

LC 5 mm (T1 ¾) LED, Diffused Low Current LED

LS 5469, LY 5469, LG 5469



Besondere Merkmale

- **Gehäusotyp:** eingefärbtes, diffuses 5 mm (T1 ¾) Gehäuse
- **Besonderheit des Bauteils:** hohe Lichtstärke bei kleinen Strömen; Lötspieße ohne Aufsetzebene
- **Wellenlänge:** 628 nm (super-rot), 587 nm (gelb), 570 nm (grün)
- **Abstrahlwinkel:** 50°
- **Technologie:** GaAsP
- **optischer Wirkungsgrad:** 2 lm/W
- **Gruppierungsparameter:** Lichtstärke
- **Lötmethode:** Wellenlöten (TTW)
- **Verpackung:** Schüttgut, gegurtet lieferbar

Anwendungen

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

Features

- **package:** colored, diffused 5 mm (T1 ¾) package
- **feature of the device:** high luminous intensity at low currents; solder leads without stand-off
- **wavelength:** 628 nm (super-red), 587 nm (yellow), 570 nm (green)
- **viewing angle:** 50°
- **technology:** GaAsP
- **optical efficiency:** 2 lm/W
- **grouping parameter:** luminous flux
- **soldering methods:** TTW soldering
- **packing:** bulk, available taped on reel

Applications

- optical indicators
- backlighting (switches, keys, displays, illuminated advertising, general lighting)
- interior automotive lighting (e.g. dashboard backlighting, etc.)

Typ Type	Emissions- farbe Color of Emission	Gehäusefarbe Color of Package	Lichtstärke Luminous Intensity $I_F = 2 \text{ mA}$ $I_V \text{ (mcd)}$	Lichtstrom Luminous Flux $I_F = 2 \text{ mA}$ $\Phi_V \text{ (mlm)}$	Bestellnummer Ordering Code
LS 5469-EH LS 5469-G LS 5469-H LS 5469-GK	super-red	red diffused	0.71 ... 4.50 1.80 ... 2.80 2.80 ... 4.50 1.80 ... 11.2	7.8 (typ.) 6.9 (typ.) 11.0 (typ.) 19.5 (typ.)	Q62703-Q1751 Q62703-Q2344 Q62703-Q2345 Q62703-Q3833
LY 5469-EH LY 5469-F LY 5469-G LY 5469-H LY 5469-FJ	yellow	yellow diffused	0.71 ... 4.50 1.12 ... 1.80 1.80 ... 2.80 2.80 ... 4.50 1.12 ... 7.10	7.8 (typ.) 4.4 (typ.) 6.9 (typ.) 11.0 (typ.) 12.3 (typ.)	Q62703-Q1752 Q62703-Q3834 Q62703-Q3835 Q62703-Q3836 Q62703-Q3837
LG 5469-EH LG 5469-F LG 5469-G LG 5469-FJ	green	green diffused	0.71 ... 4.50 1.12 ... 1.80 1.80 ... 2.80 1.12 ... 7.10	7.8 (typ.) 4.4 (typ.) 6.9 (typ.) 12.3 (typ.)	Q62703-Q1753 Q62703-Q3856 Q62703-Q3857 Q62703-Q3858

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!

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	7.5	mA
Stoßstrom Surge current $t \leq 10 \mu s, D = 0.005$	I_{FM}	150	mA
Sperrspannung Reverse voltage	V_R	5	V
Leistungsaufnahme Power consumption $T_A \leq 25 \text{ °C}$	P_{tot}	20	mW
Wärmewiderstand ¹⁾ Thermal resistance Sperrschicht/Umgebung Junction/ambient 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	$R_{th JA}$ $R_{th JS}$	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.

Bezeichnung Parameter	Symbol Symbol	Werte Values			Einheit Unit
		LS	LY	LG	
Wellenlänge des emittierten Lichtes (typ.) Wavelength at peak emission $I_F = 2 \text{ mA}$	λ_{peak}	635	586	572	nm
Dominantwellenlänge ¹⁾ (typ.) Dominant wavelength $I_F = 2 \text{ mA}$	λ_{dom}	628	587	570	nm
Spektrale Bandbreite bei 50 % $I_{\text{rel max}}$ (typ.) Spectral bandwidth at 50 % $I_{\text{rel max}}$ $I_F = 2 \text{ mA}$	$\Delta\lambda$	45	45	25	nm
Abstrahlwinkel bei 50 % I_V (Vollwinkel) (typ.) Viewing angle at 50 % I_V	2ϕ	50	50	50	Grad deg.
Durchlassspannung ²⁾ (typ.) Forward voltage (max.) $I_F = 2 \text{ mA}$	V_F V_F	1.8 2.5	2.0 2.6	1.9 2.5	V V
Sperrstrom (typ.) Reverse current (max.) $V_R = 5 \text{ V}$	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} $I_F = 2 \text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_{\lambda_{\text{peak}}}$	0.11	0.10	0.11	nm/K
Temperaturkoeffizient von λ_{dom} (typ.) Temperature coefficient of λ_{dom} $I_F = 2 \text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_{\lambda_{\text{dom}}}$	0.07	0.07	0.07	nm/K
Temperaturkoeffizient von V_F (typ.) Temperature coefficient of V_F $I_F = 2 \text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	TC_V	- 2.0	- 1.6	- 1.9	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 2 \text{ mA}$	η_{opt}	2	2	2	lm/W

¹⁾ 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 $\pm 1 \text{ nm}$.

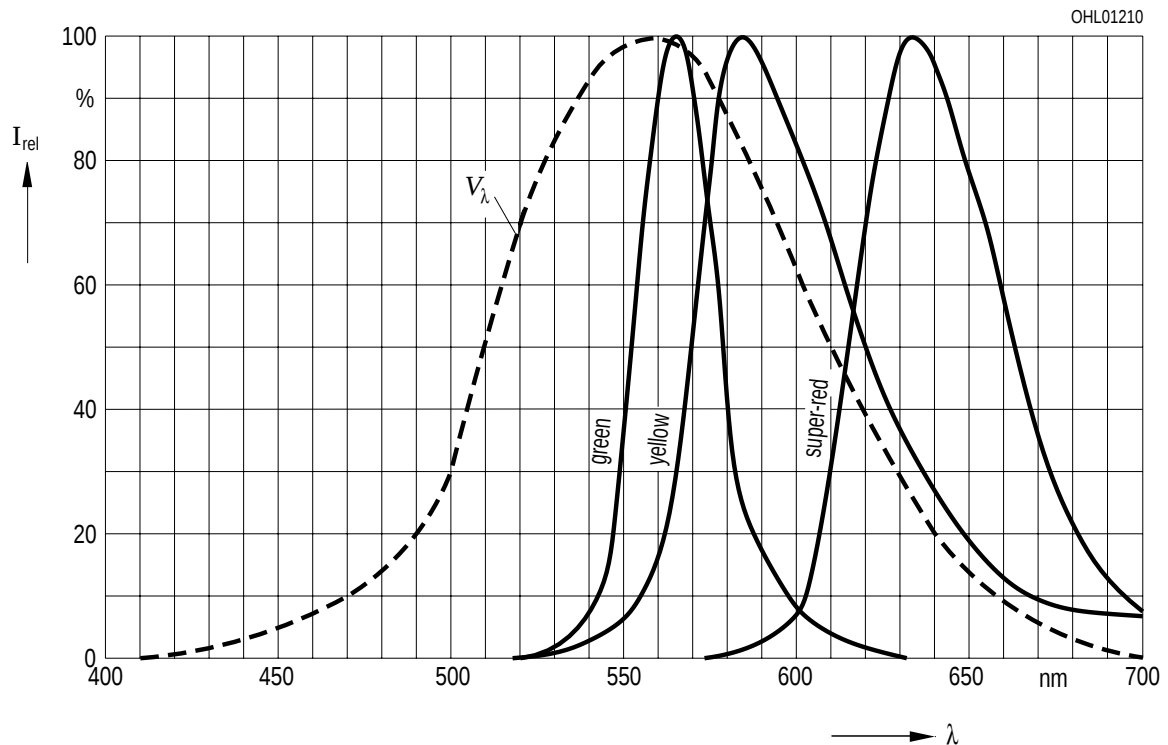
²⁾ Spannungswerte werden mit einer Stromeinprägedauer von 1 ms und einer Genauigkeit von $\pm 0,1 \text{ V}$ ermittelt.
Voltages are tested at a current pulse duration of 1 ms and a tolerance of $\pm 0.1 \text{ V}$.

Relative spektrale Emission $I_{\text{rel}} = f(\lambda)$, $T_A = 25^\circ\text{C}$, $I_F = 2\text{ mA}$

Relative Spectral Emission

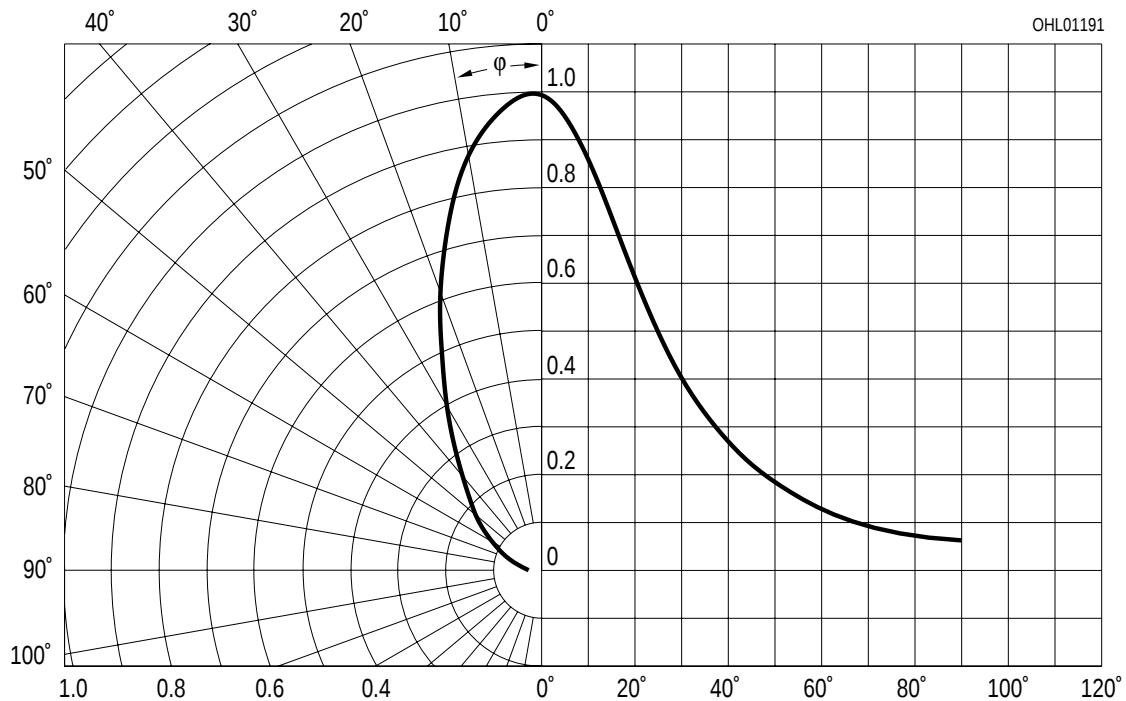
$V(\lambda)$ = spektrale Augenempfindlichkeit

Standard eye response curve



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

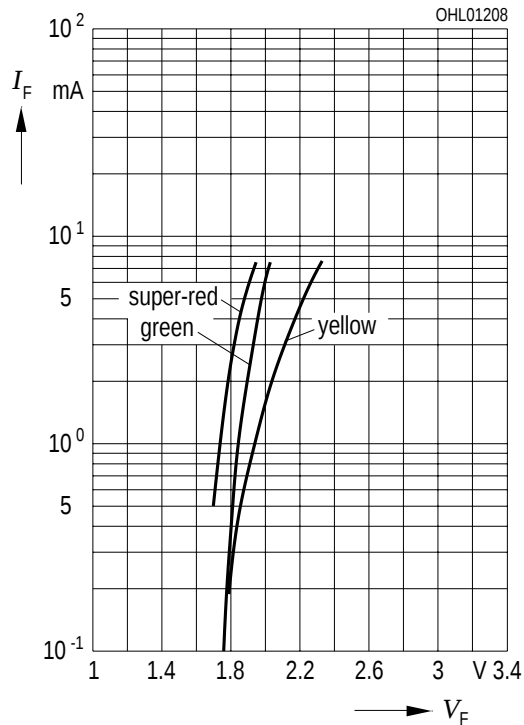
Radiation Characteristic



Durchlassstrom $I_F = f(V_F)$

Forward Current

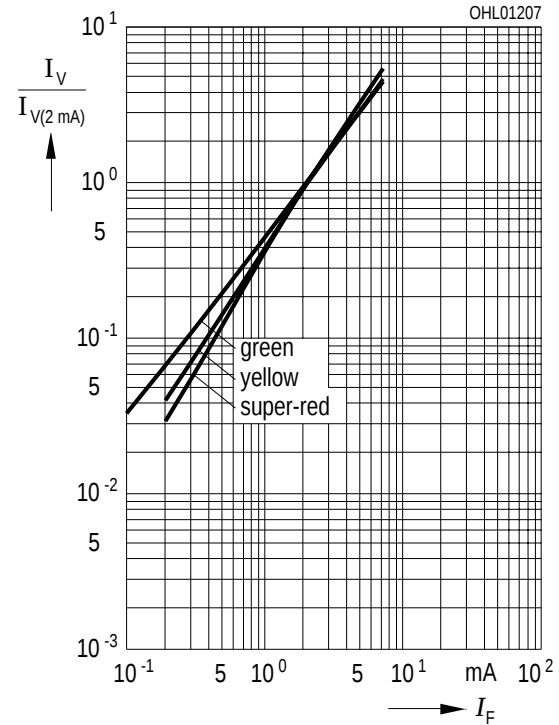
$T_A = 25^\circ\text{C}$



Relative Lichtstärke $I_V/I_{V(2\text{ mA})} = f(I_F)$

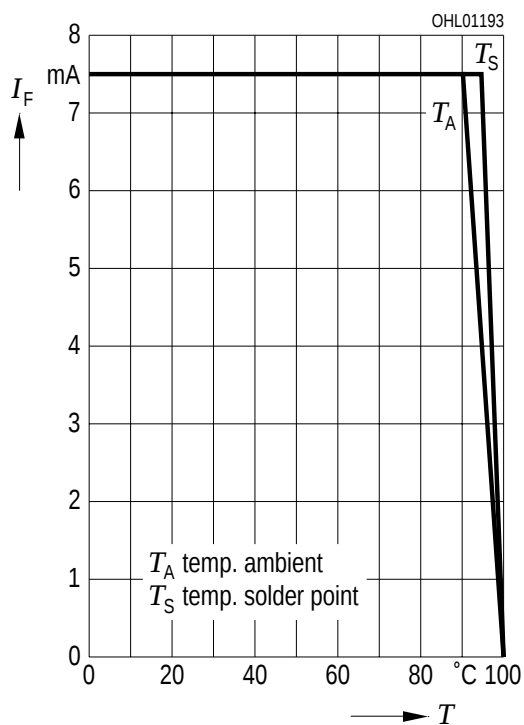
Relative Luminous Intensity

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



Maximal zulässiger Durchlassstrom $I_F = f(T)$

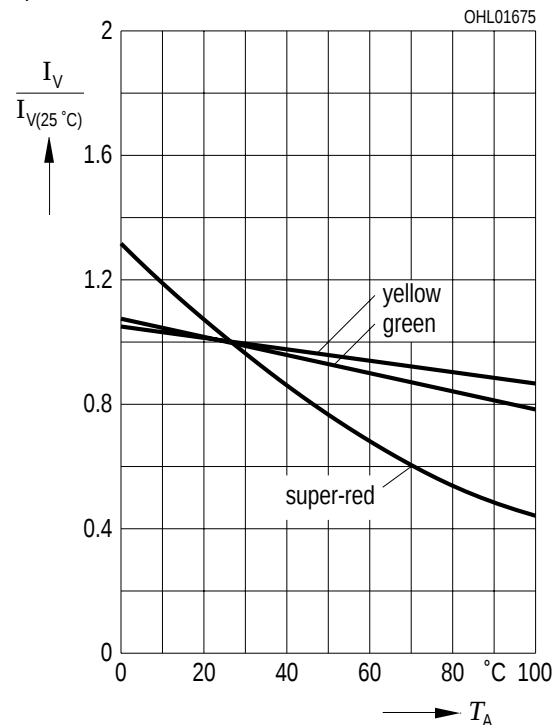
Max. Permissible Forward Current



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

Relative Luminous Intensity

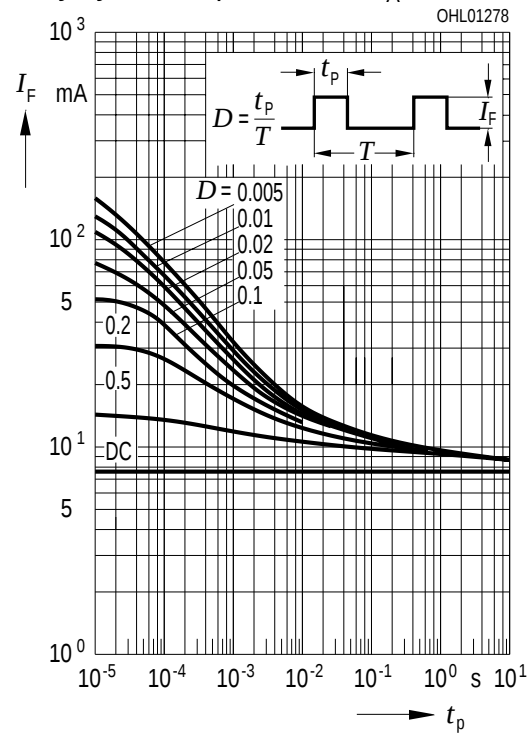
$I_F = 2\text{ mA}$



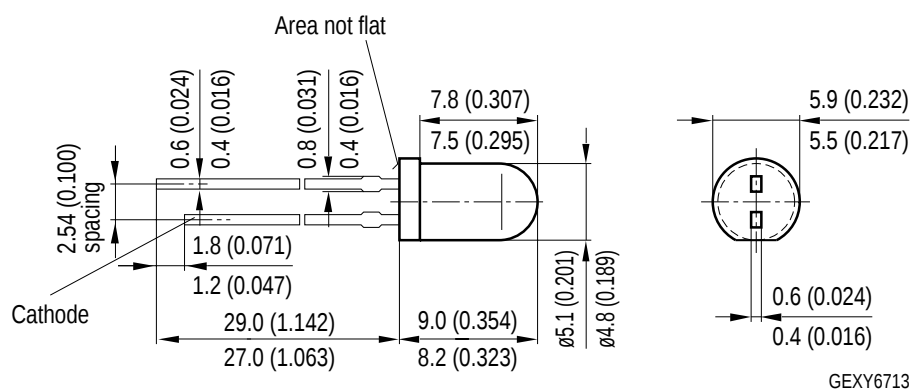
Zulässige Impulsbelastbarkeit $I_F = f(t_p)$

Permissible Pulse Handling Capability

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



Maßzeichnung Package Outlines

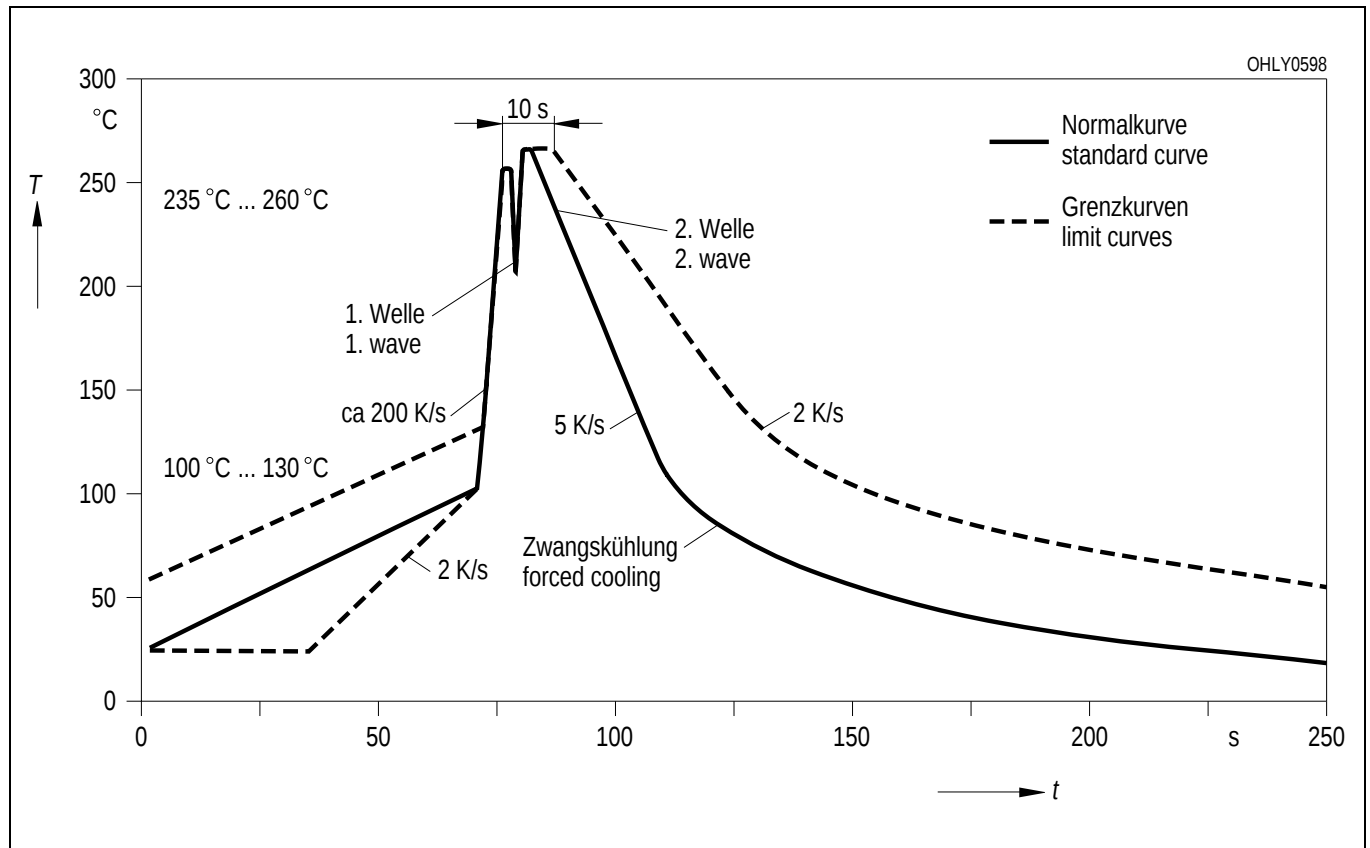


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

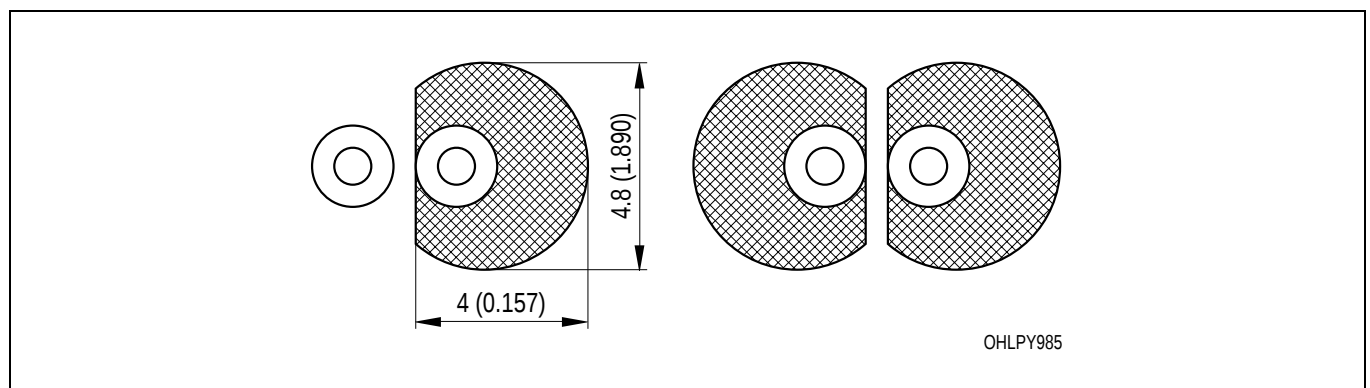
Kathodenkennung: kürzerer Lötspieß
Cathode mark: short solder lead
Gewicht / Approx. weight: 0.35 g

Lötbedingungen Soldering Conditions

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



Empfohlenes Lötpaddesign Wellenlöten (TTW)
Recommended Solder Pad TTW Soldering



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

Revision History: 2002-04-03

Previous Version: 2001-03-12

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

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