3 mm (T1) LED, Non Diffused

LS 3340, LO 3340, LY 3340, LG 3330, LP 3340

Besondere Merkmale

- **Gehäusetyp:** eingefärbtes, klares 3 mm (T1) Gehäuse
- **Besonderheit des Bauteils:** Lötspieße mit Aufsetzebene
- **Wellenlänge:** 628 nm (super-rot), 606 nm (orange), 587 nm (gelb), 570 nm (grün), 560 nm (pure green)
- **Abstrahlwinkel:** 50°
- **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:** 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.)
- Leuchtschriftanzeigen

Features

- **package:** colored, clear 3 mm (T1) package
- **feature of the device:** 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:** 50°
- **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 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.)
- light writing displays

Typ Type	Emissions-farbe Color of Emission	Gehäuse-farbe 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
LS 3340-KN	super-red	red clear	7.1 … 45.0	35 (typ.)	Q62703-Q1701
LS 3340-L			11.2 … 18.0	20 (typ.)	Q62703-Q1702
LS 3340-M			18.0 … 28.0	30 (typ.)	Q62703-Q1704
LS 3340-N			28.0 … 45.0	45 (typ.)	Q62703-Q2320
LS 3340-LP			11.2 … 71.0	55 (typ.)	Q62703-Q3223
LO 3340-KN	orange	orange clear	7.1 … 45.0	35 (typ.)	Q62703-Q1886
LO 3340-L			11.2 … 18.0	20 (typ.)	Q62703-Q2256
LO 3340-M			18.0 … 28.0	30 (typ.)	Q62703-Q2255
LO 3340-N			28.0 … 45.0	45 (typ.)	Q62703-Q2473
LO 3340-LP			11.2 … 71.0	55 (typ.)	Q62703-Q2628
LY 3340-JM	yellow	yellow clear	4.5 … 28.0	20 (typ.)	Q62703-Q1789
LY 3340-L			11.2 … 18.0	20 (typ.)	Q62703-Q1791
LY 3340-M			18.0 … 28.0	30 (typ.)	Q62703-Q1999
LY 3340-N			28.0 … 45.0	45 (typ.)	Q62703-Q2652
LY 3340-LP			11.2 … 71.0	55 (typ.)	Q62703-Q1792
LG 3330-KN	green	colorless clear	7.1 … 45.0	35 (typ.)	Q62703-Q1698
LG 3330-M			18.0 … 28.0	30 (typ.)	Q62703-Q1700
LG 3330-N			28.0 … 45.0	45 (typ.)	Q62703-Q2010
LG 3330-LP			11.2 … 71.0	55 (typ.)	Q62703-Q2011
LP 3340-JL	pure green	green clear	4.5 … 18.0	10 (typ.)	Q62703-Q2749
LP 3340-K			7.1 … 11.2	9 (typ.)	Q62703-Q2982
LP 3340-L			11.2 … 18.0	14 (typ.)	Q62703-Q2980
LP 3340-KM			7.1 … 28.0	17 (typ.)	Q62703-Q3211

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	**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 Reverse voltage	V_R	5		V
Leistungsaufnahme Power consumption $T_A \leq 25$ °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 Minimum 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.

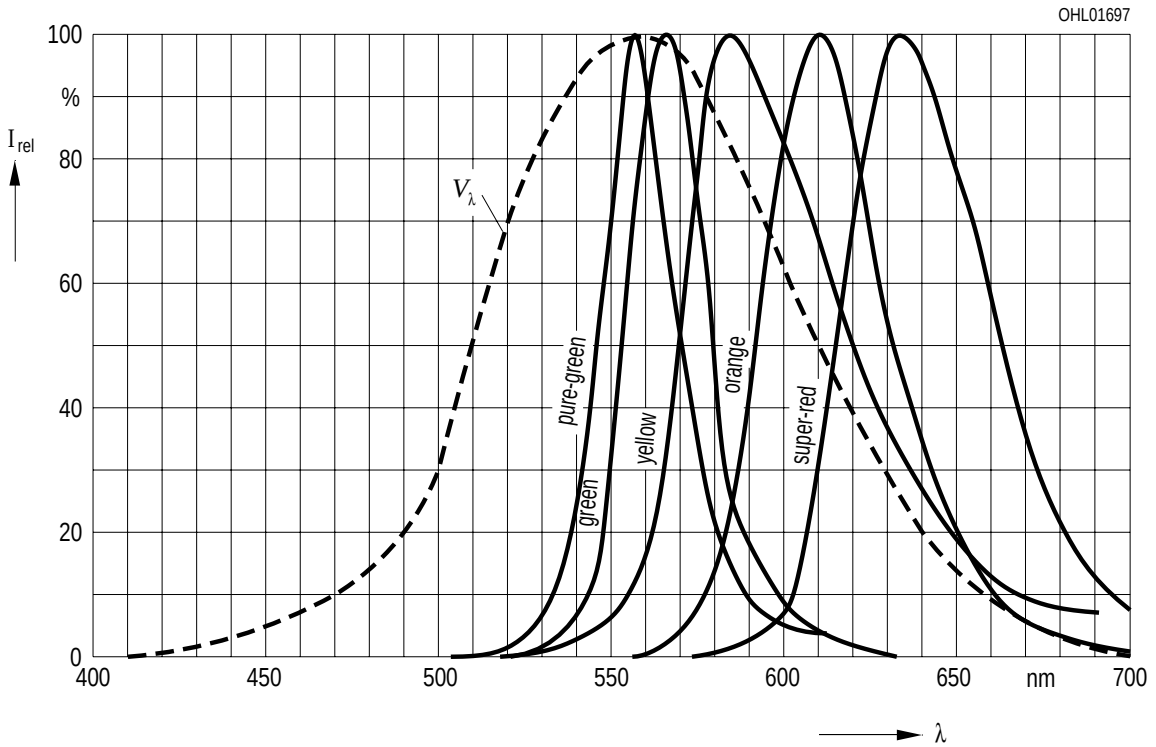
Kennwerte (T_A = 25 °C)
Characteristics

Bezeichnung **Parameter**		**Symbol** **Symbol**	**Wert** **Value**					**Einheit** **Unit**
			LS	**LO**	**LY**	**LG**	**LP**	
Wellenlänge des emittierten Lichtes Wavelength at peak emission I_F = 10 mA	(typ.)	λ_{peak}	635	610	586	572	557	nm
Dominantwellenlänge [1] Dominant wavelength I_F = 10 mA	(typ.)	λ_{dom}	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.)	$\Delta\lambda$	45	40	45	25	22	nm
Abstrahlwinkel bei 50 % I_V (Vollwinkel) Viewing angle at 50 % I_V	(typ.)	2φ	50	50	50	50	50	Grad deg.
Durchlassspannung [2] Forward voltage I_F = 10 mA	(typ.) (max.)	V_F V_F	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	µA µA
Temperaturkoeffizient von λ_{peak} Temperature coefficient of λ_{peak} I_F = 10 mA; –10°C ≤ T ≤ 100°C	(typ.)	$TC_{\lambda peak}$	0.11	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.)	$TC_{\lambda dom}$	0.07	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	–1.9	–1.9	–1.9	–1.4	–2.1	mV/K
Optischer Wirkungsgrad Optical efficiency I_F = 10 mA	(typ.)	η_{opt}	1.5	1.5	1.5	2.5	0.6	lm/W

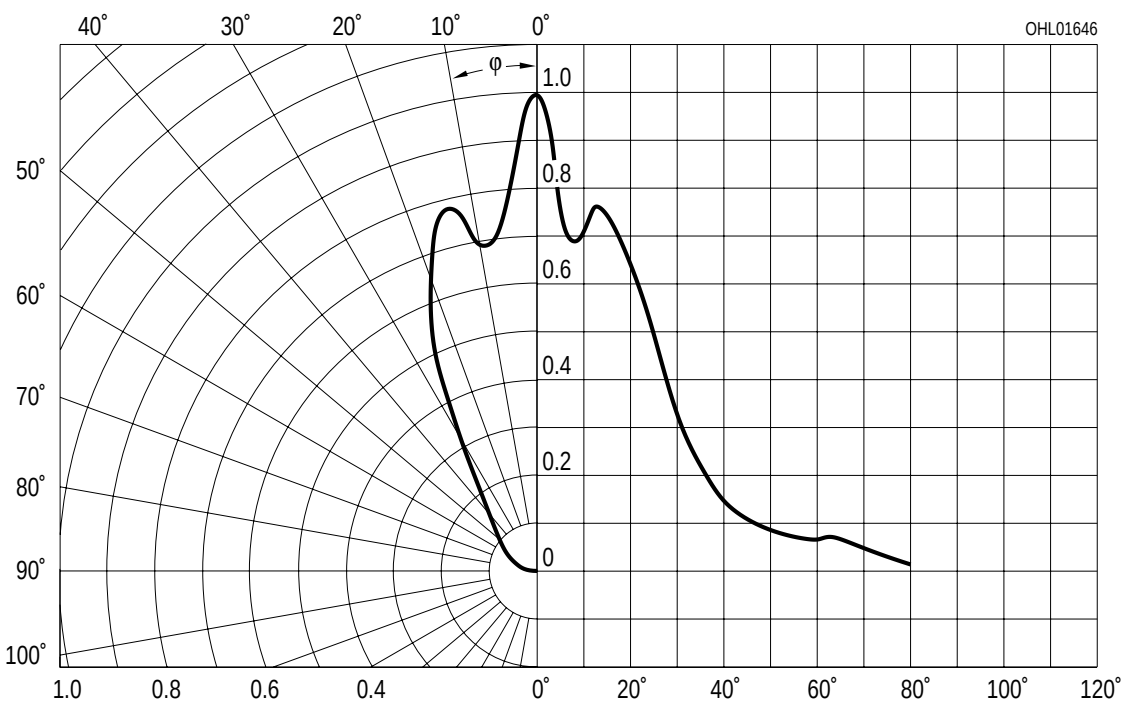
[1] Wellenlängen werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von ±1 nm ermittelt.
Wavelengths are tested at a current pulse duration of 25 ms and a tolerance of ±1 nm.

[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.

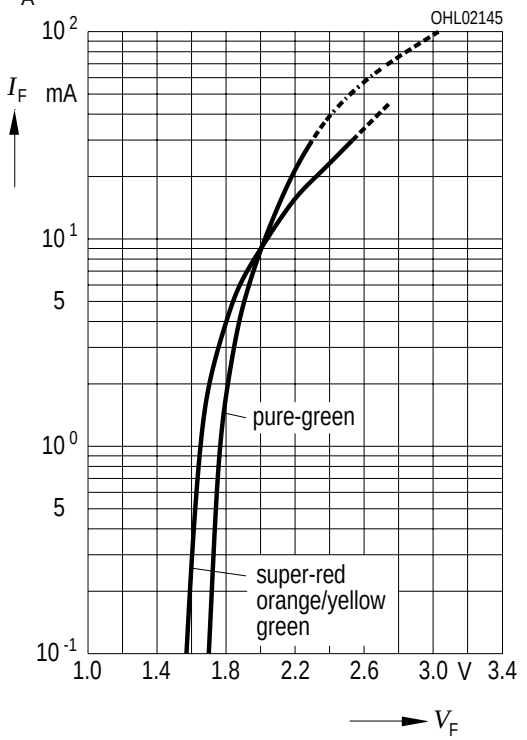
Relative spektrale Emission $I_{rel} = f(\lambda)$, T_A = 25 °C, I_F = 10 mA
Relative Spectral Emission
V(λ) = spektrale Augenempfindlichkeit
Standard eye response curve



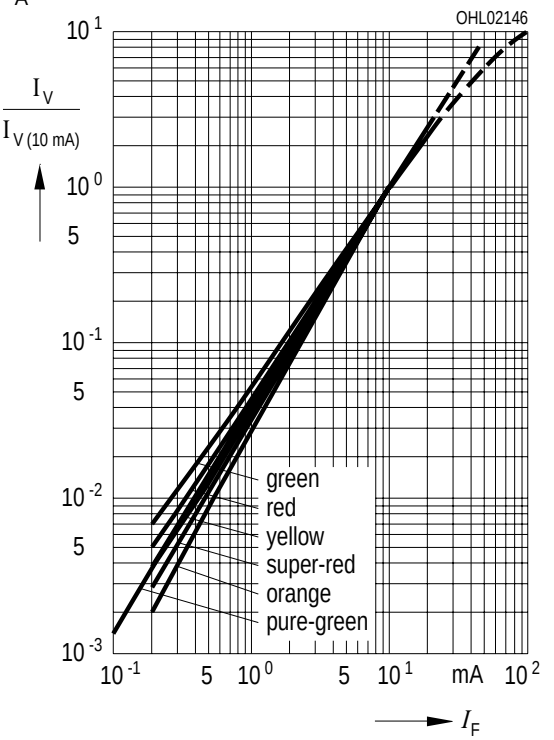
Abstrahlcharakteristik $I_{rel} = f(\varphi)$
Radiation Characteristic



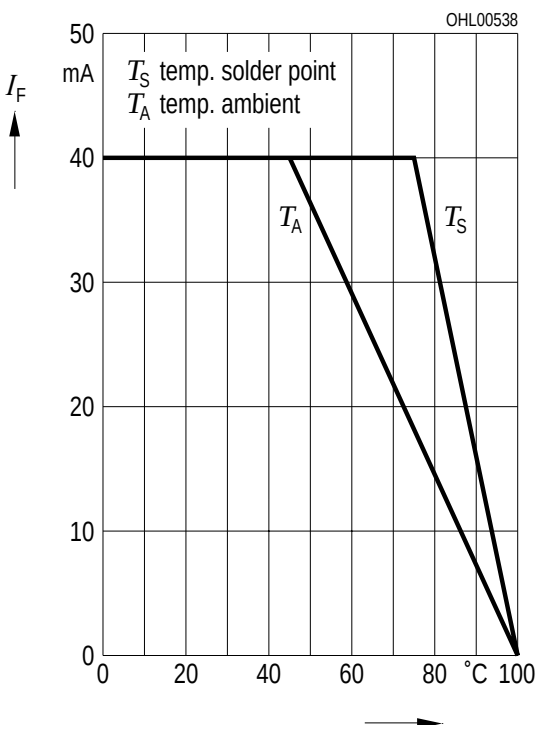
Durchlassstrom $I_F = f(V_F)$
Forward Current
T_A = 25 °C



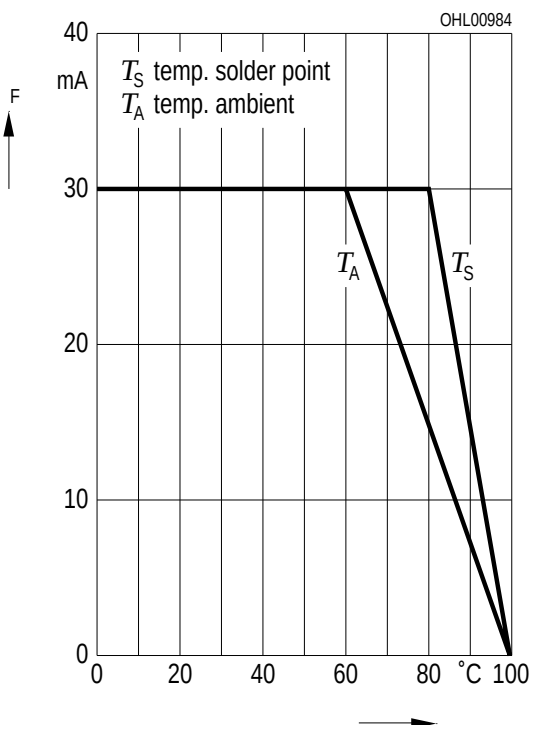
Relative Lichtstärke $I_V/I_{V(10\ mA)} = f(I_F)$
Relative Luminous Intensity
T_A = 25 °C



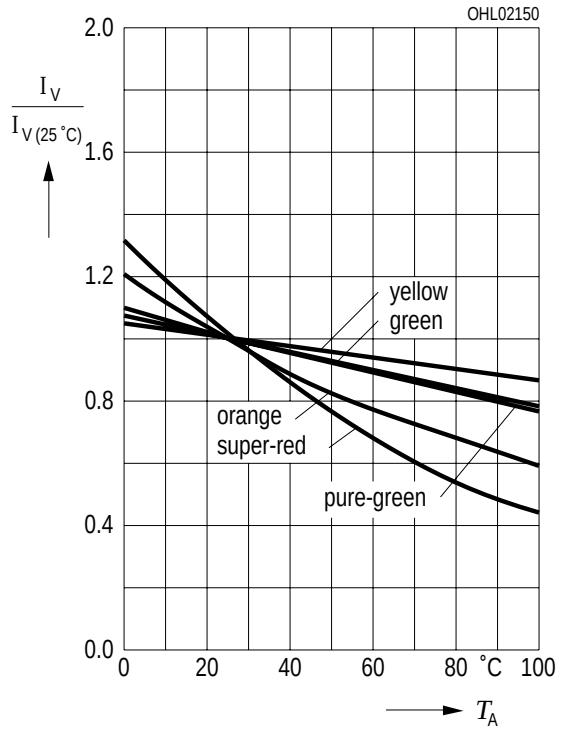
Maximal zulässiger Durchlassstrom $I_F = f(T)$
Max. Permissible Forward Current
LS, LO, LY, LG



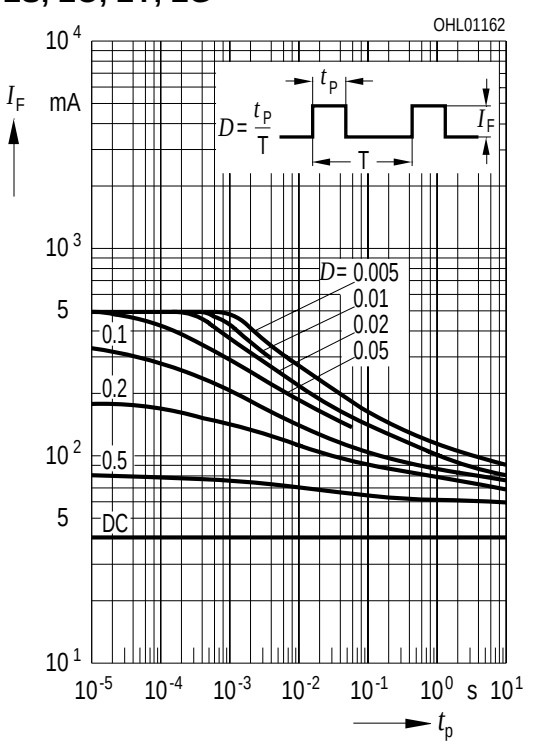
Maximal zulässiger Durchlassstrom $I_F = f(T)$
Max. Permissible Forward Current
LP



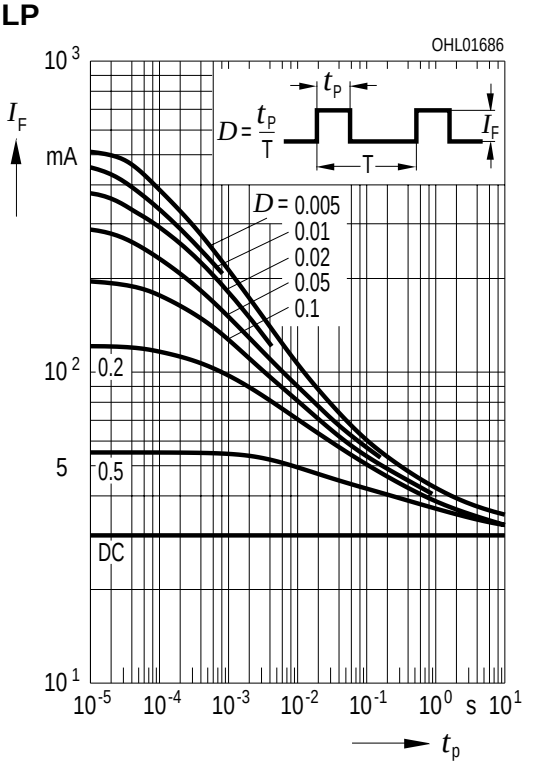
Relative Lichtstärke $I_V/I_{V(25\,°C)} = f(T_A)$
Relative Luminous Intensity I_F = 10 mA



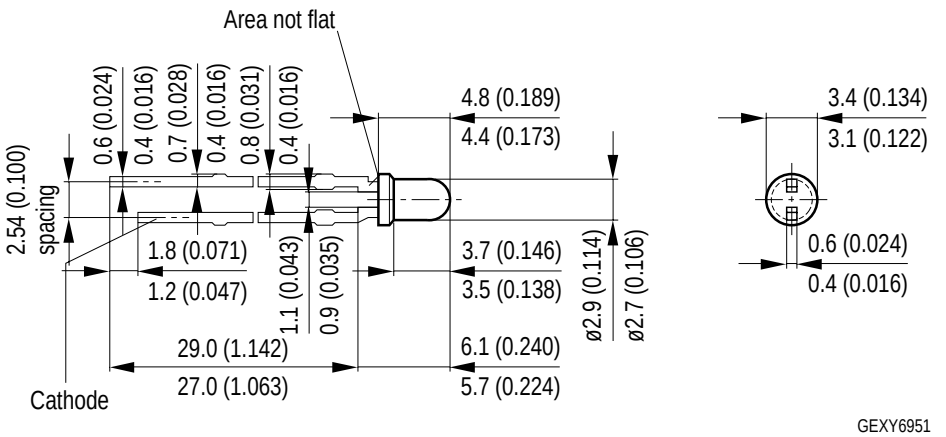
Zulässige Impulsbelastbarkeit $I_F = f(t_p)$
Permissible Pulse Handling Capability
Duty cycle D = parameter, T_A = 25 °C
LS, LO, LY, LG



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



Maßzeichnung
Package Outlines

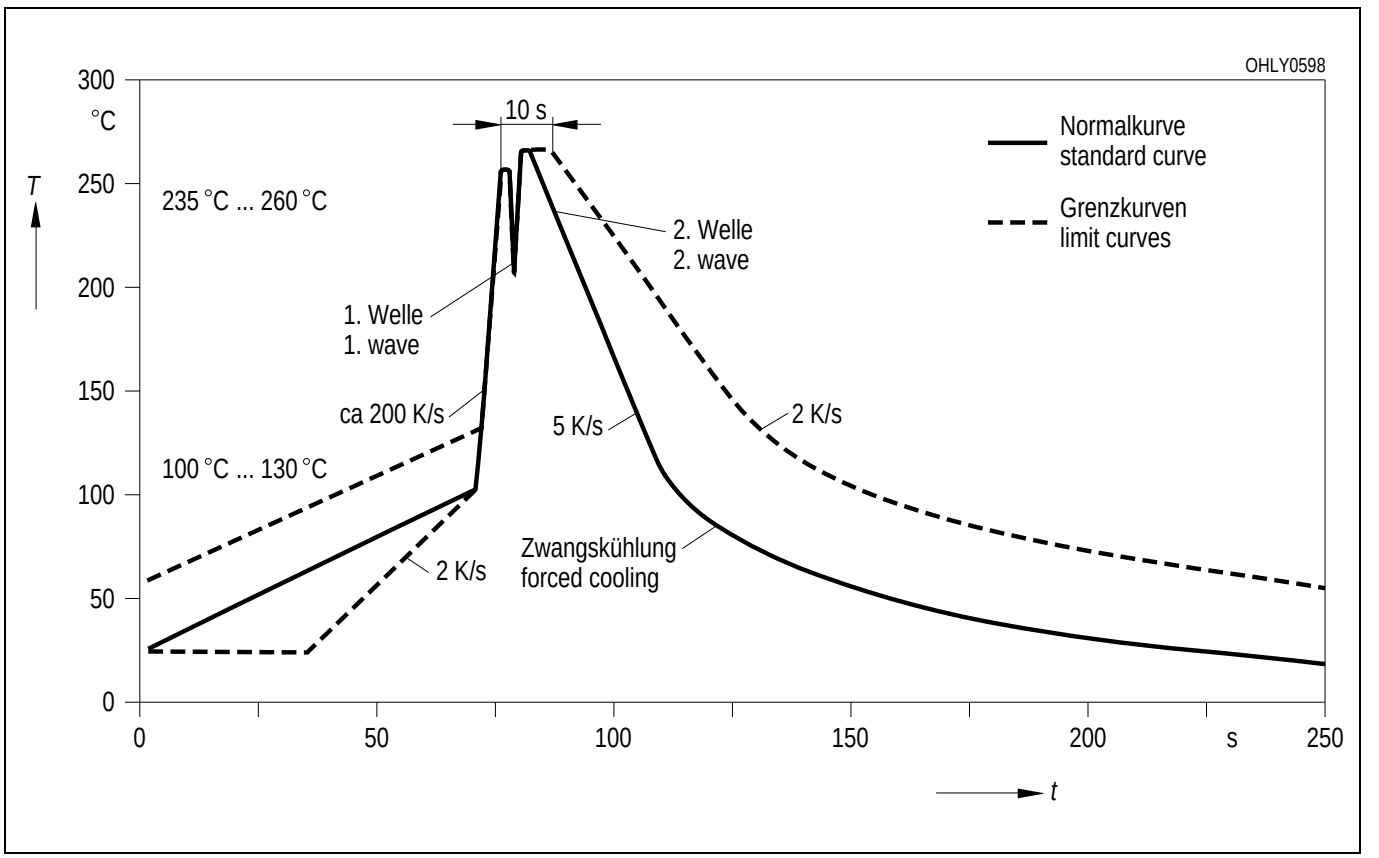


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

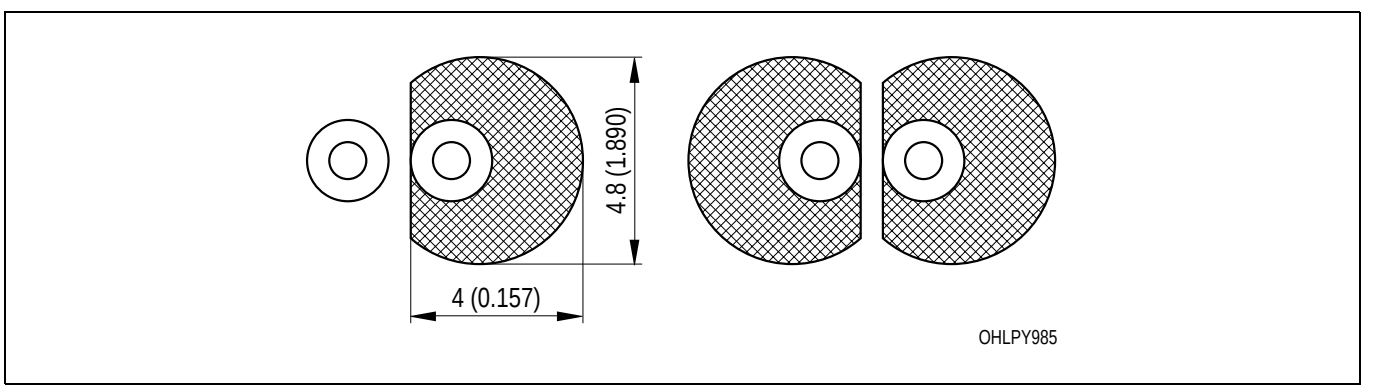
Kathodenkennung: kürzerer Lötspieß
Cathode mark: short solder lead
Gewicht / Approx. weight: 0.15 g

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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