SmartLED™

LG L890

Besondere Merkmale

- **Gehäusetyp:** 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 10000/Rolle, ø180 mm oder 40000/Rolle, ø330 mm

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 10000/reel, ø180 mm or 40000/reel, ø330 mm

Anwendungen

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

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 mA I_V (mcd)	Lichtstrom Luminous Flux I_F = 20 mA Φ_V (mlm)	Bestellnummer Ordering Code
LG L890-K1L1-1	green	colorless	7.1 … 14.0	40 (typ.)	Q62703-Q6022
LG L890-L1M2-1		diffused	11.2 … 28.0	80 (typ.)	Q62703-Q6156

*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 $t_p = 10$ µs, $D = 0.1$	I_{FM}	100	mA
Sperrspannung Reverse voltage	V_R	5	V
Leistungsaufnahme Power consumption	P_{tot}	95	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/ambient Sperrschicht/Lötpad Junction/solder point Montage auf PC-Board FR 4 (Padgröße ≥ 5 mm²) mounted on PC board FR 4 (pad size ≥ 5 mm²)	 $R_{th\ JA}$ $R_{th\ JS}$	 500 290	 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}	572	nm
Dominantwellenlänge [1] Dominant wavelength [1] I_F = 20 mA	(typ.)	λ_{dom}	570 ± 6	nm
Spektrale Bandbreite Spectral bandwidth 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	2.2 2.5	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.)	$TC_{\lambda peak}$	0.11	nm/K
Temperaturkoeffizient von λ_{dom} Temperature coefficient of λ_{dom} I_F = 20 mA; –10°C ≤ T ≤ 100°C	(typ.)	$TC_{\lambda dom}$	0.07	nm/K
Temperaturkoeffizient von V_F Temperature coefficient of V_F I_F = 20 mA; –10°C ≤ T ≤ 100°C	(typ.)	TC_V	– 1.4	mV/K
Optischer Wirkungsgrad Optical efficiency I_F = 20 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

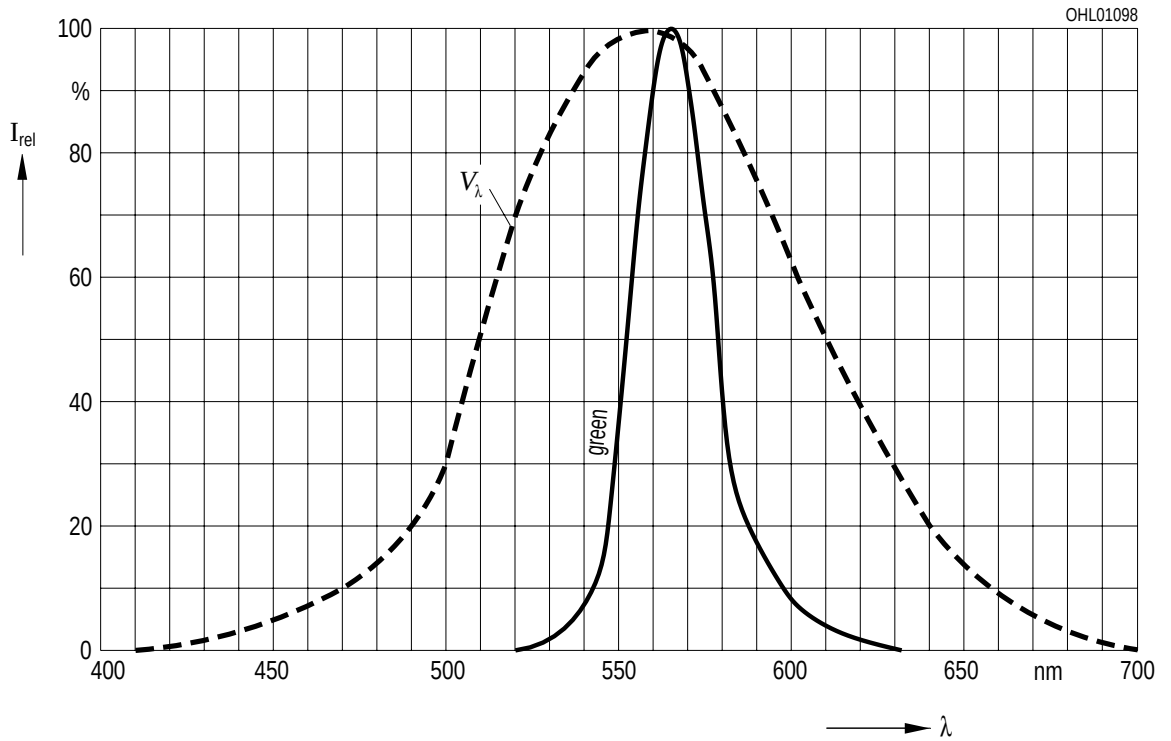
Lichtgruppe **Luminous Intensity Group**	**Lichtstärke** **Luminous Intensity** **I_V (mcd)**	**Lichtstrom** **Luminous Flux** **Φ_V (mlm)**
K1	7.1 … 9.0	30 (typ.)
K2	9.0 … 11.2	40 (typ.)
L1	11.2 … 14.0	50 (typ.)
L2	14.0 … 18.0	65 (typ.)
M1	18.0 … 22.4	80 (typ.)
M2	22.4 … 28.0	100(typ.)

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%.

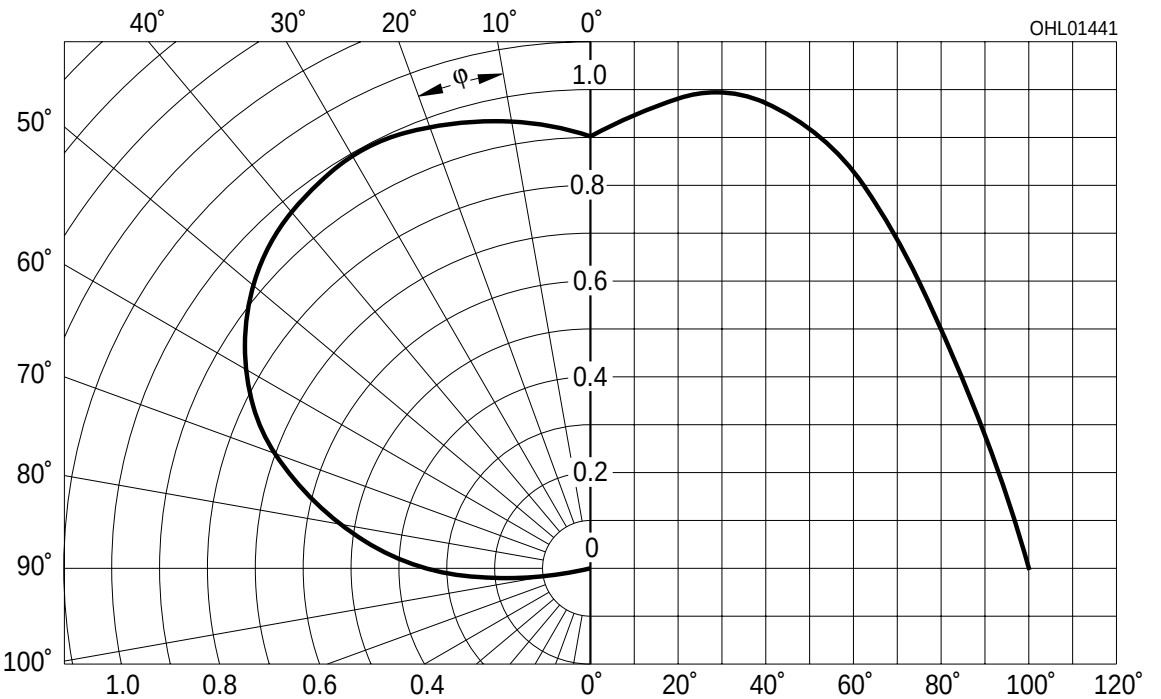
Gruppenbezeichnung auf Etikett
Group Name on Label
Beispiel: K1
Example: K1

Lichtgruppe **Luminous Intensity Group**	**Halbgruppe** **Half Group**
K	1

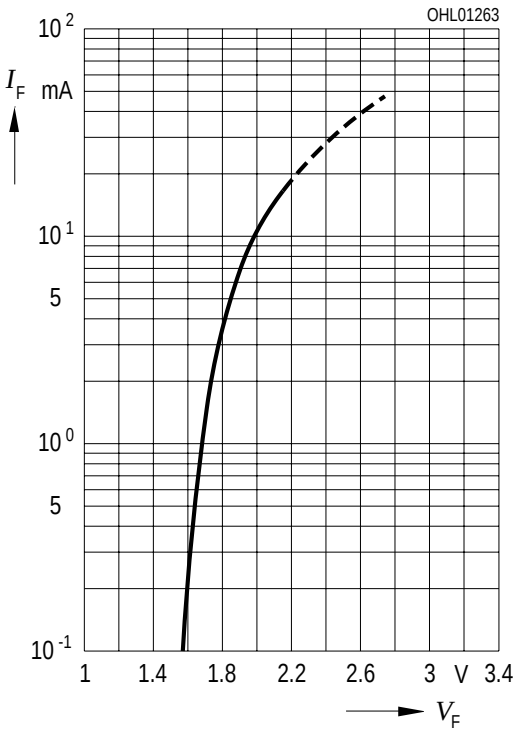
Relative spektrale Emission $I_{rel} = f(\lambda)$, T_A = 25 °C, I_F = 20 mA
Relative Spectral Emission
V(λ) = spektrale Augenempfindlichkeit
Standard eye response curve



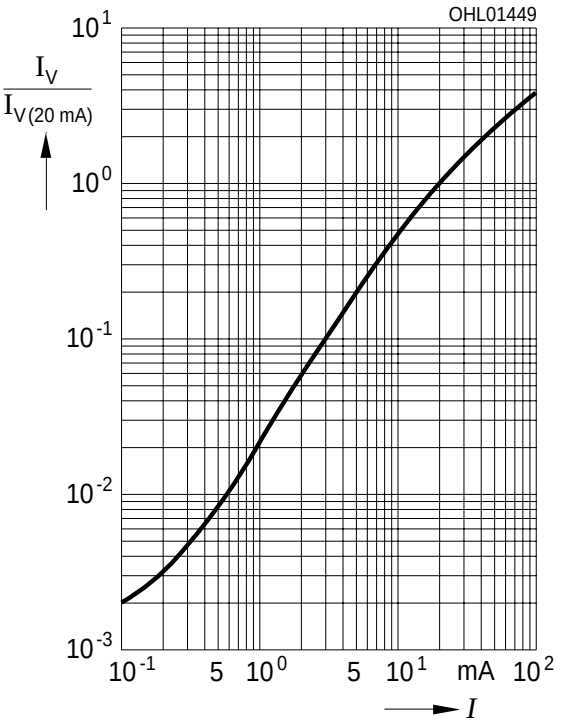
Abstrahlcharakteristik $I_{rel} = f(\varphi)$
Radiation Characteristic



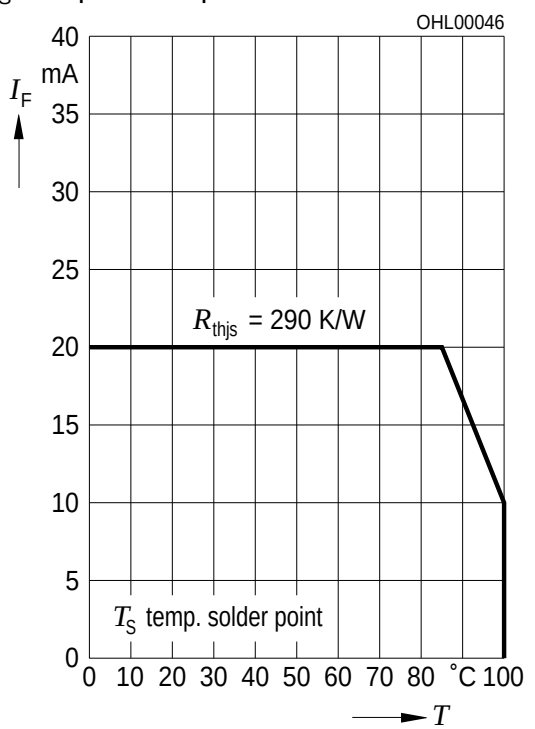
Durchlassstrom $I_F = f(V_F)$
Forward Current
T_A = 25 °C



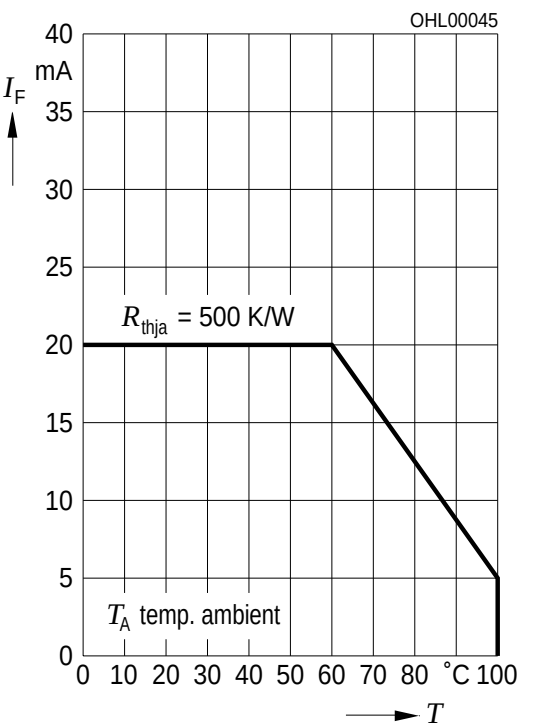
Relative Lichtstärke $I_V/I_{V(20\ mA)} = f(I_F)$
Relative Luminous Intensity
T_A = 25 °C



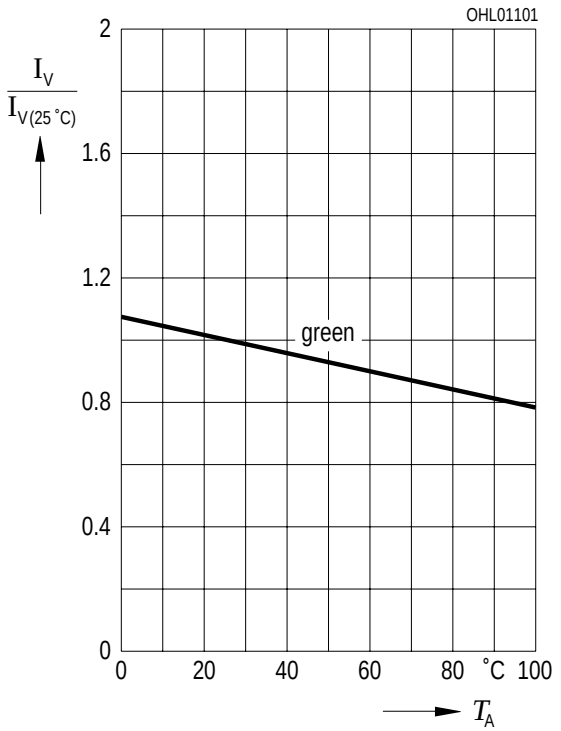
Maximal zulässiger Durchlassstrom $I_F = f(T_A)$
Max. Permissible Forward Current
T_S: temp. solder point



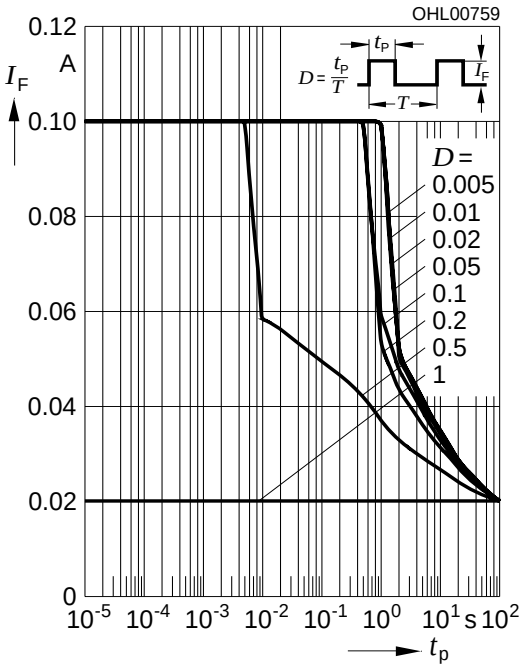
Maximal zulässiger Durchlassstrom $I_F = f(T_A)$
Max. Permissible Forward Current
T_A: temp. ambient



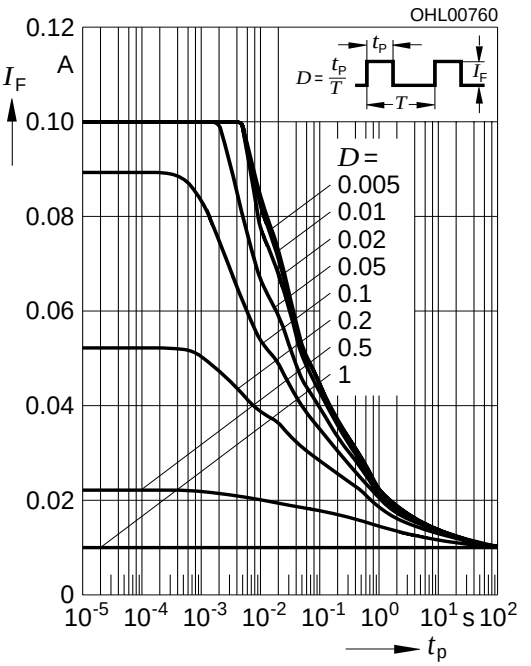
Relative Lichtstärke $I_V/I_{V(25\,°C)} = f(T_A)$
Relative Luminous Intensity
I_F = 20 mA



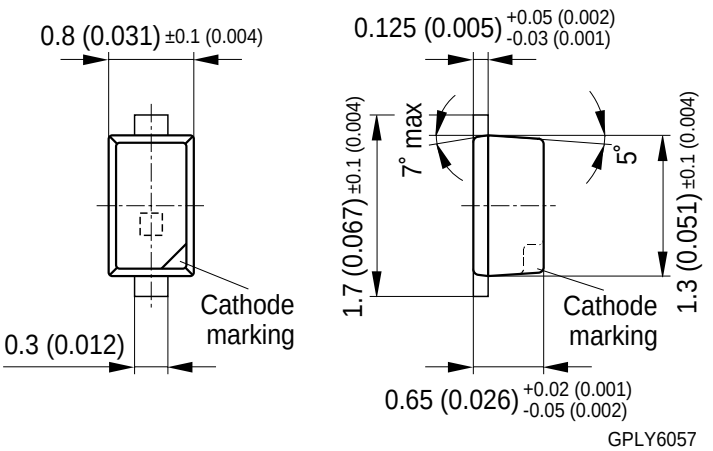
Zulässige Impulsbelastbarkeit $I_F = f(t_p)$
Permissible Pulse Handling Capability
Duty cycle D = parameter, T_A= 25 °C
LG



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



Maßzeichnung
Package Outlines

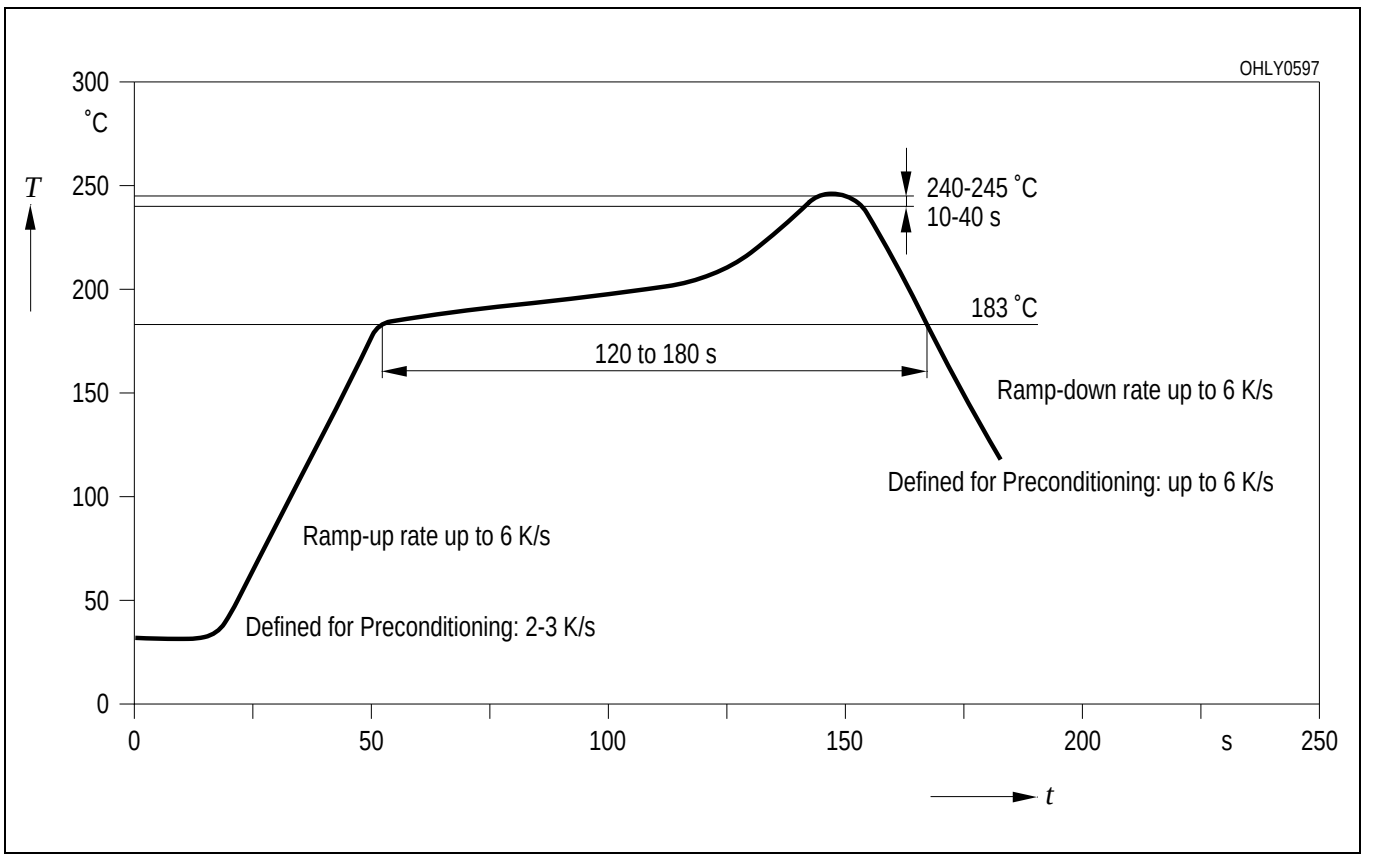


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

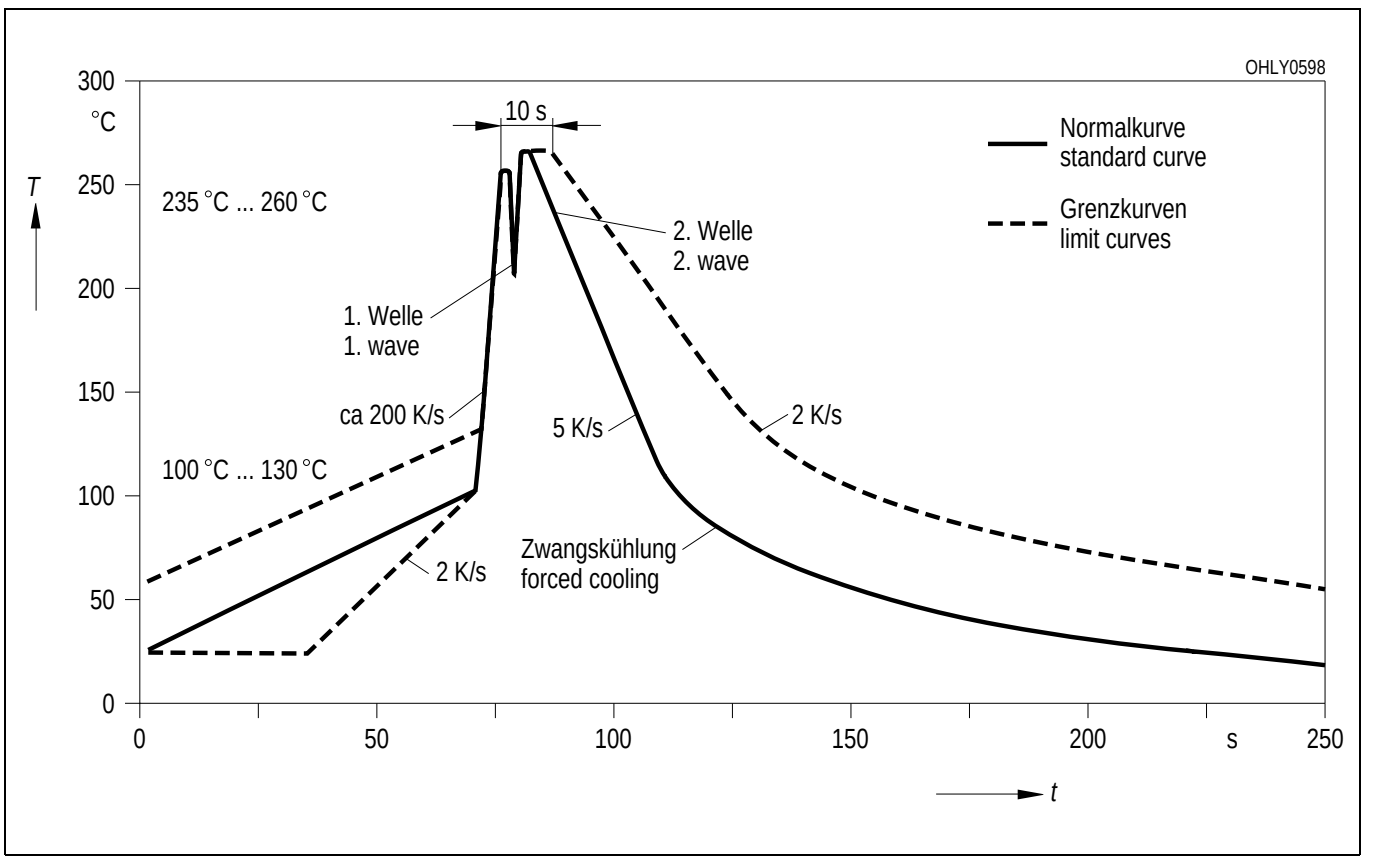
Gewicht / Approx. weight: 1.4 mg

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

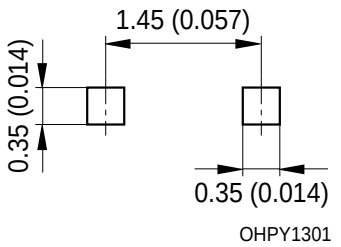
IR-Reflow Lötprofil (nach IPC 9501)
IR Reflow Soldering Profile (acc. to IPC 9501)



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

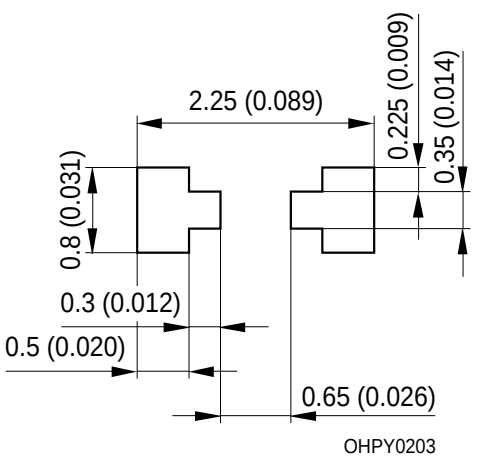


Empfohlenes Lötpaddesign IR Reflow Löten
Recommended Solder Pad IR Reflow Soldering



Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).
Gehäuse für Wellenlöten (TTW) geeignet / Package suitable for TTW-soldering

Empfohlenes Lötpaddesign verwendbar für SmartLED™ und Chipled - Bauform 0603
IR Reflow Löten
Recommended Solder Pad useable for SmartLED™ and Chipled - Package 0603
IR Reflow Soldering



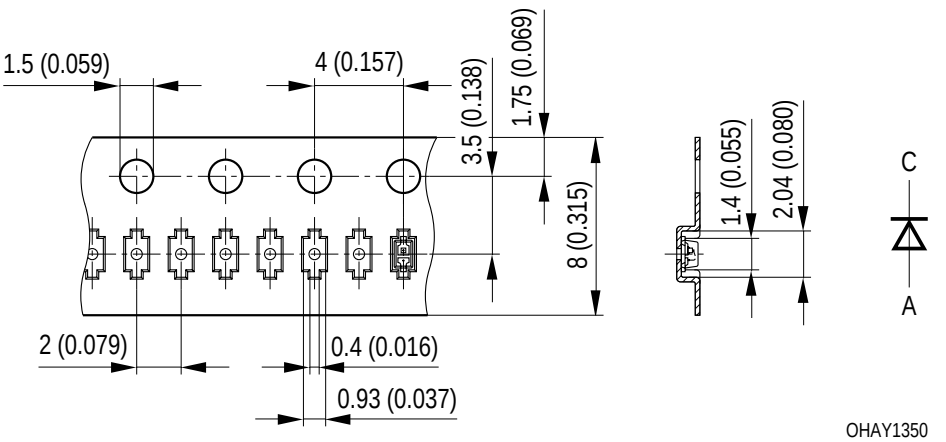
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).
Empfohlene Lötpastendicke: 120 µm/ recommended thickness of solder paste: 120 µm
Gehäuse für Wellenlöten (TTW) geeignet / Package suitable for TTW-soldering

Gurtung / Polarität und Lage

Verpackungseinheit 8 mm Gurt mit 10000/Rolle, ø180 mm oder 40000/Rolle, ø330 mm

Method of Taping / Polarity and Orientation

Packing unit 8 mm tape with 10000/reel, ø180 mm or 40000/reel, ø330 mm



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

Revision History: 2002-04-24	
Previous Version: 2001-04-05	
Page	**Subjects (major changes since last revision)**
2	changed resin from colorless clear to colorless diffused
1	taping changed from 5000 to 10000/reel, ø180 mm and from 20000 to 40000/reel, ø330 mm
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

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