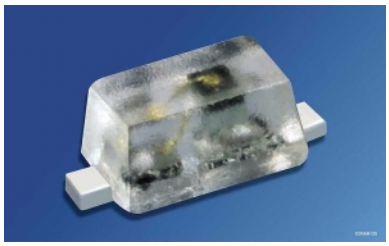
SmartLED™
Hyper-Bright LED

LB L893



Vorläufige Daten / Preliminary Data

Besondere Merkmale

- **Gehäusetyp:** SMT Gehäuse SCD 80
- **Besonderheit des Bauteils:** kleinste Bauform 1,7 x 0,8 x 0,65 mm (LxBxH)
- **Wellenlänge:** 470 nm (blau)
- **Abstrahlwinkel:** 160°
- **Technologie:** InGaN
- **optischer Wirkungsgrad:** 2 lm/W
- **Gruppierungsparameter:** Lichtstärke, Wellenlänge
- **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, ø180 mm oder 20000/Rolle, ø330 mm
- **ESD-Festigkeit:** ESD-sicher bis 2 kV nach EOS/ESD-5.1-1993

Features

- **package:** SMT package SCD 80
- **feature of the device:** smallest package 1.7 x 0.8 x 0.65 mm (LxWxH)
- **wavelength:** 470 nm (blue)
- **viewing angle:** 160°
- **technology:** InGaN
- **optical efficiency:** 2 lm/W
- **grouping parameter:** luminous intensity, wavelength
- **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, ø180 mm or 20000/reel, ø330 mm
- **ESD-withstand voltage:** up to 2 kV acc. to EOS/ESD-5.1-1993

Anwendungen

- flache Hinterleuchtung (LCD, Mobile Phone, Schalter, Display)
- Spielsachen
- Informationsanzeigen im Außenbereich
- Signal- und Symbolleuchten
- Markierungsbeleuchtung (Stufen, Fluchtwege u. ä.)

Applications

- flat backlighting (LCD, cellular phones, switches, displays)
- toys
- outdoor displays
- signal and symbol luminary
- marker lights (e.g. steps, exit ways, etc.)

Typ Type	Emissions-farbe Color of Emission	Gehäusefarbe Color of Package	Lichtstärke Luminous Intensity I_F = 20 mA I_V (mcd)	Lichtstrom Luminous Flux I_F = 20 mA Φ_V (mlm)	Bestellnummer Ordering Code
LB L893-L1M1-1	blue	colorless clear	11.2 ... 22.4	65 (typ.)	Q62703-Q6205
LB L893-M1N2-1			18.0 ... 45.0	125 (typ.)	Q62703-Q6206

*Anm.: -1 gesamter Farbbereich, 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: -1 Total color tolerance range, delivery in single groups (please 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 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	+ 100	°C
Durchlassstrom Forward current	I_F	20	mA
Stoßtrom Surge current t = 10 µs, D = 0.1	I_{FM}	200	mA
Sperrspannung Reverse voltage	V_R	5	V
Leistungsaufnahme Power consumption	P_{tot}	85	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/ambient Sperrschicht/Lötpad Junction/solder point Montage auf PC-Board FR 4 (Padgröße ≥ 16 mm^2) mounted on PC board FR 4 (pad size ≥ 16 mm^2)	 $R_{th\ JA}$ $R_{th\ JS}$	 450 260	 K/W K/W

Kennwerte (T_A = 25 °C)
Characteristics

Bezeichnung **Parameter**		**Symbol** **Symbol**	**Wert** **Value**	**Einheit** **Unit**
Wellenlänge des emittierten Lichtes Wavelength at peak emission I_F = 20 mA	(typ.)	λ_{peak}	465	nm
Dominantwellenlänge [1] Dominant wavelength [1] I_F = 20 mA	(typ.)	λ_{dom}	470 ± 6	nm
Spektrale Bandbreite bei 50 % $I_{rel\ max}$ Spectral bandwidth at 50 % $I_{rel\ max}$ I_F = 20 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 mA	(typ.) (max.)	V_F V_F	3.5 4.1	V V
Sperrstrom Reverse current V_R = 5 V	(typ.) (max.)	I_R I_R	0.01 10	µA µA
Temperaturkoeffizient von λ_{peak} Temperature coefficient of λ_{peak} I_F = 20 mA; –10°C ≤ T ≤ 100°C	(typ.)	$TC_{\lambda peak}$	0.04	nm/K
Temperaturkoeffizient von λ_{dom} Temperature coefficient of λ_{dom} I_F = 20 mA; –10°C ≤ T ≤ 100°C	(typ.)	$TC_{\lambda dom}$	0.02	nm/K
Temperaturkoeffizient von V_F Temperature coefficient of V_F I_F = 20 mA; –10°C ≤ T ≤ 100°C	(typ.)	TC_V	– 2.9	mV/K
Optischer Wirkungsgrad Optical efficiency I_F = 20 mA	(typ.)	η_{opt}	2	lm/W

[1] **Wellenlängengruppen / Wavelength groups**

Gruppe Group	Wellenlänge Wavelength		Einheit Unit
	min.	max.	
3	464	468	nm
4	468	472	nm
5	472	476	nm

Wellenlängengruppen werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von ±1 nm ermittelt.
Wavelength groups are tested at a current pulse duration of 25 ms and an accuracy 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 an accuracy of ±0.1 V.

Helligkeits-Gruppierungsschema
Luminous Intensity Groups

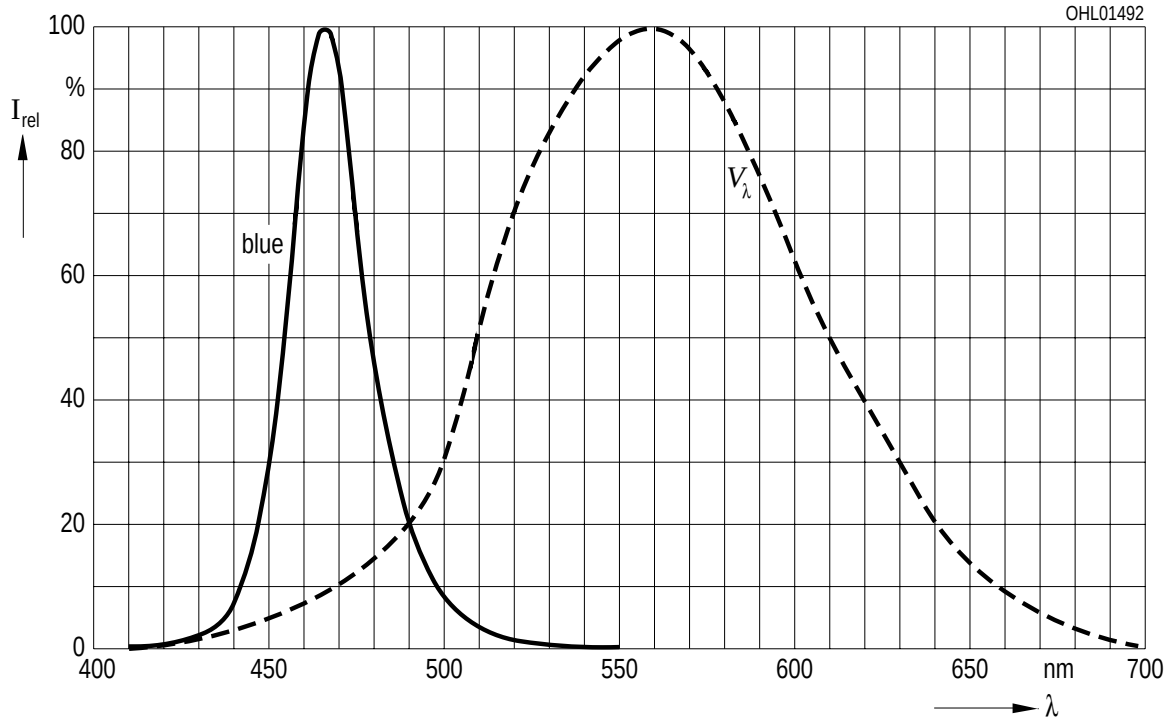
Lichtgruppe Luminous Intensity Group	Lichtstärke Luminous Intensity I_V (mcd)	Lichtstrom Luminous Flux Φ_V (mlm)
L1	11.2 … 14.0	50 (typ.)
L2	14.0 … 18.0	64 (typ.)
M1	18.0 … 22.4	80 (typ.)
M2	22.4 … 28.0	100 (typ.)
N1	28.0 … 35.5	125 (typ.)
N2	35.5 … 45.0	160 (typ.)

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 an accuracy of ± 11%.

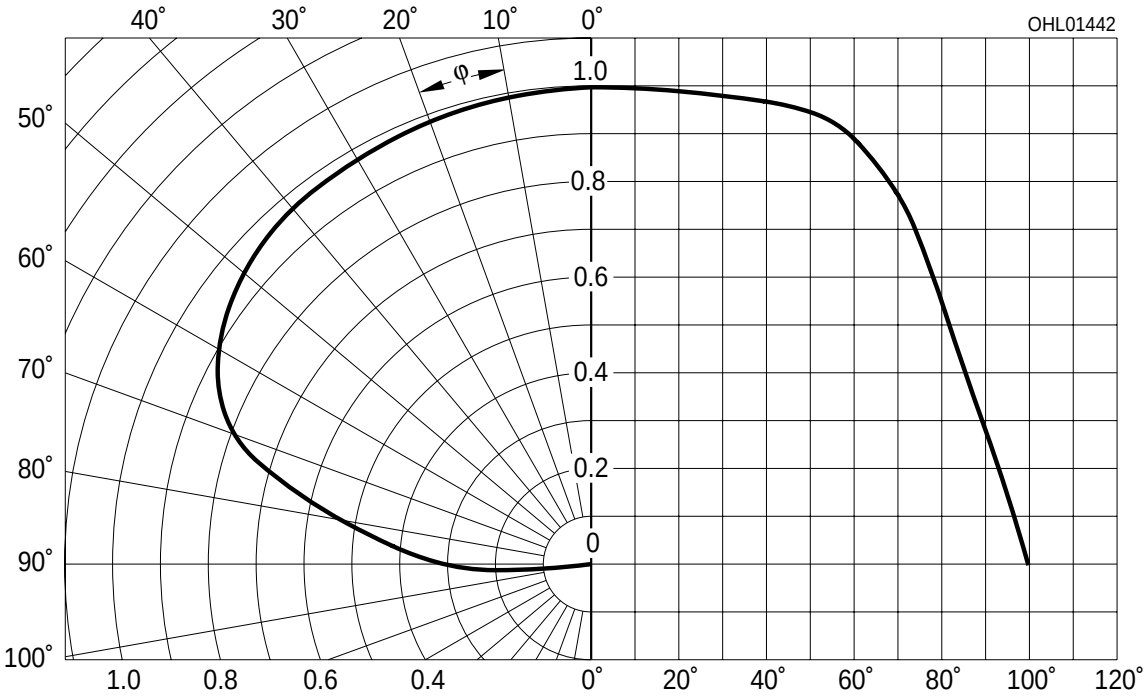
Gruppenbezeichnung auf Etikett
Group Name on Label
Beispiel: L1-3
Example: L1-3

Lichtgruppe Luminous Intensity Group	Halbgruppe Half Group	Wellenlänge Wavelength
L	1	3

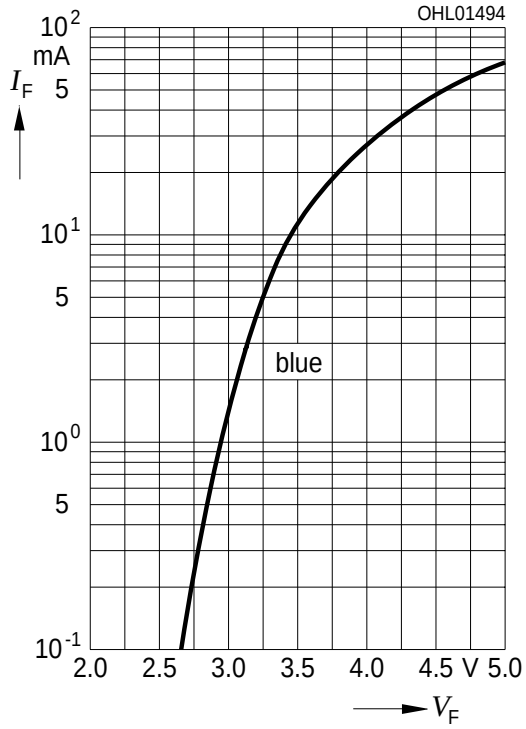
Relative spektrale Emission $I_{rel} = f(\lambda)$, T_A = 25 °C, I_F = 20 mA
Relative Spectral Emission
V(λ) = spektrale Augenempfindlichkeit
Standard eye response curve



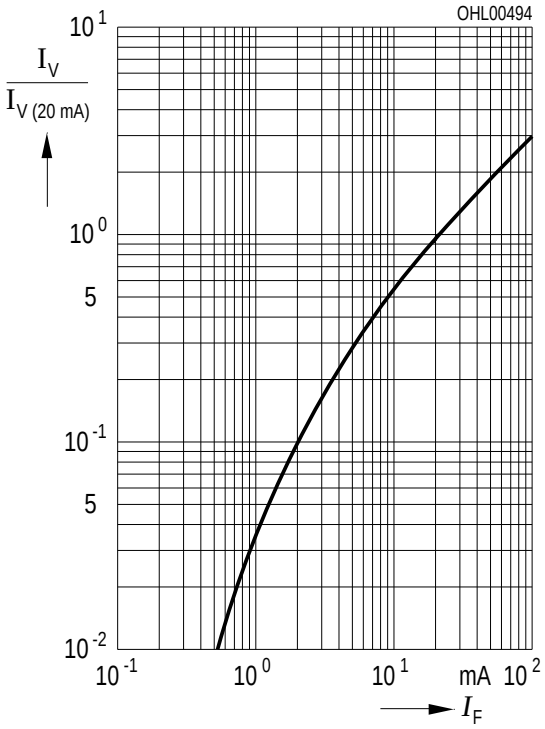
Abstrahlcharakteristik $I_{rel} = f(\varphi)$
Radiation Characteristic



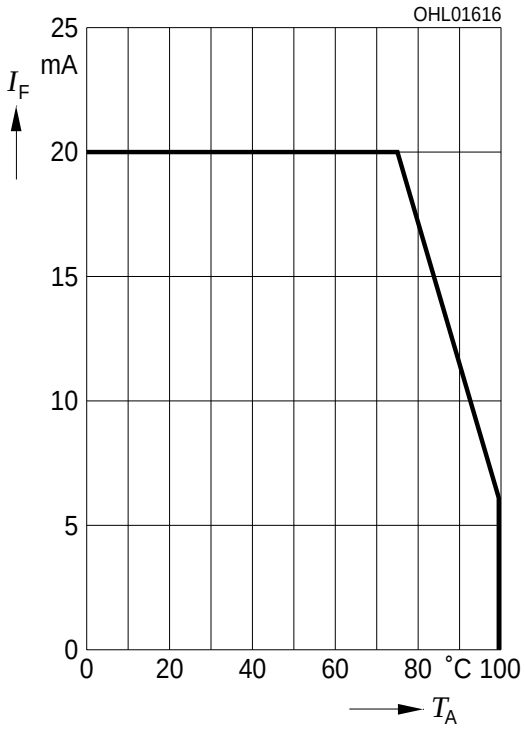
Durchlassstrom $I_F = f(V_F)$
Forward Current
T_A = 25 °C



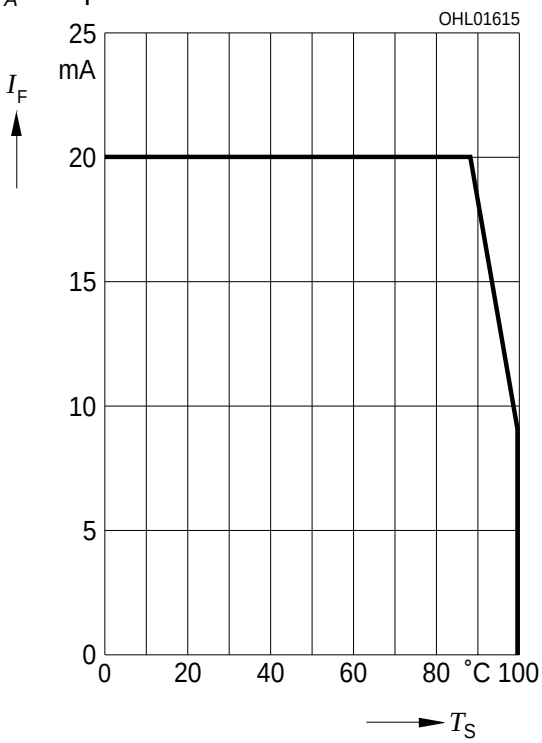
Relative Lichtstärke $I_V/I_{V(20\ mA)} = f(I_F)$
Relative Luminous Intensity
T_A = 25 °C



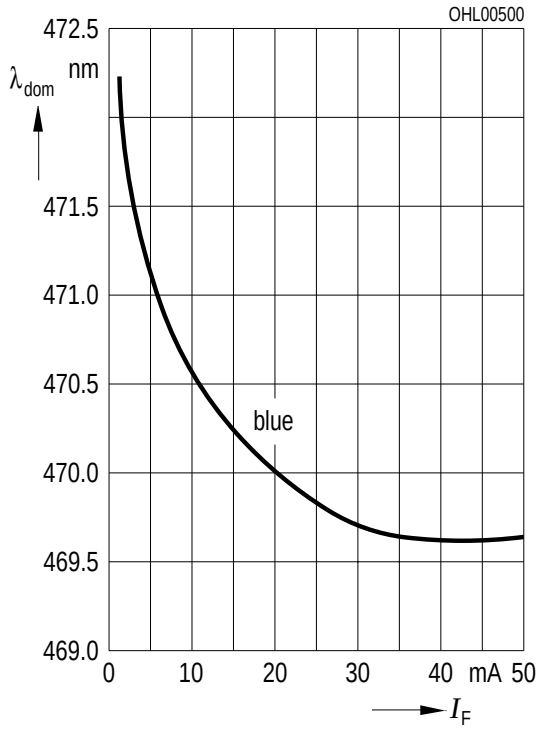
Maximal zulässiger Durchlassstrom $I_F = f(T_A)$
Max. Permissible Forward Current
T_S: temp. solder point



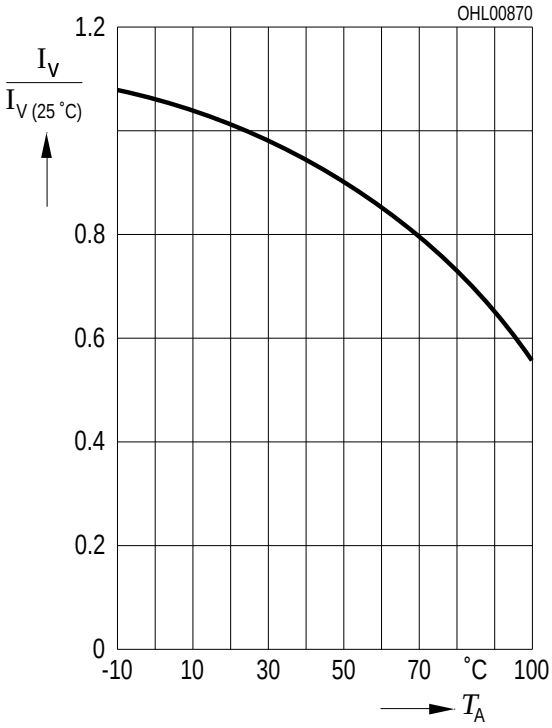
Maximal zulässiger Durchlassstrom $I_F = f(T_A)$
Max. Permissible Forward Current
T_A: temp. ambient



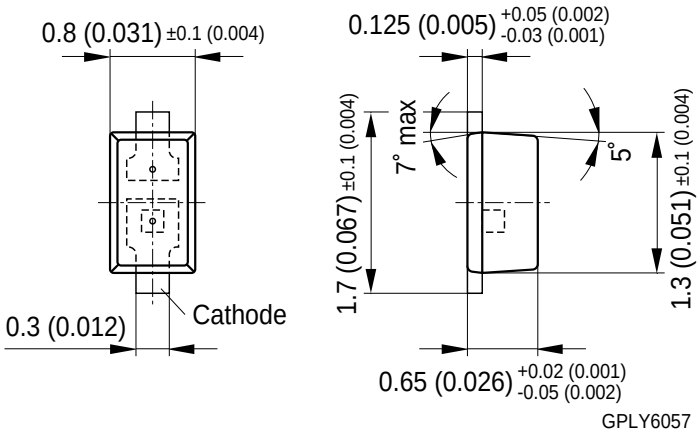
Dominante Wällenlänge $\lambda_{dom} = f(I_F)$
Dominant wavelength
LB, T_A = 25 °C



Relative Lichtstärke $I_V/I_{V(25\,°C)} = f(T_A)$
Relative Luminous Intensity
I_F = 20 mA



Maßzeichnung
Package Outlines

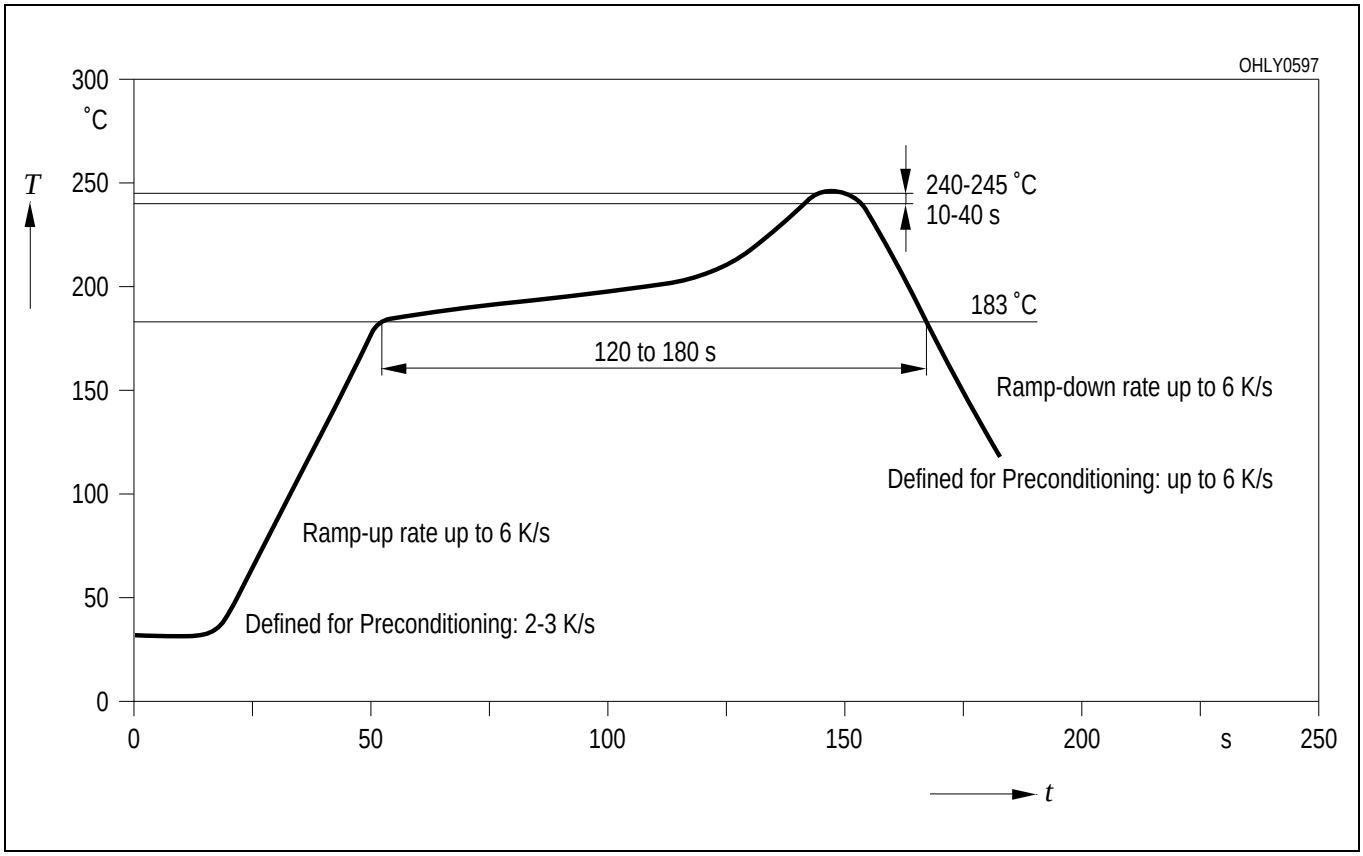


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

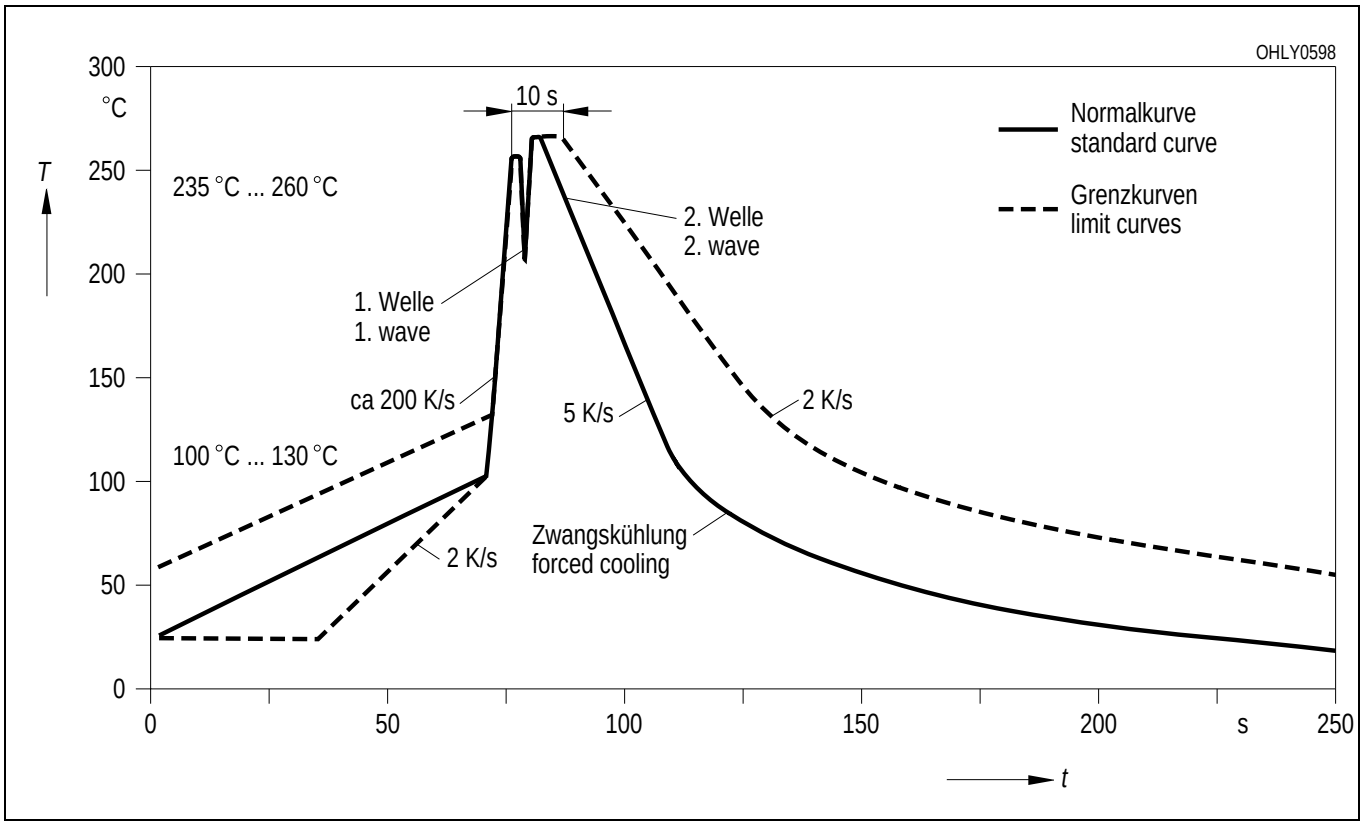
Gewicht / Approx. weight: 1,4 mg

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

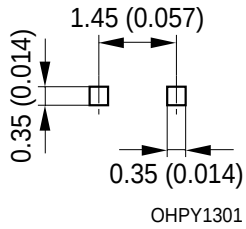
IR-Reflow Lötprofil (nach CECC 00802)
IR Reflow Soldering Profile (acc. to CECC 00802)



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



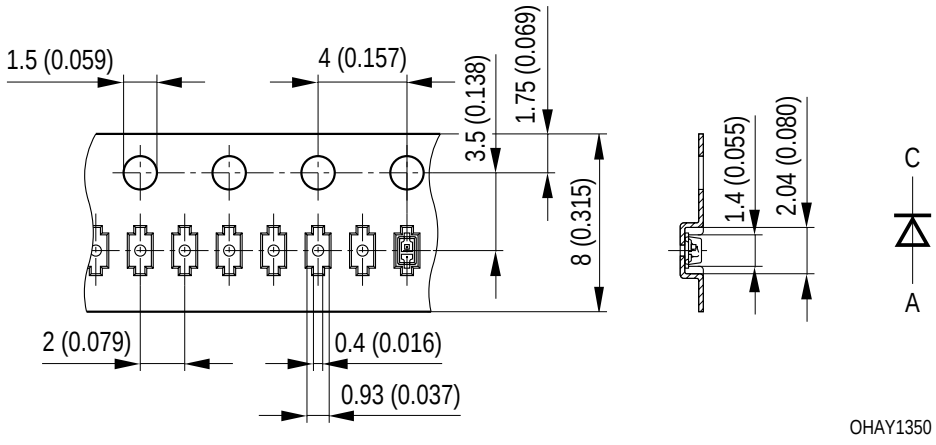
Empfohlenes Lötpaddesign IR Reflow Löten und Wellenlöten (TTW)
Recommended Solder Pad IR Reflow Soldering and TTW Soldering



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

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

Verpackungseinheit 8 mm Gurt mit 5000/Rolle, ø180 mm oder 20000/Rolle, ø330 mm
Packing unit 8 mm tape with 5000/reel, ø180 mm or 20000/reel, ø330 mm



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

Revision History: 2001-04-02	
Previous Version: 2001-03-07	
Page	**Subjects (major changes since last revision)**
5	**Lichtstrom / Luminous Flux**

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