

Hyper 3 mm (T1) LED, Diffused Hyper-Bright LED

LS 3366, LA 3366, LO 3366, LY 3366



Besondere Merkmale

- **Gehäusotyp:** eingefärbtes, diffuses 3 mm (T1) Gehäuse
- **Besonderheit des Bauteils:** Lötspieße mit Aufsetzebene
- **Wellenlänge:** 633 nm (super-rot), 615 nm (amber), 606 nm (orange), 587 nm (gelb)
- **Abstrahlwinkel:** 70°
- **Technologie:** InGaAlP
- **optischer Wirkungsgrad:** 11 lm/W (gelb, orange, amber), 7 lm/W (super-rot)
- **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.)
- Markierungsbeleuchtung (z.B. Stufen, Fluchtwege, u.ä.)
- Signal- und Symbolleuchten

Features

- **package:** colored, diffused 3 mm (T1) package
- **feature of the device:** solder leads with stand-off
- **wavelength:** 633 nm (super-red), 615 nm (amber), 606 nm (orange), 587 nm (yellow)
- **viewing angle:** 70°
- **technology:** InGaAlP
- **optical efficiency:** 11 lm/W (yellow, orange, amber), 7 lm/W (super-red)
- **grouping parameter:** luminous intensity
- **soldering methods:** TTW soldering
- **packing:** bulk, available taped on reel

Applications

- coupling into light guides
- backlighting (LCD, switches, keys, displays, illuminated advertising, general lighting)
- interior automotive lighting. (e.g. dashboard backlighting, etc.)
- marker lights (e.g. steps, exit ways, etc.)
- signal and symbol luminaire

Type	Emissions- farbe Color of Emission	Gehäuse- farbe Color of Package	Lichtstärke Luminous Intensity $I_F = 20 \text{ mA}$ $I_V \text{ (mcd)}$	Lichtstrom Luminous Flux $I_F = 20 \text{ mA}$ $\Phi_V \text{ (mlm)}$	Bestellnummer Ordering Code
LS 3366-NR	super-red	red diffused	28 ... 180	360 (typ.)	Q62703-Q3457
LS 3366-P			45 ... 71	190 (typ.)	Q62703-Q3458
LS 3366-Q			71 ... 112	300 (typ.)	Q62703-Q3459
LS 3366-R			112 ... 180	480 (typ.)	Q62703-Q3460
LS 3366-PS			45 ... 280	580 (typ.)	Q62703-Q3461
LA 3366-PS	amber	orange diffused	45 ... 280	540 (typ.)	Q62703-Q3881
LA 3366-Q			71 ... 112	280 (typ.)	Q62703-Q3882
LA 3366-R			112 ... 180	450 (typ.)	Q62703-Q3883
LA 3366-S			180 ... 280	720 (typ.)	Q62703-Q3884
LA 3366-QT			71 ... 450	840 (typ.)	Q62703-Q3885
LO 3366-PS	orange	orange diffused	45 ... 280	540 (typ.)	Q62703-Q3127
LO 3366-Q			71 ... 112	280 (typ.)	Q62703-Q3172
LO 3366-R			112 ... 180	450 (typ.)	Q62703-Q3173
LO 3366-S			180 ... 280	720 (typ.)	Q62703-Q3174
LO 3366-QT			71 ... 450	840 (typ.)	Q62703-Q3175
LY 3366-PS	yellow	yellow diffused	45 ... 280	540 (typ.)	Q62703-Q3462
LY 3366-Q			71 ... 112	280 (typ.)	Q62703-Q3464
LY 3366-R			112 ... 180	450 (typ.)	Q62703-Q3465
LY 3366-S			180 ... 280	720 (typ.)	Q62703-Q3463
LY 3366-QT			71 ... 450	840 (typ.)	Q62703-Q3466

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

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	Werte Values		Einheit Unit
		LS, LO, LA	LY	
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	30		mA
Stoßstrom Surge current $t \leq 10 \mu s, D = 0.005$	I_{FM}	1	0.2	A
Sperrspannung Reverse voltage	V_R	3		V
Leistungsaufnahme Power consumption $T_A \leq 25 \text{ °C}$	P_{tot}	80		mW
Wärmewiderstand ¹⁾ Thermal resistance Sperrschicht/Umgebung Junction/ambient	$R_{th JA}$	500		K/W
Sperrschicht/Löt看 Junction/solder point Montage auf PC-Board FR 4 (Padgröße $\geq 16 \text{ mm}^2$) mounted on PC board FR 4 (pad size $\geq 16 \text{ mm}^2$) Minimale Beinchenlänge Minimum lead length	$R_{th JS}$	280		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 ($T_A = 25\text{ °C}$)

Characteristics

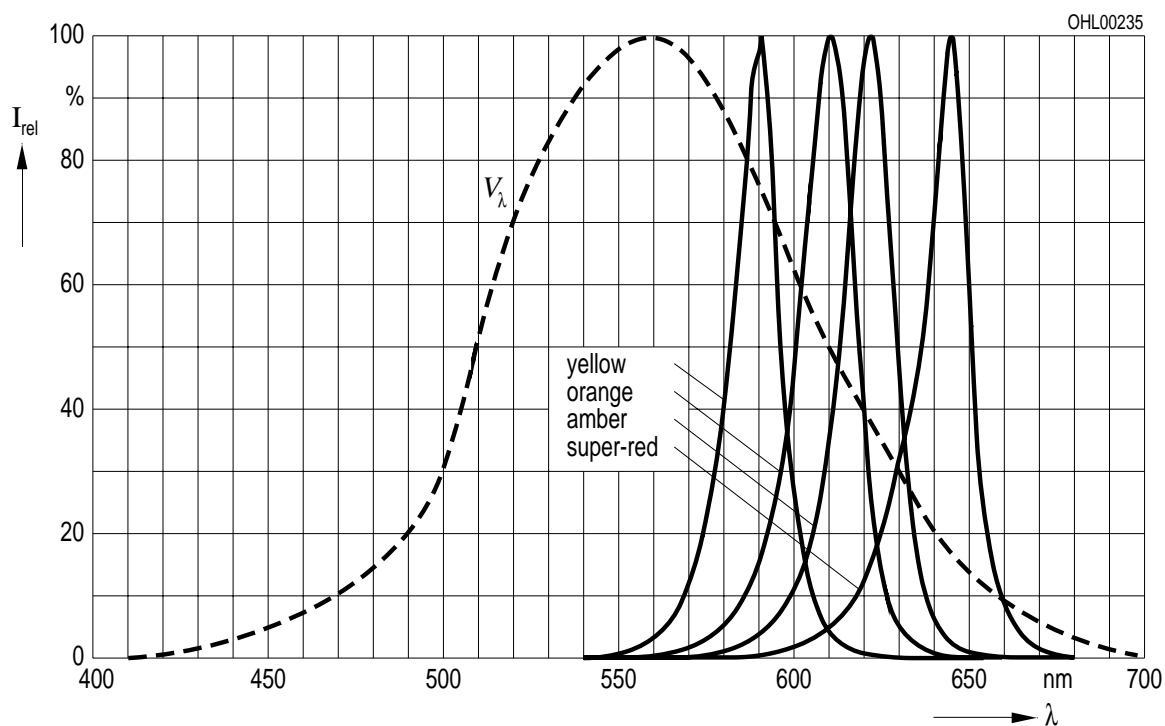
Bezeichnung Parameter	Symbol Symbol	Werte Values				Einheit Unit
		LS	LA	LO	LY	
Wellenlänge des emittierten Lichtes Wavelength at peak emission $I_F = 20\text{ mA}$	(typ.) λ_{peak}	645	622	610	591	nm
Dominantwellenlänge Dominant wavelength $I_F = 20\text{ mA}$	(typ.) λ_{dom}	633	615	606	587	nm
Spektrale Bandbreite bei 50 % $I_{\text{rel max}}$ Spectral bandwidth at 50 % $I_{\text{rel max}}$ $I_F = 20\text{ mA}$	(typ.) $\Delta\lambda$	16	16	16	15	nm
Abstrahlwinkel bei 50 % I_V (Vollwinkel) Viewing angle at 50 % I_V	(typ.) 2ϕ	70	70	70	70	Grad deg.
Durchlassspannung ¹⁾ Forward voltage ¹⁾ $I_F = 20\text{ mA}$	(typ.) V_F (max.) V_F	2.0 2.4	2.0 2.4	2.0 2.4	2.0 2.4	V V
Sperrstrom Reverse current $V_R = 3\text{ V}$	(typ.) I_R (max.) I_R	0.01 10	0.01 10	0.01 10	0.01 10	μA μA
Temperaturkoeffizient von λ_{peak} Temperature coefficient of λ_{peak} $I_F = 20\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	(typ.) $TC_{\lambda_{\text{peak}}}$	0.14	0.13	0.13	0.13	nm/K
Temperaturkoeffizient von λ_{dom} Temperature coefficient of λ_{dom} $I_F = 20\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	(typ.) $TC_{\lambda_{\text{dom}}}$	0.01	0.06	0.07	0.10	nm/K
Temperaturkoeffizient von V_F Temperature coefficient of V_F $I_F = 20\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	(typ.) TC_V	-2.0	-1.8	-1.7	-2.5	mV/K
Optischer Wirkungsgrad Optical efficiency $I_F = 20\text{ mA}$	(typ.) η_{opt}	7	11	11	11	lm/W

¹⁾ Spannungswerte werden mit einer Stromeinprägedauer von 1 ms und einer Genauigkeit von $\pm 0,1\text{ V}$ ermittelt.
Voltages are tested at a current pulse duration of 1 ms and a tolerance of $\pm 0.1\text{ V}$.

Relative spektrale Emission $I_{rel} = f(\lambda)$, $T_A = 25\text{ °C}$, $I_F = 20\text{ mA}$

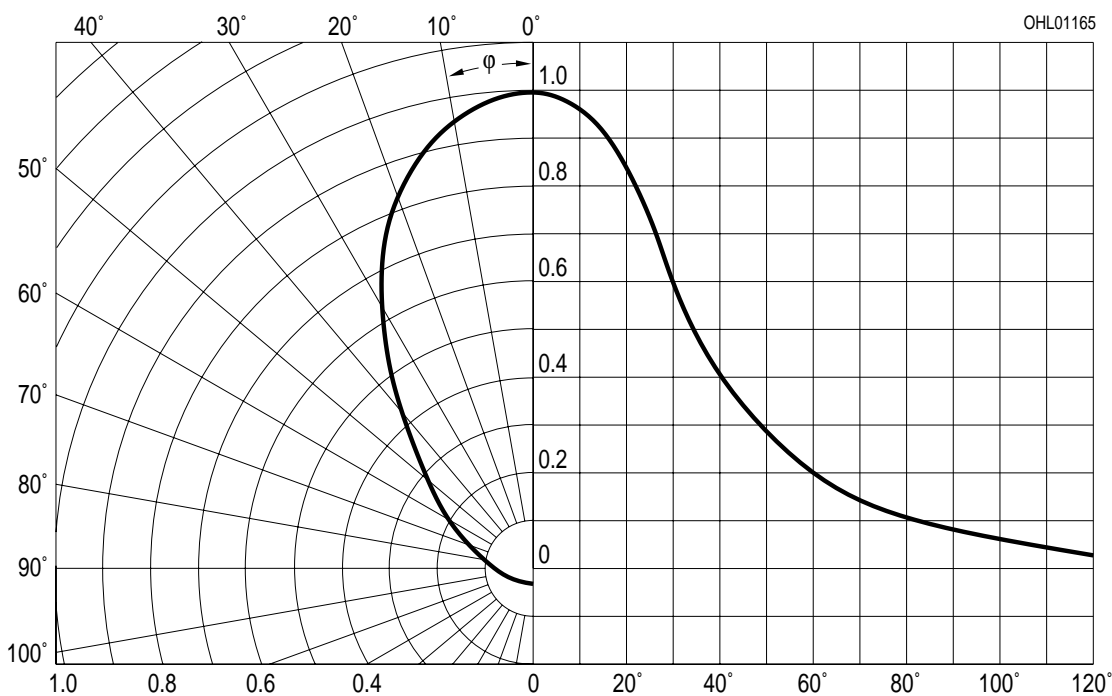
Relative Spectral Emission

$V(\lambda)$ = spektrale Augenempfindlichkeit
Standard eye response curve



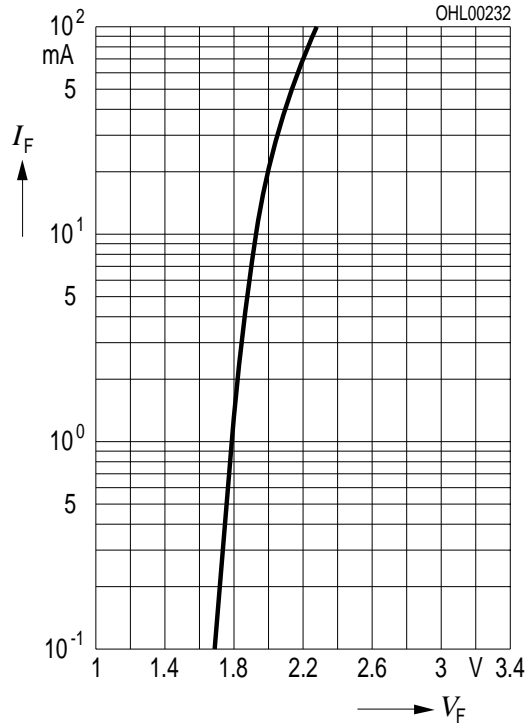
Abstrahlcharakteristik $I_{rel} = f(\varphi)$

Radiation Characteristic



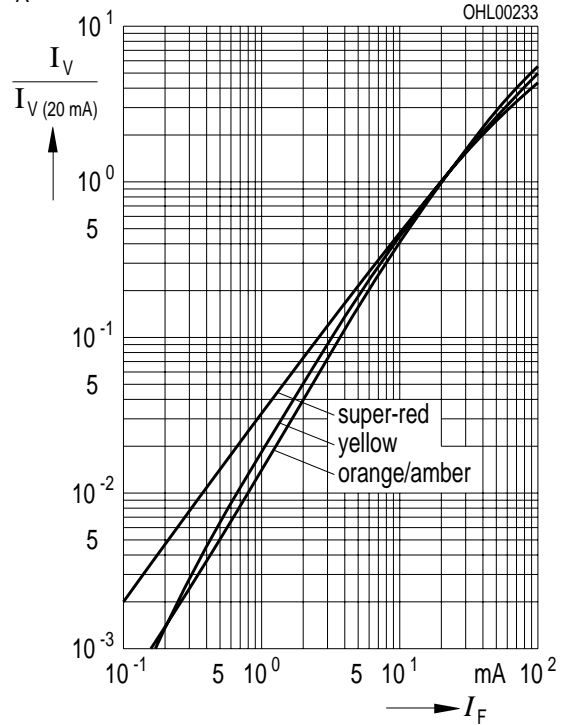
Durchlassstrom $I_F = f(V_F)$
Forward Current

$T_A = 25\text{ °C}$

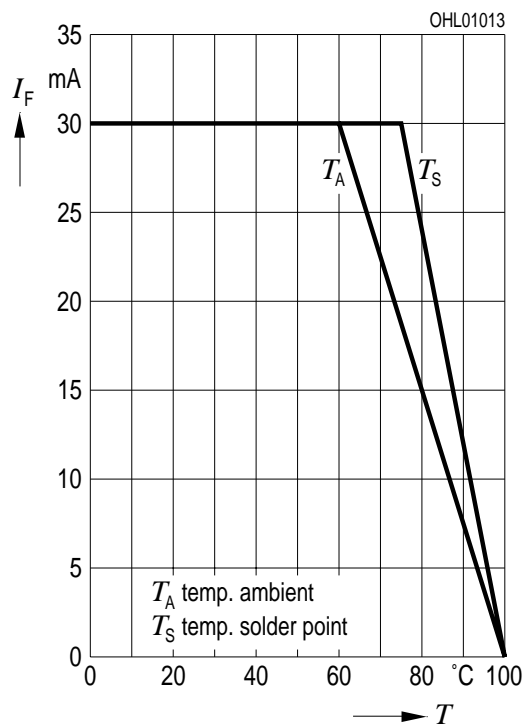


Relative Lichtstärke $I_V/I_{V(20\text{ mA})} = f(I_F)$
Relative Luminous Intensity

$T_A = 25\text{ °C}$

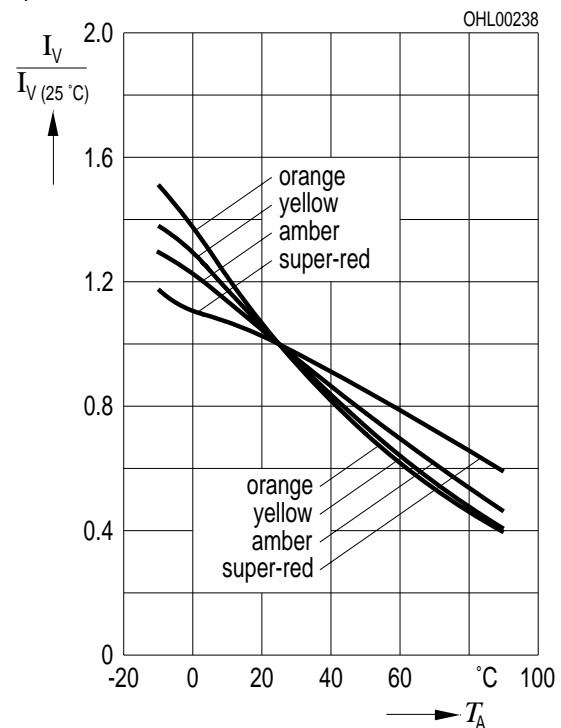


Maximal zulässiger Durchlassstrom $I_F = f(T)$
Max. Permissible Forward Current

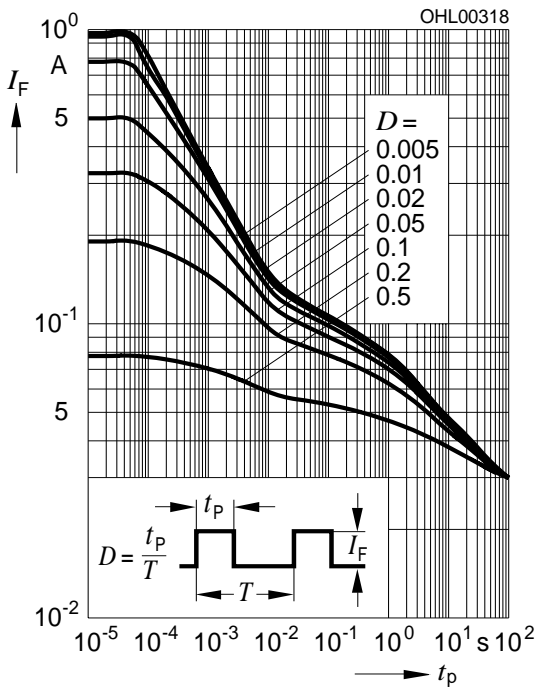


Relative Lichtstärke $I_V/I_{V(25\text{ °C})} = f(T_A)$
Relative Luminous Intensity

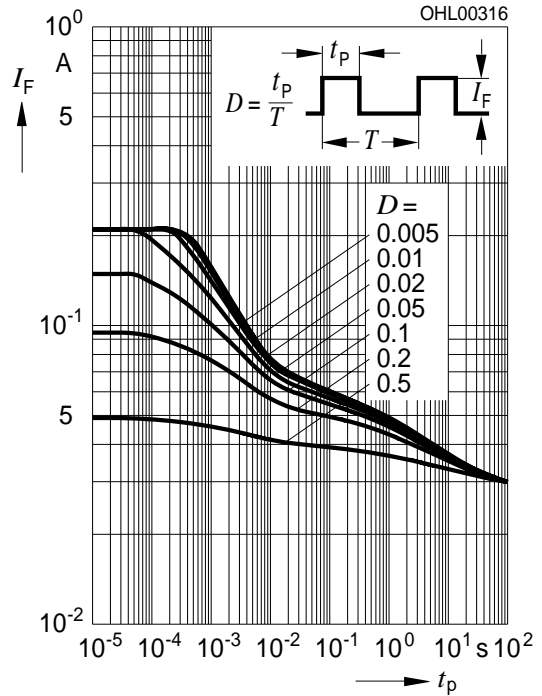
$I_F = 20\text{ mA}$



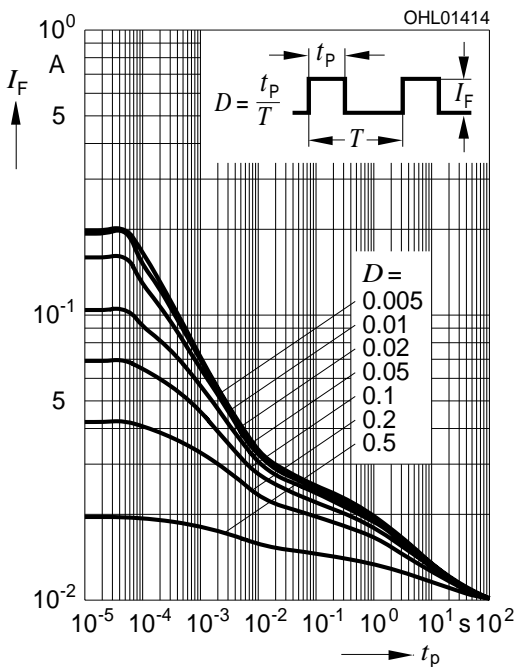
Zulässige Impulsbelastbarkeit $I_F = f(t_p)$
Permissible Pulse Handling Capability
 Duty cycle $D =$ parameter, $T_A = 25\text{ °C}$
LS, LA, LO



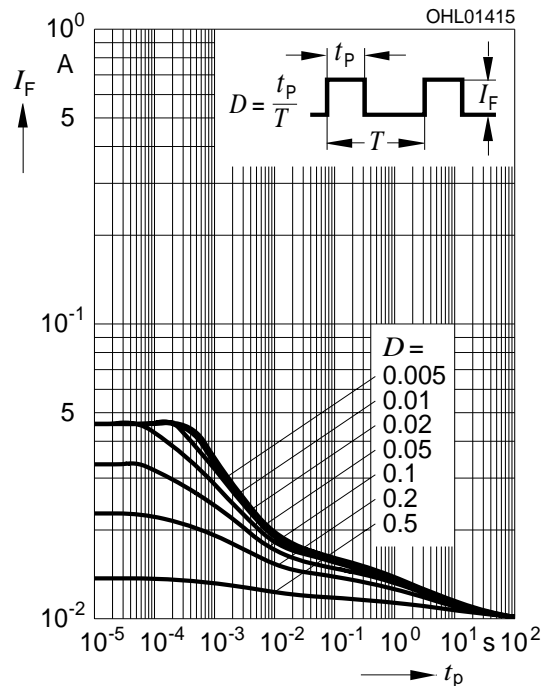
Zulässige Impulsbelastbarkeit $I_F = f(t_p)$
Permissible Pulse Handling Capability
 Duty cycle $D =$ parameter, $T_A = 25\text{ °C}$
LY



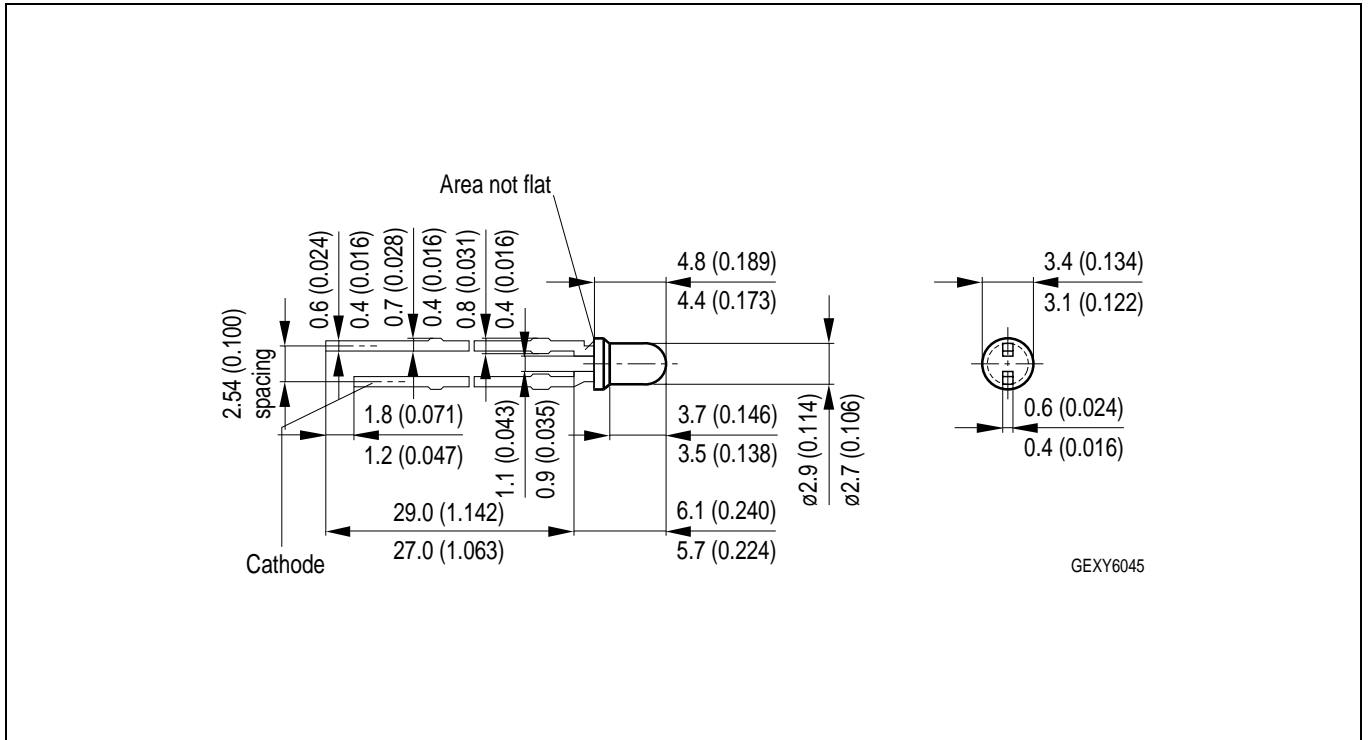
Zulässige Impulsbelastbarkeit $I_F = f(t_p)$
Permissible Pulse Handling Capability
 Duty cycle $D =$ parameter, $T_A = 85\text{ °C}$
LS, LA, LO



Zulässige Impulsbelastbarkeit $I_F = f(t_p)$
Permissible Pulse Handling Capability
 Duty cycle $D =$ parameter, $T_A = 85\text{ °C}$
LY



**Maßzeichnung
Package Outlines**

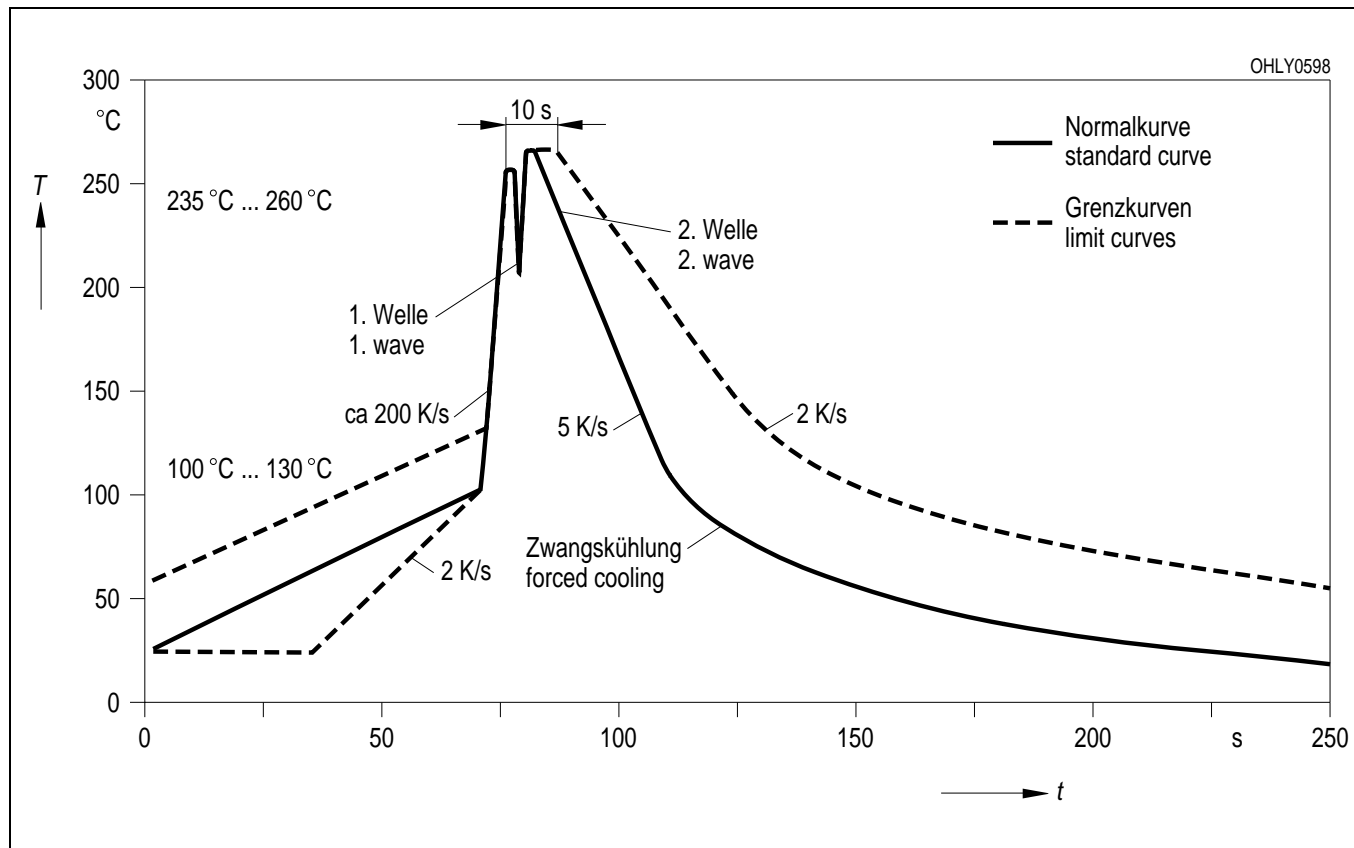


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

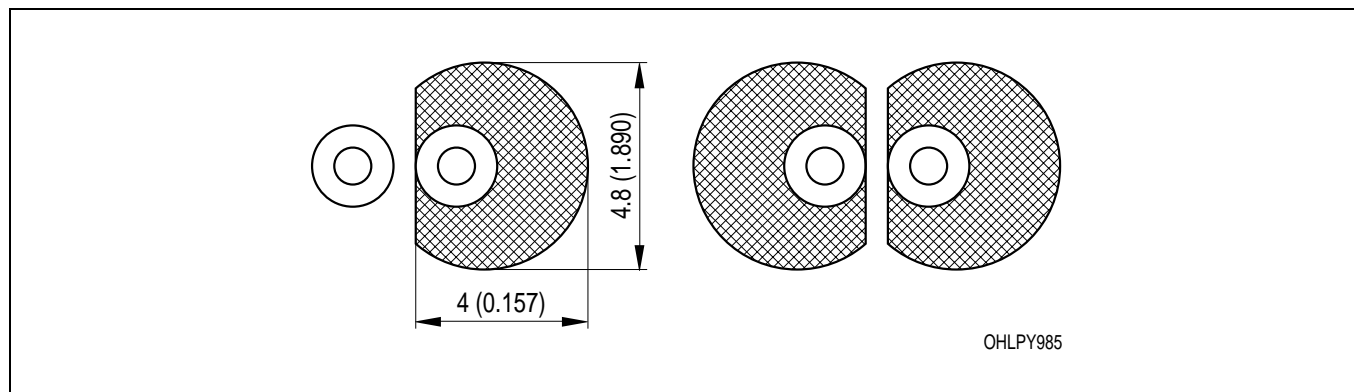
Kathodenkennung: kürzerer Lötspieß
Cathode mark: short solder lead
Gewicht / Approx. weight: 0.15 g

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: 2001-02-13

Page	Subjects (major changes since last revision)
3	thermal resistance (footnote)
4	value (wavelength super-red/amber/orange)

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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.

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