3 mm (T1) LED, Diffused

LR 3360, LS 3360, LO 3360, LY 3360, LG 3360, LP 3360

fBesondere Merkmale

- **Gehäusetyp:** eingefärbtes, diffuses 3 mm (T1) Gehäuse
- **Besonderheit des Bauteils:** Lötspieße mit Aufsetzebene
- **Wellenlänge:** 645 nm (rot), 628 nm (super-rot), 606 nm (orange), 587 nm (gelb), 570 nm (grün), 560 nm (pure green)
- **Abstrahlwinkel:** 70°
- **Technologie:** GaAlP (rot, super-rot, orange, gelb, grün), GaP (pure green)
- **optischer Wirkungsgrad:** 0,4 lm/W (rot), 1,5 lm/W (super-rot, orange, gelb), 2,5 lm/W (grün), 0,6 lm/W (pure green)
- **Gruppierungsparameter:** Lichtstärke
- **Lötmethode:** Wellenlöten (TTW)
- **Verpackung:** Schüttgut, gegurtet lieferbar

Anwendungen

- optischer Indikator
- Hinterleuchtung (LCD, Handy, Schalter, Tasten, Displays, Werbebeleuchtung, Allgemeinbeleuchtung)
- Signal- und Symbolleuchten
- Markierungsbeleuchtung (z.B. Stufen, Fluchtwege, u.ä.)
- Innenbeleuchtung im Automobilbereich (z.B. Instrumentenbeleuchtung, u.ä.)

Features

- **package:** colored, diffused 3 mm (T1) package
- **feature of the device:** solder leads with stand-off
- **wavelength:** 645 nm (red), 628 nm (super-red), 606 nm (orange), 587 nm (yellow), 570 nm (green), 560 nm (pure green)
- **viewing angle:** 70°
- **technology:** GaAlP (red, super-red, orange, yellow, green), GaP (pure green)
- **optical efficiency:** 0.4 lm/W (red), 1.5 lm/W (super-red, orange, yellow), 2.5 lm/W (green), 0.6 lm/W (pure green)
- **grouping parameter:** luminous intensity
- **soldering methods:** TTW soldering
- **packing:** bulk, available taped on reel

Applications

- optical indicators
- backlighting (LCD, cellular phones, switches, keys, displays, illuminated advertising, general lighting)
- signal and symbol luminaire
- marker lights (e.g. steps, exit ways, etc.)
- interior automotive lighting (e.g. dashboard backlighting, etc.)

Typ Type	Emissions-farbe Color of Emission	Gehäusefarbe Color of Package	Lichtstärke Luminous Intensity I_F = 10 mA I_V (mcd)	Lichtstrom Luminous Flux I_F = 10 mA Φ_V (mlm)	Bestellnummer Ordering Code
LR 3360-DG	red	red diffused	0.45 ... 2.8	6 (typ.)	Q62703-Q1316
LR 3360-F			1.12 ... 1.8	5 (typ.)	Q62703-Q1317
LR 3360-G			1.80 ... 2.8	8 (typ.)	Q62703-Q1318
LR 3360-FJ			1.12 ... 7.1	14 (typ.)	Q62703-Q1319
LS 3360-HL	super-red	red diffused	2.80 ... 18.0	26 (typ.)	Q62703-Q1320
LS 3360-K			7.10 ... 11.2	20 (typ.)	Q62703-Q1321
LS 3360-L			11.20 ... 18.0	35 (typ.)	Q62703-Q1322
LS 3360-KN			7.10 ... 45.0	65 (typ.)	Q62703-Q1323
LO 3360-HL	orange	orange diffused	2.80 ... 18.0	26 (typ.)	Q62703-Q1887
LO 3360-K			7.10 ... 11.2	20 (typ.)	Q62703-Q2400
LO 3360-L			11.20 ... 18.0	35 (typ.)	Q62703-Q2596
LO 3360-JM			4.50 ... 28.0	40 (typ.)	Q62703-Q2410
LY 3360-HL	yellow	yellow diffused	2.80 ... 18.0	26 (typ.)	Q62703-Q1324
LY 3360-K			7.10 ... 11.2	20 (typ.)	Q62703-Q1325
LY 3360-L			11.20 ... 18.0	35 (typ.)	Q62703-Q1326
LY 3360-KN			7.10 ... 45.0	65 (typ.)	Q62703-Q1998
LG 3360-HL	green	green diffused	2.80 ... 18.0	26 (typ.)	Q62703-Q3818
LG 3360-K			7.10 ... 11.2	20 (typ.)	Q62703-Q2008
LG 3360-L			11.20 ... 18.0	35 (typ.)	Q62703-Q3507
LG 3360-KN			7.10 ... 45.0	65 (typ.)	Q62703-Q3819
LP 3360-GK	pure green	green diffused	1.80 ... 11.2	16 (typ.)	Q62703-Q2467
LP 3360-H			2.80 ... 4.5	9 (typ.)	Q62703-Q2914
LP 3360-J			4.50 ... 7.1	14 (typ.)	Q62703-Q2915
LP 3360-HL			2.80 ... 18.0	26 (typ.)	Q62703-Q3213

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 %.

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	**LR**	**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	45	30	mA
Stoßstrom Surge current $t \leq 10$ µs, $D = 0.005$	I_{FM}	0.5			A
Sperrspannung Reverse voltage	V_R	5			V
Leistungsaufnahme Power consumption $T_A = 25$ °C	P_{tot}	130	95		mW
Wärmewiderstand [1] Thermal resistance Sperrschicht/Umgebung Junction/ambient Sperrschicht/Lötpad Junction/soldering point Montage auf PC-Board FR 4 (Padgröße ≥ 16 mm²) Mounted on PC board FR 4 (pad size ≥ 16 mm²) Minimale Beinchenlänge Mininum lead length	 $R_{th\ JA}$ $R_{th\ JS}$	 400 180			 K/W K/W

[1] 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.

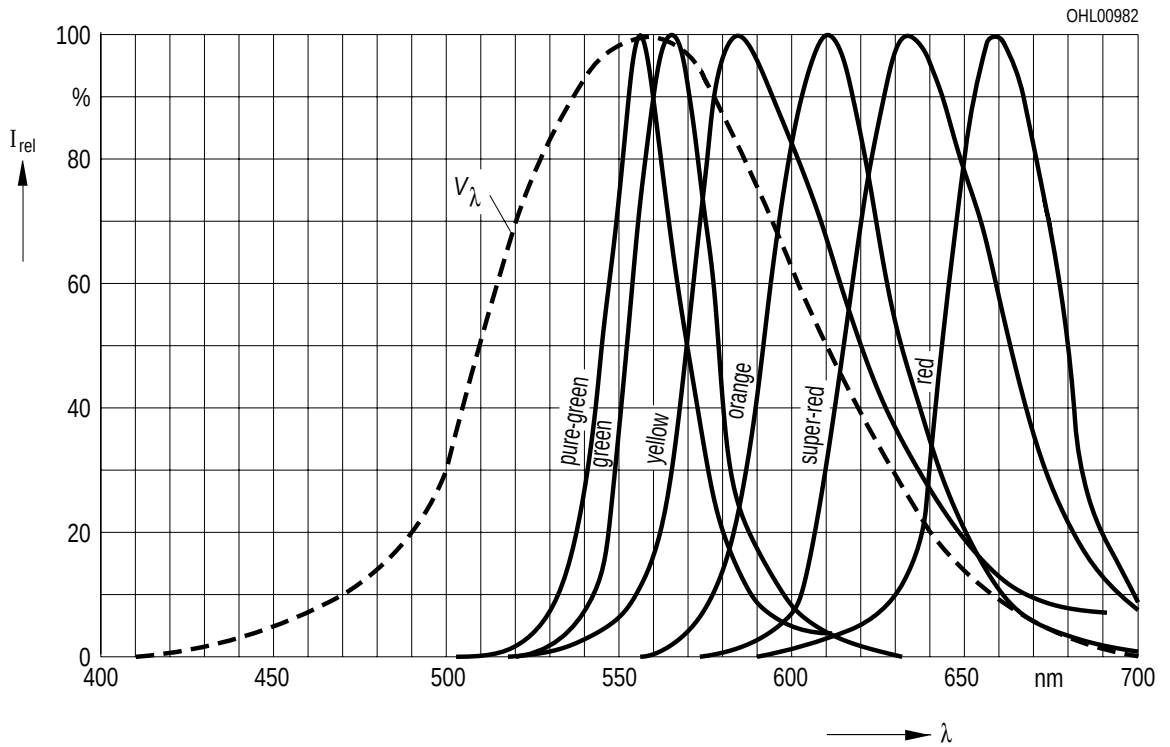
Kennwerte (T_A = 25 °C)
Characteristics

Bezeichnung **Parameter**		**Symbol** **Symbol**	**Wert** **Value**						**Einheit** **Unit**
			LR	**LS**	**LO**	**LY**	**LG**	**LP**	
Wellenlänge des emittierten Lichtes Wavelength at peak emission I_F = 10 mA	(typ.)	λ_{peak}	660	635	610	586	572	557	nm
Dominantwellenlänge [1] Dominant wavelength I_F = 10 mA	(typ.)	λ_{dom}	645	628	606	587	570	560	nm
Spektrale Bandbreite bei 50 % $I_{rel\ max}$ Spectral bandwidth at 50 % $I_{rel\ max}$ I_F = 10 mA	(typ.)	$\Delta\lambda$	35	45	40	45	25	22	nm
Abstrahlwinkel bei 50 % I_V (Vollwinkel) Viewing angle at 50 % I_V	(typ.)	2φ	70	70	70	70	70	70	Grad deg.
Durchlassspannung [2] Forward voltage I_F = 10 mA	(typ.) (max.)	V_F V_F	1.6 1.9	2.0 2.5	2.0 2.5	2.0 2.5	2.0 2.5	2.0 2.5	V V
Sperrstrom Reverse current V_R = 5 V	(typ.) (max.)	I_R I_R	0.01 10	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 = 10 mA; –10°C ≤ T ≤ 100°C	(typ.)	$TC_{\lambda peak}$	0.03	0.11	0.12	0.10	0.11	0.11	nm/K
Temperaturkoeffizient von λ_{dom} Temperature coefficient of λ_{dom} I_F = 10 mA; –10°C ≤ T ≤ 100°C	(typ.)	$TC_{\lambda dom}$	0.06	0.07	0.07	0.07	0.07	0.05	nm/K
Temperaturkoeffizient von V_F Temperature coefficient of V_F I_F = 10 mA; –10°C ≤ T ≤ 100°C	(typ.)	TC_V	–1.4	–1.9	–1.9	–1.9	–1.4	–2.1	mV/K
Optischer Wirkungsgrad Optical efficiency I_F = 10 mA	(typ.)	η_{opt}	0.4	1.5	1.5	1.5	2.5	0.6	lm/W

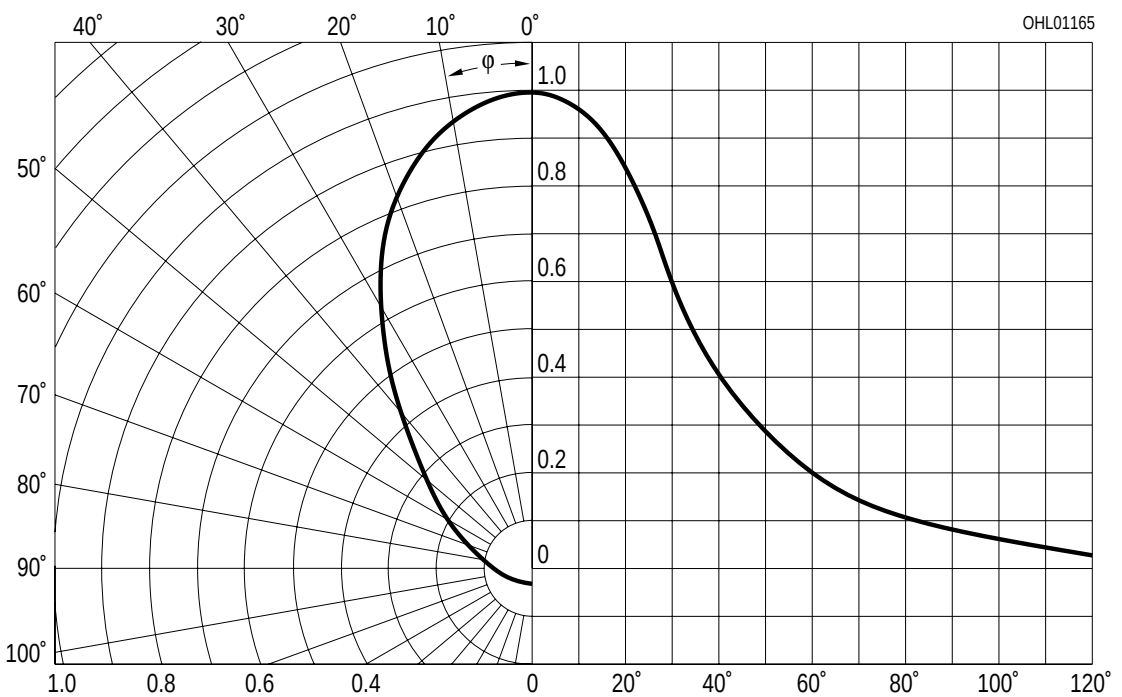
[1] Wellenlängen werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von ±1 nm ermittelt.
Wavelengths are tested at a current pulse duration of 25 ms and a tolerance of ±1 nm.

[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.

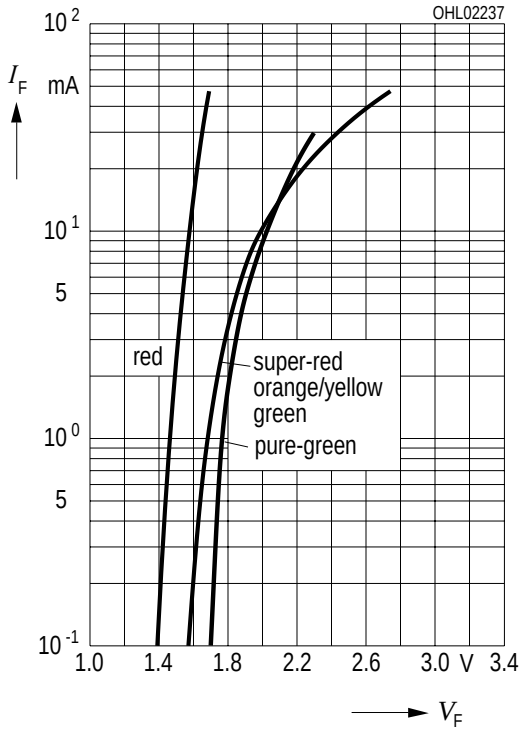
Relative spektrale Emission $I_{rel} = f(\lambda)$, $T_A = 25$ °C, $I_F = 10$ mA
Relative Spectral Emission
V(λ) = spektrale Augenempfindlichkeit
Standard eye response curve



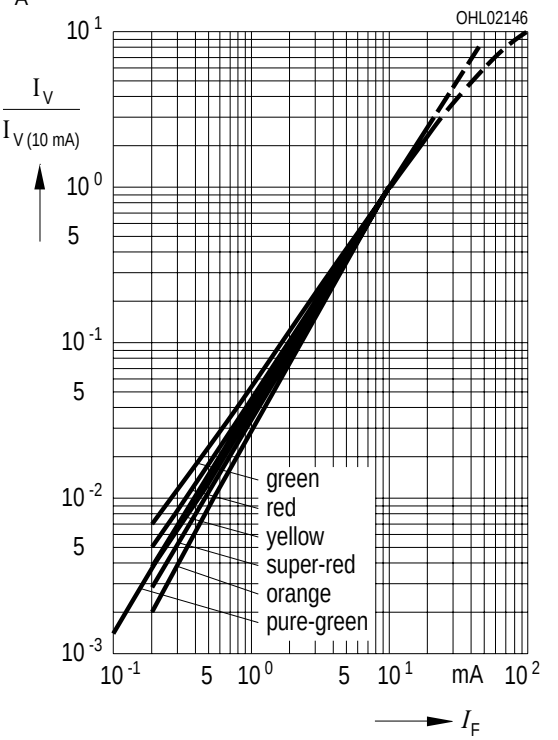
Abstrahlcharakteristik $I_{rel} = f(\varphi)$
Radiation Characteristic



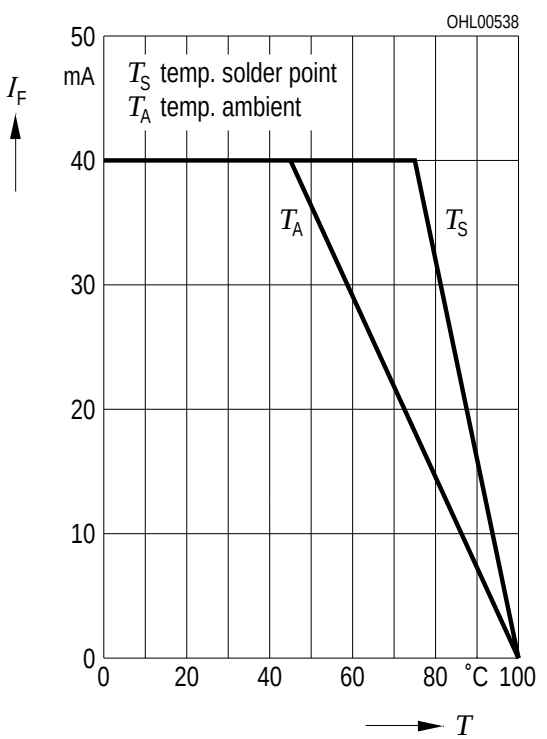
Durchlassstrom $I_F = f(V_F)$
Forward Current
T_A = 25 °C



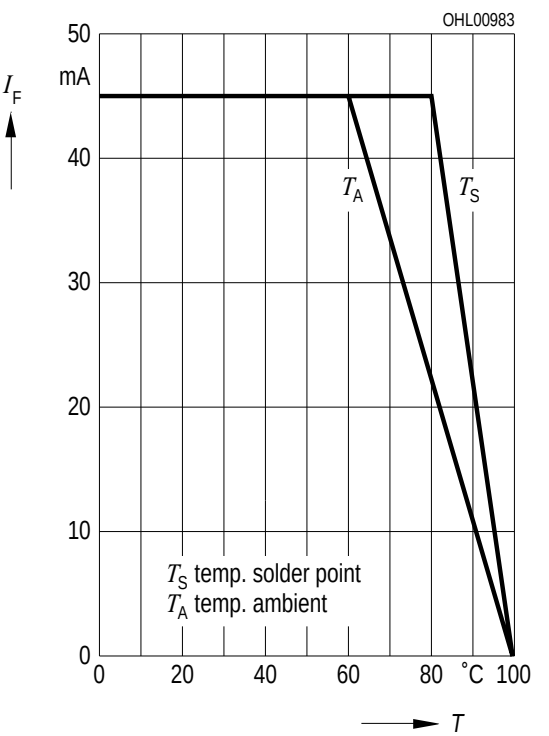
Relative Lichtstärke $I_V/I_{V(10\ mA)} = f(I_F)$
Relative Luminous Intensity
T_A = 25 °C



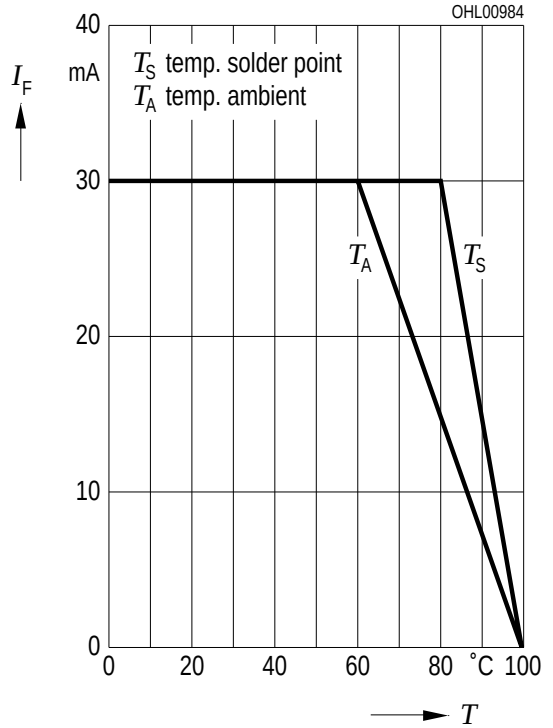
Maximal zulässiger Durchlassstrom $I_F = f(T)$
Max. Permissible Forward Current
LS, LO, LY, LG



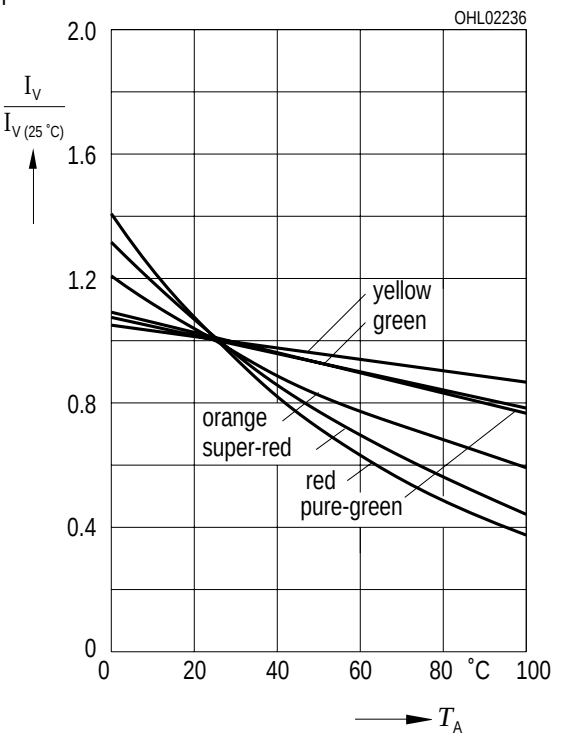
Maximal zulässiger Durchlassstrom $I_F = f(T)$
Max. Permissible Forward Current
LR



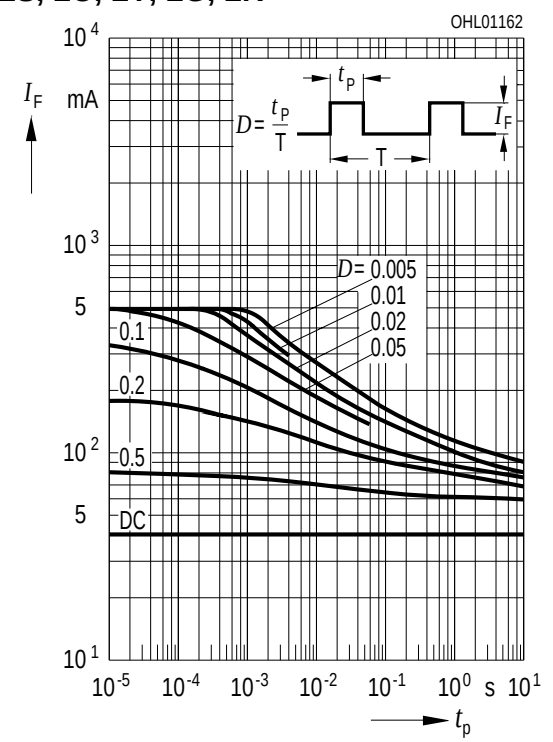
Maximal zulässiger Durchlassstrom $I_F = f(T)$
Max. Permissible Forward Current
LP



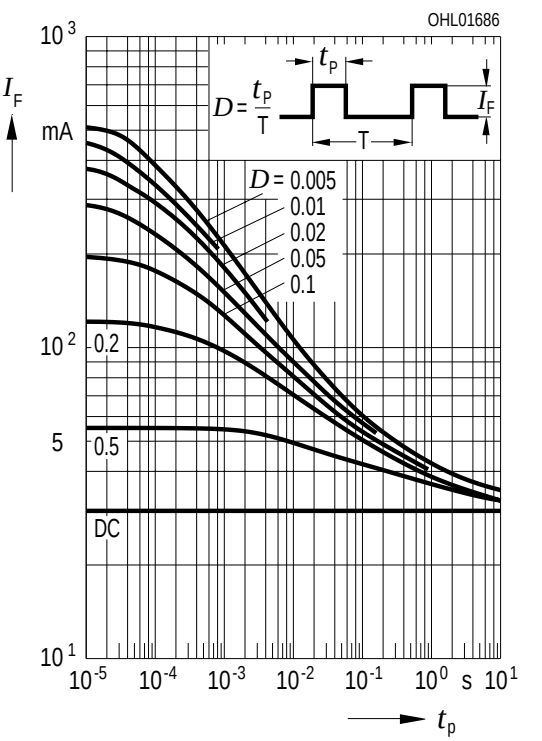
Relative Lichtstärke $I_V/I_{V(25\,°C)} = f(T_A)$
Relative Luminous Intensity
I_F = 10 mA



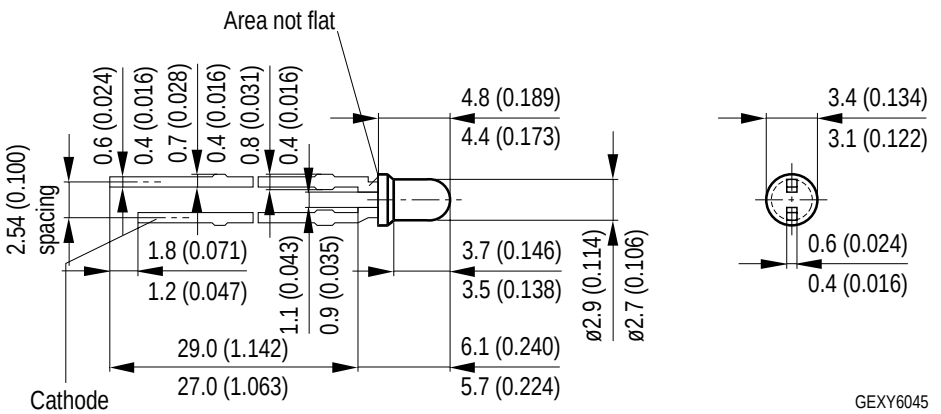
Zulässige Impulsbelastbarkeit $I_F = f(t_p)$
Permissible Pulse Handling Capability
Duty cycle D = parameter, T_A = 25 °C
LS, LO, LY, LG, LR



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



Maßzeichnung
Package Outlines

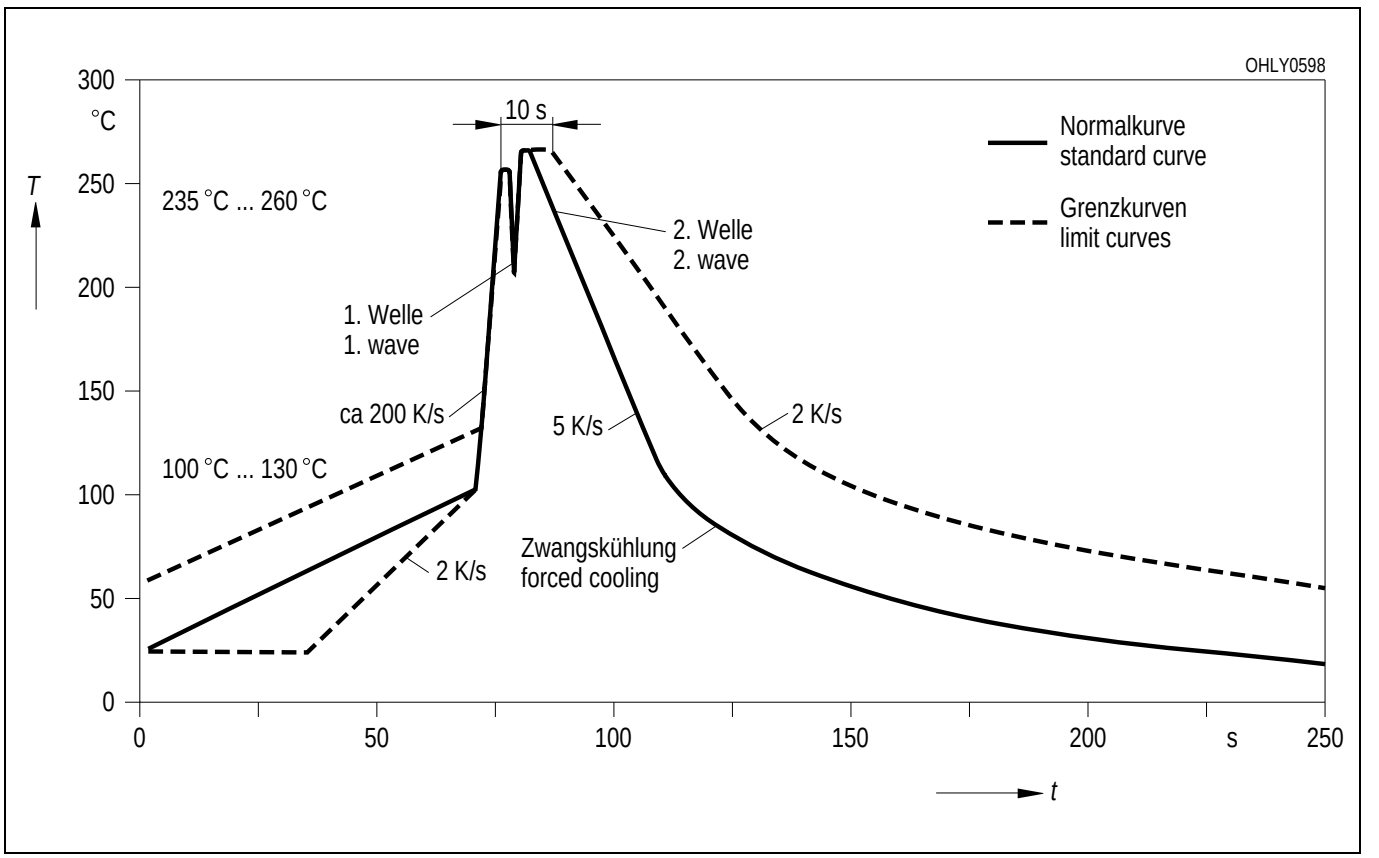


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

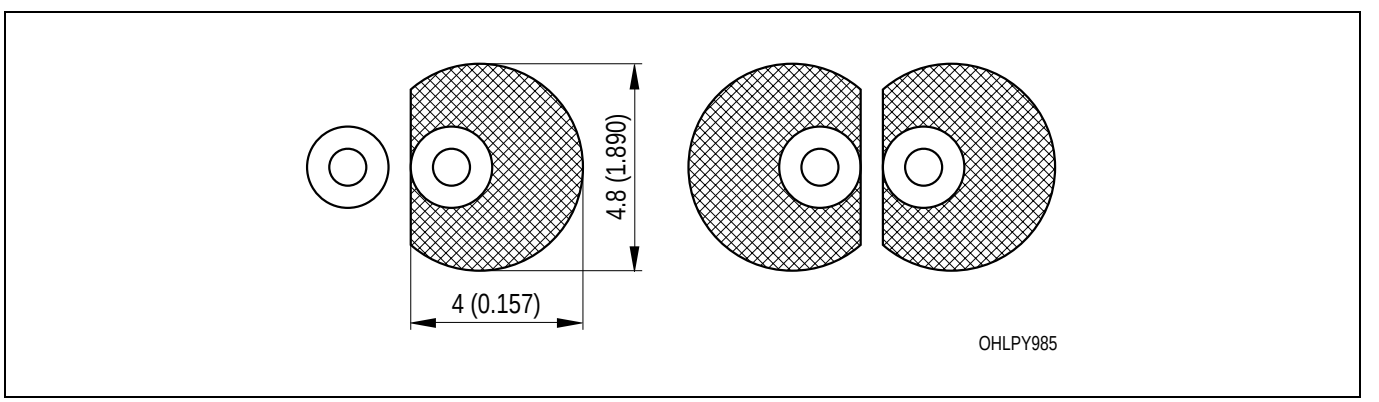
Kathodenkennung: kürzerer Lötspieß
Cathode mark: short solder lead
Gewicht / Approx. weight: 0.15 g

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: 2002-03-14	
Previous Version: 2001-03-12	
Page	**Subjects (major changes since last revision)**
3	thermal resistance (footnote)
4	dominant wavelength (orange)

Published by OSRAM Opto Semiconductors GmbH & Co. OHG
Wernerwerkstrasse 2, D-93049 Regensburg

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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.
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