

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

LS 5380, LY 5380, LG 5380



Besondere Merkmale

- **Gehäusotyp:** 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:** GaAlP
- **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:** GaAlP
- **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.)

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.)	Q62703-Q1452 Q62703-Q1740 Q62703-Q1453 Q62703-Q1454 Q62703-Q1455
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.)	Q62703-Q2002 Q62703-Q1457 Q62703-Q2319 Q62703-Q2003
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.)	Q62703-Q1463 Q62703-Q2032 Q62703-Q2016 Q62703-Q3189 Q62703-Q3825

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	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 Reverse voltage	V_R	5	V
Leistungsaufnahme Power consumption $T_A \leq 25 \text{ °C}$	P_{tot}	130	mW
Wärmewiderstand ¹⁾ 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⁾ 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 $I_F = 10\text{ mA}$	λ_{peak}	635	586	572	nm
Dominantwellenlänge ¹⁾ (typ.) Dominant wavelength $I_F = 10\text{ mA}$	λ_{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	2ϕ	140	140	140	Grad deg.
Durchlassspannung ²⁾ (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 $V_R = 5\text{ V}$	I_R I_R	0.01 10	0.01 10	0.01 10	μA μA
Temperaturkoeffizient von λ_{peak} (typ.) Temperature coefficient of λ_{peak} $I_F = 10\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_{\lambda_{\text{peak}}}$	0.11	0.10	0.11	nm/K
Temperaturkoeffizient von λ_{dom} (typ.) Temperature coefficient of λ_{dom} $I_F = 10\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_{\lambda_{\text{dom}}}$	0.07	0.07	0.07	nm/K
Temperaturkoeffizient von V_F (typ.) Temperature coefficient of V_F $I_F = 10\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	TC_V	- 1.9	- 1.9	- 1.4	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 10\text{ mA}$	η_{opt}	1.5	1.5	2.5	lm/W

¹⁾ Wellenlängen werden mit einer Stromeinprägungsdauer 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 $\pm 1\text{ nm}$.

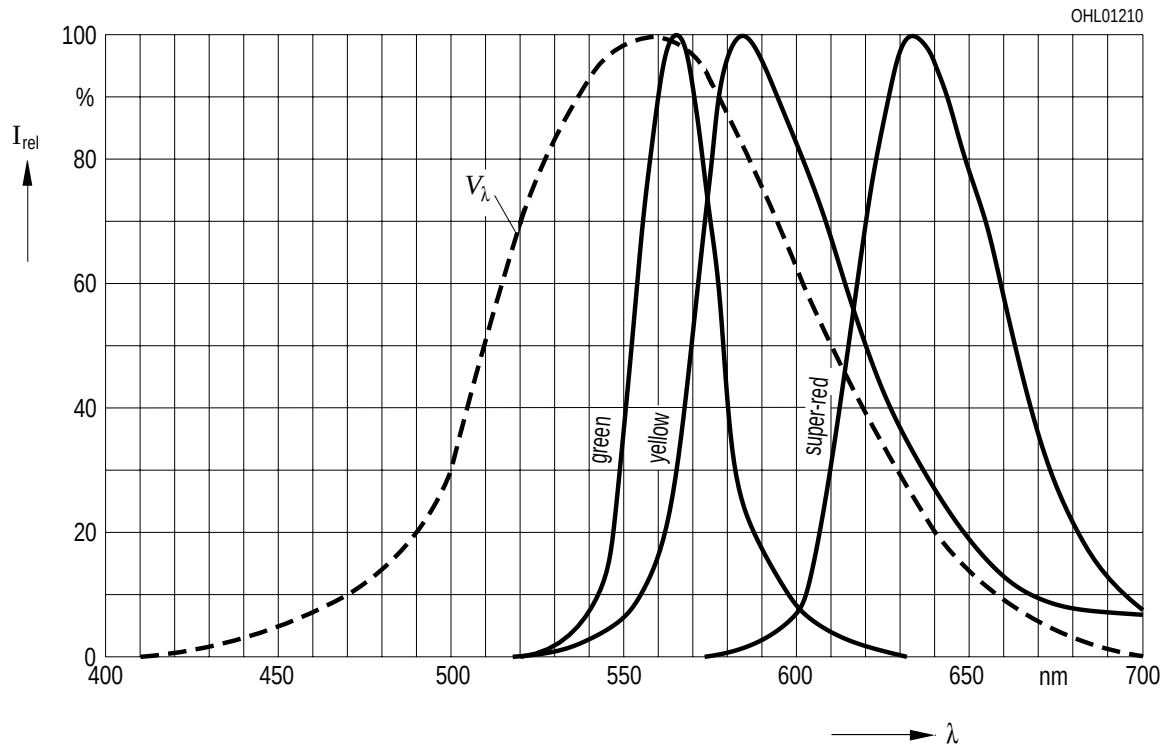
²⁾ Spannungswerte werden mit einer Stromeinprägungsdauer von 1 ms und einer Genauigkeit von $\pm 0,1\text{ V}$ ermittelt.
Voltages are tested at a current pulse duration of 1 ms and a tolerance of $\pm 0.1\text{ V}$.

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

Relative Spectral Emission

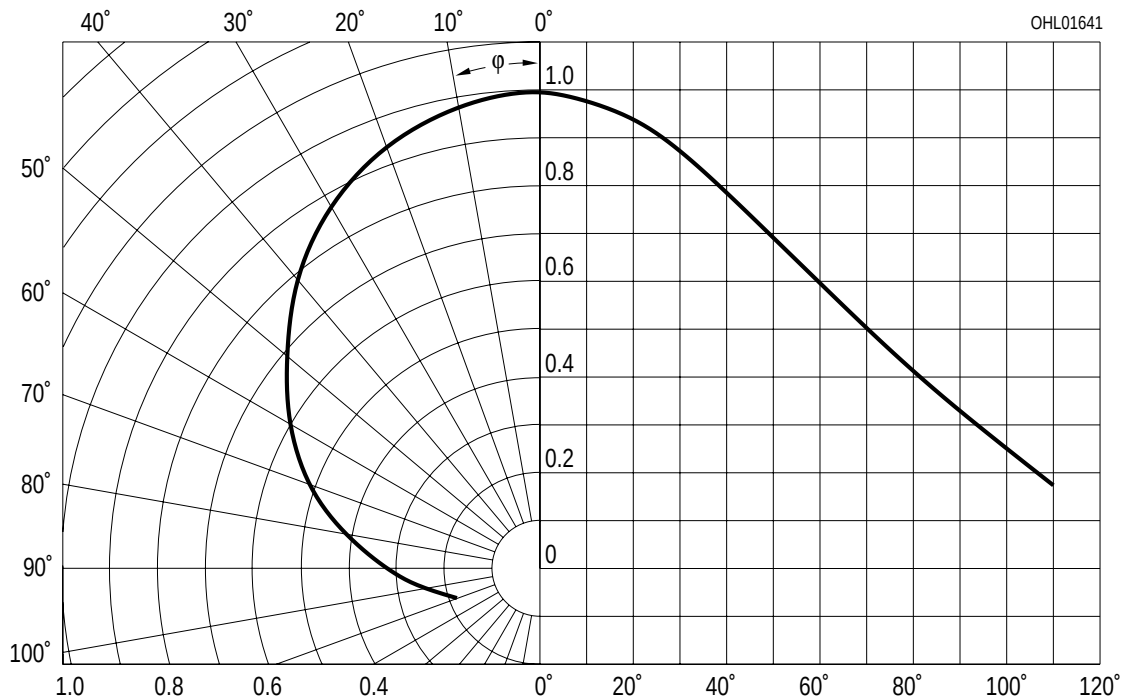
$V(\lambda)$ = spektrale Augenempfindlichkeit

Standard eye response curve



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

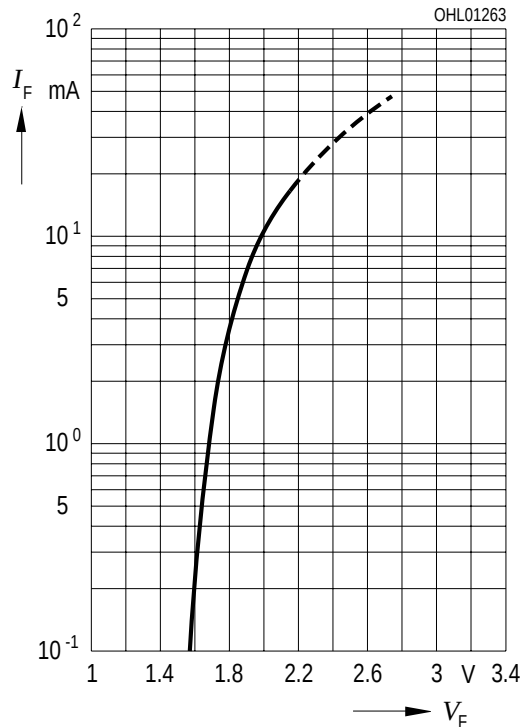
Radiation Characteristic



Durchlassstrom $I_F = f(V_F)$

Forward Current

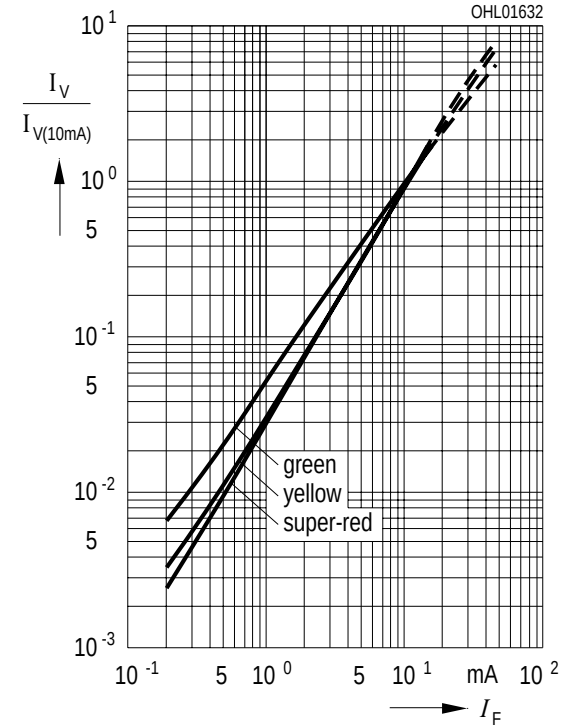
$T_A = 25^\circ\text{C}$



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

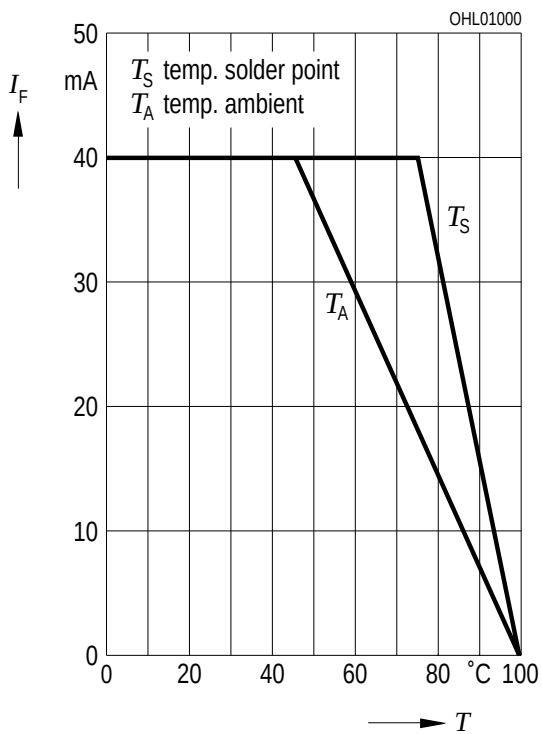
Relative Luminous Intensity

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



Maximal zulässiger Durchlassstrom $I_F = f(T)$

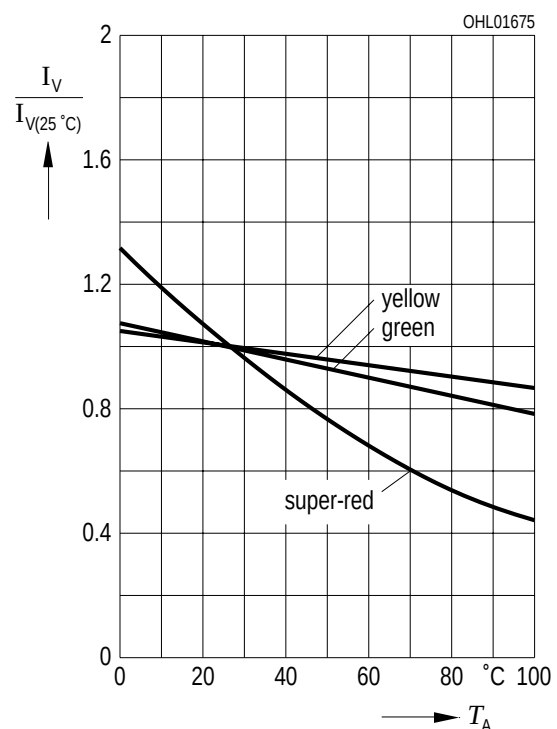
Max. Permissible Forward Current



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

Relative Luminous Intensity

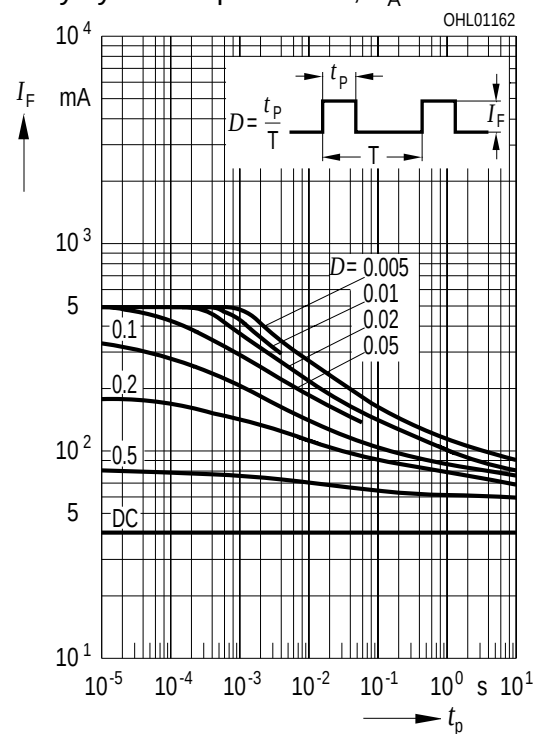
$I_F = 10\text{ mA}$



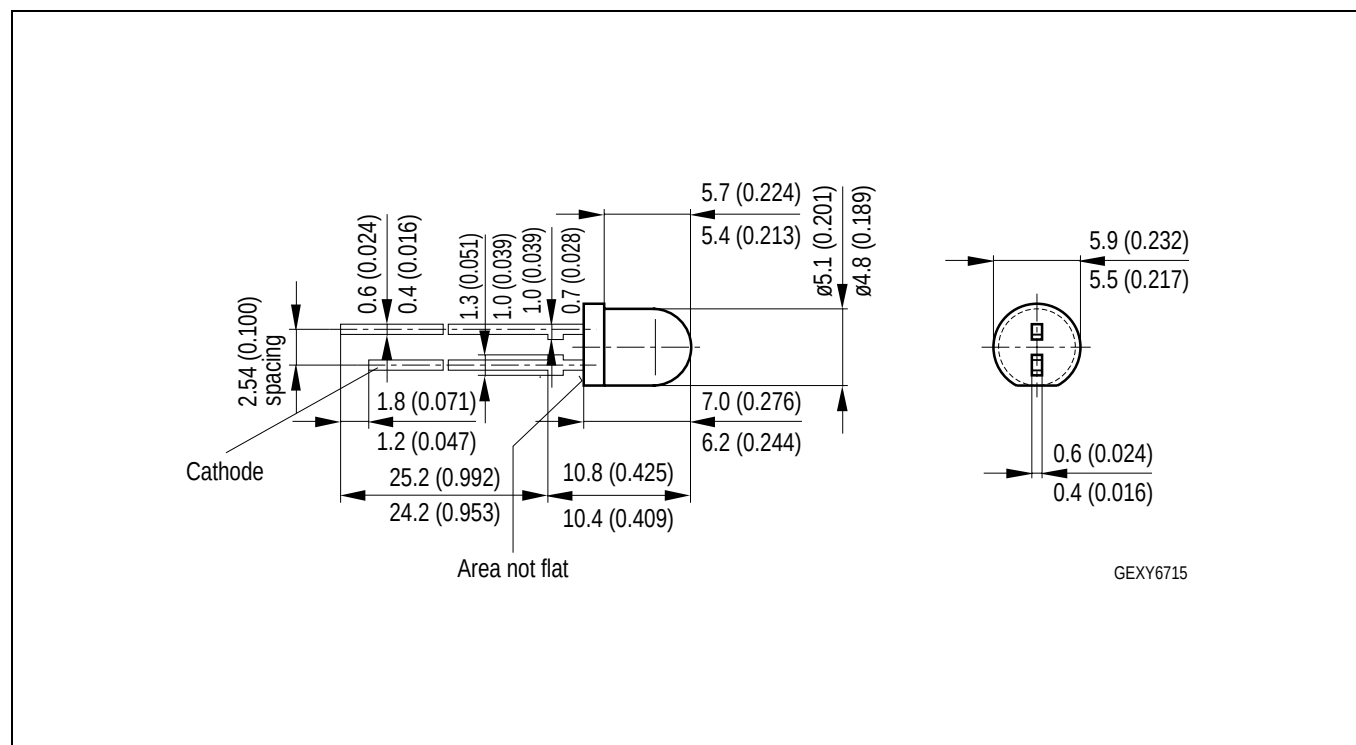
Zulässige Impulsbelastbarkeit $I_F = f(t_p)$

Permissible Pulse Handling Capability

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



Maßzeichnung Package Outlines

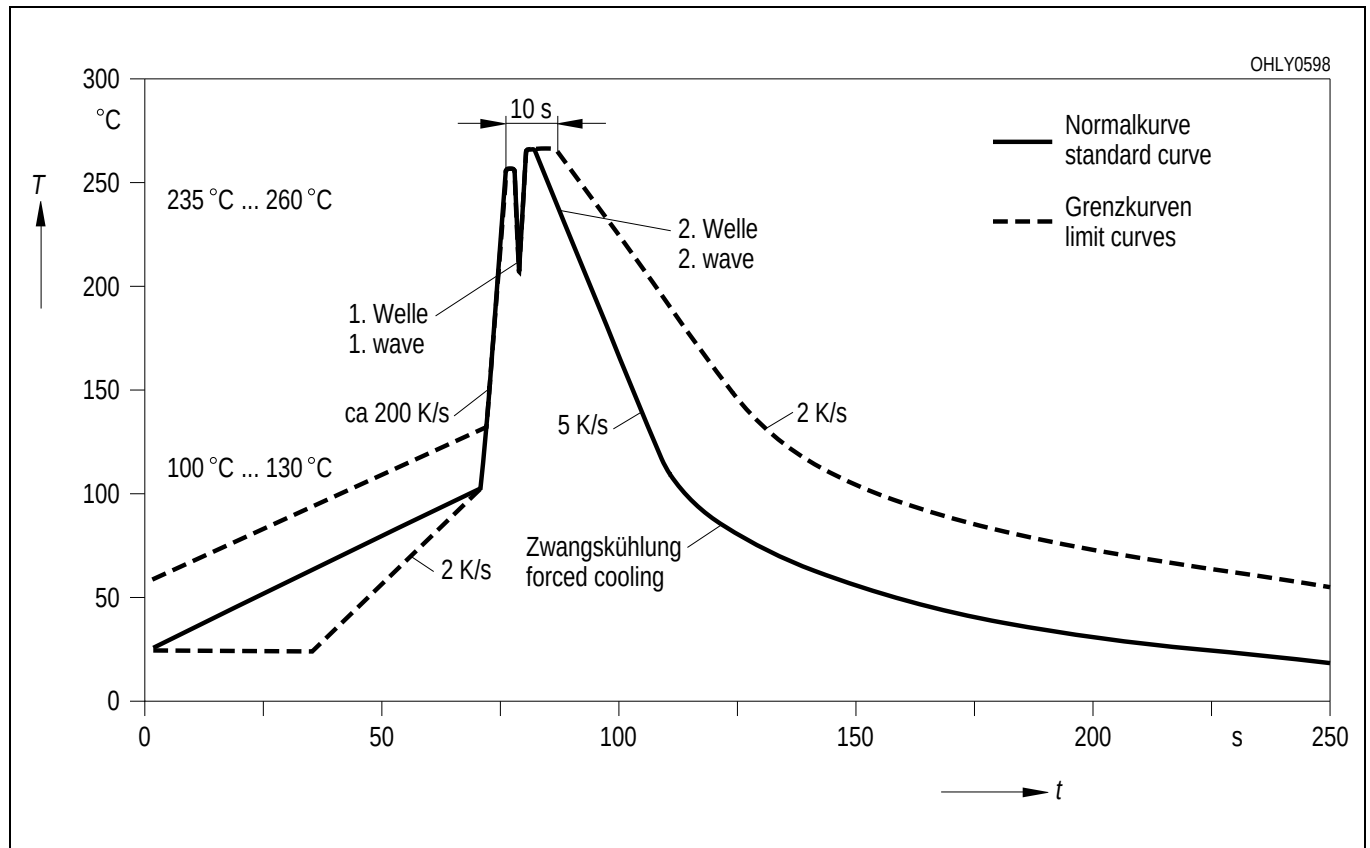


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

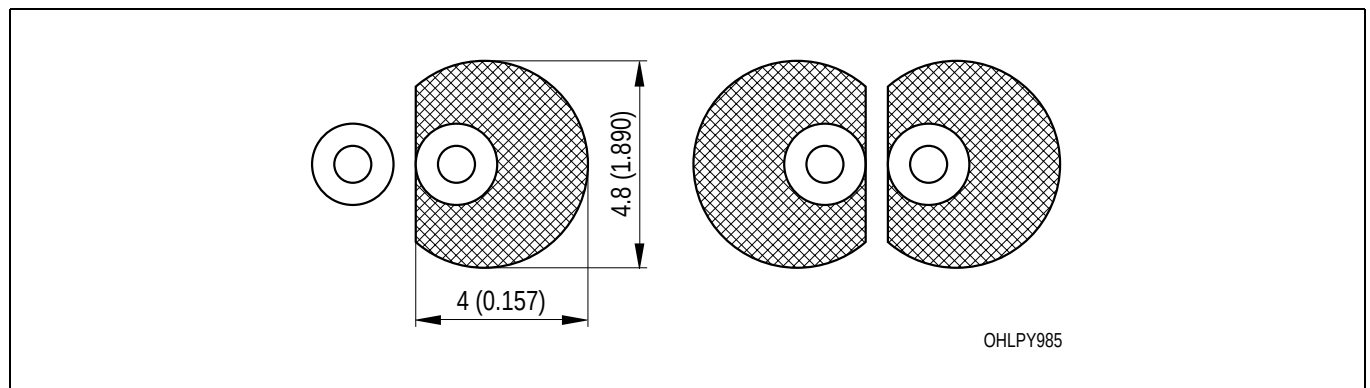
Kathodenkennung: kürzerer Lötspieß
Cathode mark: short solder lead
Gewicht / Approx. weight: 0.35 g

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: 2002-04-03

Previous Version: 2001-03-12

Page	Subjects (major changes since last revision)
3	thermal resistance (footnote)

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