ARGUS® LED
3 mm (T1) LED, Non Diffused

LS K380, LO K380, LY K380, LG K380, LP K380

Besondere Merkmale

- **Gehäusetyp:** eingefärbtes, klares 3 mm (T1) Gehäuse mit spezieller Linse
- **Besonderheit des Bauteils:** mit Einsatz eines äußeren Reflektors zur Hinterleuchtung von Leuchtfeldern und LCD-Anzeigen; Lötspieße mit Aufsetzebene
- **Wellenlänge:** 628 nm (super-rot), 606 nm (orange), 587 nm (gelb), 570 nm (grün), 560 nm (pure green)
- **Abstrahlwinkel:** angepasst an Einsatz mit äußerem Reflektor, siehe Diagramm
- **Technologie:** GaAlP (super-rot, orange, gelb, grün), GaP (pure green)
- **optischer Wirkungsgrad:** 1,5 lm/W (super-rot, orange, gelb), 2,5 lm/W (grün), 0,6 lm/W (pure green)
- **Gruppierungsparameter:** Lichtstrom
- **Lötmethode:** Wellenlöten (TTW)
- **Verpackung:** Schüttgut, gegurtet lieferbar

Anwendungen

- Einsatz mit äußerem Reflektor
- optischer Indikator
- Hinterleuchtung (LCD, Schalter, Tasten, Displays)
- Innenbeleuchtung im Automobilbereich (z.B. Instrumentenbeleuchtung, u.ä.)
- Einkopplung in Lichtleiter

Features

- **package:** colored, clear 3 mm (T1) package with specially shaped lens
- **feature of the device:** for backlighting and LCDs with use of a reflector; solder leads with stand-off
- **wavelength:** 628 nm (super-red), 606 nm (orange), 587 nm (yellow), 570 nm (green), 560 nm (pure green)
- **viewing angle:** matched to use with external reflector, see diagram
- **technology:** GaAlP (super-red, orange, yellow, green), GaP (pure green)
- **optical efficiency:** 1.5 lm/W (super-red, orange, yellow), 2.5 lm/W (green), 0.6 lm/W (pure green)
- **grouping parameter:** luminous flux
- **soldering methods:** TTW soldering
- **packing:** bulk, available taped on reel

Applications

- use of reflector
- optical indicators
- backlighting (LCD, switches, keys, displays)
- interior automotive lighting (e.g. dashboard backlighting, etc.)
- coupling into light guides

Typ Type	Emissionsfarbe Color of Emission	Gehäusefarbe Color of Package	Lichtstrom Luminous Flux I_F = 15 mA Φ_V (mlm)	Bestellnummer Ordering Code
LS K380-LP LS K380-N LS K380-P LS K380-NR	super-red	red clear	11.2 ... 71.0 28.0 ... 45.0 45.0 ... 71.0 28.0 ... 180.0	Q62703Q1768 Q62703Q0760 Q62703Q1003 Q62703Q2223
LO K380-LP LO K380-N LO K380-P LO K380-Q LO K380-NR	orange	orange clear	11.2 ... 71.0 28.0 ... 45.0 45.0 ... 71.0 71.0 ... 112.0 28.0 ... 180.0	Q62703Q1888 Q62703Q2227 Q62703Q2228 Q62703Q2229 Q62703Q2201
LY K380-LP LY K380-N LY K380-P LY K380-NR	yellow	yellow clear	11.2 ... 71.0 28.0 ... 45.0 45.0 ... 71.0 28.0 ... 180.0	Q62703Q1769 Q62703Q0575 Q62703Q0576 Q62703Q2224
LG K380-Q LG K380-NR	green	green clear	71.0 ... 112.0 28.0 ... 180.0	Q62703Q3193 Q62703Q2225
LP K380-KN LP K380-L LP K380-M LP K380-LP	pure green	colorless clear	7.1 ... 45.0 11.2 ... 18.0 18.0 ... 28.0 11.2 ... 71.0	Q62703Q2506 Q62703Q3215 Q62703Q2610 Q62703Q3217

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
		LS, LO, LY, LG	LP	
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	I_F	40	30	mA
Stoßstrom Surge current $t \leq 10$ µs, $D = 0.005$	I_{FM}	0.5		A
Sperrspannung[1)] Reverse voltage	V_R	12		V
Leistungsaufnahme Power consumption	P_{tot}	130	95	mW
Wärmewiderstand [2)] 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}) Minimale Beinchenlänge Minimum lead length	 $R_{th\,JA}$ $R_{th\,JS}$	 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.

Kennwerte (T_A = 25 °C)
Characteristics

Bezeichnung **Parameter**		**Symbol** **Symbol**	**Wert Value**					**Einheit** **Unit**
			LS	**LO**	**LY**	**LG**	**LP**	
Wellenlänge des emittierten Lichtes Wavelength at peak emission I_F = 15 mA	(typ.)	λ_{peak}	635	610	586	572	557	nm
Dominantwellenlänge [1)] Dominant wavelength I_F = 15 mA	(typ.)	λ_{dom}	628	606	587	570	560	nm
Spektrale Bandbreite bei 50 % $\Phi_{rel\ max}$ Spectral bandwidth at 50 % $\Phi_{rel\ max}$ I_F = 15 mA	(typ.)	$\Delta\lambda$	45	40	45	25	22	nm
Durchlassspannung [2)] Forward voltage I_F = 15 mA	(typ.) (max.)	V_F V_F	2.1 2.5	2.1 2.5	2.1 2.5	2.1 2.5	2.1 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	0.01 10	0.01 10	µA µA
Temperaturkoeffizient von λ_{peak} Temperature coefficient of λ_{peak} I_F = 15 mA; –10°C ≤ T ≤ 100°C	(typ.)	$TC_{\lambda peak}$	0.11	0.12	0.10	0.11	0.11	nm/K
Temperaturkoeffizient von λ_{dom} Temperature coefficient of λ_{dom} I_F = 15 mA; –10°C ≤ T ≤ 100°C	(typ.)	$TC_{\lambda dom}$	0.07	0.07	0.07	0.07	0.05	nm/K
Temperaturkoeffizient von V_F Temperature coefficient of V_F I_F = 15 mA; –10°C ≤ T ≤ 100°C	(typ.)	TC_V	–1.9	–1.9	–1.9	–1.4	–2.1	mV/K
Optischer Wirkungsgrad Optical efficiency I_F = 15 mA	(typ.)	η_{opt}	1.5	1.5	1.5	2.5	0.6	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.

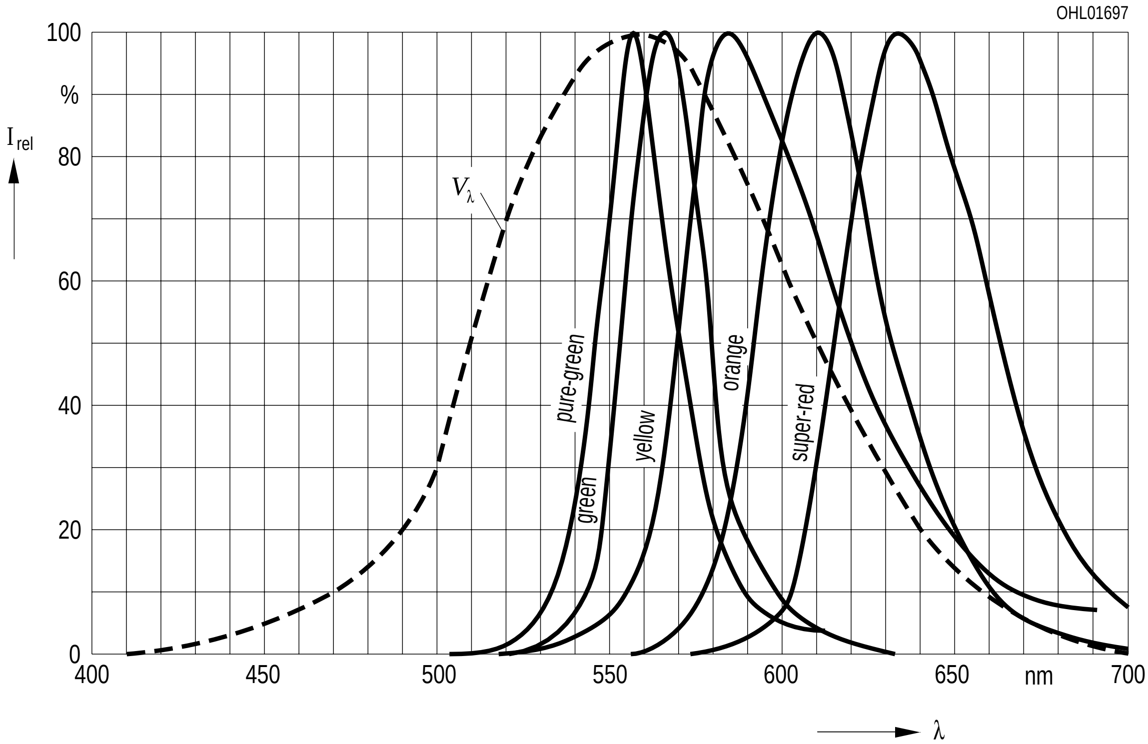
[2)] Spannungswerte werden mit einer Stromeinprägedauer von 1 ms und einer Genauigkeit von ±0,1 V ermittelt.
Voltages are tested at a current pulse duration of 1 ms and a tolerance of ±0.1 V.

Helligkeits-Gruppierungsschema
Luminous Intensity Groups

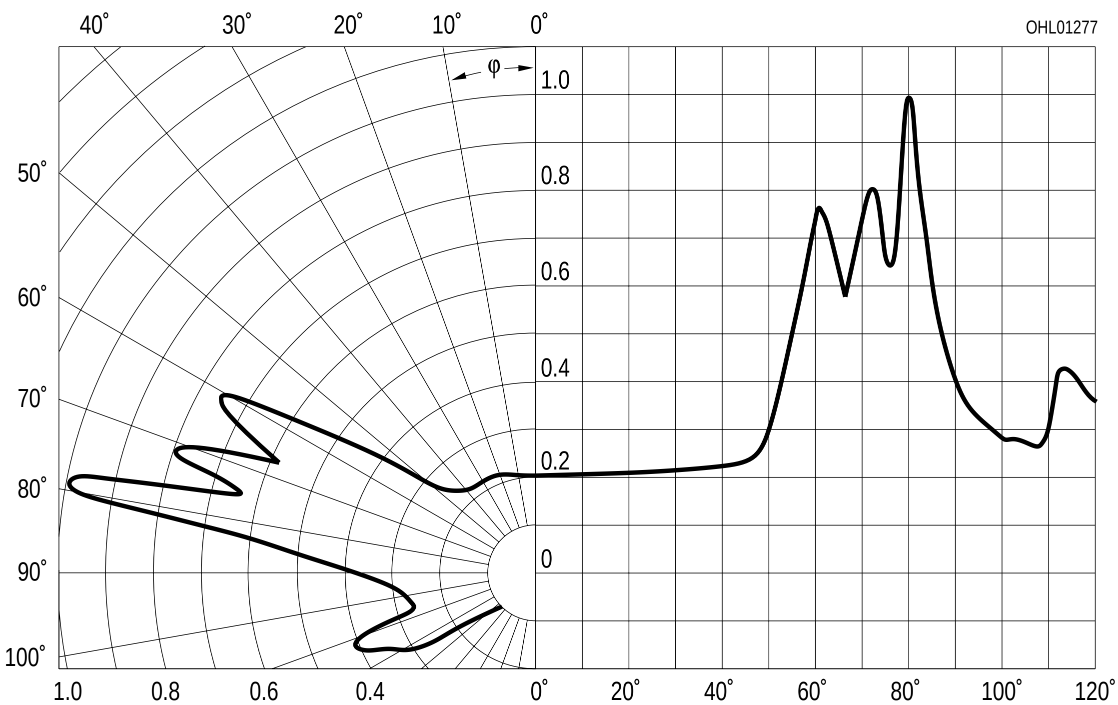
Lichtgruppe **Luminous Intensity Group**	**Lichtstrom** **Luminous Flux** Φ_V **(mlm)**
L	11.2 … 18.0
M	18.0 … 28.0
N	28.0 … 45.0
P	45.0 … 71.0
Q	71.0 … 112.0
R	112.0 … 180.0

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 %.

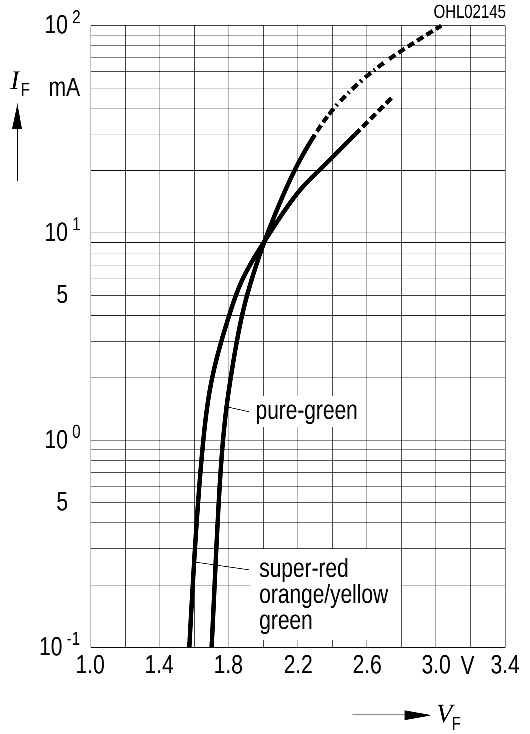
Relative spektrale Emission $I_{rel} = f(\lambda)$, T_A = 25 °C, I_F = 15 mA
Relative Spectral Emission
V(λ) = spektrale Augenempfindlichkeit
Standard eye response curve



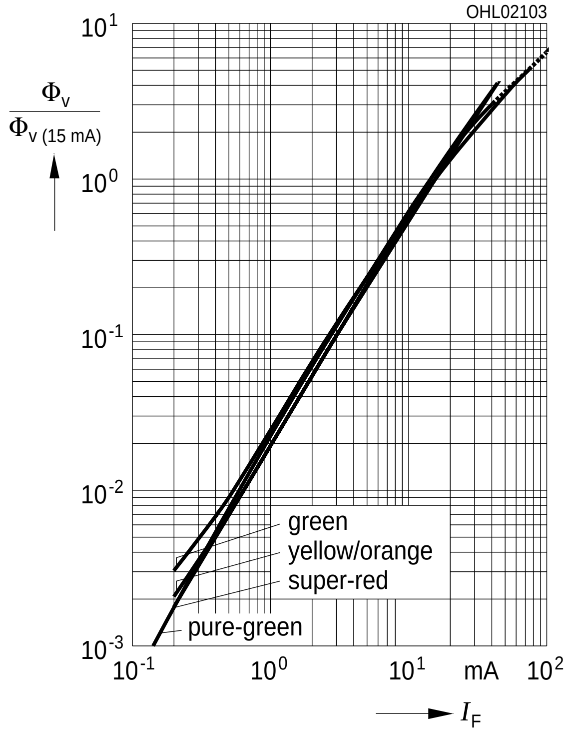
Abstrahlcharakteristik $I_{rel} = f(\varphi)$
Radiation Characteristic



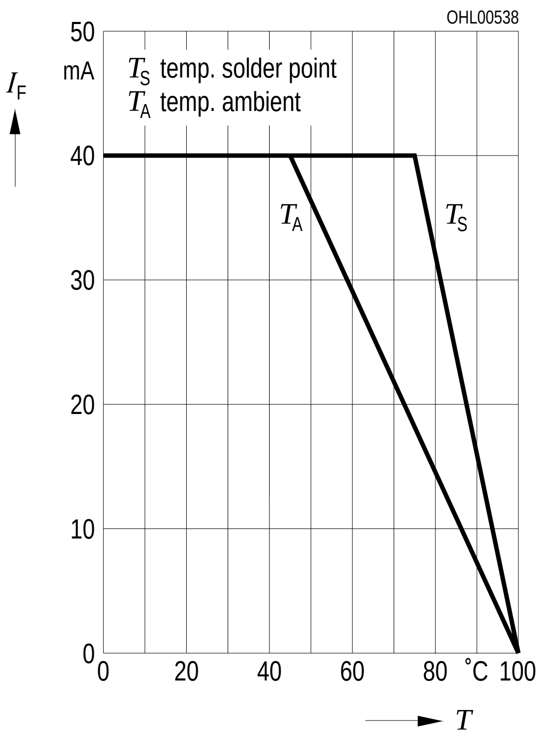
Durchlassstrom $I_F = f(V_F)$
Forward Current
T_A = 25 °C



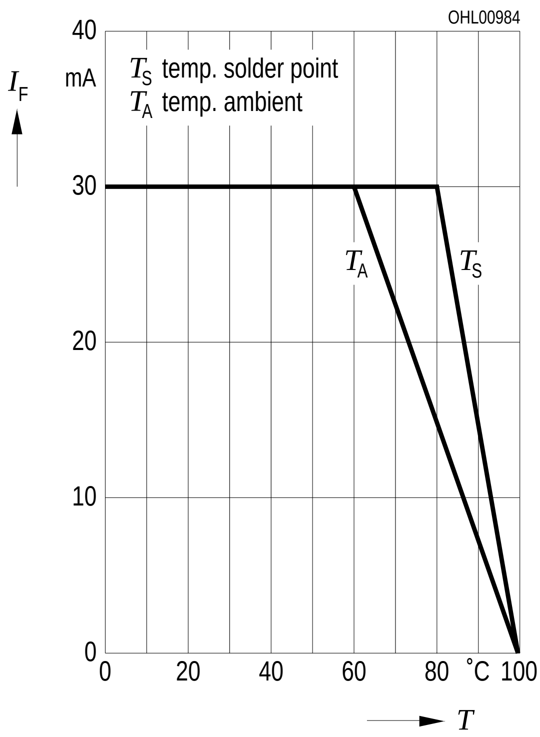
Relativer Lichtstrom $\Phi_V/\Phi_{V(15\ mA)} = f(I_F)$
Relative Luminous Flux
T_A = 25 °C



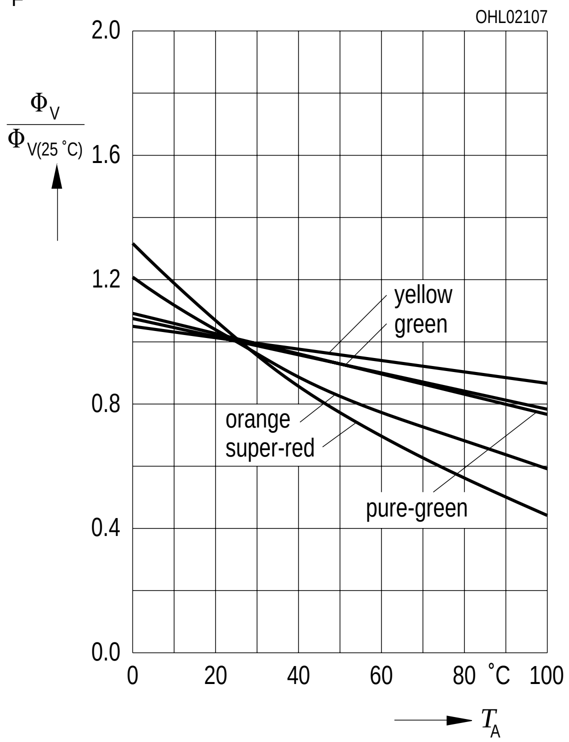
Maximal zulässiger Durchlassstrom $I_F = f(T)$
Max. Permissible Forward Current
LS, LO, LY, LG



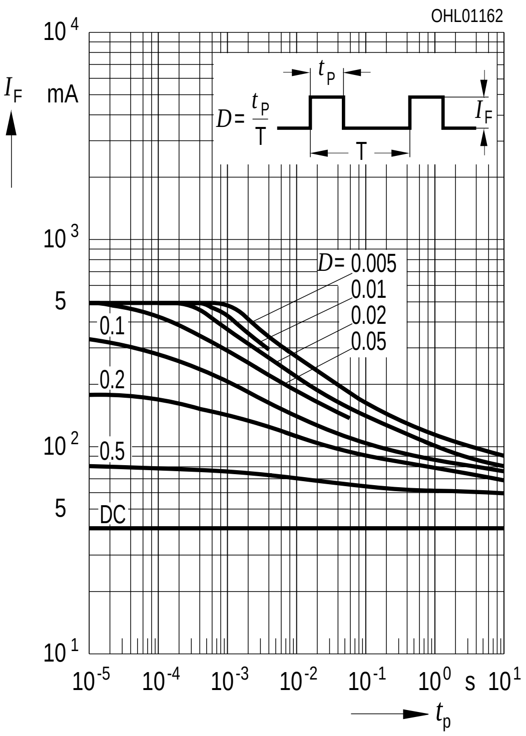
Maximal zulässiger Durchlassstrom $I_F = f(T)$
Max. Permissible Forward Current
LP



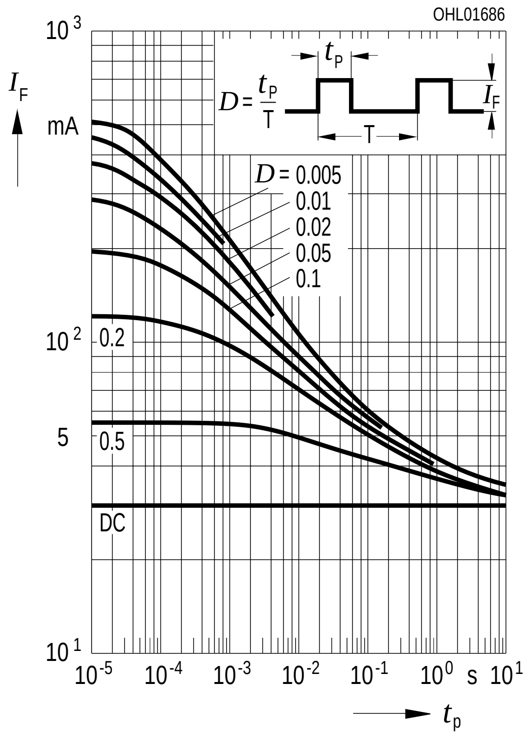
Relativer Lichtstrom $\Phi_V / \Phi_{V(25\,°C)} = f(T_A)$
Relative Luminous Flux
I_F = 15 mA



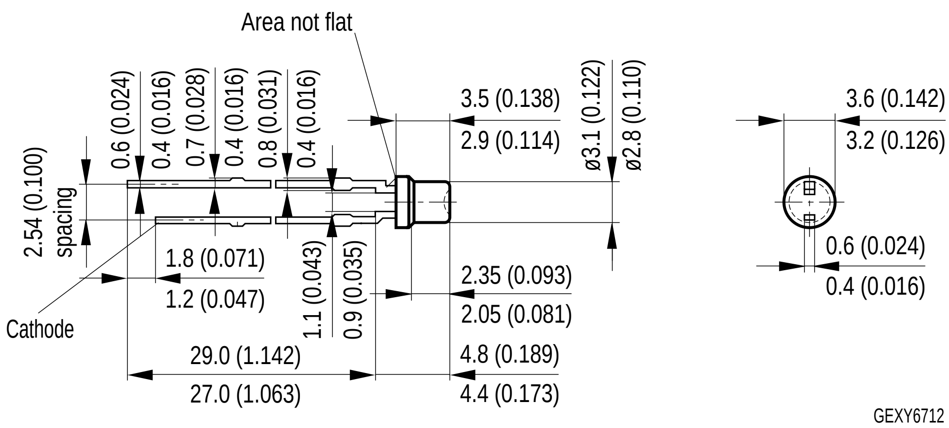
Zulässige Impulsbelastbarkeit $I_F = f(t_p)$
Permissible Pulse Handling Capability
Duty cycle D = parameter, T_A = 25 °C
LS, LO, LY, LG



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



Maßzeichnung
Package Outlines

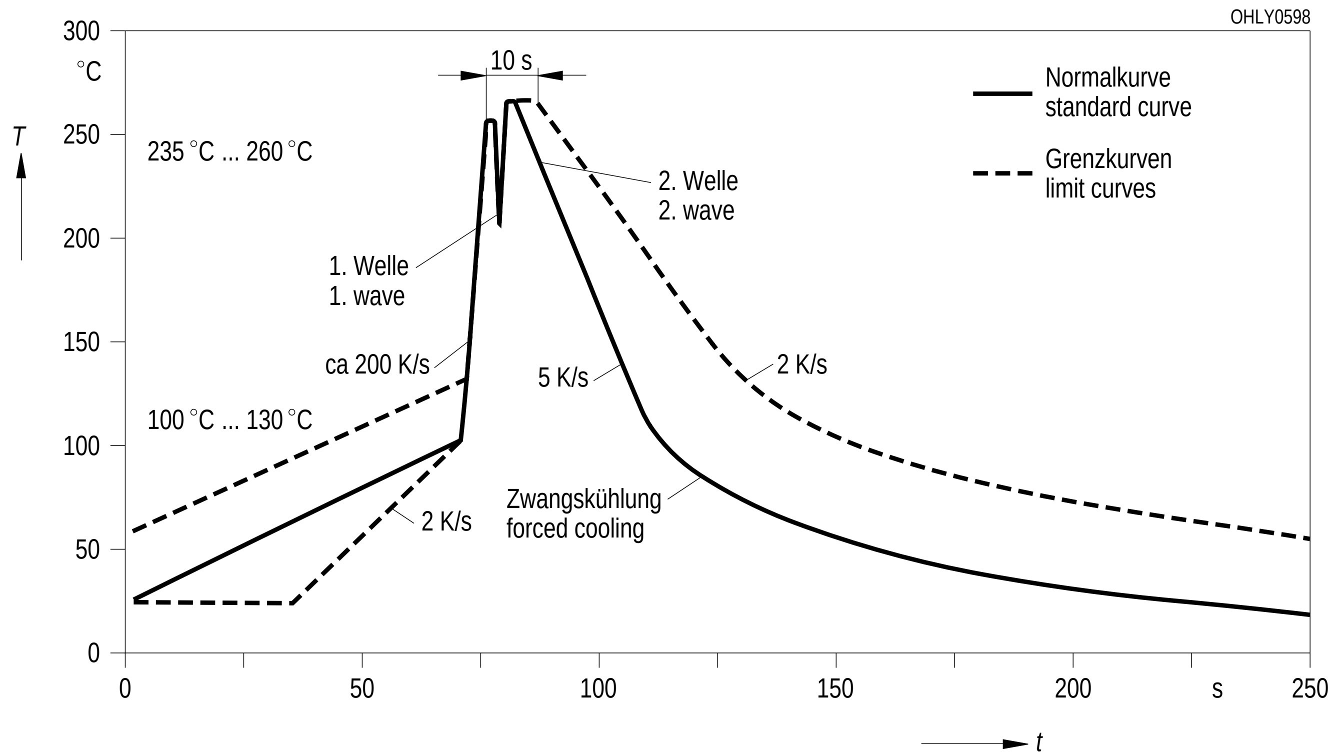


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

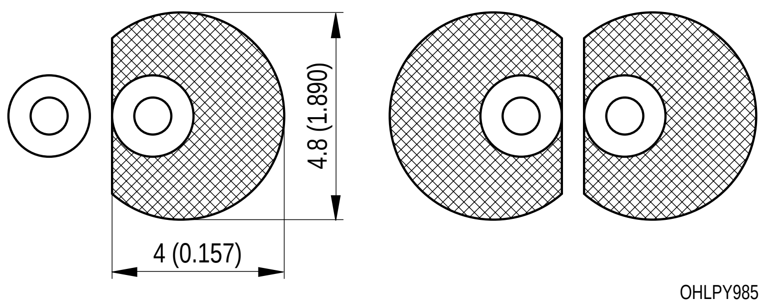
Kathodenkennung: kürzerer Lötspieß
Cathode mark: short solder lead
Gewicht / Approx. weight: 160 mg

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: 2003-09-03		**Date of change**
Previous Version: 2003-07-08		
Page	**Subjects (major changes since last revision)**	
3	thermal resistance (footnote)	
4	value (wavelength orange)	
10	annotations	2002-07-23
5	luminous intensity groups	2002-08-01
3, 4	value (reverse voltage from 5 V to 12 V)	2002-09-18
7	diagram relative luminous flux	2003-07-08
2	low yield groups deleted	2003-09-03

Published by OSRAM Opto Semiconductors GmbH
Wernerwerkstrasse 2, D-93049 Regensburg

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.