

Hyper CHIPLED Hyper-Bright LED

LW Q983



www.DataSheet4U.com

Besondere Merkmale

- **Gehäusotyp:** SMT Gehäuse 0603
- **Besonderheit des Bauteils:** kleinste Bauform 1,6 x 0,8 x 0,8 mm (LxBxH)
- **Farbort:** x = 0,35, y = 0,34 nach CIE 1931 (weiß)
- **Typische Farbtemperatur:** 4770 K
- **Farbwiedergabeindex:** 80
- **Abstrahlwinkel:** extrem breite Abstrahlcharakteristik (160°)
- **Technologie:** InGaN
- **optischer Wirkungsgrad:** 4 lm/W
- **Gruppierungsparameter:** Lichtstärke, Farbort
- **Verarbeitungsmethode:** für alle SMT-Bestücktechniken geeignet
- **Lötmethode:** IR Reflow Löten
- **Vorbehandlung:** nach JEDEC Level 2
- **Gurtung:** 8 mm Gurt mit 4000/Rolle, ø180 mm
- **ESD-Festigkeit:** ESD-sicher bis 2 kV nach EOS/ESD-5.1-1993

Anwendungen

- flache Hinterleuchtung (LCD, Handy, Schalter, Display)
- Spielsachen

Features

- **package:** SMT package 0603
- **feature of the device:** smallest package 1.6 x 0.8 x 0.8 mm (LxWxH)
- **color coordinates:** x = 0.35, y = 0.34 acc. to CIE 1931 (white)
- **typ. color temperature:** 4770 K
- **color reproduction index:** 80
- **viewing angle:** extremely wide (160°)
- **technology:** InGaN
- **optical efficiency:** 4 lm/W
- **grouping parameter:** luminous intensity, color coordinates
- **assembly methods:** suitable for all SMT assembly methods
- **soldering methods:** IR reflow soldering
- **preconditioning:** acc. to JEDEC Level 2
- **taping:** 8 mm tape with 4000/reel, ø180 mm
- **ESD-withstand voltage:** up to 2 kV acc. to EOS/ESD-5.1-1993

Applications

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

| Typ | Emissions- farbe | Farbe der Lichtaustritts- fläche | Lichtstärke | | Bestellnummer |
|---------|----------------------|--|--|------|---------------|
| Type | Color of Emission | Color of the Light Emitting Area | Luminous Intensity $I_F = 6 \text{ mA}$ $I_V \text{ (mcd)}$ | | Ordering Code |
| | | | min. | typ. | |
| LW Q983 | white | colored diffused | 5 | 15 | Q62702-P5225 |

www.DataSheet4U.com

Anm.: Farbselektiert nach Farbortgruppen, Lieferung in Einzelgruppen (siehe **Seite 5**)

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: Color selection acc. to chromaticity coordinate groups, delivery in single groups (see **page 5**)

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} | - 30 ... + 85 | °C |
| Lagertemperatur Storage temperature range | T_{stg} | - 40 ... + 85 | °C |
| Sperrschichttemperatur Junction temperature | T_j | + 95 | °C |
| Durchlassstrom Forward current | I_F | 15 | mA |
| Stoßstrom Surge current $t = 10 \mu s, D = 0.1$ | I_{FM} | 0.1 | A |
| Sperrspannung Reverse voltage | V_R | 5 | V |
| Leistungsaufnahme Power consumption | P_{tot} | 60 | mW |
| Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/ambient | $R_{th JA}$ | 650 | K/W |
| Sperrschicht/Löt看垫 Junction/solder point Montage auf PC-Board FR 4 (Padgröße $\geq 16 \text{ mm}^2$) mounted on PC board FR 4 (pad size $\geq 16 \text{ mm}^2$) | $R_{th JS}$ | 370 | K/W |

Kennwerte ($T_A = 25\text{ °C}$)

Characteristics

| Bezeichnung Parameter | Symbol Symbol | Wert Value | Einheit Unit |
|--|---------------------|---------------|--------------------------------|
| Farbkoordinate x nach CIE 1931 ¹⁾ Chromaticity coordinate x acc. to CIE 1931 $I_F = 6\text{ mA}$ | x | 0.35 | – |
| Farbkoordinate y nach CIE 1931 ¹⁾ Chromaticity coordinate y acc. to CIE 1931 $I_F = 6\text{ mA}$ | y | 0.34 | – |
| Abstrahlwinkel bei 50 % I_V (Vollwinkel) (typ.) Viewing angle at 50 % I_V | 2ϕ | 160 | Grad deg. |
| Durchlassspannung ²⁾ (typ.) Forward voltage (max.) $I_F = 6\text{ mA}$ | V_F V_F | 3.3 3.6 | V V |
| Sperrstrom (typ.) Reverse current (max.) $V_R = 5\text{ V}$ | I_R I_R | 0.01 10 | μA μA |
| Temperaturkoeffizient von λ_{peak} (typ.) Temperature coefficient of λ_{peak} $I_F = 6\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$ | TC_x | – 0.4 | $10^{-3}/\text{K}$ |
| Temperaturkoeffizient von λ_{dom} (typ.) Temperature coefficient of λ_{dom} $I_F = 6\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$ | TC_y | – 0.3 | $10^{-3}/\text{K}$ |
| Temperaturkoeffizient von V_F (typ.) Temperature coefficient of V_F $I_F = 6\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$ | TC_V | – 2.9 | mV/K |
| Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 6\text{ mA}$ | η_{opt} | 4 | lm/W |

¹⁾ Farbortgruppen werden mit einer Stromeinprägungsdauer von 25 ms und einer Genauigkeit von $\pm 0,01$ ermittelt.
Chromaticity coordinate groups are tested at a current pulse duration of 25 ms and a tolerance of ± 0.01 .

²⁾ 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 $\pm 0.1\text{ V}$.

¹⁾ Farbortgruppen / Chromaticity coordinate groups

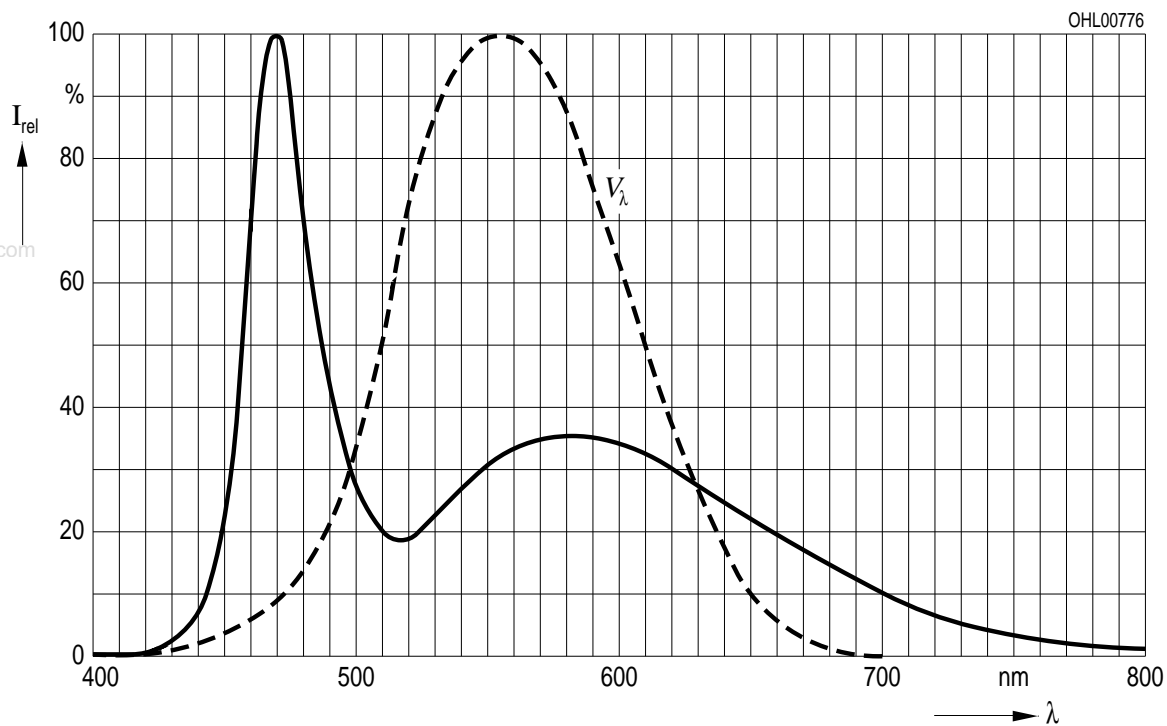
| Gruppe Group | x | | y | |
|-----------------|-------|-------|-------|-------|
| | min. | max. | min. | max. |
| 1 | 0.290 | 0.350 | 0.250 | 0.410 |
| 2 | 0.350 | 0.410 | 0.270 | 0.430 |

Relative spektrale Emission $I_{rel} = f(\lambda)$, $T_A = 25\text{ °C}$, $I_F = 6\text{ mA}$

Relative Spectral Emission

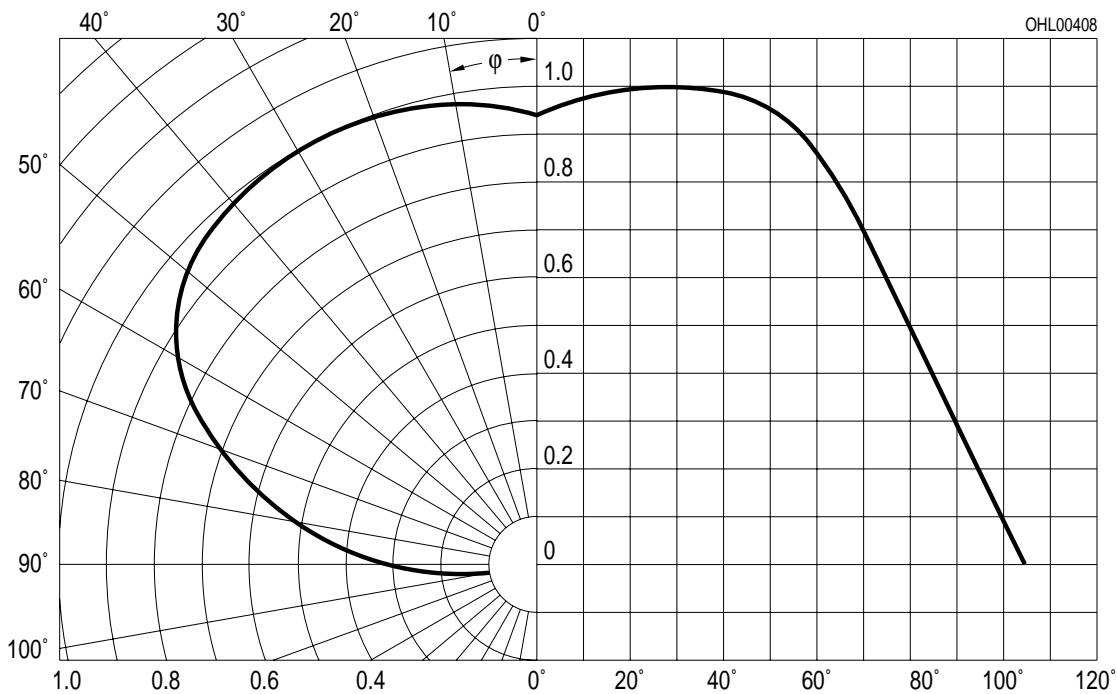
$V(\lambda)$ = spektrale Augenempfindlichkeit

Standard eye response curve



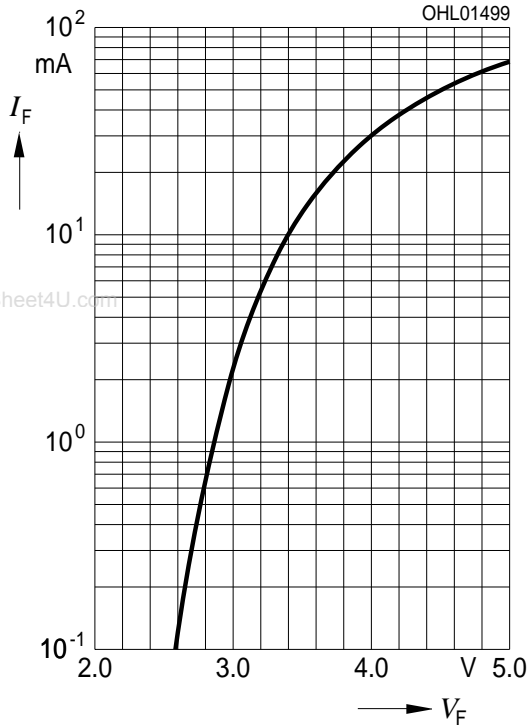
Abstrahlcharakteristik $I_{rel} = f(\varphi)$

Radiation Characteristic



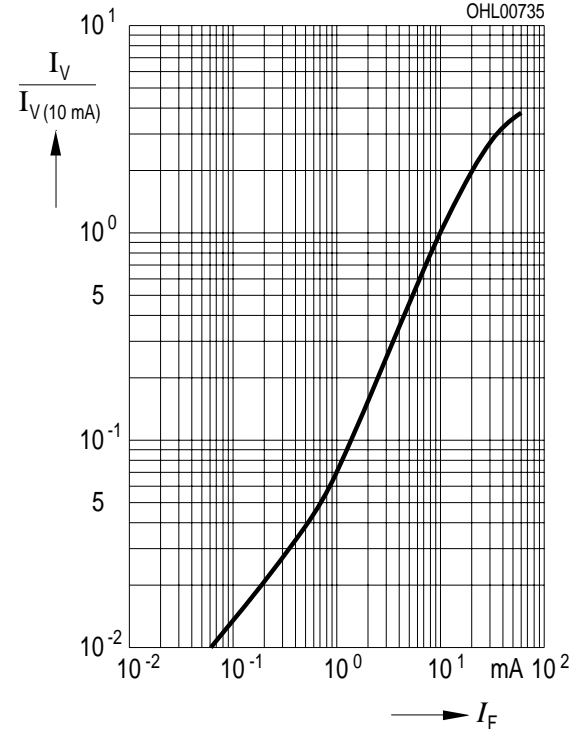
Durchlassstrom $I_F = f(V_F)$
Forward Current

$T_A = 25\text{ °C}$

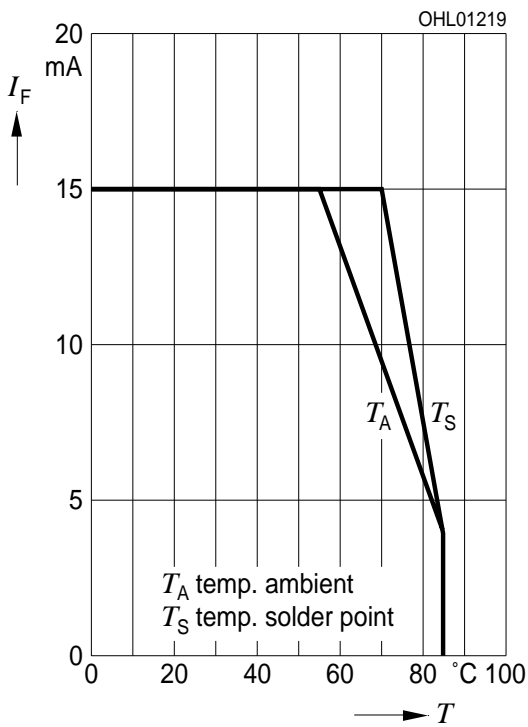


Relative Lichtstärke $I_V/I_{V(6\text{ mA})} = f(I_F)$
Relative Luminous Intensity

$T_A = 25\text{ °C}$

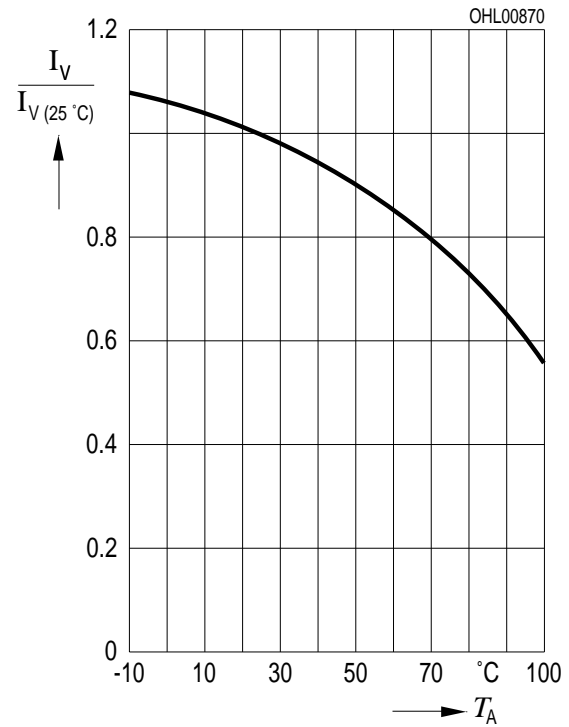


Maximal zulässiger Durchlassstrom $I_F = f(T)$
Max. Permissible Forward Current



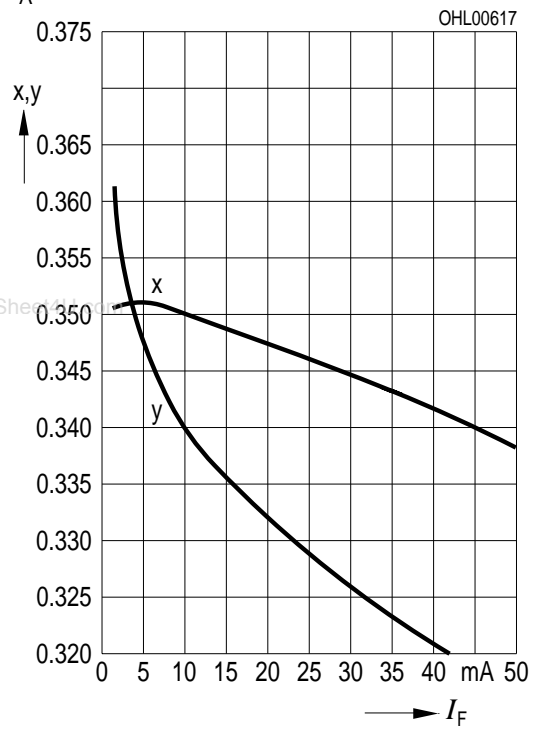
Relative Lichtstärke $I_V/I_{V(25\text{ °C})} = f(T_A)$
Relative Luminous Intensity

$I_F = 6\text{ mA}$

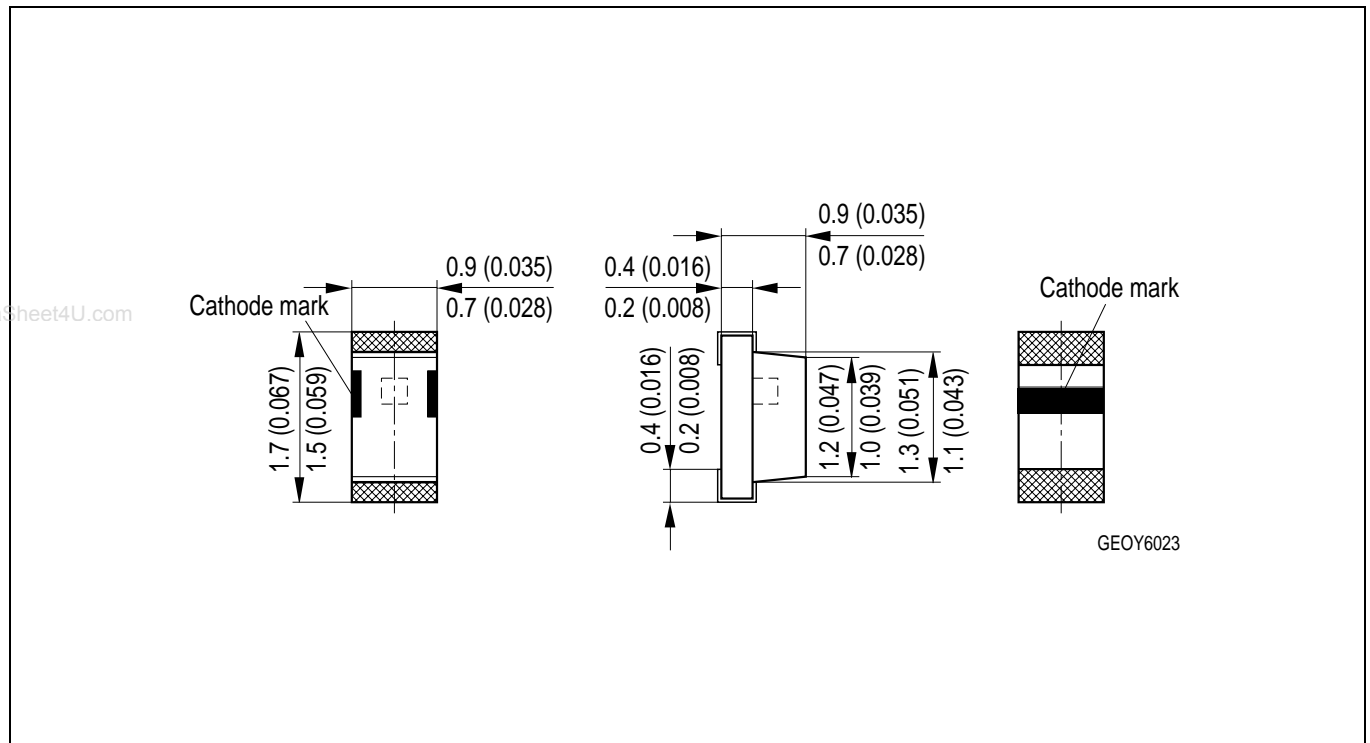


Farbortverschiebung $x, y = f(T)$
Chromaticity Coordinate Shift

$T_A = 25\text{ °C}$



Maßzeichnung
Package Outlines

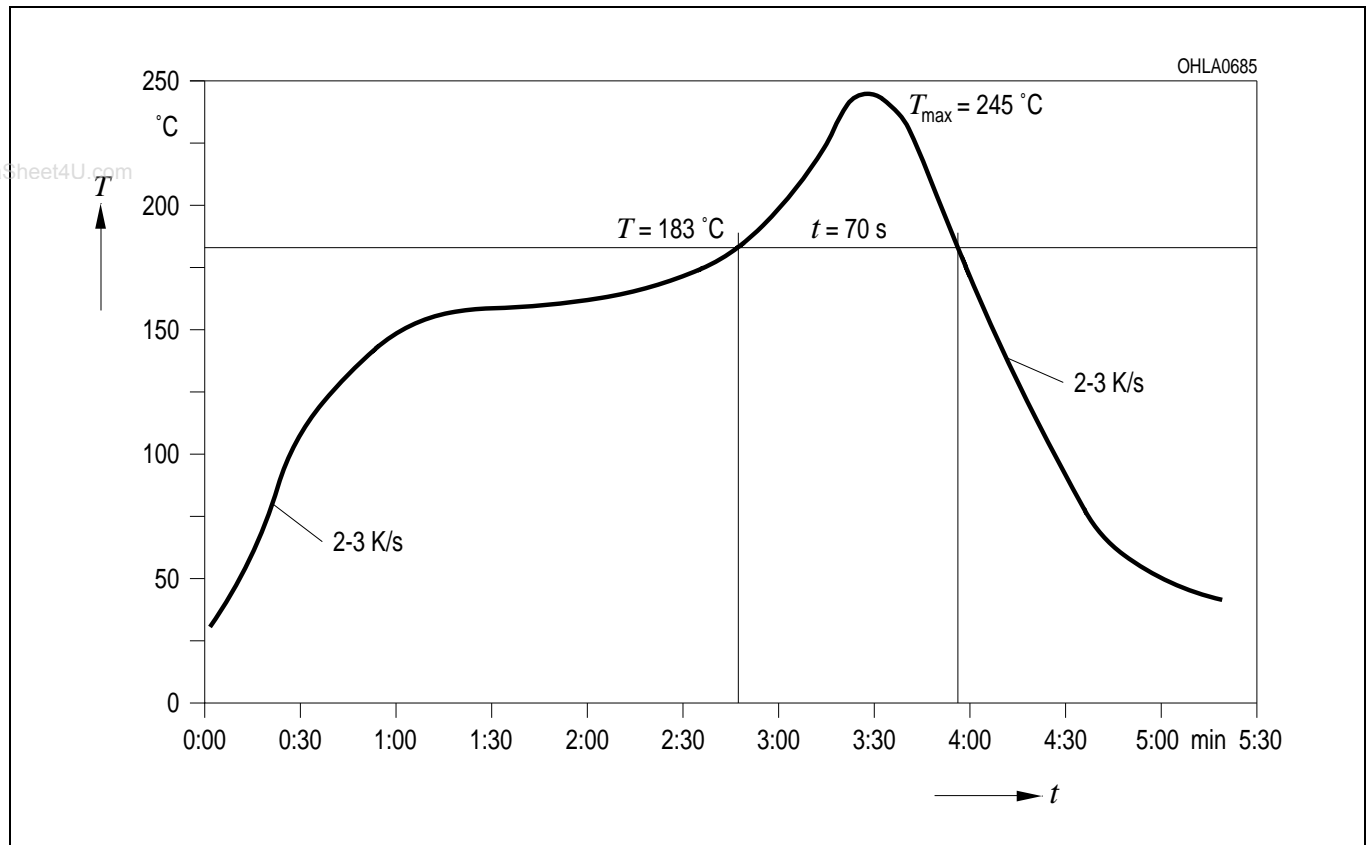


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

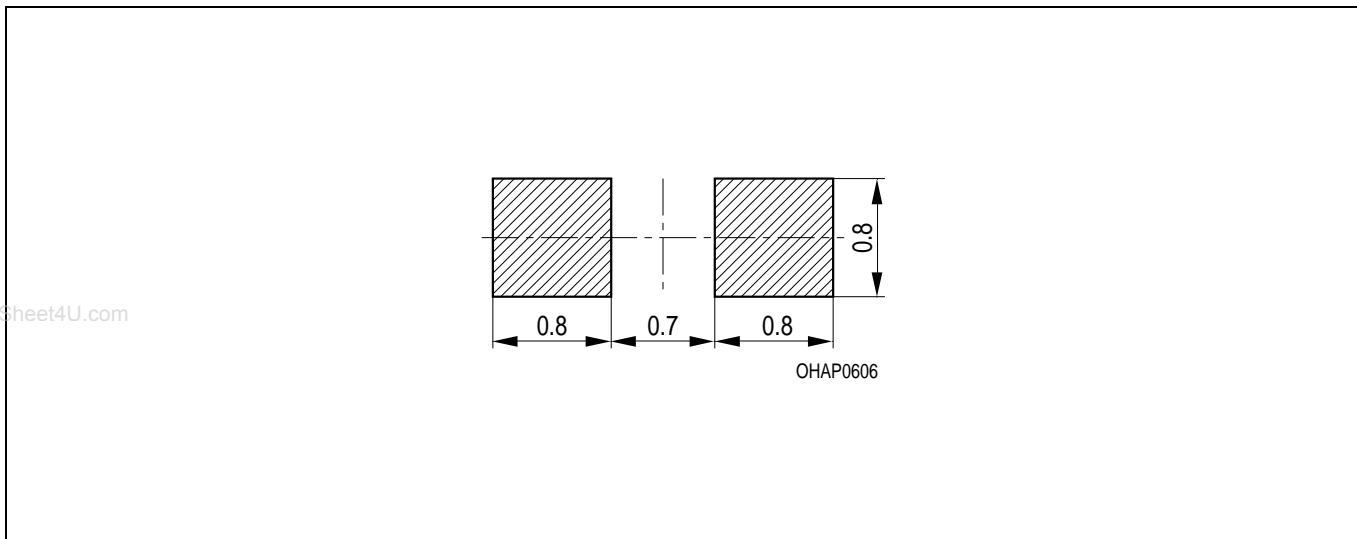
Gewicht / Approx. weight: 1.4 mg

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)

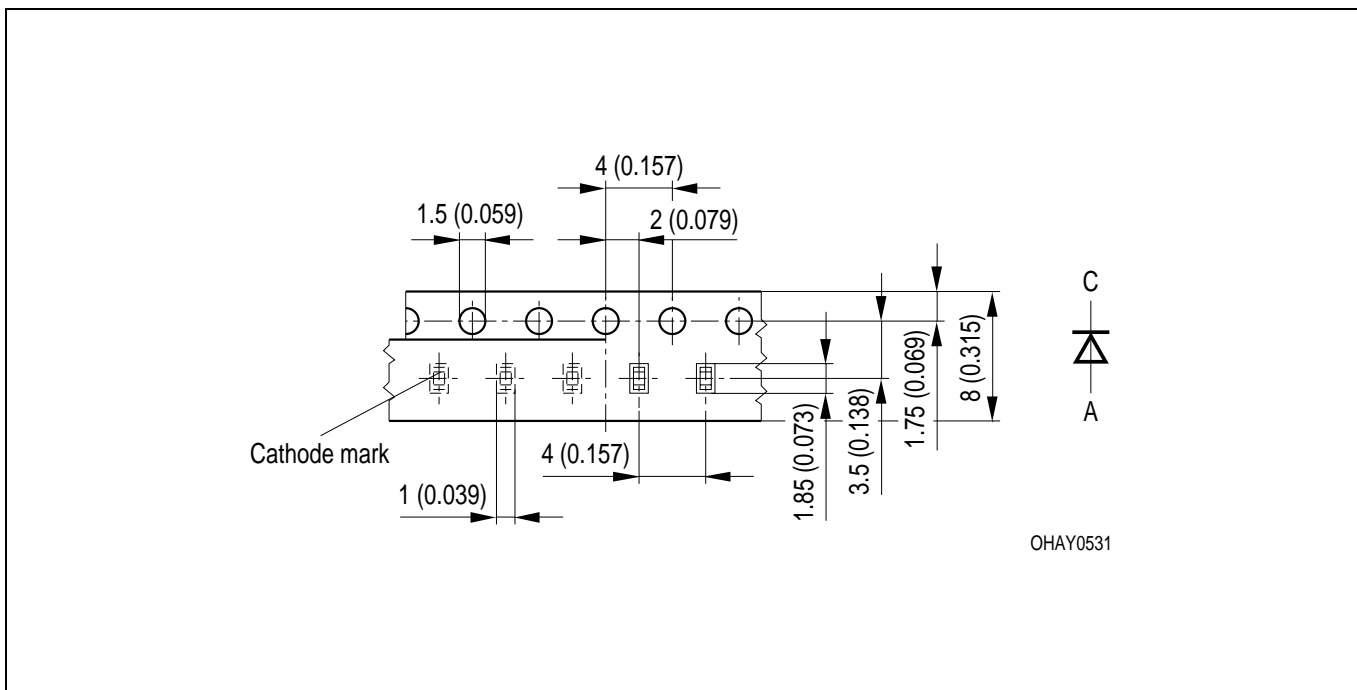


Empfohlenes Lötpad Design IR Reflow Löten
Recommended Solder Pad IR Reflow Soldering



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

Gurtung / Polarität und Lage Verpackungseinheit 4000/Rolle, ø180 mm
Method of Taping / Polarity and Orientation Packing unit 4000/reel, ø180 mm



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

Revision History: 2001-03-16

Previous Version: 2001-02-28

| Page | Subjects (major changes since last revision) |
|------|--|
| 2 | I_F reduced from 10 mA to 6 mA |
| | |

Patent List**Patent No.**

US 6 066 861

Published by OSRAM Opto Semiconductors GmbH & Co. OHG**Wernerwerkstrasse 2, D-93049 Regensburg****© All Rights Reserved.****Attention please!**

The information describes the type of component and shall not be considered as assured characteristics.

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 ¹ may only be used in life-support devices or systems ² with the express written approval of OSRAM OS.

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.

² 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.