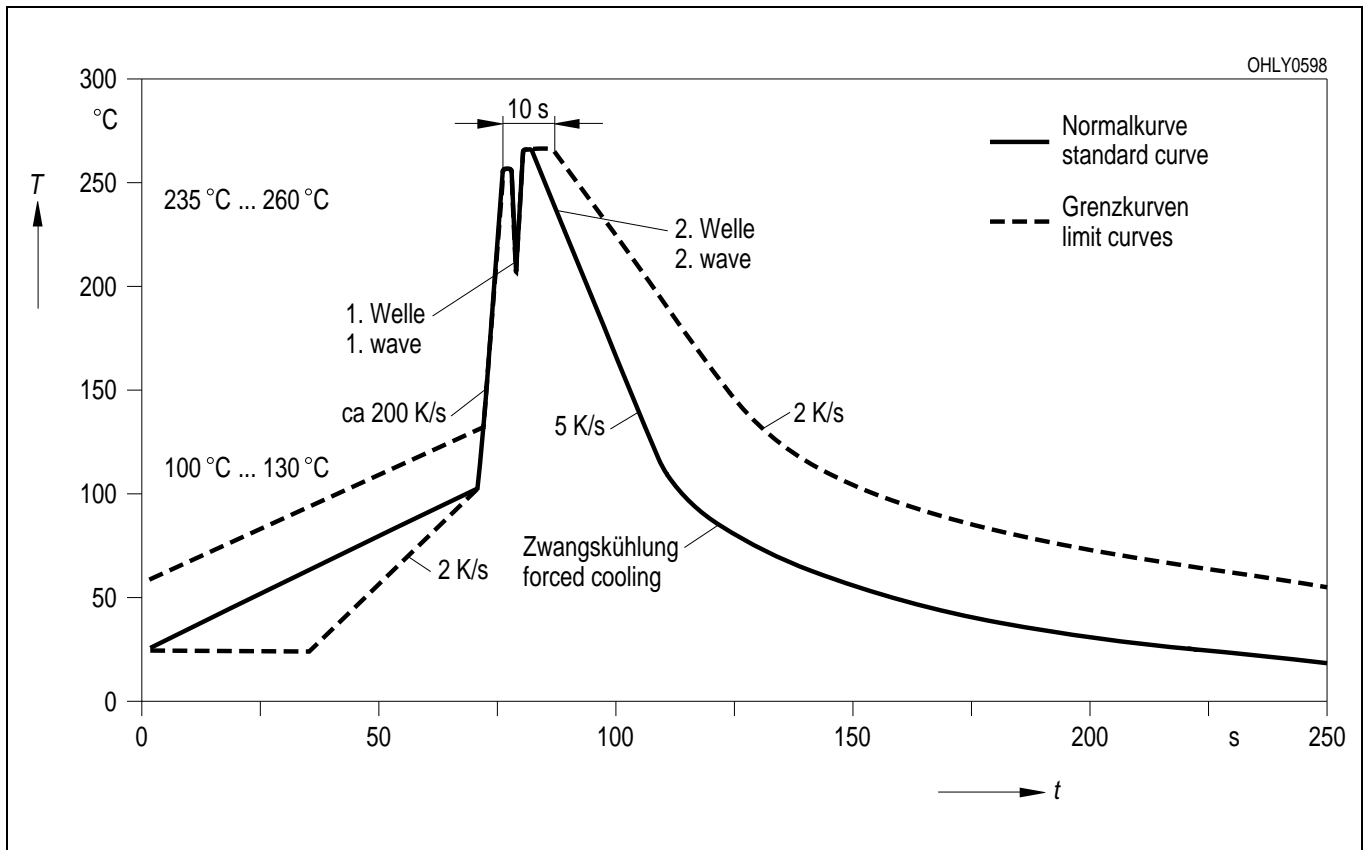
**Gewicht / Approx. weight:** 1.4 mg

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

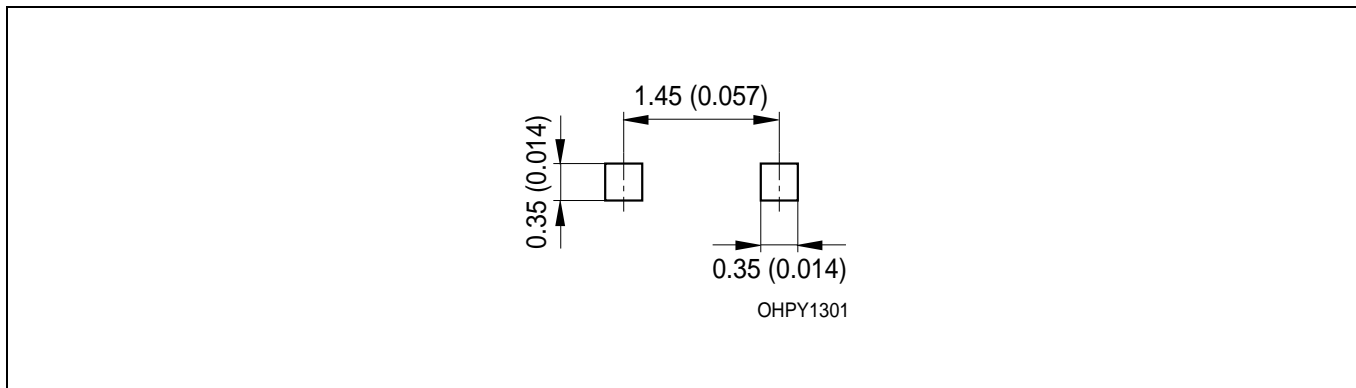
**IR-Reflow Lötprofil** (nach IPC 9501)  
**IR Reflow Soldering Profile** (acc. to IPC 9501)



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

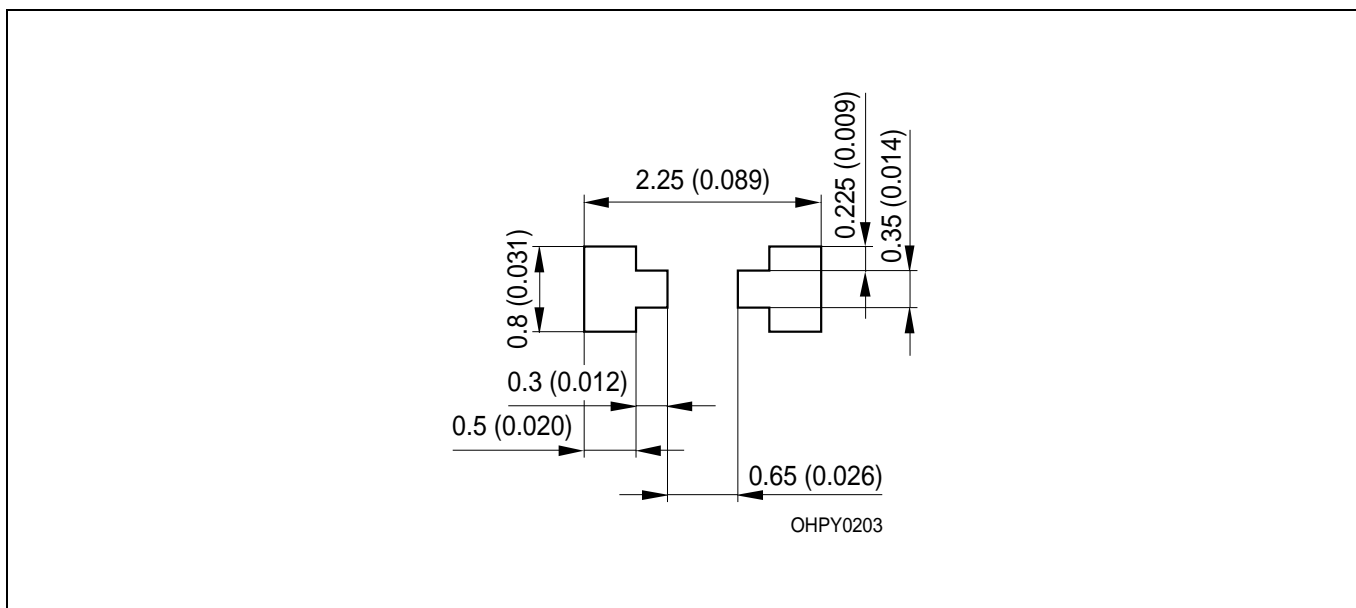


**Empfohlenes Löt paddesign** IR Reflow Lötén  
**Recommended Solder Pad** IR Reflow Soldering



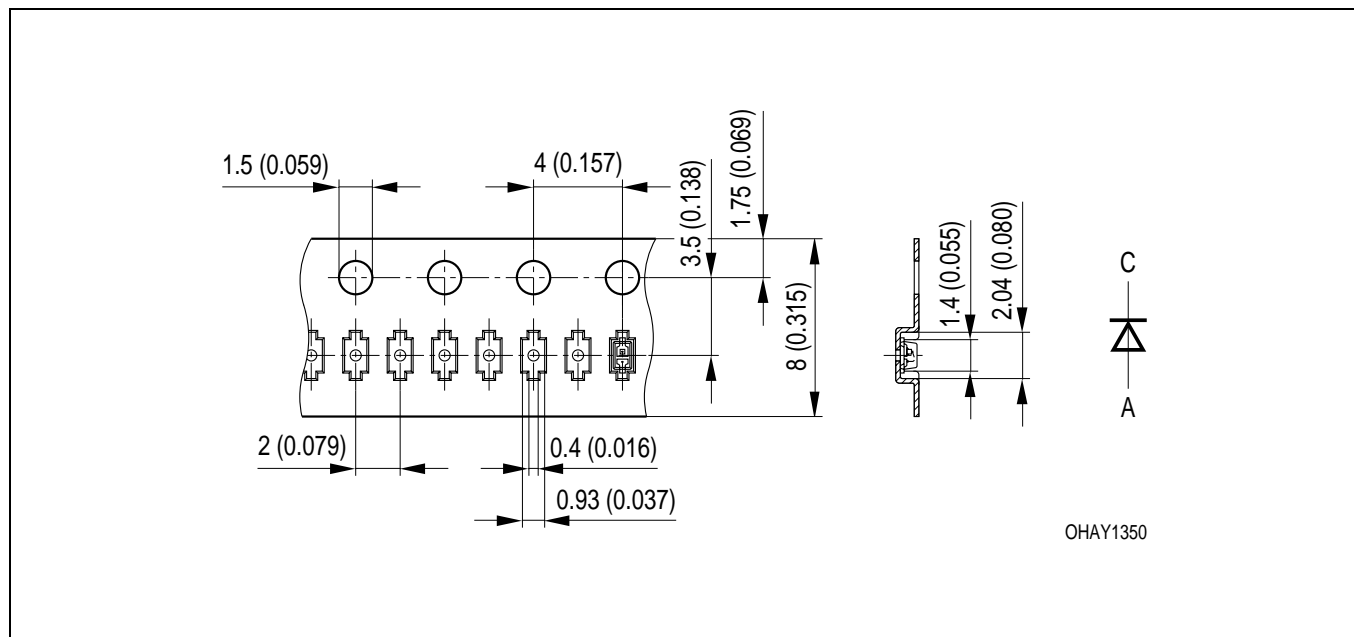
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).  
 Gehäuse hält TTW-Löthitze aus / Package able to withstand TTW-soldering heat

**Empfohlenes Löt paddesign verwendbar für SmartLED™ und Chiplid - Bauform 0603**  
 IR Reflow Lötén  
**Recommended Solder Pad useable for SmartLED™ and Chiplid - Package 0603**  
 IR Reflow Soldering



Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).  
 Empfohlene Löt pastendicke: 120 µm / recommended thickness of solder paste: 120 µm  
 Gehäuse für Wellenlötén (TTW) geeignet / Package suitable for TTW-soldering

**Gurtung / Polarität und Lage**  
**Method of Taping / Polarity and Orientation**



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

**Verpackungseinheit:**

- 8 mm Gurt mit 5000/Rolle,  $\varnothing$ 180 mm
- 8 mm Gurt mit 10000/Rolle,  $\varnothing$ 180 mm (auf Anfrage)

**Packing unit:**

- 8 mm tape with 5000/reel,  $\varnothing$ 180 mm
- 8 mm tape with 10000/reel,  $\varnothing$ 180 mm (on request)

Revision History: 2002-12-10		Date of change
Previous Version: 2002-11-18		
Page	Subjects (major changes since last revision)	
2	changed resin from colorless clear to colorless diffused	
12	recommended solder pad	
9	Package Outlines	
3	pad size from 16 mm <sup>2</sup> to 5 mm <sup>2</sup>	
3	Surge current	
9	Permissible Pulse Handling Capability	
15	annotations	2002-07-23
3, 4	value (reverse voltage from 5 V to 12 V)	2002-09-18
1, 14	tape with 5000/reel and 10000/reel instead of 10000	2002-12-10

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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.

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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.