

# Hyper 5 mm (T1 3/4) LED, Non Diffused Hyper-Bright LED

LS 5426, LO 5426, LY 5426, LA 5416



## Besondere Merkmale

- **Gehäusetyyp:** klares 5 mm (T1 3/4) Gehäuse; eingefärbt (super-rot, orange, gelb), farblos (amber)
- **Besonderheit des Bauteils:** enge Abstrahlcharakteristik
- **Wellenlänge:** 632 nm (super-rot), 615 nm (amber), 605 nm (orange), 587 nm (gelb)
- **Abstrahlwinkel:** 16°
- **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
- Ampelanwendung
- Verkehrsinformationssysteme
- Innenbeleuchtung im Automobilbereich (z.B. Instrumentenbeleuchtung, u.ä.)
- Ersatz von Kleinst-Glühlampen
- Markierungsbeleuchtung (z.B. Stufen, Fluchtwege, u.ä.)
- Signal- und Symbolleuchten
- Hinterleuchtung (Tasten, Displays, Werbebeleuchtung, Allgemeinbeleuchtung)

## Features

- **package:** clear 5 mm (T1 3/4) package; colored (super-red, orange, yellow), colorless (amber)
- **feature of the device:** narrow viewing angle
- **wavelength:** 632 nm (super-red), 615 nm (amber), 605 nm (orange), 587 nm (yellow)
- **viewing angle:** 16°
- **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

- optical indicators
- traffic lights
- traffic information displays
- interior automotive lighting (e.g. dashboard backlighting, etc.)
- substitution of micro incandescent lamps
- marker lights (e.g. steps, exit ways, etc.)
- signal and symbol luminaire
- backlighting (keys, displays, illuminated advertising, general lighting)

## LS 5426, LO 5426, LY 5426, LA 5416

| Typ<br>Type  | Emissions-<br>farbe<br>Color of<br>Emission | Gehäuse-<br>farbe<br>Color of<br>Package | Lichtstärke<br>Luminous<br>Intensity<br>$I_F = 20 \text{ mA}$<br>$I_V \text{ (mcd)}$                         | Lichtstrom<br>Luminous<br>Flux<br>$I_F = 20 \text{ mA}$<br>$\Phi_V \text{ (lm)}$               | Bestellnummer<br>Ordering Code |
|--|---|--|--|--|--------------------------------|
| LS 5426-TV<br>LS 5426-VBW<br>LS 5426-T<br>LS 5426-U<br>LS 5426-V<br>LS 5426-AW<br>LS 5426-BW | super-red                                   | red clear                                | 280 ... 1120<br>710 ... 2800<br>280 ... 450<br>450 ... 710<br>710 ... 1120<br>1120 ... 1800<br>1800 ... 2800 | 240 (typ.)<br>380 (typ.)<br>180 (typ.)<br>240 (typ.)<br>300 (typ.)<br>380 (typ.)<br>450 (typ.) | on request<br>on request       |
| LO 5426-VAW<br>LO 5426-AWCW<br>LO 5426-V<br>LO 5426-AW<br>LO 5426-BW<br>LO 5426-CW           | orange                                      | orange clear                             | 710 ... 1800<br>1120 ... 4500<br>710 ... 1120<br>1120 ... 1800<br>1800 ... 2800<br>2800 ... 4500             | 380 (typ.)<br>580 (typ.)<br>380 (typ.)<br>450 (typ.)<br>580 (typ.)<br>700 (typ.)               | on request<br>on request       |
| LY 5426-VAW<br>LY 5426-AWCW<br>LY 5426-V<br>LY 5426-AW<br>LY 5426-BW<br>LY 5426-CW           | yellow                                      | yellow clear                             | 710 ... 1800<br>1120 ... 4500<br>710 ... 1120<br>1120 ... 1800<br>1800 ... 2800<br>2800 ... 4500             | 380 (typ.)<br>580 (typ.)<br>380 (typ.)<br>450 (typ.)<br>580 (typ.)<br>700 (typ.)               | on request<br>on request       |
| LA 5416-VAW<br>LA 5416-AWCW<br>LA 5416-V<br>LA 5416-AW<br>LA 5416-BW<br>LA 5416-CW           | amber                                       | colorless clear                          | 710 ... 1800<br>1120 ... 4500<br>710 ... 1120<br>1120 ... 1800<br>1800 ... 2800<br>2800 ... 4500             | 380 (typ.)<br>580 (typ.)<br>380 (typ.)<br>450 (typ.)<br>580 (typ.)<br>700 (typ.)               | on request<br>on request       |

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 an accuracy of  $\pm 11 \%$ .

**Grenzwerte**  
**Maximum Ratings**

| Bezeichnung<br>Parameter   | Symbol<br>Symbol | Werte<br>Values |     | Einheit<br>Unit |
|--|------------------|-----------------|-----|-----------------|
|  |                  | LS, LO, LA      | LY  |                 |
| Betriebstemperatur<br>Operating temperature range  | $T_{op}$         | - 55 ... + 100  |     | °C              |
| Lagertemperatur<br>Storage temperature range   | $T_{stg}$        | - 55 ... + 100  |     | °C              |
| Sperrschichttemperatur<br>Junction temperature   | $T_j$            | + 100           |     | °C              |
| Durchlassstrom<br>Forward current  | $I_F$            | 30              |     | mA              |
| Stoßstrom<br>Surge current<br>$t \leq 10 \mu s, D = 0.005$   | $I_{FM}$         | 1               | 0.2 | A               |
| Sperrspannung<br>Reverse voltage   | $V_R$            | 3               |     | V               |
| Leistungsaufnahme<br>Power dissipation<br>$T_A \leq 25 \text{ °C}$   | $P_{tot}$        | 80              |     | mW              |
| Wärmewiderstand<br>Thermal resistance<br>Sperrschicht/Umgebung<br>Junction/ambient   | $R_{th JA}$      | 500             |     | K/W             |
| Sperrschicht/Lötpad<br>Junction/solder point<br>Montage auf PC-Board FR 4 (Padgröße $\geq 16 \text{ mm}^2$ )<br>mounted on PC board FR 4 (pad size $\geq 16 \text{ mm}^2$ )<br>Minimale Beinchenlänge<br>Minimum lead length | $R_{th JS}$      | 280             |     | K/W             |

**Kennwerte** ( $T_A = 25\text{ °C}$ )

**Characteristics**

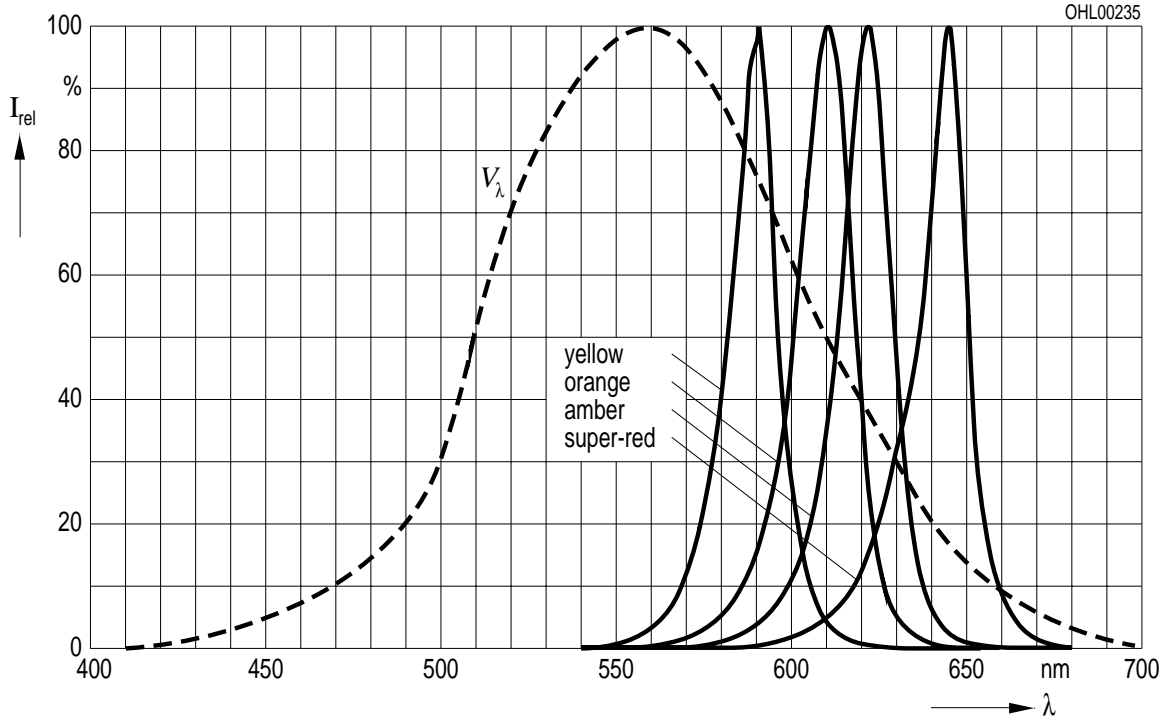
| Bezeichnung<br>Parameter  | Symbol<br>Symbol                    | Werte<br>Values |            |            |            | Einheit<br>Unit                |
|---|-------------------------------------|-----------------|------------|------------|------------|--------------------------------|
|   |                                     | LS              | LA         | LO         | LY         |                                |
| Wellenlänge des emittierten Lichtes<br>Wavelength at peak emission<br>$I_F = 20\text{ mA}$                                      | (typ.) $\lambda_{\text{peak}}$      | 645             | 622        | 610        | 591        | nm                             |
| Dominantwellenlänge<br>Dominant wavelength<br>$I_F = 20\text{ mA}$  | (typ.) $\lambda_{\text{dom}}$       | 632             | 615        | 605        | 587        | nm                             |
| Spektrale Bandbreite bei 50 % $I_{\text{rel max}}$<br>Spectral bandwidth at 50 % $I_{\text{rel max}}$<br>$I_F = 20\text{ mA}$   | (typ.) $\Delta\lambda$              | 16              | 16         | 16         | 15         | nm                             |
| Abstrahlwinkel bei 50 % $I_V$ (Vollwinkel)<br>Viewing angle at 50 % $I_V$   | (typ.) $2\phi$                      | 16              | 16         | 16         | 16         | Grad<br>deg.                   |
| Durchlassspannung<br>Forward voltage<br>$I_F = 20\text{ mA}$  | (typ.) $V_F$<br>(max.) $V_F$        | 2.0<br>2.5      | 2.0<br>2.5 | 2.0<br>2.5 | 2.0<br>2.5 | V<br>V                         |
| Sperrstrom<br>Reverse current<br>$V_R = 3\text{ V}$   | (typ.) $I_R$<br>(max.) $I_R$        | 0.01<br>10      | 0.01<br>10 | 0.01<br>10 | 0.01<br>10 | $\mu\text{A}$<br>$\mu\text{A}$ |
| Temperaturkoeffizient von $\lambda_{\text{peak}}$<br>Temperature coefficient of $\lambda_{\text{peak}}$<br>$I_F = 20\text{ mA}$ | (typ.) $TC_{\lambda_{\text{peak}}}$ | 0.14            | 0.13       | 0.13       | 0.13       | nm/K                           |
| Temperaturkoeffizient von $\lambda_{\text{dom}}$<br>Temperature coefficient of $\lambda_{\text{dom}}$<br>$I_F = 20\text{ mA}$   | (typ.) $TC_{\lambda_{\text{dom}}}$  | 0.01            | 0.06       | 0.07       | 0.10       | nm/K                           |
| Temperaturkoeffizient von $V_F$<br>Temperature coefficient of $V_F$<br>$I_F = 20\text{ mA}$                                     | (typ.) $TC_V$                       | -2.0            | -1.8       | -1.7       | -2.5       | mV/K                           |
| Optischer Wirkungsgrad<br>Optical efficiency<br>$I_F = 20\text{ mA}$  | (typ.) $\eta_{\text{opt}}$          | 7               | 11         | 11         | 11         | lm/W                           |

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

**Relative Spectral Emission**

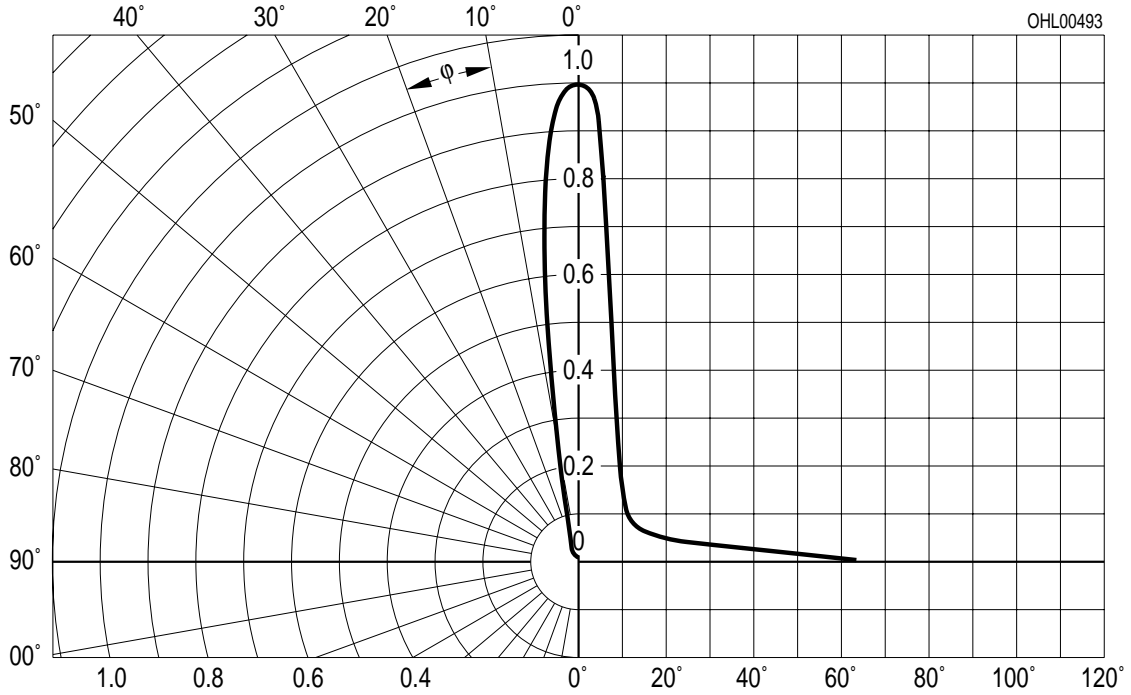
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



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

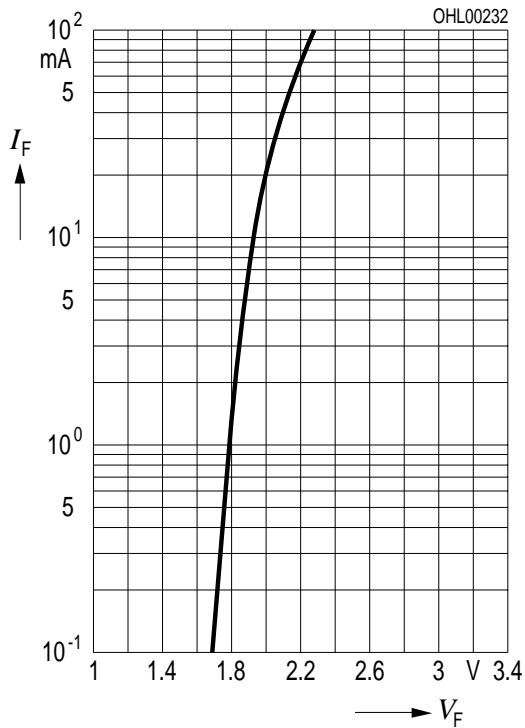
**Radiation Characteristic**



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

**Forward Current**

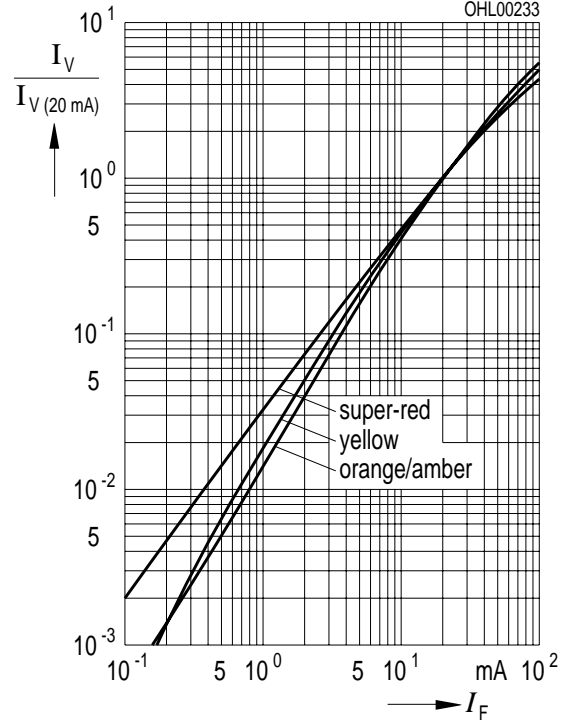
$T_A = 25\text{ }^\circ\text{C}$



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

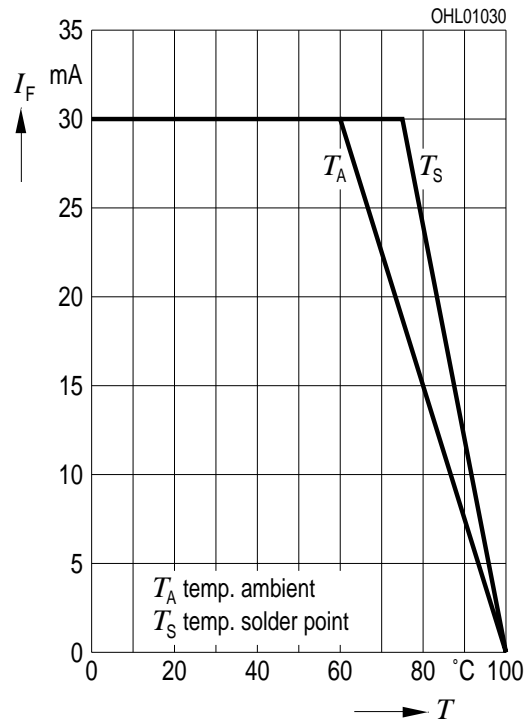
**Relative Luminous Intensity**

$T_A = 25\text{ }^\circ\text{C}$



**Maximal zulässiger Durchlassstrom  $I_F = f(T)$**

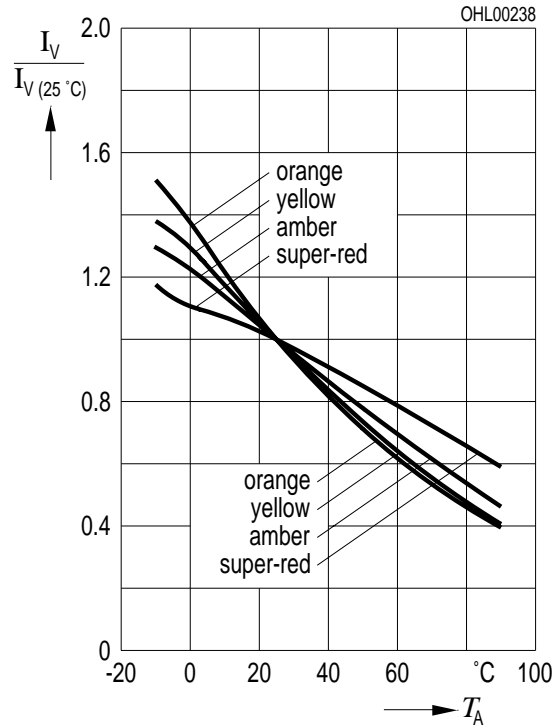
**Max. Permissible Forward Current**



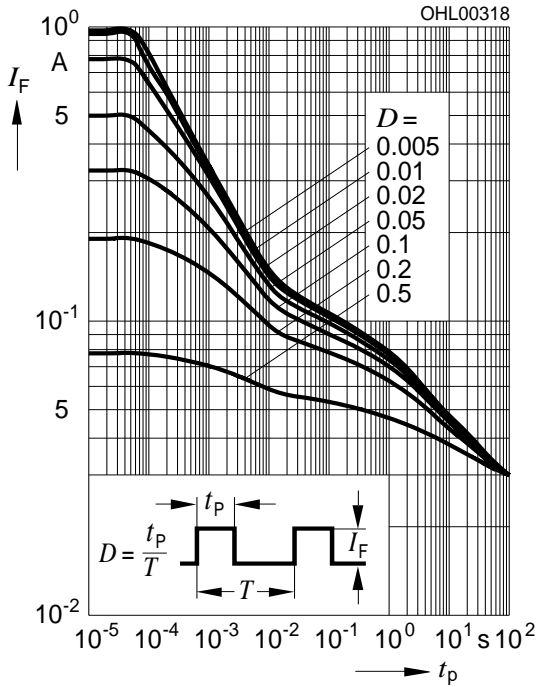
**Relative Lichtstärke  $I_V/I_{V(25\text{ }^\circ\text{C})} = f(T_A)$**

**Relative Luminous Intensity**

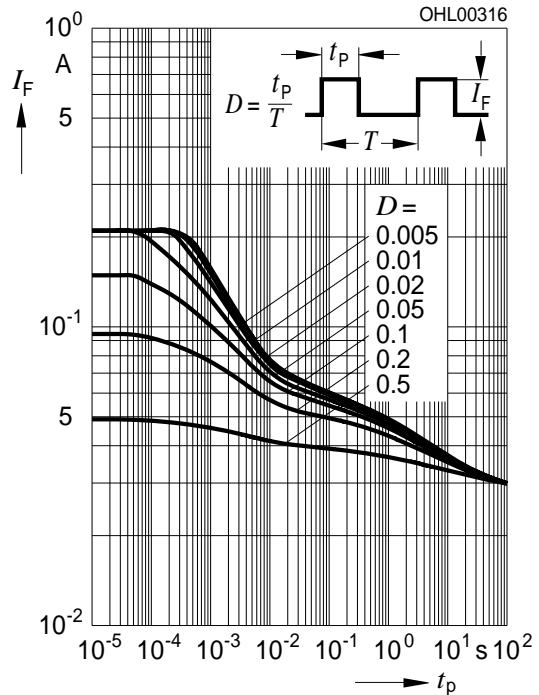
$I_F = 20\text{ mA}$



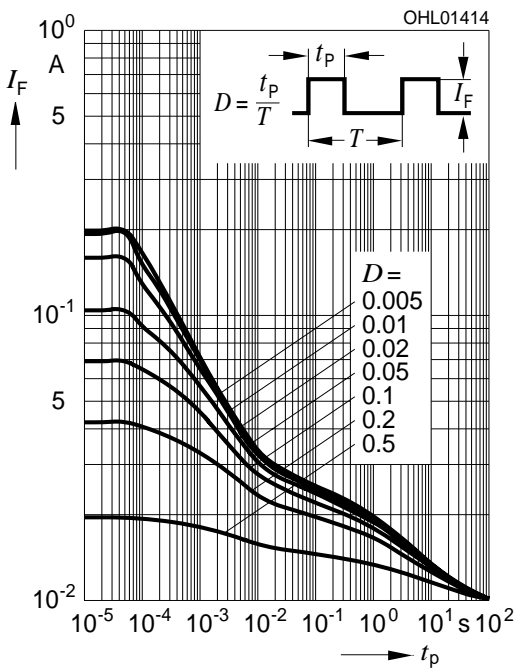
**Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$**   
**Permissible Pulse Handling Capability**  
 Duty cycle  $D =$  parameter,  $T_A = 25\text{ °C}$   
**LS, LA, LO**



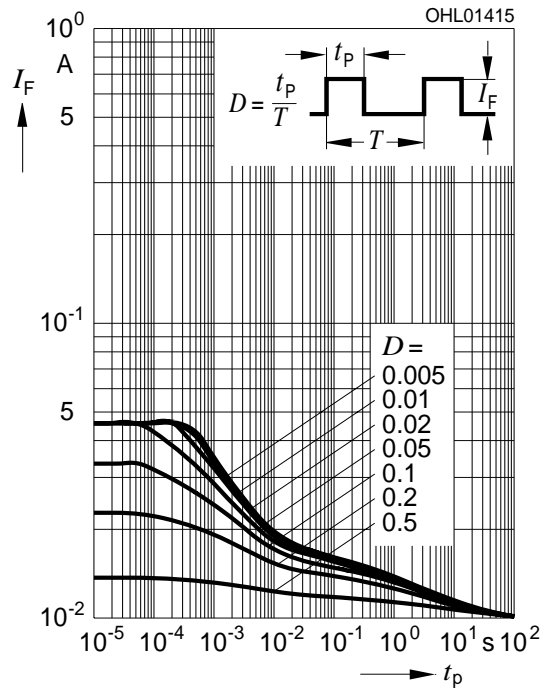
**Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$**   
**Permissible Pulse Handling Capability**  
 Duty cycle  $D =$  parameter,  $T_A = 25\text{ °C}$   
**LY**



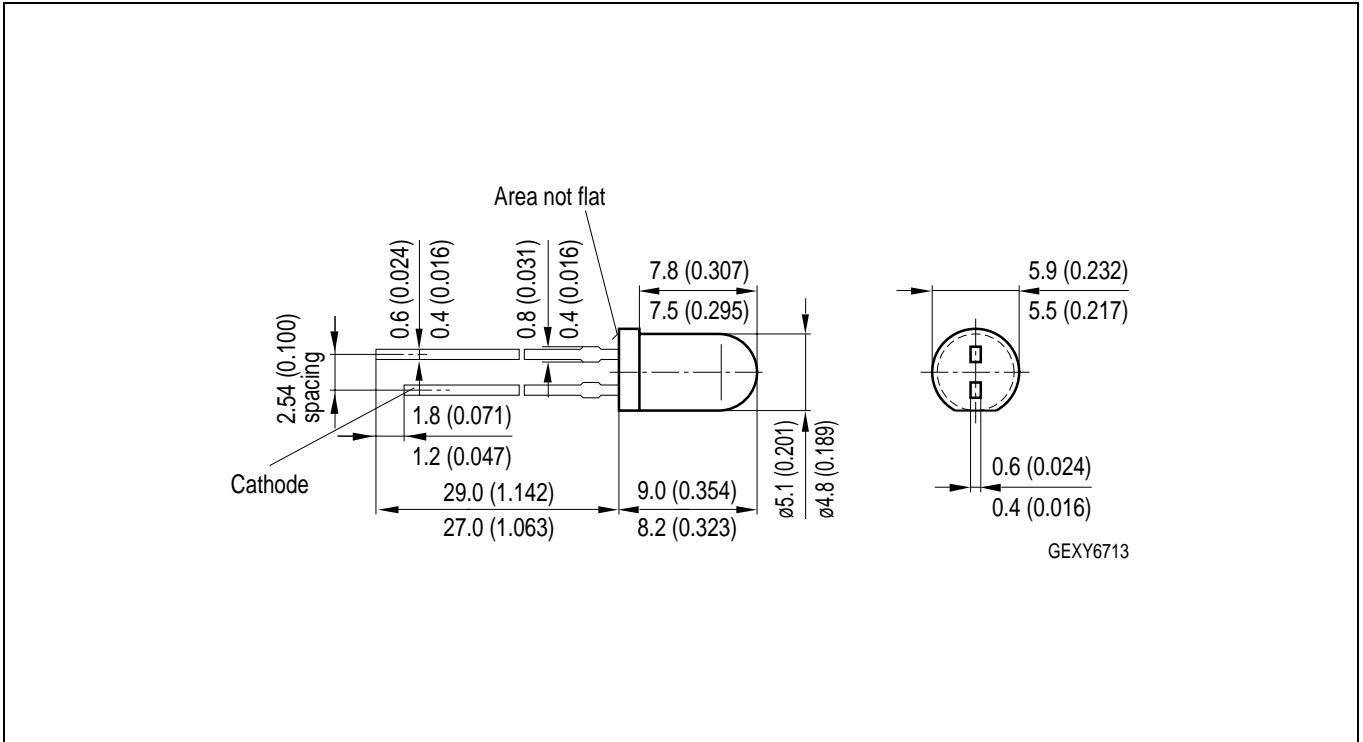
**Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$**   
**Permissible Pulse Handling Capability**  
 Duty cycle  $D =$  parameter,  $T_A = 85\text{ °C}$   
**LS, LA, LO**



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



**Maßzeichnung  
Package Outlines**



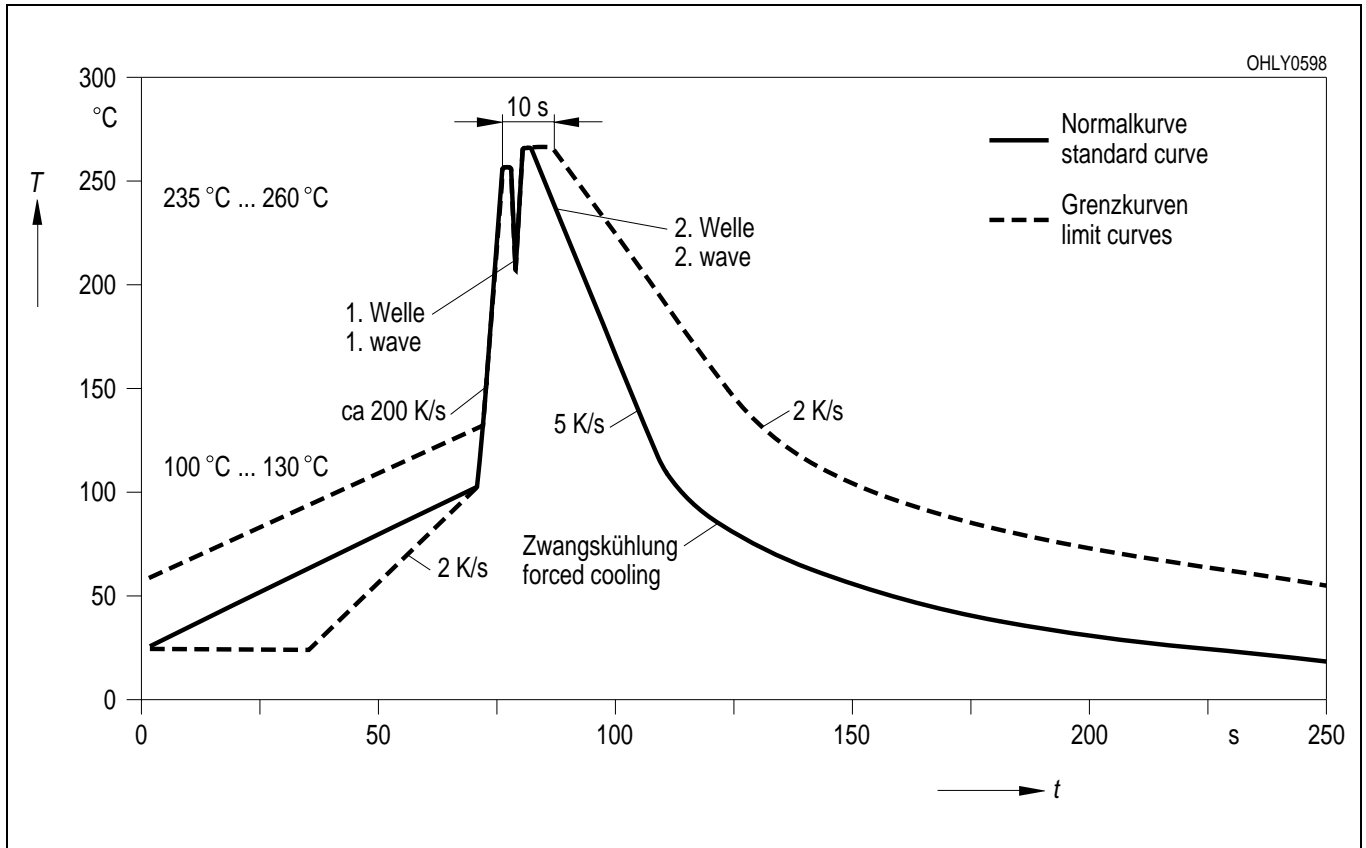
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

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

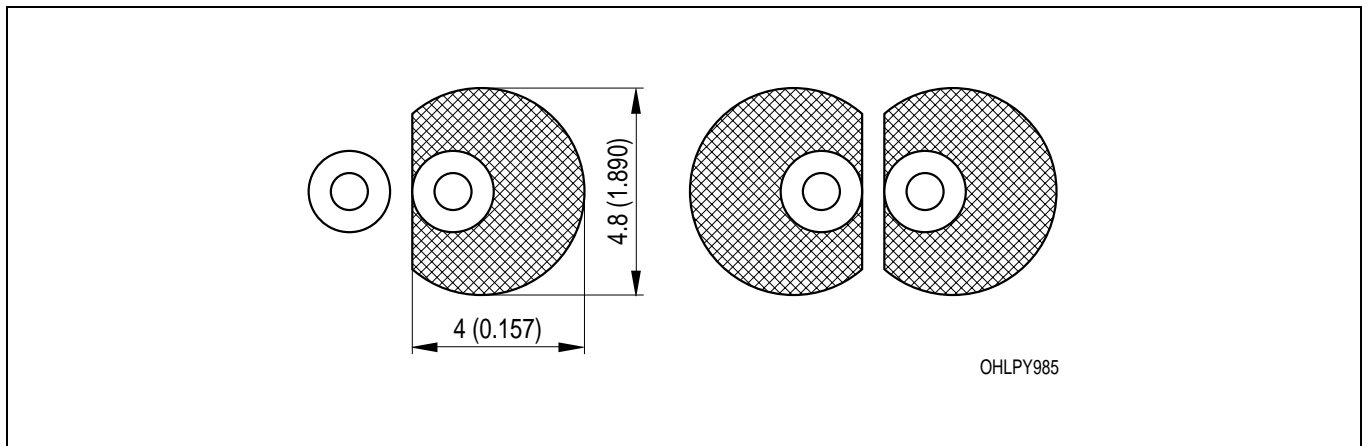


**Lötbedingungen**  
**Soldering Conditions**

**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)