# 5 mm (T1 ¾) LED, Non Diffused
# Super-Bright LED

## LS 5421, LO 5411, LY 5421, LG 5411



### Besondere Merkmale

- **Gehäusetyp:** klares 5 mm (T1 ¾) Gehäuse, eingefärbt (super-rot und gelb), nicht eingefärbt (orange und grün)
- **Besonderheit des Bauteils:** enge Abstrahlcharakteristik
- **Wellenlänge:** 628 nm (super-rot), 590 nm (gelb), 570 nm (grün)
- **Abstrahlwinkel:** engwinklig (20°)
- **Technologie:** GaAlP
- **optischer Wirkungsgrad:** 1,5 lm/W (super-rot, orange, gelb), 2,5 lm/W (grün)
- **Gruppierungsparameter:** Lichtstärke
- **Lötmethode:** Wellenlöten (TTW)
- **Verpackung:** Schüttgut, gegurtet lieferbar

### Anwendungen

- optischer Indikator
- Hinterleuchtung (LCD, Schalter, Tasten, Displays, Werbebeleuchtung, Allgemeinbeleuchtung)
- Innenbeleuchtung im Automobilbereich (z.B. Tastenhinterleuchtung, u.ä.)
- Ersatz von Kleinst-Glühlampen

### Features

- **package:** clear 5 mm (T1 ¾) package, colored (super-red and yellow), colorless (orange and green)
- **feature of the device:** narrow viewing angle
- **wavelength:** 628 nm (super-red), 590 nm (yellow), 570 nm (green)
- **viewing angle:** narrow (20°)
- **technology:** GaAlP
- **optical efficiency:** 1.5 lm/W (super-red, orange, 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, switches, keys, displays, illuminated advertising, general lighting)
- interior automotive lighting. (e.g. key backlighting, etc.)
- substitution of micro incandescent lamps



Infineon technologies

OSRAM

| Typ<br><br>Type | Emissions-farbe<br>Color of Emission | Gehäuse-farbe<br>Color of Package | Lichtstärke<br><br>Luminous Intensity<br>$I_F$ = 10 mA<br>$I_V$ (mcd) | Lichtstrom<br><br>Luminous Flux<br>$I_F$ = 10 mA<br>$\Phi_V$ (mlm) | Bestellnummer<br><br>Ordering Code |
|---|---|---|---|---|---|
| LS 5421-NR | super-red | red clear | 28 ... 180 | 20 (typ.) | Q62703-Q1994 |
| LS 5421-Q | | | 71 ... 112 | 20 (typ.) | Q62703-Q1442 |
| LS 5421-R | | | 112 ... 180 | 30 (typ.) | Q62703-Q1738 |
| LS 5421-S | | | 180 ... 280 | 50 (typ.) | Q62703-Q2405 |
| LS 5421-QT | | | 71 ... 450 | 60 (typ.) | Q62703-Q1995 |
| LO 5411-QT | orange | colorless clear | 71 ... 450 | 70 (typ.) | Q62703-Q3928 |
| LO 5411-R | | | 112 ... 180 | 20 (typ.) | Q62703-Q3929 |
| LO 5411-S | | | 180 ... 280 | 30 (typ.) | Q62703-Q3930 |
| LO 5411-T | | | 280 ... 450 | 50 (typ.) | Q62703-Q3931 |
| LO 5411-RU | | | 112 ... 710 | 60 (typ.) | Q62703-Q3932 |
| LY 5421-NR | yellow | yellow clear | 28 ... 180 | 20 (typ.) | Q62703-Q1444 |
| LY 5421-Q | | | 71 ... 112 | 20 (typ.) | Q62703-Q1446 |
| LY 5421-R | | | 112 ... 180 | 30 (typ.) | Q62703-Q2005 |
| LY 5421-S | | | 180 ... 280 | 50 (typ.) | Q62703-Q2632 |
| LY 5421-QT | | | 71 ... 450 | 60 (typ.) | Q62703-Q1447 |
| LG 5411-NR | green | colorless clear | 28 ... 180 | 20 (typ.) | Q62703-Q2023 |
| LG 5411-Q | | | 71 ... 112 | 20 (typ.) | Q62703-Q1739 |
| LG 5411-R | | | 112 ... 180 | 30 (typ.) | Q62703-Q1451 |
| LG 5411-S | | | 180 ... 280 | 50 (typ.) | Q62703-Q2321 |
| LG 5411-QT | | | 71 ... 450 | 60 (typ.) | Q62703-Q2024 |

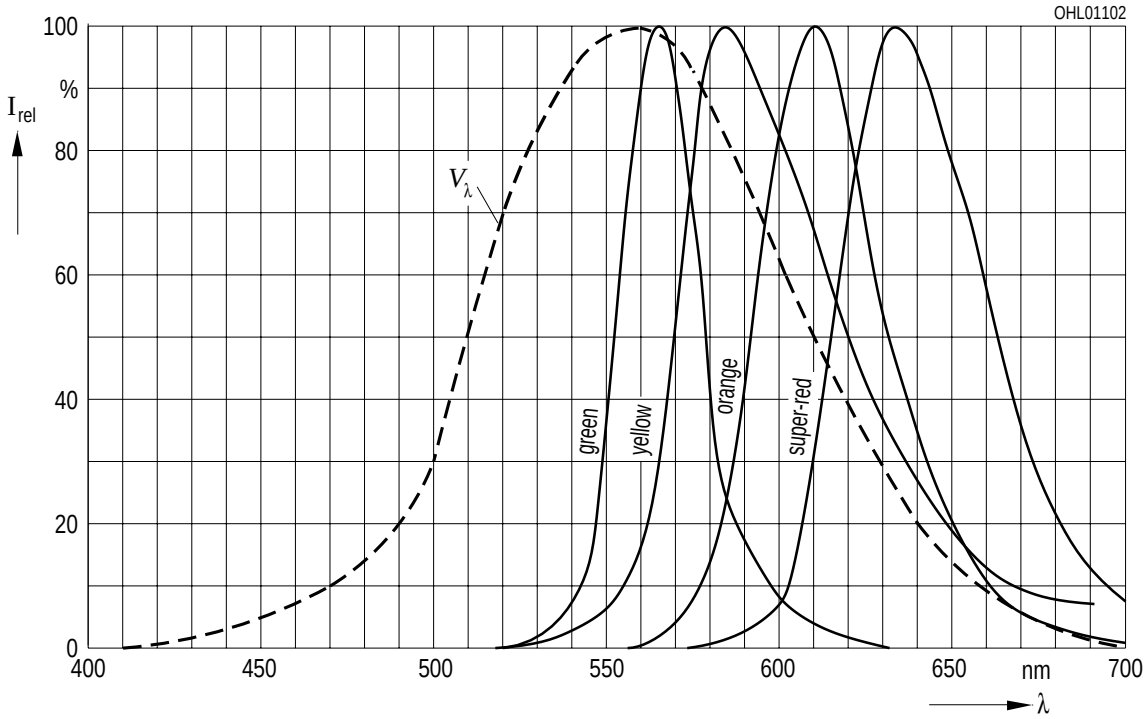
Helligkeitswerte werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von ±11 % ermittelt.

Luminous intensity is tested at a current pulse duration of 25 ms and an accuracy of ±11 %.

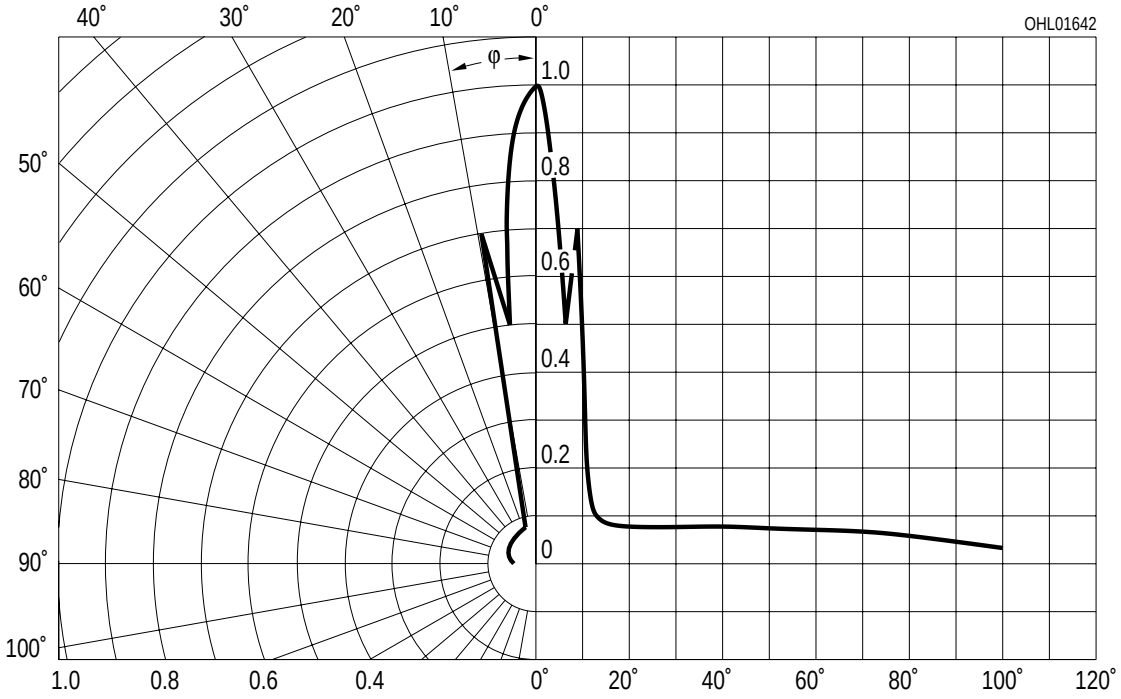
| **Bezeichnung**<br>**Parameter** | **Symbol**<br>**Symbol** | **Wert**<br>**Value** | **Einheit**<br>**Unit** |
|---|---|---|---|
| Betriebstemperatur<br>Operating temperature range | $T_{op}$ | – 55 … + 100 | °C |
| Lagertemperatur<br>Storage temperature range | $T_{stg}$ | – 55 … + 100 | °C |
| Sperrschichttemperatur<br>Junction temperature | $T_j$ | + 100 | °C |
| Durchlaßstrom<br>Forward current | $I_F$ | 40 | mA |
| Stoßstrom<br>Surge current<br>$t \leq 10$ µs, $D = 0.005$ | $I_{FM}$ | 0.5 | A |
| Sperrspannung<br>Reverse voltage | $V_R$ | 5 | V |
| Leistungsaufnahme<br>Power dissipation<br>$T_A \leq 25$ °C | $P_{tot}$ | 130 | mW |
| Wärmewiderstand<br>Thermal resistance<br>Sperrschicht/Umgebung<br>Junction/ambient<br>Sperrschicht/Lötpad<br>Junction/solder point<br>Montage auf PC-Board FR 4 (Padgröße ≥ 16 mm²)<br>mounted on PC board FR 4 (pad size ≥ 16 mm²)<br>Minimale Beinchenlänge<br>Minimum lead length | <br><br><br>$R_{th\ JA}$<br><br>$R_{th\ JS}$ | <br><br><br>400<br><br>180 | <br><br><br>K/W<br><br>K/W |

| Bezeichnung<br>Parameter | | Symbol<br>Symbol | Werte<br>Values | | | | Einheit<br>Unit |
|---|---|---|---|---|---|---|---|
| | | | LS | LO | LY | LG | |
| Wellenlänge des emittierten Lichtes<br>Wavelength at peak emission<br>$I_F$ = 10 mA | (typ.) | $\lambda_{peak}$ | 635 | 610 | 586 | 565 | nm |
| Dominantwellenlänge<br>Dominant wavelength<br>$I_F$ = 10 mA | (typ.) | $\lambda_{dom}$ | 628 | 605 | 590 | 570 | nm |
| Spektrale Bandbreite bei 50 % $I_{rel\ max}$<br>Spectral bandwidth at 50 % $I_{rel\ max}$<br>$I_F$ = 10 mA | (typ.) | $\Delta\lambda$ | 45 | 40 | 45 | 25 | nm |
| Abstrahlwinkel bei 50 % $I_V$ (Vollwinkel)<br>Viewing angle at 50 % $I_V$ | (typ.) | $2\varphi$ | 20 | 20 | 20 | 20 | Grad<br>deg. |
| Durchlaßspannung<br>Forward voltage<br>$I_F$ = 10 mA | (typ.)<br>(max.) | $V_F$<br>$V_F$ | 2.0<br>2.6 | 2.0<br>2.6 | 2.0<br>2.6 | 2.0<br>2.6 | V<br>V |
| Sperrstrom<br>Reverse current<br>$V_R$ = 5 V | (typ.)<br>(max.) | $I_R$<br>$I_R$ | 0.01<br>10 | 0.01<br>10 | 0.01<br>10 | 0.01<br>10 | µA<br>µA |
| Temperaturkoeffizient von $\lambda_{peak}$<br>Temperature coefficient of $\lambda_{peak}$<br>$I_F$ = 10 mA | (typ.) | $TC_{\lambda peak}$ | 0.11 | 0.12 | 0.10 | 0.11 | nm/K |
| Temperaturkoeffizient von $\lambda_{dom}$<br>Temperature coefficient of $\lambda_{dom}$<br>$I_F$ = 10 mA | (typ.) | $TC_{\lambda dom}$ | 0.07 | 0.07 | 0.07 | 0.07 | nm/K |
| Temperaturkoeffizient von $V_F$<br>Temperature coefficient of $V_F$<br>$I_F$ = 10 mA | (typ.) | $TC_V$ | – 1.9 | – 1.9 | – 1.9 | – 1.4 | mV/K |
| Optischer Wirkungsgrad<br>Optical efficiency<br>$I_F$ = 10 mA | (typ.) | $\eta_{opt}$ | 1.5 | 1.5 | 1.5 | 2.5 | lm/W |

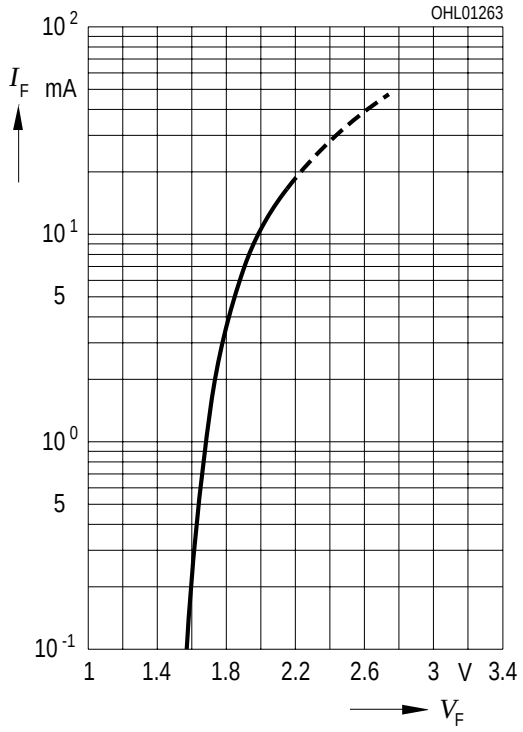
**Relative spektrale Emission** $I_{rel} = f(\lambda)$, $T_A$ = 25 °C, $I_F$ = 10 mA
**Relative Spectral Emission**
V(λ) = spektrale Augenempfindlichkeit
Standard eye response curve



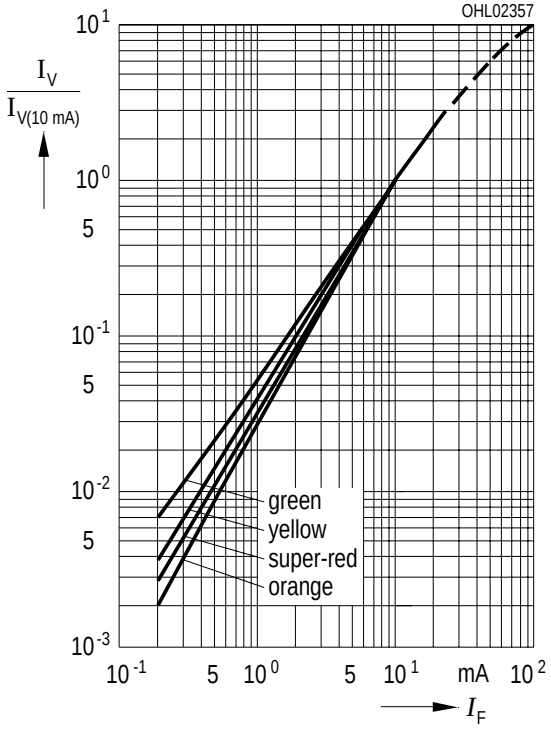

**Abstrahlcharakteristik** $I_{rel} = f(\varphi)$
**Radiation Characteristic**



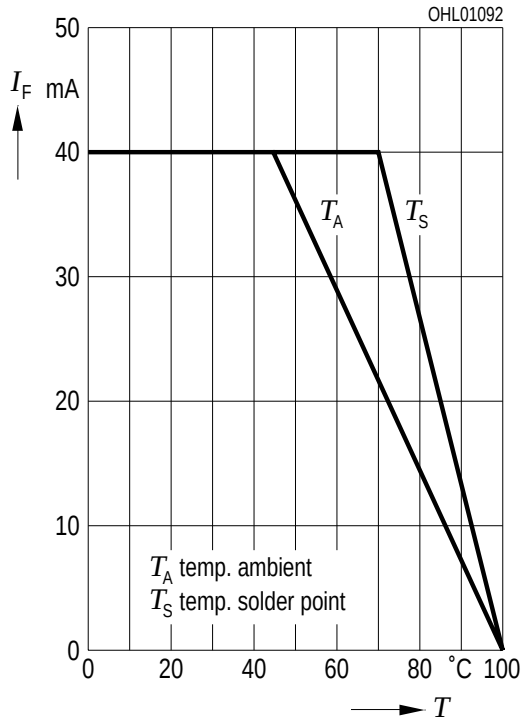
**Durchlaßstrom** $I_F = f(V_F)$
**Forward Current**
$T_A$ = 25 °C



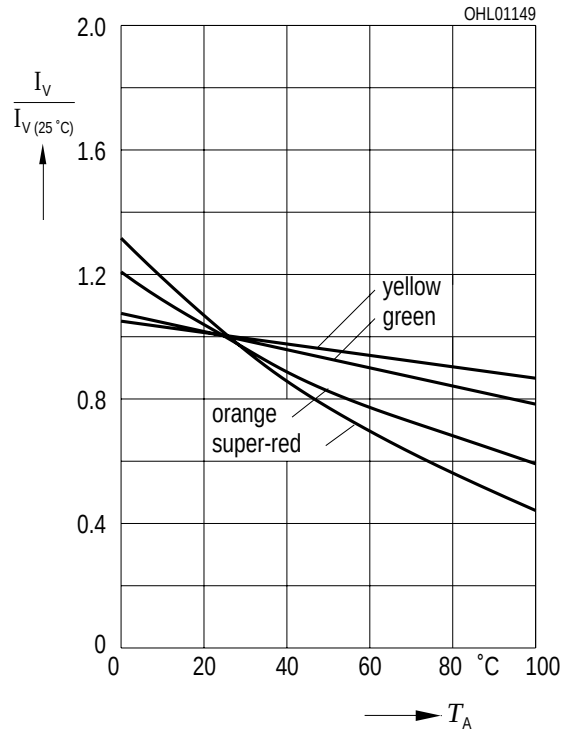

**Relative Lichtstärke** $I_V/I_{V(10\ mA)} = f(I_F)$
**Relative Luminous Intensity**
$T_A$ = 25 °C



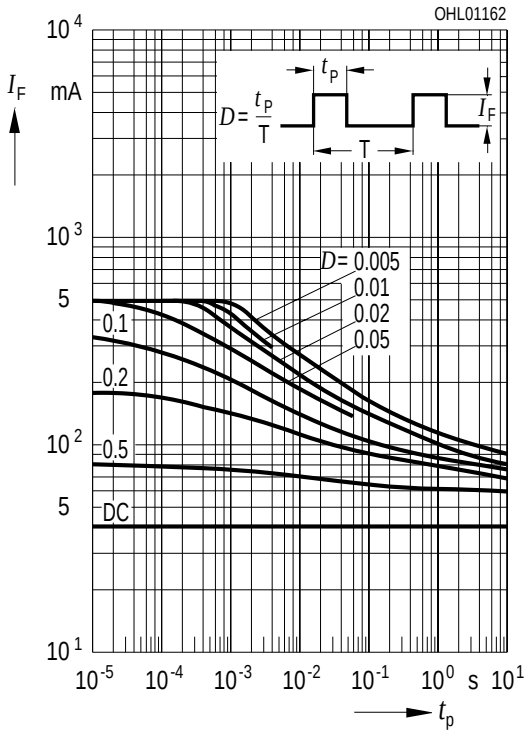

**Maximal zulässiger Durchlaßstrom** $I_F = f(T)$
**Max. Permissible Forward Current**



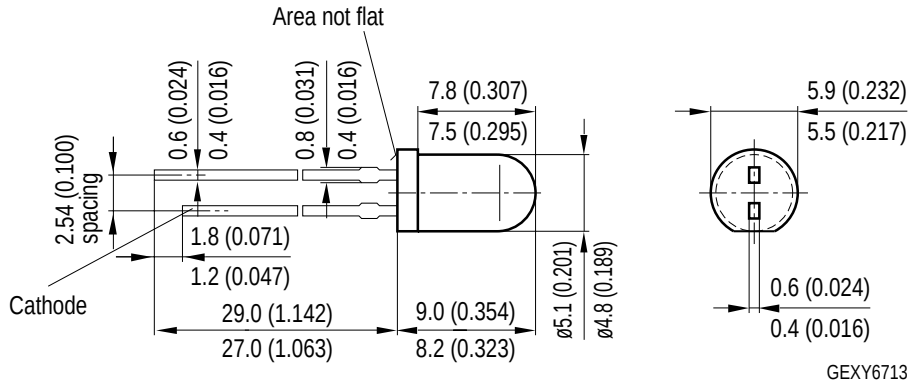

**Relative Lichtstärke** $I_V / I_V(25\ °C) = f(T_A)$
**Relative Luminous Intensity**
$I_F$ = 10 mA



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



## Maßzeichnung
## Package Outlines

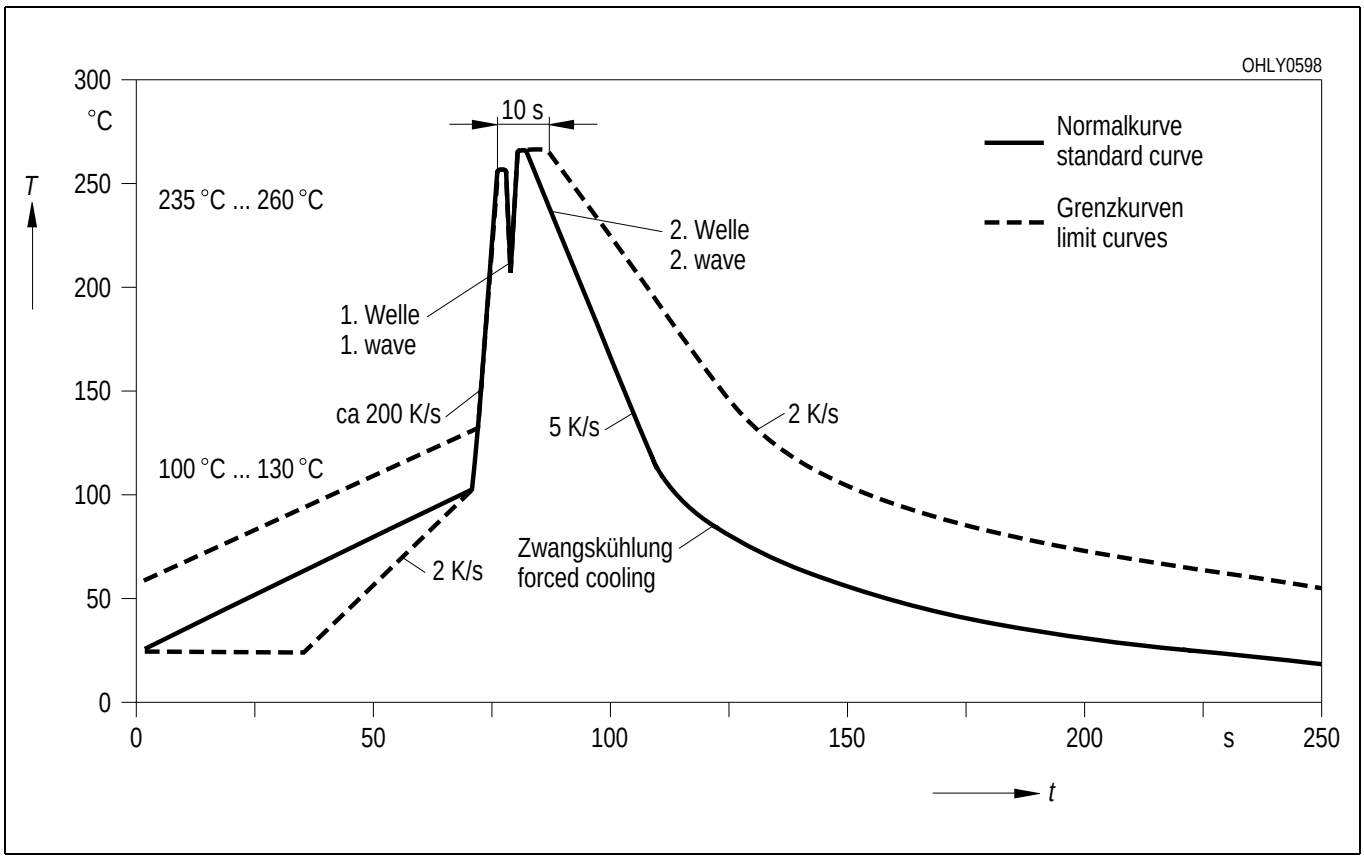



Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

**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

