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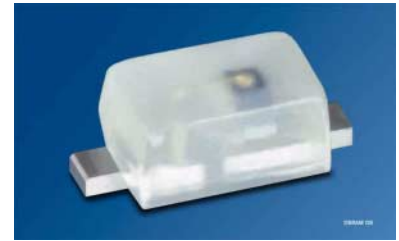
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LG L890



Besondere Merkmale

- **Gehäusotyp:** 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 $I_F = 20 \text{ mA}$ $\Phi_V \text{ (mlm)}$ | 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 ¹⁾ 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看垫 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 |

¹⁾ 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.) | λ_{peak} | 572 | nm |
| Dominantwellenlänge ¹⁾ Dominant wavelength ¹⁾ $I_F = 20\text{ mA}$ | (typ.) | λ_{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.) | 2ϕ | 160 | Grad deg. |
| Durchlassspannung ²⁾ Forward voltage ²⁾ $I_F = 20\text{ mA}$ | (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 | μA μA |
| Temperaturkoeffizient von λ_{peak} Temperature coefficient of λ_{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 λ_{dom} Temperature coefficient of λ_{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.) | η_{opt} | 2.5 | lm/W |

¹⁾ 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.

²⁾ 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

| Lichtgruppe Luminous Intensity Group | Lichtstärke Luminous Intensity I_v (mcd) | Lichtstrom Luminous Flux Φ_v (lm) |
|---|--|--|
| 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 $\pm 11\%$ 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: K1
 Example: K1

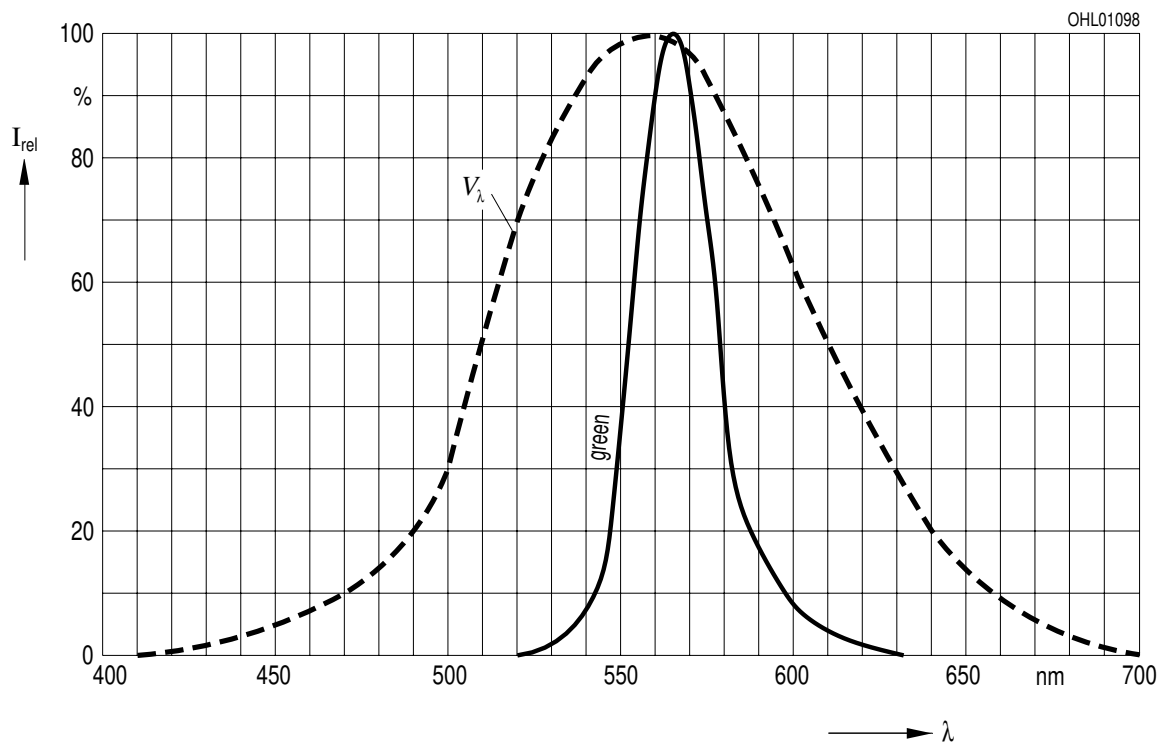
| Lichtgruppe Luminous Intensity Group | Halbgruppe Half Group |
|---|--|
| K | 1 |

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

Relative Spectral Emission

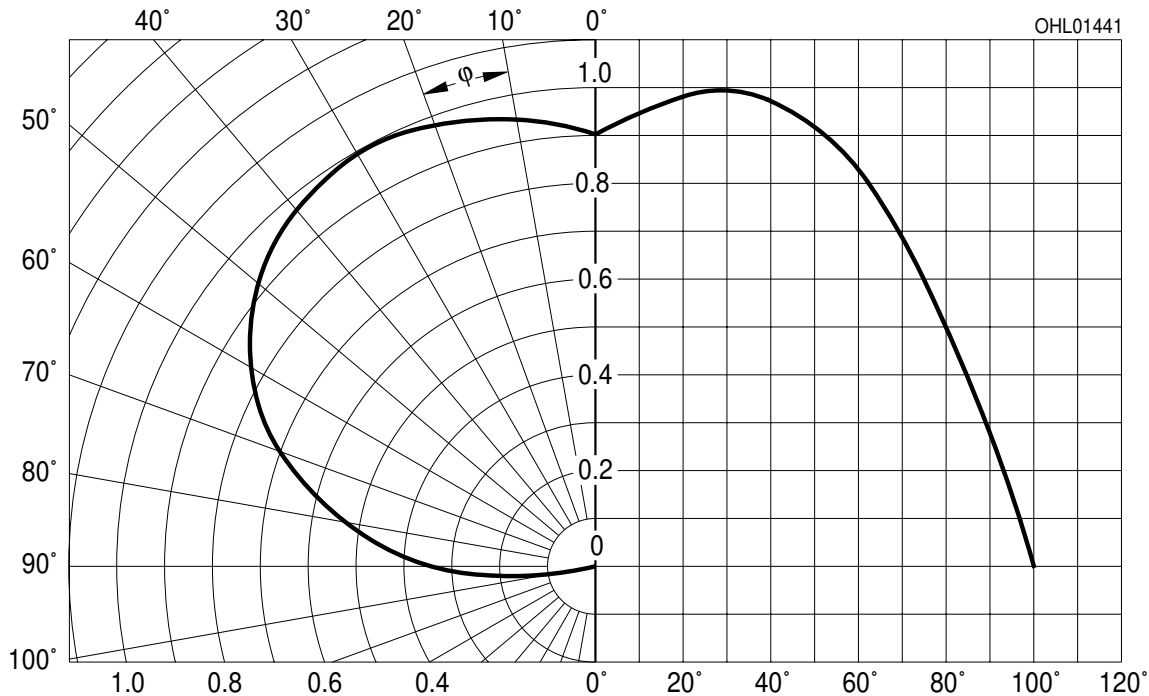
$V(\lambda)$ = spektrale Augenempfindlichkeit

Standard eye response curve



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

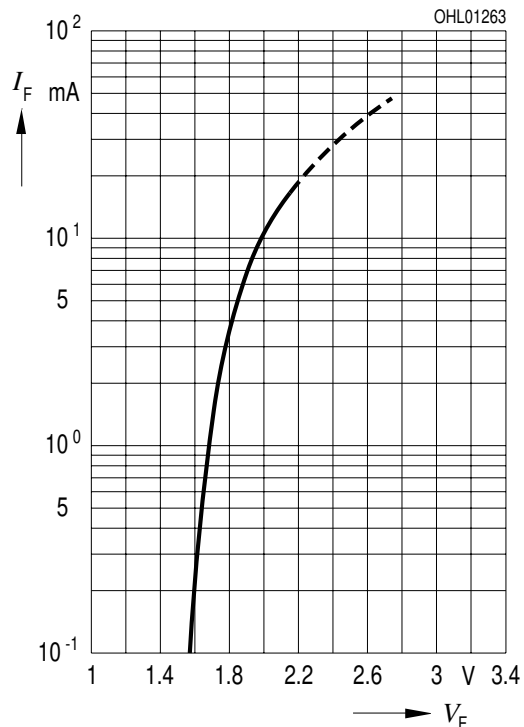
Radiation Characteristic



Durchlassstrom $I_F = f(V_F)$

Forward Current

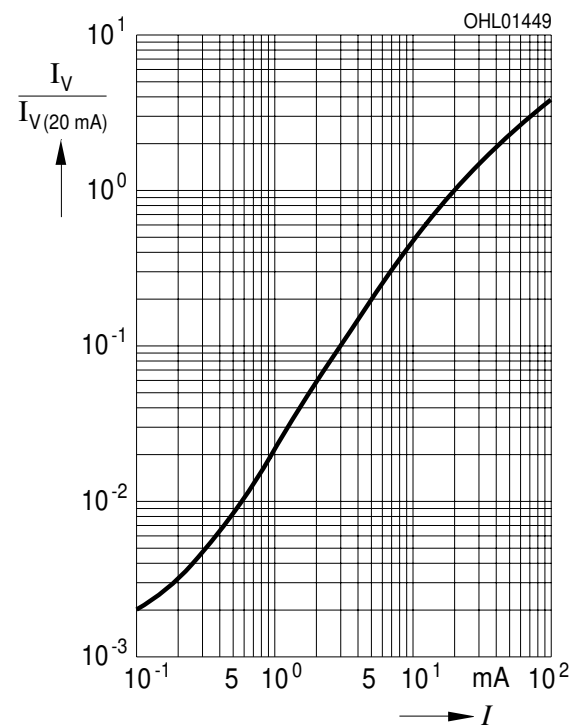
$T_A = 25\text{ °C}$



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

Relative Luminous Intensity

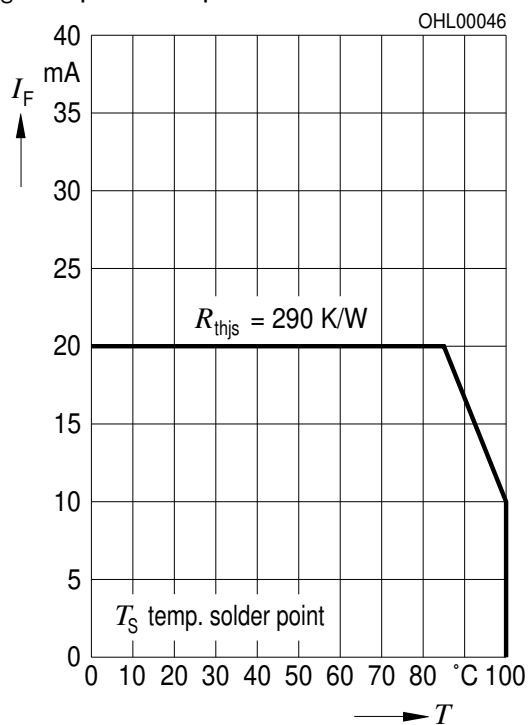
$T_A = 25\text{ °C}$



Maximal zulässiger Durchlassstrom $I_F = f(T_A)$

Max. Permissible Forward Current

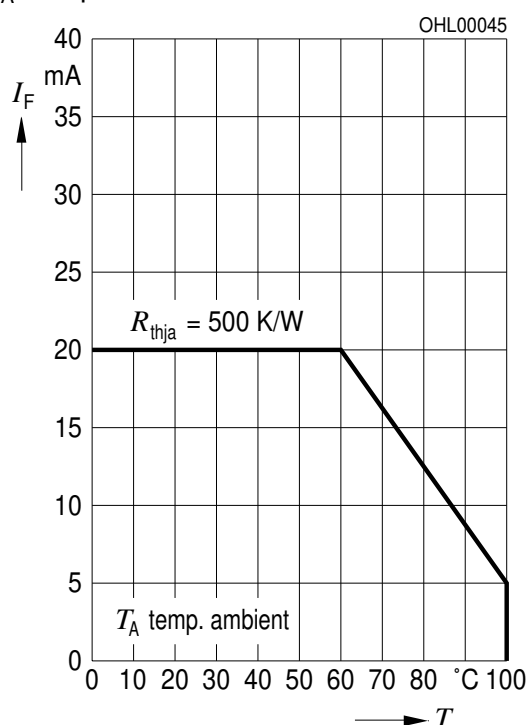
T_S : temp. solder point



Maximal zulässiger Durchlassstrom $I_F = f(T_A)$

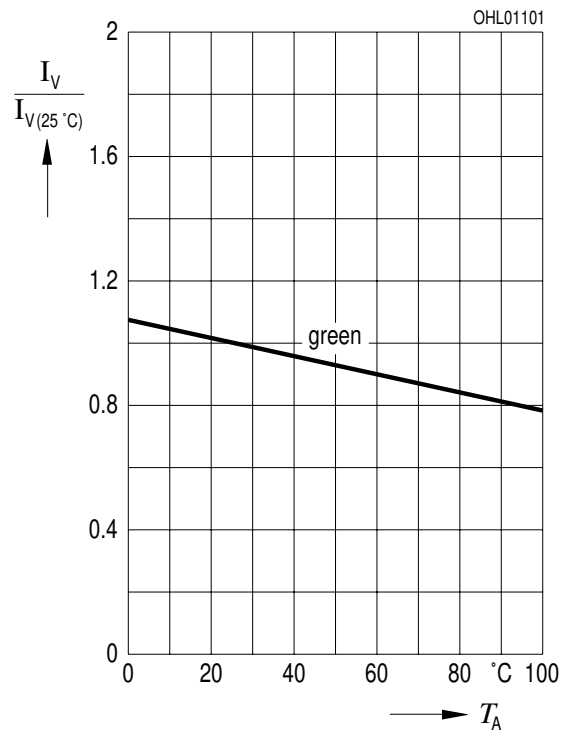
Max. Permissible Forward Current

T_A : temp. ambient

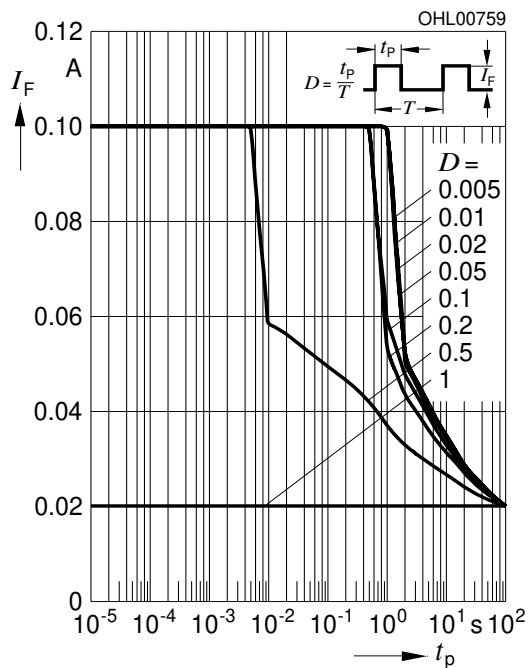


Relative Lichtstärke $I_V/I_{V(25\text{ °C})} = f(T_A)$
 Relative Luminous Intensity

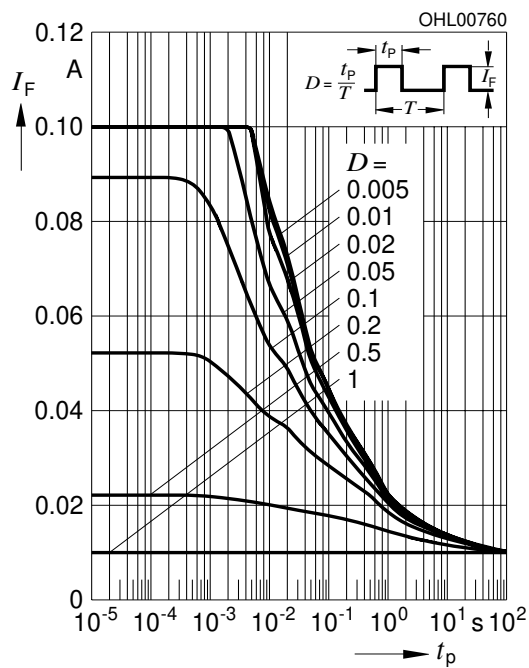
$I_F = 20\text{ mA}$



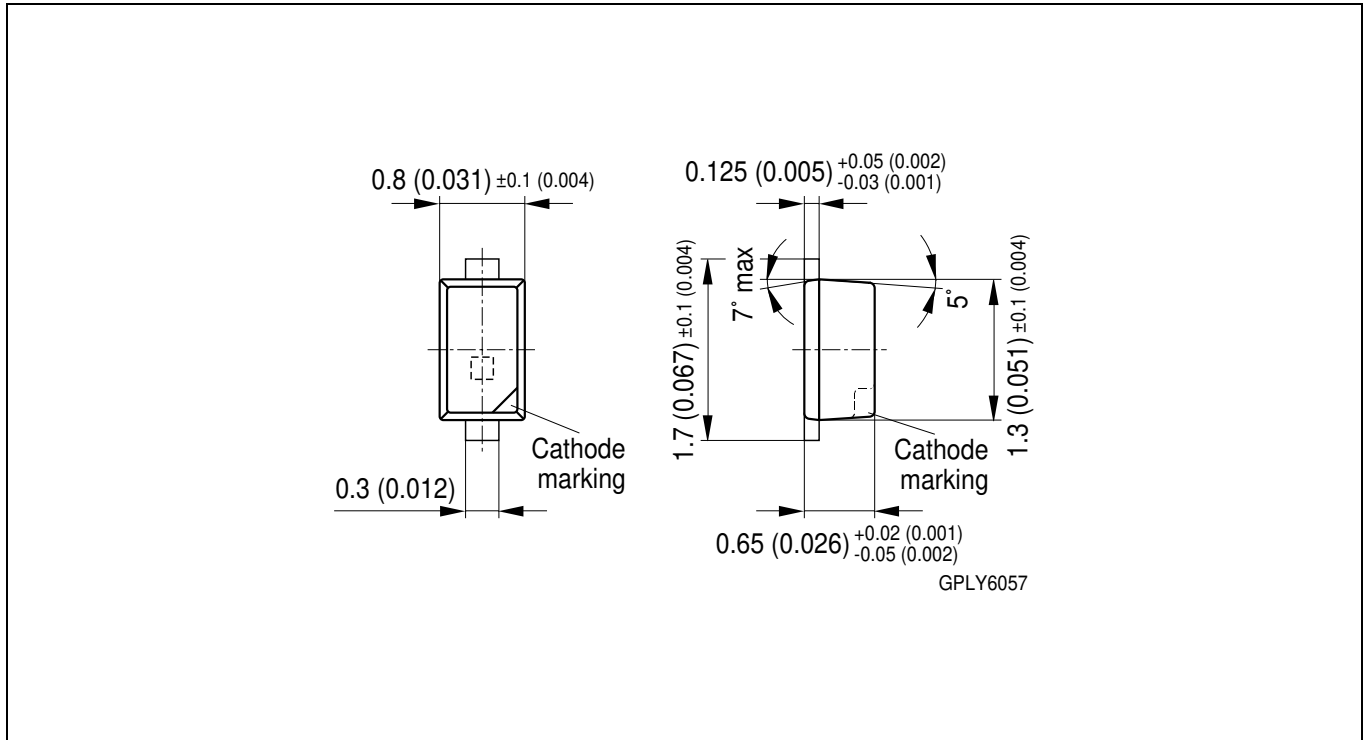
Zulässige Impulsbelastbarkeit $I_F = f(t_p)$
Permissible Pulse Handling Capability
 Duty cycle $D =$ parameter, $T_A = 25\text{ °C}$
LG



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



**Maßzeichnung
Package Outlines**

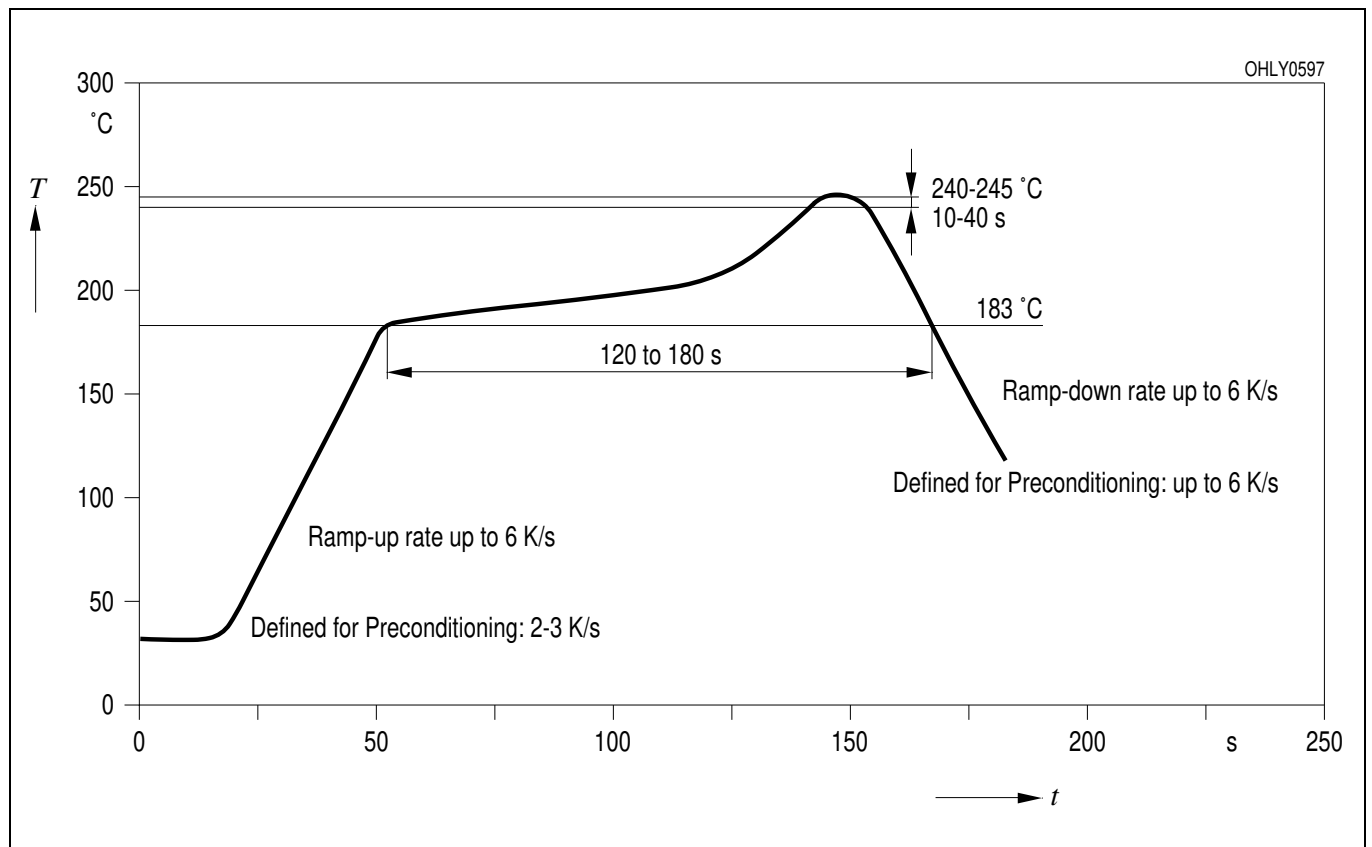


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

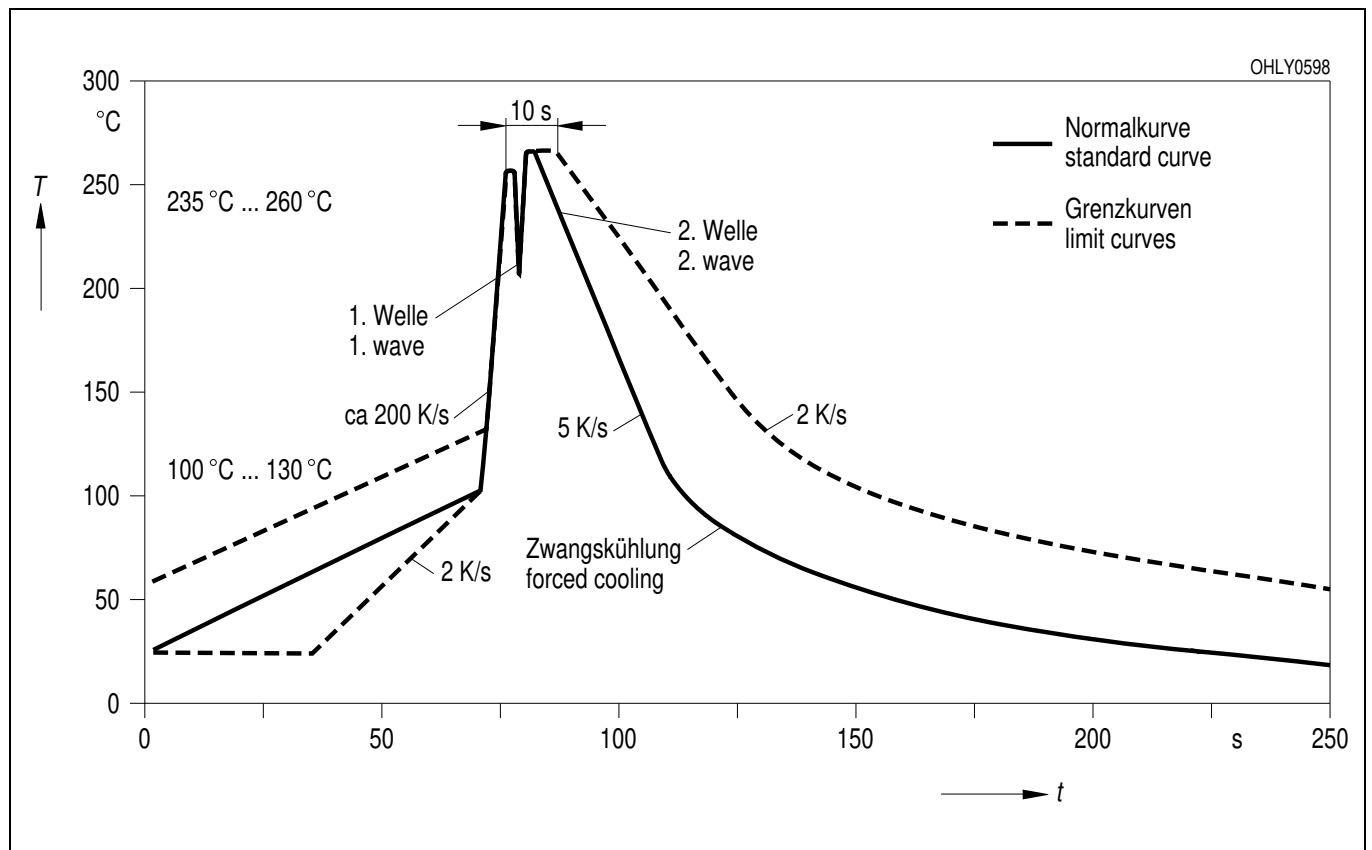
Gewicht / Approx. weight: 1.4 mg

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

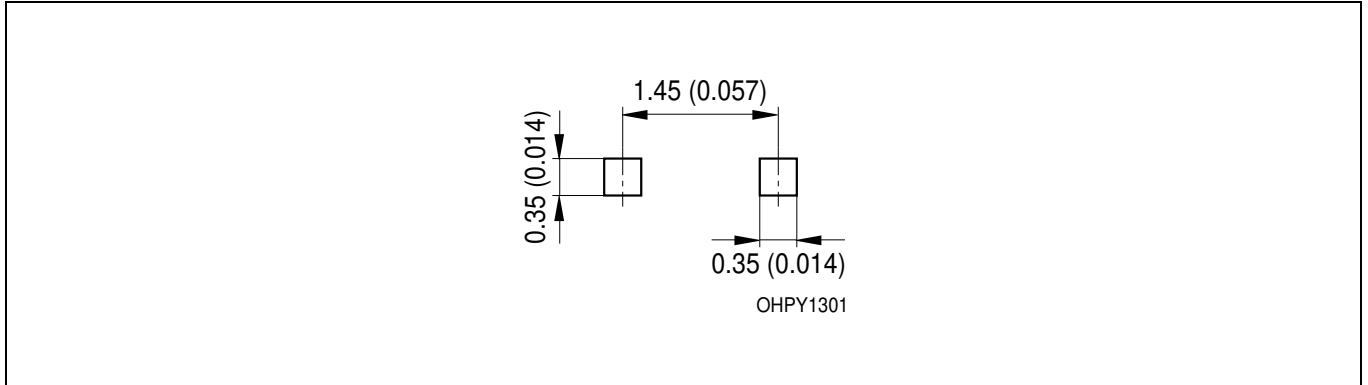
IR-Reflow Lötprofil (nach IPC 9501)
IR Reflow Soldering Profile (acc. to IPC 9501)



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

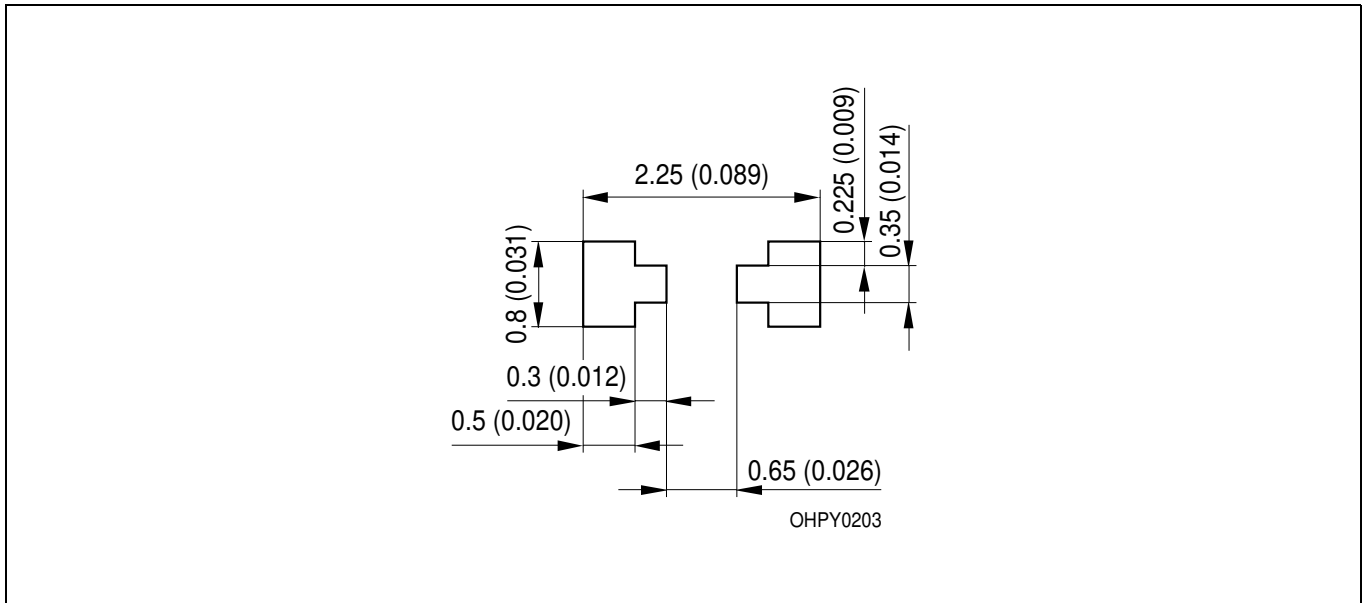


Empfohlenes Lötpad design IR Reflow Lötén
Recommended Solder Pad IR Reflow Soldering



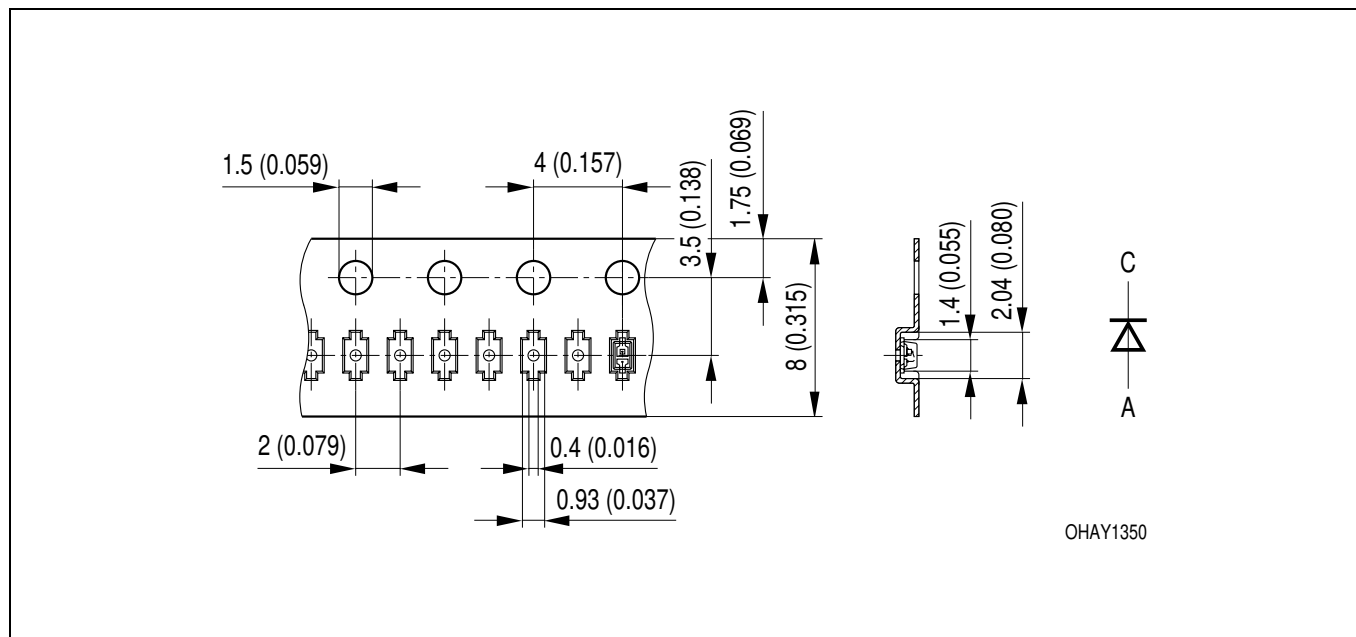
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).
 Gehäuse hält TTW-Löthitze aus / Package able to withstand TTW-soldering heat

Empfohlenes Lötpad design 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 Lötpastendicke: 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 ² to 5 mm ² | |
| 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.

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¹ 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.

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