

# 5 mm (T1 ¾) LED, Diffused Wide-Angle LED

LS 5380, LY 5380, LG 5380



Abgekündigt nach PD\_078\_02 - werden durch  
LG\_LR\_LS\_LY 5360 ersetzt werden  
Obsolete acc. to PD\_078\_02 - will be replaced by  
LG\_LR\_LS\_LY 5360

## Besondere Merkmale

- **Gehäusertyp:** eingefärbtes, diffuses 5 mm (T1 ¾) Gehäuse
- **Besonderheit des Bauteils:** Lötspieße ohne Aufsetzebene
- **Wellenlänge:** 628 nm (super-rot), 587 nm (gelb), 570 nm (grün)
- **Abstrahlwinkel:** 140°, extrem breite Abstrahlcharakteristik
- **Technologie:** GaAIP
- **optischer Wirkungsgrad:** 1,5 lm/W (super-rot, gelb), 2,5 lm/W (grün)
- **Gruppierungsparameter:** Lichtstärke
- **Lötmethode:** Wellenlöten (TTW)
- **Verpackung:** Schüttgut, gegurtet lieferbar

## Anwendungen

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

## Features

- **package:** colored, diffused 5 mm (T1 ¾) package
- **feature of the device:** solder leads without stand-off
- **wavelength:** 628 nm (super-red), 587 nm (yellow), 570 nm (green)
- **viewing angle:** 140°, extremely wide viewing angle
- **technology:** GaAIP
- **optical efficiency:** 1.5 lm/W (super-red, yellow), 2.5 lm/W (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)
- interior automotive lighting (e.g. dashboard backlighting, etc.)
- marker lights (e.g. steps, exit ways, etc.)

Typ Type	Emissions- farbe Color of Emission	Gehäuse- farbe Color of Package	Lichtstärke Luminous Intensity $I_F = 10 \text{ mA}$ $I_V \text{ (mcd)}$	Lichtstrom Luminous Flux $I_F = 10 \text{ mA}$ $\Phi_V \text{ (mlm)}$	Bestellnummer Ordering Code
■LS 5380-FJ ■LS 5380-G ■LS 5380-H ■LS 5380-J ■LS 5380-HL	super-red	red diffused	1.12 ... 7.1 1.80 ... 2.8 2.80 ... 4.5 4.50 ... 7.1 2.80 ... 18.0	22 (typ.) 12 (typ.) 20 (typ.) 30 (typ.) 55 (typ.)	Q62703Q1452 Q62703Q1740 Q62703Q1453 Q62703Q1454 Q62703Q1455
■LY 5380-GK ■LY 5380-H ■LY 5380-J ■LY 5380-HL	yellow	yellow diffused	1.80 ... 11.2 2.80 ... 4.5 4.50 ... 7.1 2.80 ... 18.0	35 (typ.) 18 (typ.) 30 (typ.) 55 (typ.)	Q62703Q2002 Q62703Q1457 Q62703Q2319 Q62703Q2003
■LG 5380-GK ■LG 5380-H ■LG 5380-J ■LG 5380-K ■LG 5380-HL	green	green diffused	1.80 ... 11.2 2.80 ... 4.5 4.50 ... 7.1 7.10 ... 11.2 2.80 ... 18.0	35 (typ.) 18 (typ.) 30 (typ.) 45 (typ.) 55 (typ.)	Q62703Q1463 Q62703Q2032 Q62703Q2016 Q62703Q3189 Q62703Q3825

- Abgekündigt nach PD\_078\_02 - werden durch LG\_LR\_LS\_LY 5360 ersetzt werden  
 Obsolete acc. to PD\_078\_02 - will be replaced by LG\_LR\_LS\_LY 5360  
 Letzte Bestellung / Last Order: 30.09.2003  
 Letzte Lieferung / Last Delivery: 31.03.2004

*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	$I_F$	40	mA
Stoßstrom Surge current $t \leq 10 \mu s, D = 0.005$	$I_{FM}$	0.5	A
Sperrspannung <sup>1)</sup> Reverse voltage	$V_R$	12	V
Leistungsaufnahme Power consumption $T_A \leq 25 \text{ °C}$	$P_{tot}$	130	mW
Wärmewiderstand <sup>2)</sup> Thermal resistance Sperrschicht/Umgebung Junction/ambient Sperrschicht/Lötpad 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	$R_{th JA}$  $R_{th JS}$	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** ( $T_A = 25\text{ °C}$ )

**Characteristics**

Bezeichnung Parameter	Symbol Symbol	Wert Value			Einheit Unit
		LS	LY	LG	
Wellenlänge des emittierten Lichtes (typ.) Wavelength at peak emission $I_F = 10\text{ mA}$	$\lambda_{\text{peak}}$	635	586	572	nm
Dominantwellenlänge <sup>1)</sup> (typ.) Dominant wavelength $I_F = 10\text{ mA}$	$\lambda_{\text{dom}}$	628	587	570	nm
Spektrale Bandbreite bei 50% von $I_{\text{rel max}}$ (typ.) Spectral bandwidth at 50% of $I_{\text{rel max}}$ $I_F = 10\text{ mA}$	$\Delta\lambda$	45	45	25	nm
Abstrahlwinkel bei 50 % $I_V$ (Vollwinkel) (typ.) Viewing angle at 50 % $I_V$	$2\phi$	140	140	140	Grad deg.
Durchlassspannung <sup>2)</sup> (typ.) Forward voltage $I_F = 10\text{ mA}$	$V_F$ $V_F$	2.0 2.5	2.0 2.5	2.0 2.5	V V
Sperrstrom (typ.) Reverse current $V_R = 12\text{ V}$	$I_R$ $I_R$	0.01 10	0.01 10	0.01 10	$\mu\text{A}$ $\mu\text{A}$
Temperaturkoeffizient von $\lambda_{\text{peak}}$ (typ.) Temperature coefficient of $\lambda_{\text{peak}}$ $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_{\lambda_{\text{peak}}}$	0.11	0.10	0.11	nm/K
Temperaturkoeffizient von $\lambda_{\text{dom}}$ (typ.) Temperature coefficient of $\lambda_{\text{dom}}$ $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_{\lambda_{\text{dom}}}$	0.07	0.07	0.07	nm/K
Temperaturkoeffizient von $V_F$ (typ.) Temperature coefficient of $V_F$ $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_V$	- 1.9	- 1.9	- 1.4	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 10\text{ mA}$	$\eta_{\text{opt}}$	1.5	1.5	2.5	lm/W

<sup>1)</sup> Wellenlängen werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von  $\pm 1\text{ nm}$  ermittelt.  
Wavelengths are tested at a current pulse duration of 25 ms and a tolerance of  $\pm 1\text{ nm}$ .

<sup>2)</sup> 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  $\pm 0.1\text{ V}$ .

**Helligkeits-Gruppierungsschema**  
**Luminous Intensity Groups**

<b>Lichtgruppe</b> <b>Luminous Intensity Group</b>	<b>Lichtstärke</b> <b>Luminous Intensity</b> <b><math>I_v</math> (mcd)</b>	<b>Lichtstrom</b> <b>Luminous Flux</b> <b><math>\Phi_v</math> (mlm)</b>
F	1.12 ... 1.80	8 (typ.)
G	1.80 ... 2.80	12 (typ.)
H	2.80 ... 4.50	20 (typ.)
J	4.50 ... 7.10	30 (typ.)
K	7.10 ... 11.20	45 (typ.)
L	11.20 ... 18.00	80 (typ.)

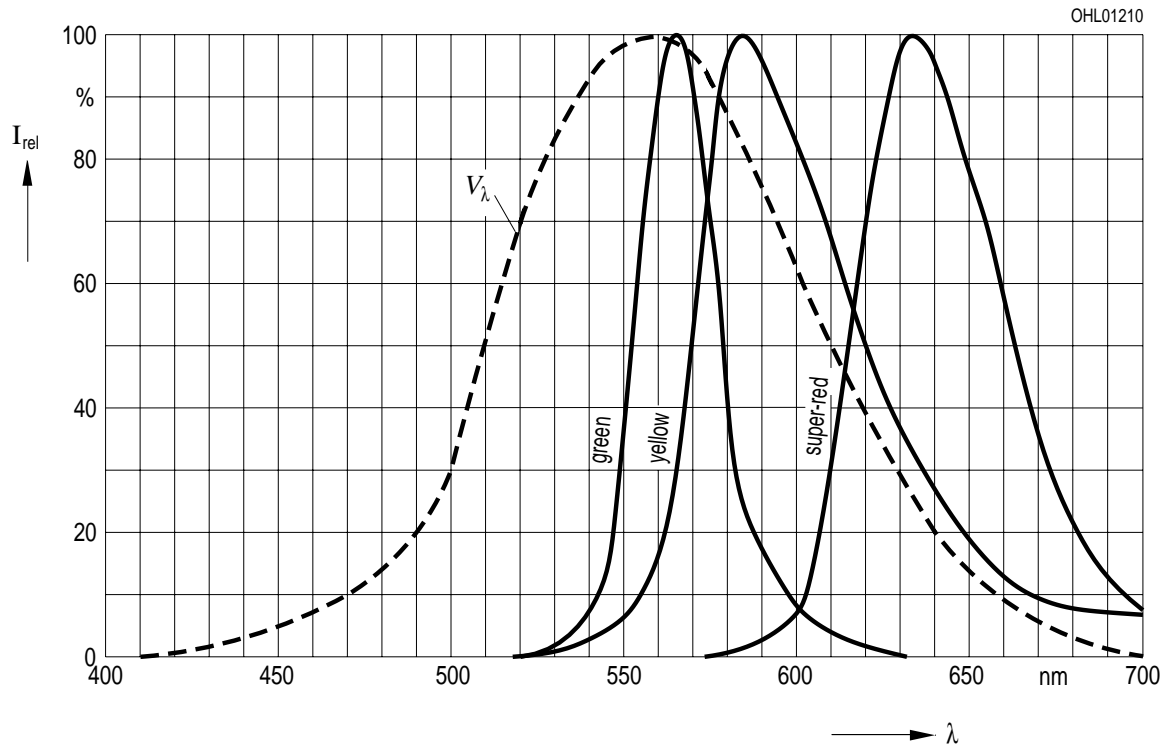
Helligkeitswerte werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von  $\pm 11$  % ermittelt.  
 Luminous intensity is tested at a current pulse duration of 25 ms and a tolerance of  $\pm 11$  %.

Relative spektrale Emission  $I_{rel} = f(\lambda)$ ,  $T_A = 25\text{ °C}$ ,  $I_F = 10\text{ mA}$

**Relative Spectral Emission**

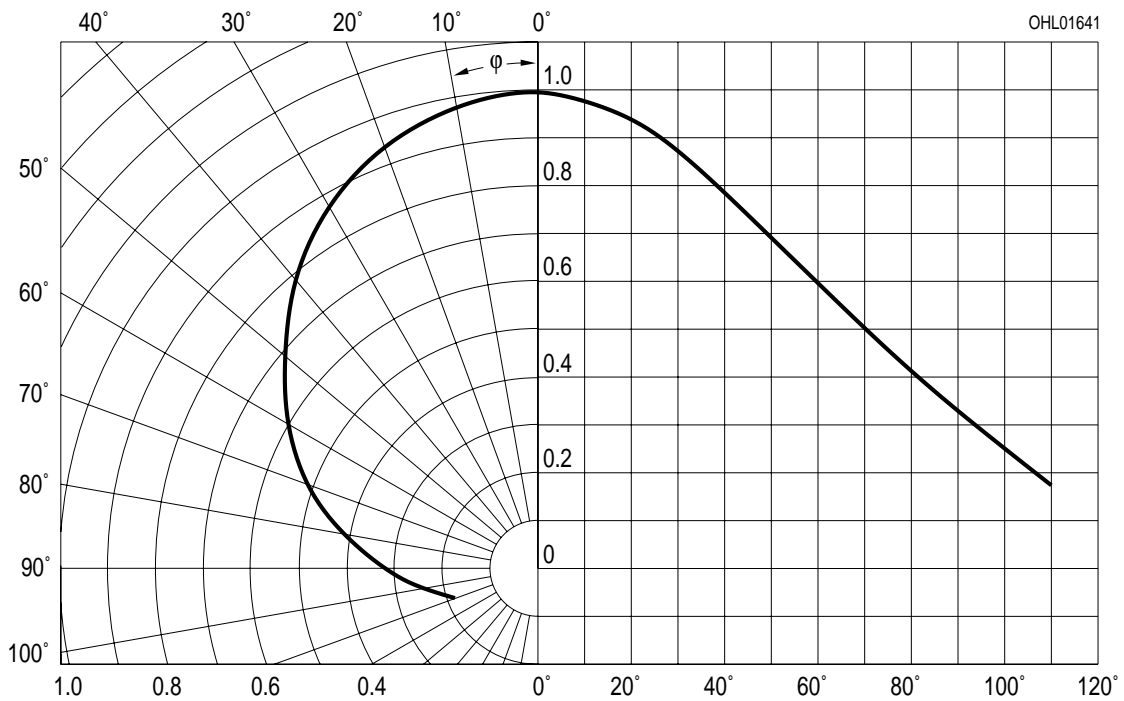
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



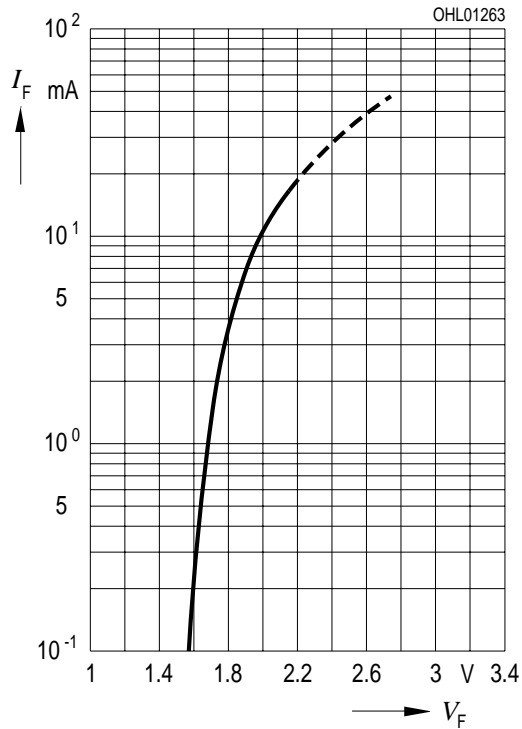
Abstrahlcharakteristik  $I_{rel} = f(\varphi)$

**Radiation Characteristic**



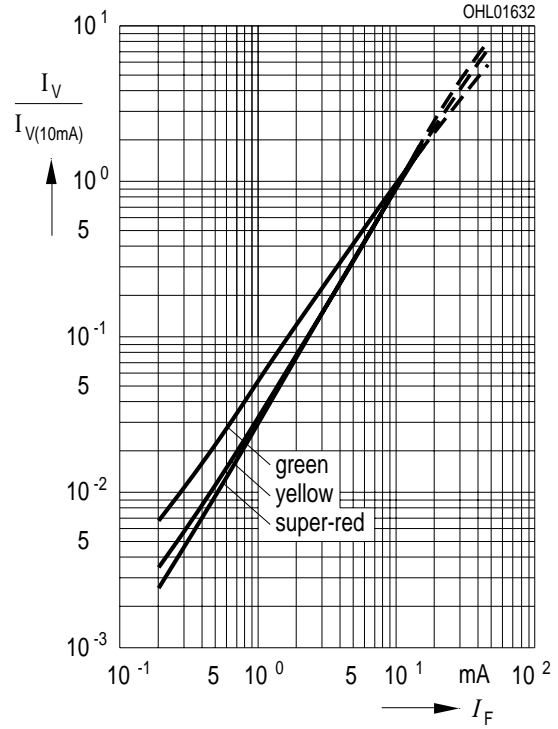
**Durchlassstrom  $I_F = f(V_F)$**   
**Forward Current**

$T_A = 25\text{ °C}$

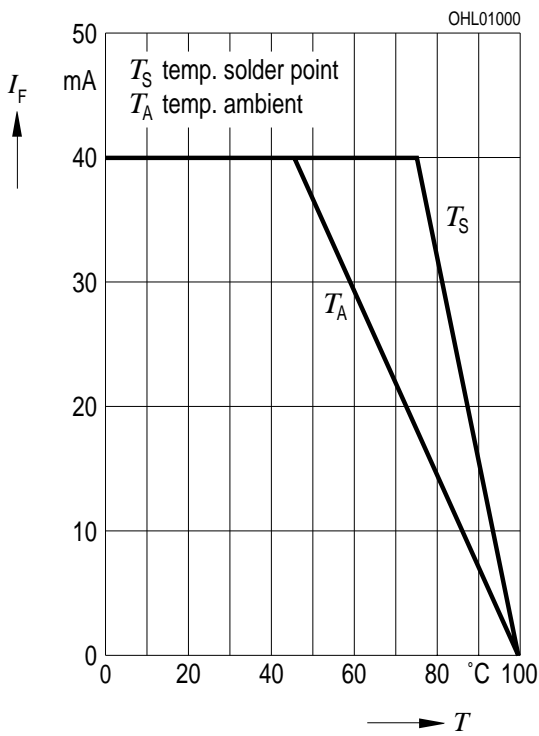


**Relative Lichtstärke  $I_V/I_{V(10\text{ mA})} = f(I_F)$**   
**Relative Luminous Intensity**

$T_A = 25\text{ °C}$

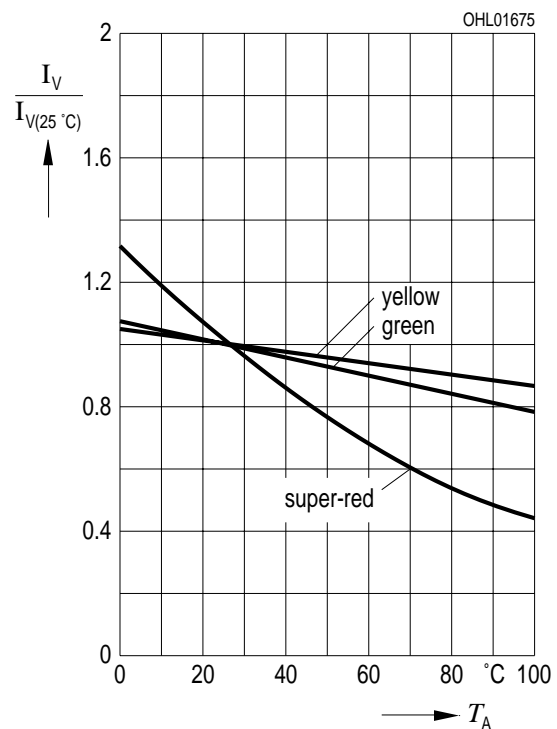


**Maximal zulässiger Durchlassstrom  $I_F = f(T)$**   
**Max. Permissible Forward Current**



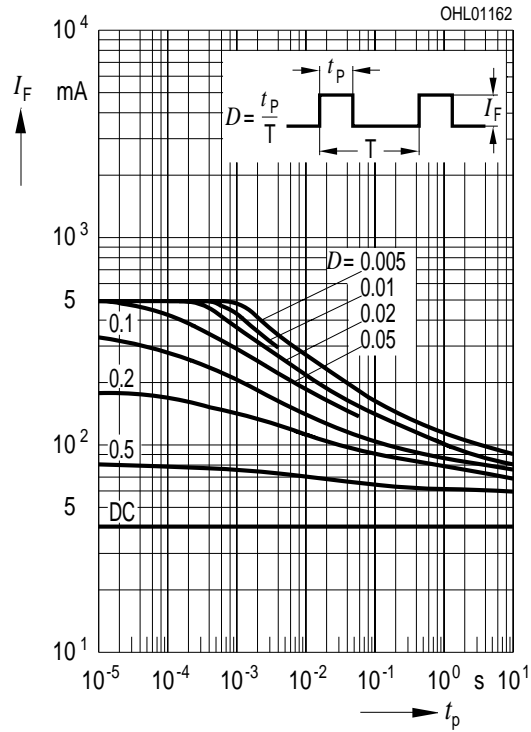
**Relative Lichtstärke  $I_V/I_{V(25\text{ °C})} = f(T_A)$**   
**Relative Luminous Intensity**

$I_F = 10\text{ mA}$



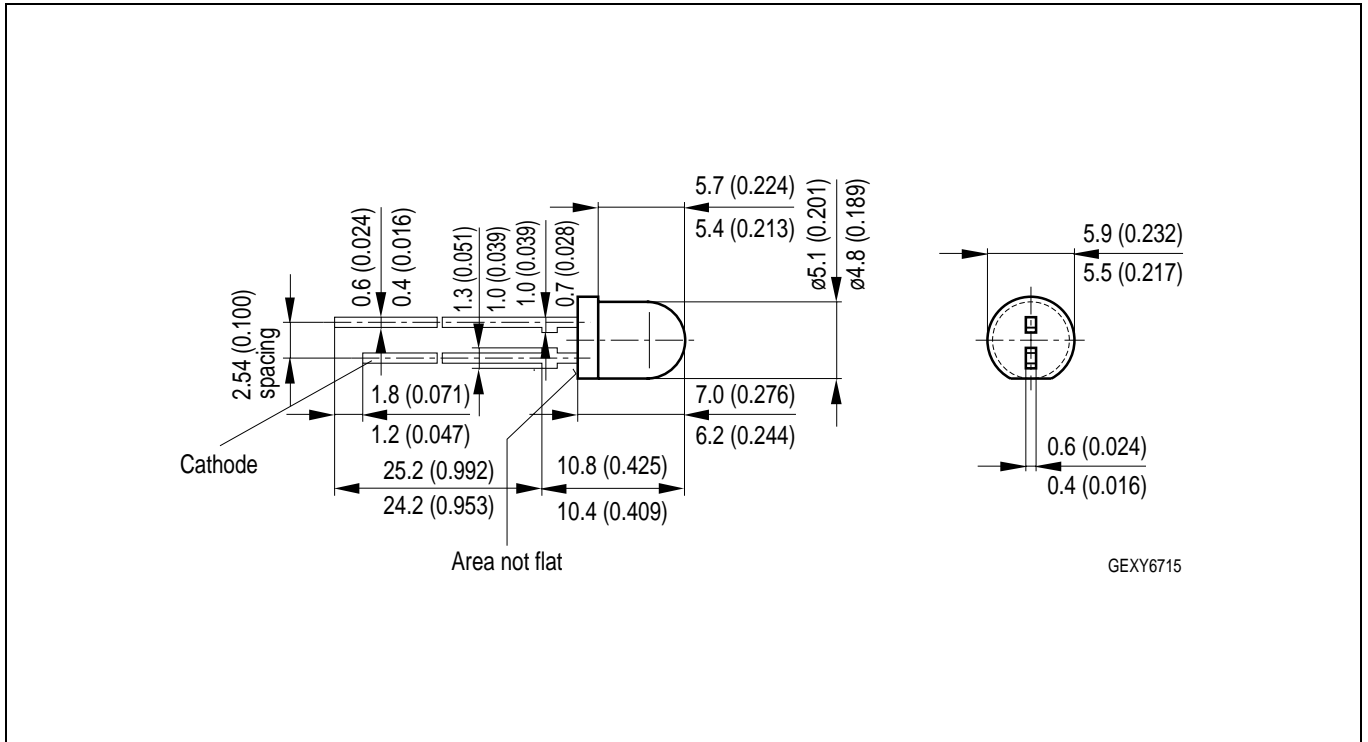
**Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$**   
**Permissible Pulse Handling Capability**

Duty cycle  $D =$  parameter,  $T_A = 25\text{ °C}$





**Maßzeichnung  
Package Outlines**

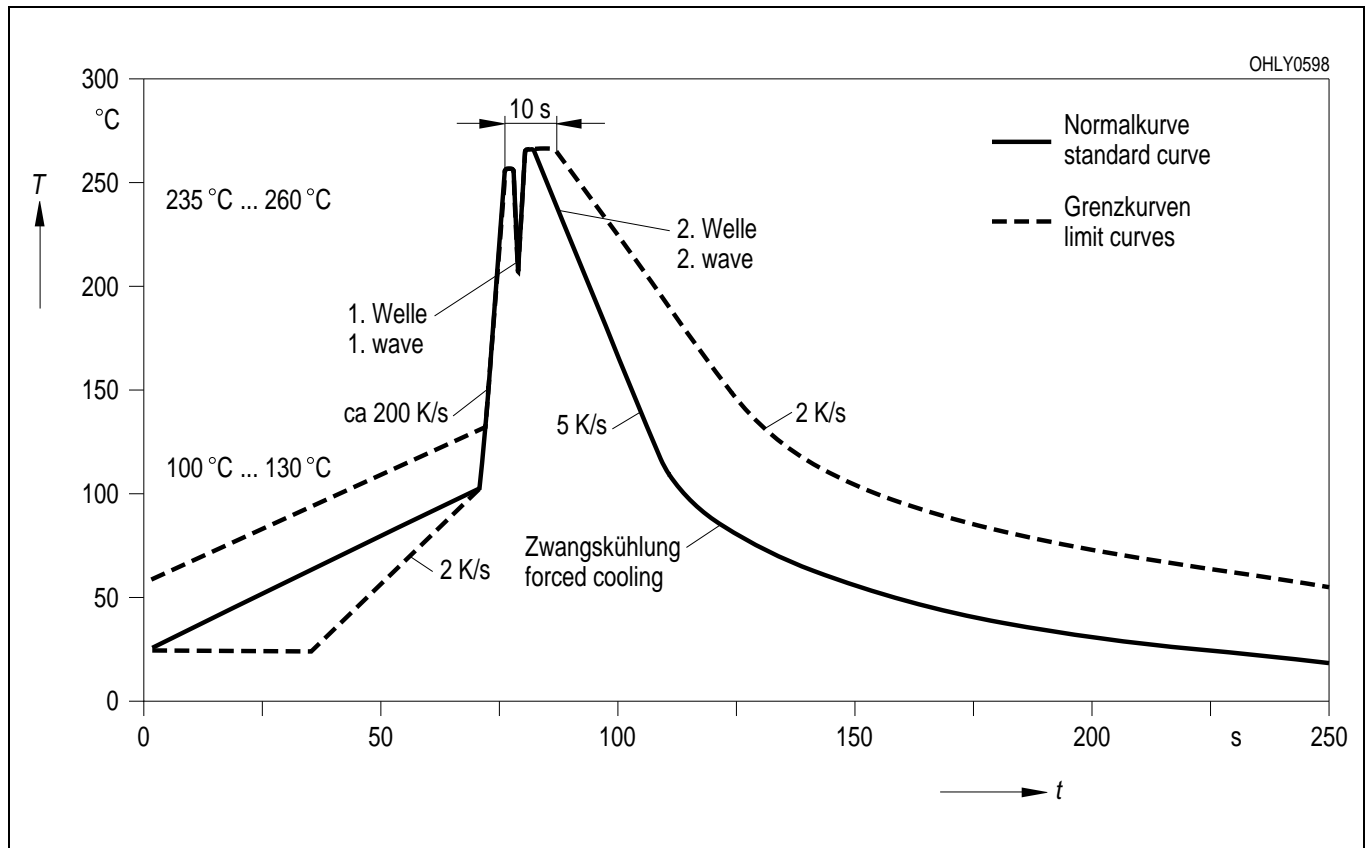


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

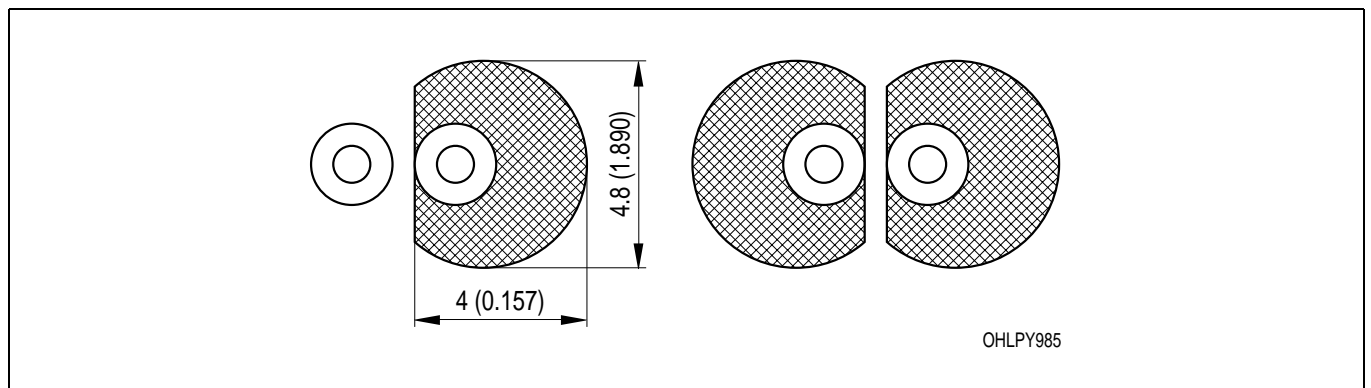
**Kathodenkennung:** kürzerer Lötspieß  
**Cathode mark:** short solder lead  
**Gewicht / Approx. weight:** 0.35 g

**Lötbedingungen**  
**Soldering Conditions**

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



**Empfohlenes Lötpad design** Wellenlöten (TTW)  
**Recommended Solder Pad** TTW Soldering



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

Revision History: 2003-08-04		Date of change
Previous Version: 2002-11-18		
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
all	not for new designs	2002-11-18
1, 2	Obsolete	2003-08-04

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