LC 3 mm (T1) LED, Diffused
Low Current LED

LS 3369, LY 3369, LG 3369

Besondere Merkmale

- **Gehäusetyp:** eingefärbtes, diffuses 3 mm (T1) Gehäuse
- **Besonderheit des Bauteils:** hohe Lichtstärke bei kleinen Strömen; Lötspieße mit Aufsetzebene
- **Wellenlänge:** 628 nm (super-rot), 587 nm (gelb), 570 nm (grün)
- **Abstrahlwinkel:** 60°
- **Technologie:** GaAlP
- **optischer Wirkungsgrad:** 2 lm/W
- **Gruppierungsparameter:** Lichtstärke
- **Lötmethode:** Wellenlöten (TTW)
- **Verpackung:** Schüttgut, gegurtet lieferbar

Anwendungen

- optischer Indikator
- Hinterleuchtung (LCD, Schalter, Tasten, Displays, Werbebeleuchtung, Allgemeinbeleuchtung)
- Innenbeleuchtung im Automobilbereich (z.B. Instrumentenbeleuchtung, u.ä.)

Features

- **package:** colored, diffused 3 mm (T1) package
- **feature of the device:** high luminous intensity at low currents; solder leads with stand-off
- **wavelength:** 628 nm (super-red), 587 nm (yellow), 570 nm (green)
- **viewing angle:** 60°
- **technology:** GaAlP
- **optical efficiency:** 2 lm/W
- **grouping parameter:** luminous flux
- **soldering methods:** TTW soldering
- **packing:** bulk, available taped on reel

Applications

- optical indicators
- backlighting (LCD, switches, keys, displays, illuminated advertising, general lighting)
- interior automotive lighting (e.g. dashboard backlighting, etc.)

Typ **Type**	**Emissionsfarbe** **Color of Emission**	**Gehäusefarbe** **Color of Package**	**Lichtstärke** **Luminous Intensity** I_F **= 2 mA** I_V **(mcd)**	**Bestellnummer** **Ordering Code**
LS 3369-EH LS 3369-GK	super-red	red diffused	0.71 ... 4.50 1.80 ... 11.2	Q62703Q1748 Q62703Q3821
LY 3369-EH LY 3369-FJ	yellow	yellow diffused	0.71 ... 4.50 1.12 ... 7.10	Q62703Q1749 Q62703Q3822
LG 3369-EH LG 3369-FJ	green	green diffused	0.71 ... 4.50 1.12 ... 7.10	Q62703Q1750 Q62703Q3823

Anm.: Die Standardlieferform von Serientypen beinhaltet eine untere bzw. eine obere Familiengruppe oder mindestens zwei Einzelgruppen.
In einer Verpackungseinheit / Gurt ist immer nur eine Helligkeitsgruppe enthalten.
Die technologiebedingte Helligkeits-Streuung der heutigen LED-Herstellprozesse über einen längeren Fertigungszeitraum (Halbleitermaterial - Chipherstellung - Montageprozess) erlaubt keine Zusage einer einzelnen Helligkeitsgruppe. Daher müssen mindestens zwei Helligkeitsgruppen vorgesehen werden!

Note: The standard shipping format for serial types includes a lower or upper family group or at least two individual groups.
No packing unit / tape ever contains more than one luminous intensity group.
Luminosity variations caused by the technology used in current LED manufacturing processes over a protracted manufacturing period (semiconductor material - chip fabrication - assembly process) mean that it is not possible to assign LEDs to a single luminous intensity group. For this reason at least two luminous intensity groups must be provided!

Grenzwerte
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebstemperatur Operating temperature range	T_{op}	– 55 … + 100	°C
Lagertemperatur Storage temperature range	T_{stg}	– 55 … + 100	°C
Sperrschichttemperatur Junction temperature	T_{j}	+ 100	°C
Durchlassstrom Forward current (T_A=25°C)	I_{F}	7.5	mA
Stoßstrom Surge current $t \leq 10\ \mu s$, $D = 0.005$, T_A=25°C	I_{FM}	0.15	A
Sperrspannung[1)] Reverse voltage (T_A=25°C)	V_{R}	12	V
Leistungsaufnahme Power consumption (T_A=25°C)	P_{tot}	20	mW
Wärmewiderstand [2)] Thermal resistance Sperrschicht/Umgebung[3)] Junction/ambient[3)] Sperrschicht/Lötpad Junction/solder point Minimale Beinchenlänge Minimum lead length	$R_{\mathrm{th\ JA}}$ $R_{\mathrm{th\ JS}}$	400 180	K/W K/W

[1)] für kurzzeitigen Betrieb geeignet / suitable for short term application

[2)] R_{th} erhöht sich um 13 K/W pro mm Beinchenlänge.
Each additional 1 mm of lead length increases R_{th} by 13 K/W.

[3)] Montage auf PC-Board FR 4 (Padgröße ≥ 16 mm ^{2})
mounted on PC board FR 4 (pad size ≥ 16 mm ^{2})

Kennwerte (T_A = 25 °C)
Characteristics

Bezeichnung **Parameter**		**Symbol** **Symbol**	**Werte** **Values**			**Einheit** **Unit**
			LS	**LY**	**LG**	
Wellenlänge des emittierten Lichtes Wavelength at peak emission I_F = 2 mA	(typ.)	λ_{peak}	635	586	572	nm
Dominantwellenlänge [1] Dominant wavelength I_F = 2 mA	(typ.)	λ_{dom}	628	587	570	nm
Spektrale Bandbreite bei 50 % $I_{rel\ max}$ Spectral bandwidth at 50 % $I_{rel\ max}$ I_F = 2 mA	(typ.)	$\Delta\lambda$	45	45	25	nm
Abstrahlwinkel bei 50 % I_V (Vollwinkel) Viewing angle at 50 % I_V	(typ.)	2φ	60	60	60	Grad deg.
Durchlassspannung [2] Forward voltage I_F = 2 mA	(typ.) (max.)	V_F V_F	1.8 2.5	2.0 2.6	1.9 2.5	V V
Sperrstrom Reverse current V_R = 12 V	(typ.) (max.)	I_R I_R	0.01 10	0.01 10	0.01 10	µA µA
Temperaturkoeffizient von λ_{peak} Temperature coefficient of λ_{peak} I_F = 2 mA; –10°C $\leq T \leq$ 100°C	(typ.)	$TC_{\lambda peak}$	0.11	0.10	0.11	nm/K
Temperaturkoeffizient von λ_{dom} Temperature coefficient of λ_{dom} I_F = 2 mA; –10°C $\leq T \leq$ 100°C	(typ.)	$TC_{\lambda dom}$	0.07	0.07	0.07	nm/K
Temperaturkoeffizient von V_F Temperature coefficient of V_F I_F = 2 mA; –10°C $\leq T \leq$ 100°C	(typ.)	TC_V	– 2.0	– 1.6	– 1.9	mV/K
Optischer Wirkungsgrad Optical efficiency I_F = 2 mA	(typ.)	η_{opt}	2	2	2	lm/W

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[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 toleranceof ±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)
E	0.71 … 1.12
F	1.12 … 1.80
G	1.80 … 2.80
H	2.80 … 4.50
J	4.50 … 7.10
K	7.10 … 11.20

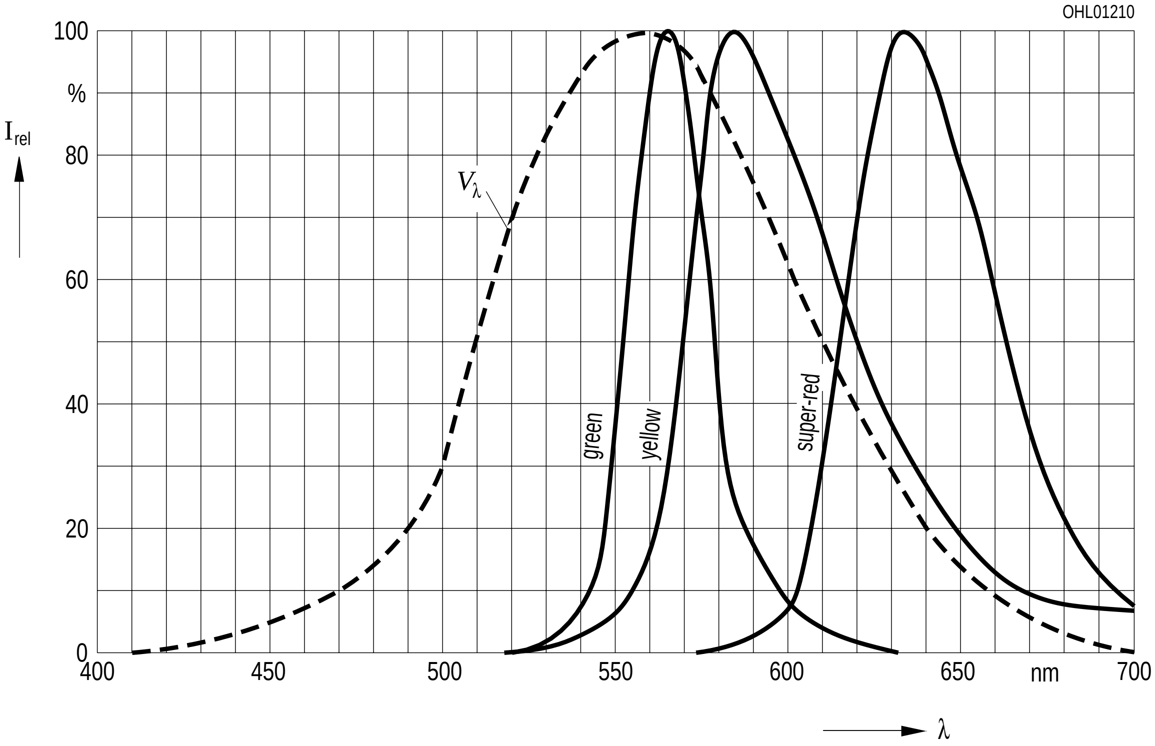
Helligkeitswerte werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von ±11 % ermittelt.
Luminous intensity is tested at a current pulse duration of 25 ms and a tolerance of ±11 %.

Gruppenbezeichnung auf Etikett
Group Name on Label

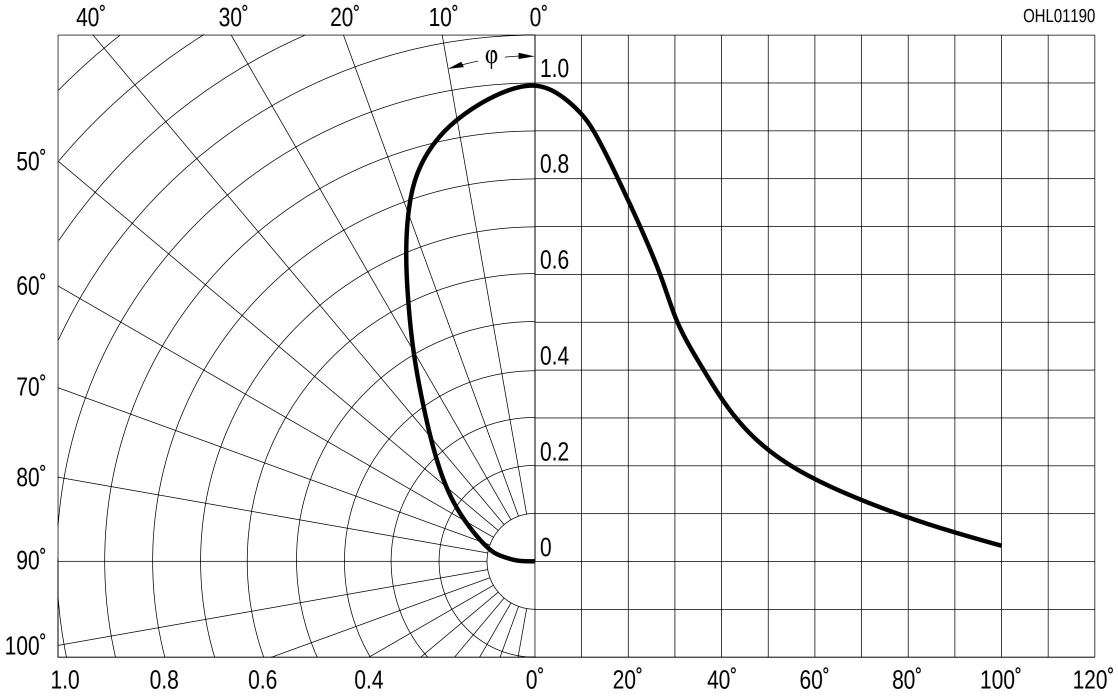
Beispiel: J
Example: J

Lichtgruppe Luminous Intensity Group
J

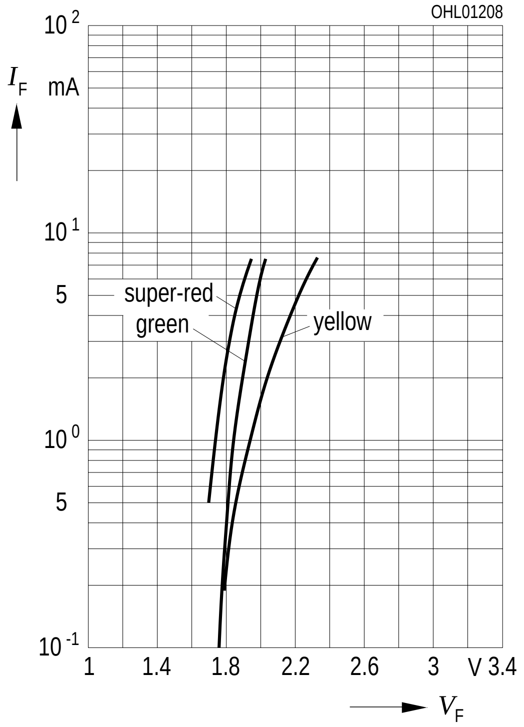
Relative spektrale Emission $I_{rel} = f(\lambda)$, T_A = 25 °C, I_F = 2 mA
Relative Spectral Emission
V(λ) = spektrale Augenempfindlichkeit
Standard eye response curve



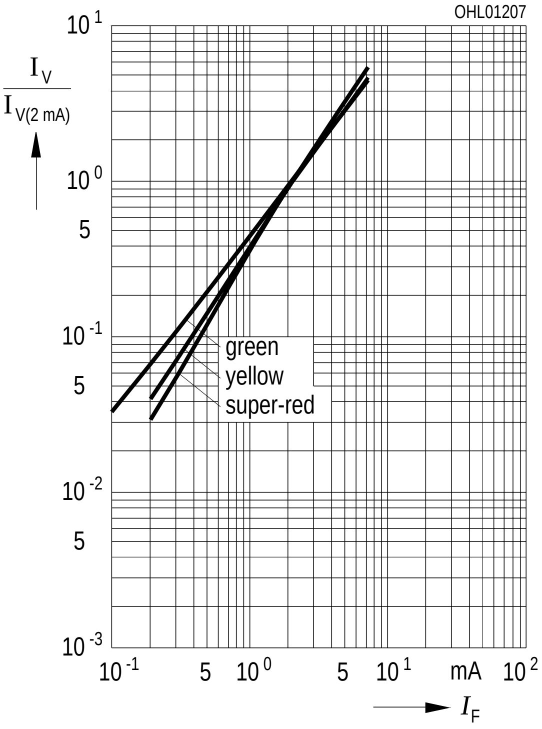
Abstrahlcharakteristik $I_{rel} = f(\varphi)$
Radiation Characteristic



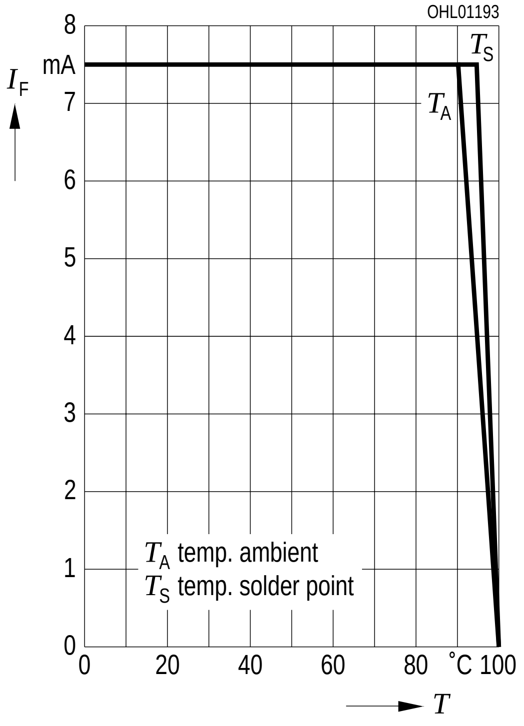
Durchlassstrom $I_F = f(V_F)$
Forward Current
$T_A = 25\ °C$



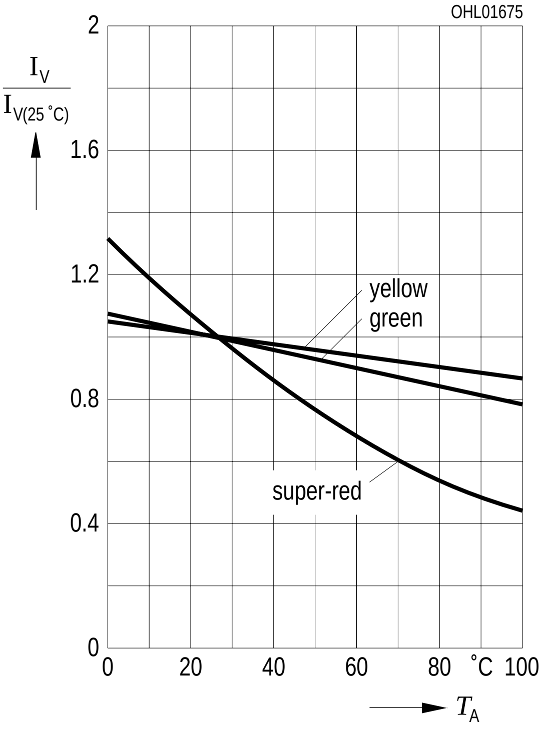
Relative Lichtstärke $I_V/I_{V(2\ mA)} = f(I_F)$
Relative Luminous Intensity
$T_A = 25\ °C$



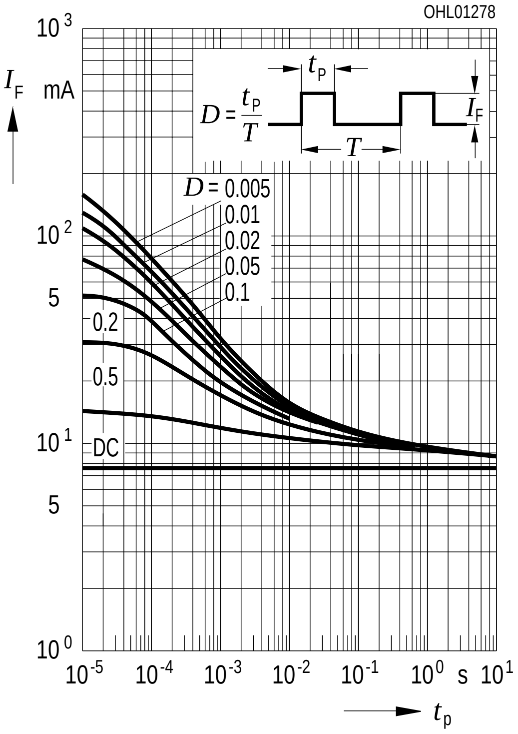
Maximal zulässiger Durchlassstrom $I_F = f(T)$
Max. Permissible Forward Current



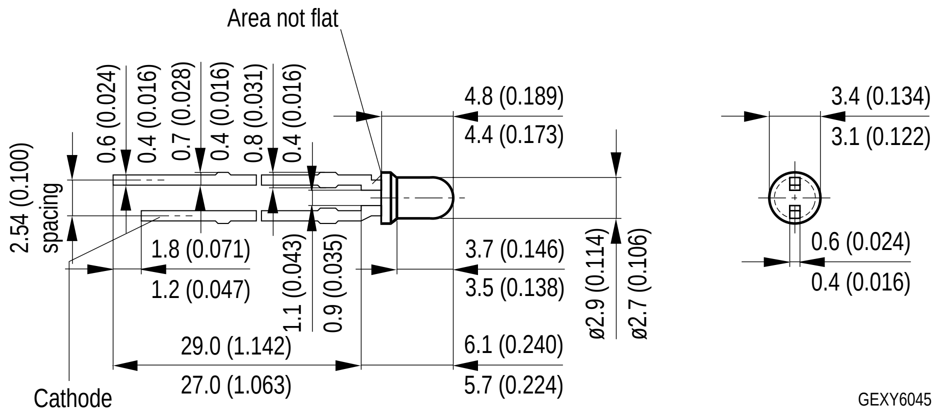
Relative Lichtstärke $I_V/I_{V(25\ °C)} = f(T_A)$
Relative Luminous Intensity
$I_F = 2$ mA



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



Maßzeichnung
Package Outlines

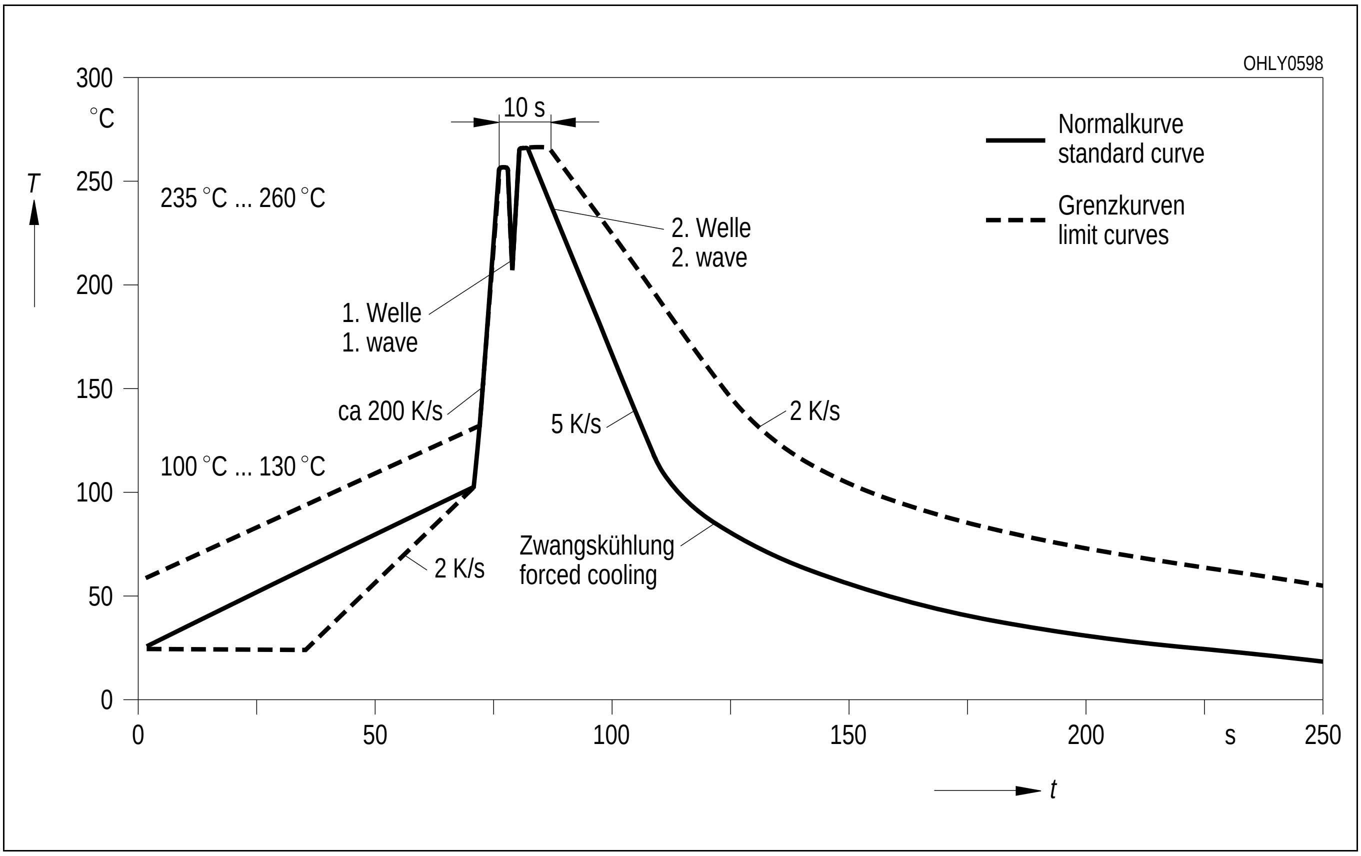


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

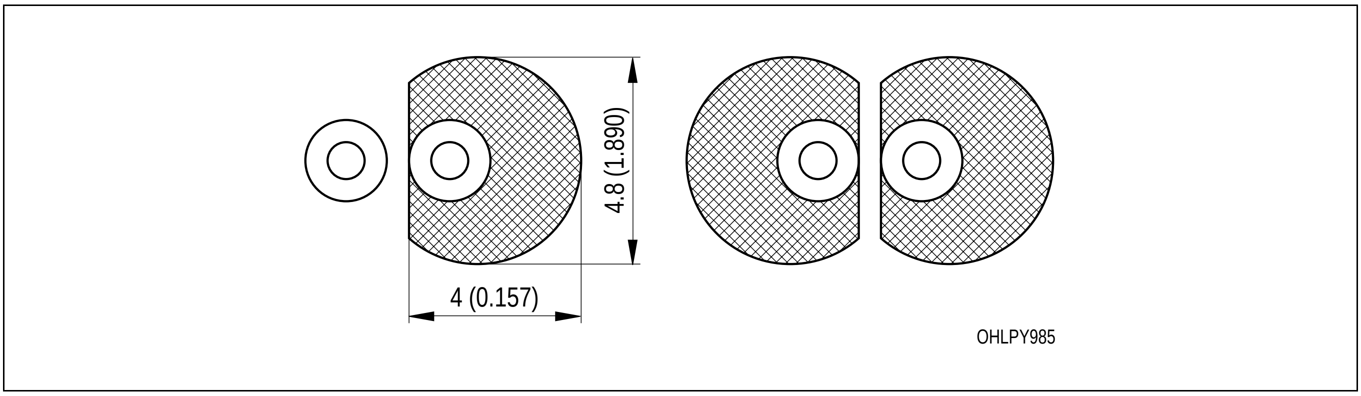
Kathodenkennung: kürzerer Lötspieß
Cathode mark: short solder lead
Gewicht / Approx. weight: 0.15 g

Lötbedingungen
Soldering Conditions

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



Empfohlenes Lötpaddesign Wellenlöten (TTW)
Recommended Solder Pad TTW Soldering



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

Revision History: 2003-12-19		**Date of change**
Previous Version: 2003-06-11		
Page	**Subjects (major changes since last revision)**	
3	thermal resistance (footnote)	
10	annotations	2002-07-23
5	luminous intensity groups	2002-07-30
3, 4	value (reverse voltage from 5 V to 12 V)	2002-09-18
2	not for new design	2002-09-18
2	removal of single brightness groups	2003-06-11
2	removal of not for new design	2003-12-17

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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.
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.