

**GaAlAs-IR-Lumineszenzdiode (880 nm)**  
**GaAlAs Infrared Emitters (880 nm)**  
**Lead (Pb) Free Product - RoHS Compliant**

**SFH 484**  
**SFH 485**



SFH 484



SFH 485

**Wesentliche Merkmale**

- GaAlAs-LED mit sehr hohem Wirkungsgrad
- Hohe Zuverlässigkeit
- UL Version erhältlich
- Gute spektrale Anpassung an Si-Fotoempfänger
- Gegurtet lieferbar (im Ammo-Pack)
- Gruppiert lieferbar
- SFH 484: Gehäusegleich mit LD 274
- SFH 485: Gehäusegleich mit SFH 300, SFH 203

**Features**

- Very highly efficient GaAlAs-LED
- High reliability
- UL version available
- Spectral match with silicon photodetectors
- Available on tape and reel (in Ammopack)
- Available in bins
- SFH 484: Same package as LD 274
- SFH 485: Same package as SFH 300, SFH 203

**Anwendungen**

- IR-Fernsteuerungen
- Rauchmelder
- Sensorik
- Diskrete Lichtschranken

**Applications**

- IR remote controls
- Smoke detectors
- Sensor technology
- Discrete interrupters

| Typ<br>Type          | Bestellnummer<br>Ordering Code | Gehäuse<br>Package  |
|----------------------|--------------------------------|---|
| SFH 484              | Q62703Q1092                    | 5-mm-LED-Gehäuse (T 1 <sup>3</sup> / <sub>4</sub> ), klares violette Epoxy-Gießharz, Anschlüsse im 2.54-mm-Raster (1/10"), Anodenkennzeichnung: kürzerer Anschluß<br>5 mm LED package (T 1 <sup>3</sup> / <sub>4</sub> ), violet-colored epoxy resin, solder tabs lead spacing 2.54 mm (1/10"), anode marking: short lead |
| SFH 484-2            | Q62703Q1756                    |   |
| SFH 484-2 E7517 (UL) | Q62703Q2392                    |   |
| SFH 484-2 E9548 (UL) | Q65110A1434                    |   |
| SFH 485              | Q62703Q1093                    |   |
| SFH 485-2            | Q62703Q1547                    |   |

Grenzwerte ( $T_A = 25\text{ °C}$ )

## Maximum Ratings

| Bezeichnung<br>Parameter  | Symbol<br>Symbol  | Wert<br>Value  | Einheit<br>Unit |
|---|-------------------|----------------|-----------------|
| Betriebs- und Lagertemperatur<br>Operating and storage temperature range  | $T_{op}; T_{stg}$ | - 40 ... + 100 | °C              |
| Sperrspannung<br>Reverse voltage  | $V_R$             | 5              | V               |
| Durchlaßstrom<br>Forward current  | $I_F$             | 100            | mA              |
| Stoßstrom, $t_p = 10\text{ }\mu\text{s}$ , $D = 0$<br>Surge current   | $I_{FSM}$         | 2.5            | A               |
| Verlustleistung<br>Power dissipation  | $P_{tot}$         | 200            | mW              |
| Wärmewiderstand, freie Beinchenlänge<br>max. 10 mm<br>Thermal resistance, lead length between<br>package bottom and PC-board max. 10 mm | $R_{thJA}$        | 375            | K/W             |

Kennwerte ( $T_A = 25\text{ °C}$ )

## Characteristics

| Bezeichnung<br>Parameter  | Symbol<br>Symbol             | Wert<br>Value                              | Einheit<br>Unit |
|---|------------------------------|--|-----------------|
| Wellenlänge der Strahlung<br>Wavelength at peak emission<br>$I_F = 100\text{ mA}$   | $\lambda_{\text{peak}}$      | 880  | nm              |
| Spektrale Bandbreite bei 50% von $I_{\text{rel}}$<br>Spectral bandwidth at 50% of $I_{\text{rel}}$<br>$I_F = 100\text{ mA}$   | $\Delta\lambda$              | 80   | nm              |
| Abstrahlwinkel<br>Half angle<br>SFH 484<br>SFH 485  | $\varphi$<br>$\varphi$       | $\pm 8$<br>$\pm 20$                        | Grad<br>deg.    |
| Aktive Chipfläche<br>Active chip area   | $A$                          | 0.09                                       | mm <sup>2</sup> |
| Abmessungen der aktiven Chipfläche<br>Dimension of the active chip area   | $L \times B$<br>$L \times W$ | $0.3 \times 0.3$                           | mm <sup>2</sup> |
| Abstand Chipoberfläche bis Linsenscheitel<br>Distance chip front to lens top<br>SFH 484<br>SFH 485  | $H$<br>$H$                   | 5.1 ... 5.7<br>4.2 ... 4.8                 | mm<br>mm        |
| Schaltzeiten, $I_e$ von 10% auf 90% und von 90%<br>auf 10%, bei $I_F = 100\text{ mA}$ , $R_L = 50\ \Omega$<br>Switching times, $I_e$ from 10% to 90% and from<br>90% to 10%, $I_F = 100\text{ mA}$ , $R_L = 50\ \Omega$ | $t_r, t_f$                   | 0.6/0.5                                    | $\mu\text{s}$   |
| Kapazität<br>Capacitance<br>$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$   | $C_o$                        | 15   | pF              |
| Durchlaßspannung<br>Forward voltage<br>$I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$<br>$I_F = 1\text{ A}$ , $t_p = 100\ \mu\text{s}$  | $V_F$<br>$V_F$               | 1.50 ( $\leq 1.8$ )<br>3.00 ( $\leq 3.8$ ) | V<br>V          |
| Sperrstrom,<br>Reverse current<br>$V_R = 5\text{ V}$  | $I_R$                        | 0.01 ( $\leq 1$ )                          | $\mu\text{A}$   |
| Gesamtstrahlungsfluß,<br>Total radiant flux<br>$I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$   | $\Phi_e$                     | 25   | mW              |

**Kennwerte** ( $T_A = 25\text{ °C}$ )  
**Characteristics** (cont'd)

| Bezeichnung<br>Parameter  | Symbol<br>Symbol | Wert<br>Value | Einheit<br>Unit |
|---|------------------|---------------|-----------------|
| Temperaturkoeffizient von $I_e$ bzw. $\Phi_e$ ,<br>$I_F = 100\text{ mA}$<br>Temperature coefficient of $I_e$ or $\Phi_e$ ,<br>$I_F = 100\text{ mA}$ | $TC_I$           | - 0.5         | %/K             |
| Temperaturkoeffizient von $V_F$ , $I_F = 100\text{ mA}$<br>Temperature coefficient of $V_F$ , $I_F = 100\text{ mA}$                                 | $TC_V$           | - 2           | mV/K            |
| Temperaturkoeffizient von $\lambda$ , $I_F = 100\text{ mA}$<br>Temperature coefficient of $\lambda$ , $I_F = 100\text{ mA}$                         | $TC_\lambda$     | 0.25          | nm/K            |

**Gruppierung der Strahlstärke  $I_e$  in Achsrichtung**

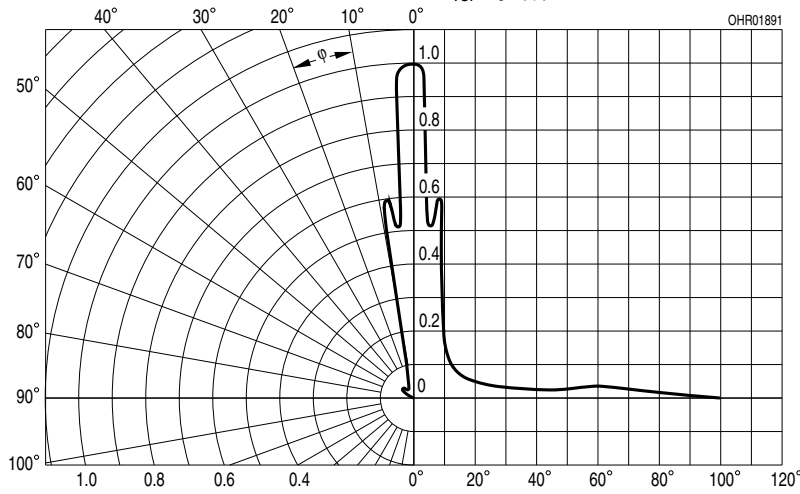
gemessen bei einem Raumwinkel  $\Omega = 0.001\text{ sr}$  bei SFH 484 bzw.  $\Omega = 0.01\text{ sr}$  bei SFH 485

**Grouping of Radiant Intensity  $I_e$  in Axial Direction**

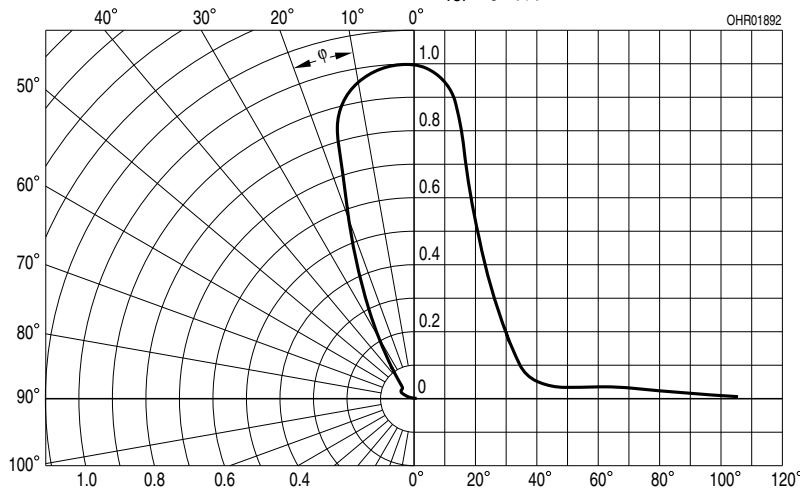
at a solid angle of  $\Omega = 0.001\text{ sr}$  at SFH 484 or  $\Omega = 0.01\text{ sr}$  at SFH 485

| Bezeichnung<br>Parameter  | Symbol                                   | Wert<br>Value |              |              |            |              | Einheit<br>Unit |
|---|--|---------------|--------------|--------------|------------|--------------|-----------------|
|   |  | SFH<br>484    | SFH<br>484-1 | SFH<br>484-2 | SFH<br>485 | SFH<br>485-2 |                 |
| Strahlstärke<br>Radiant intensity<br>$I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$ | $I_{e\text{ min}}$<br>$I_{e\text{ max}}$ | 50<br>-       | 50<br>100    | 80<br>-      | 25<br>160  | 25<br>100    | mW/sr<br>mW/sr  |

**Radiation Characteristics, SFH 484**  $I_{rel} = f(\varphi)$

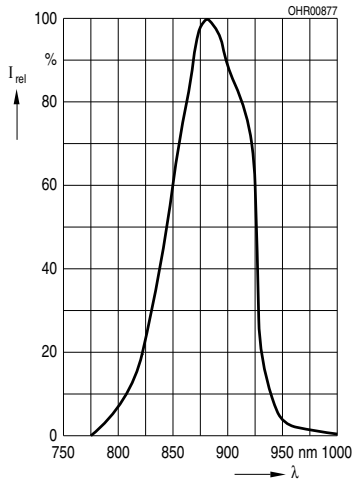


**Radiation Characteristics SFH 485**  $I_{rel} = f(\varphi)$



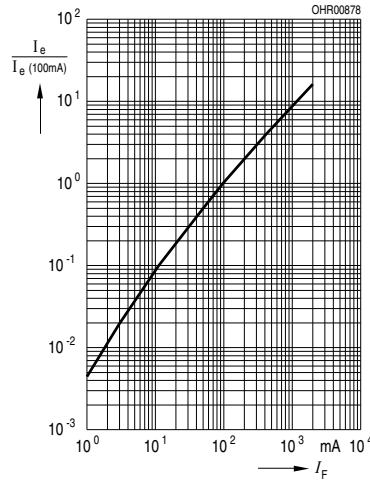
**Relative Spectral Emission**

$I_{rel} = f(\lambda)$



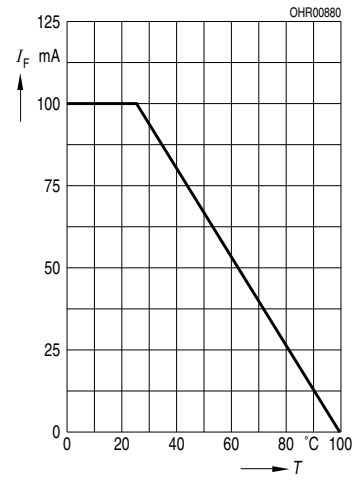
**Radiant Intensity**  $\frac{I_e}{I_e 100 \text{ mA}} = f(I_F)$

Single pulse,  $t_p = 20 \mu\text{s}$



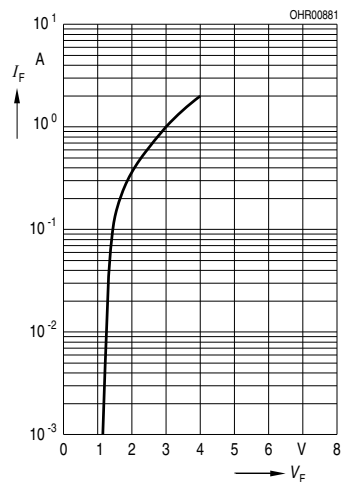
**Max. Permissible Forward Current**

$I_F = f(T_A)$

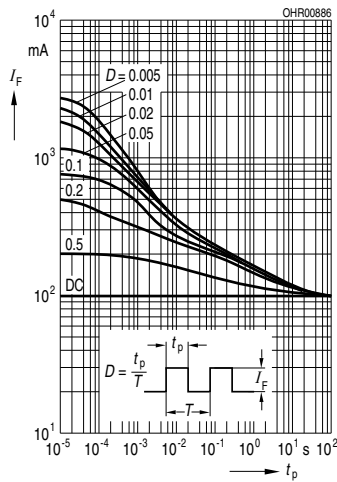


**Forward Current**

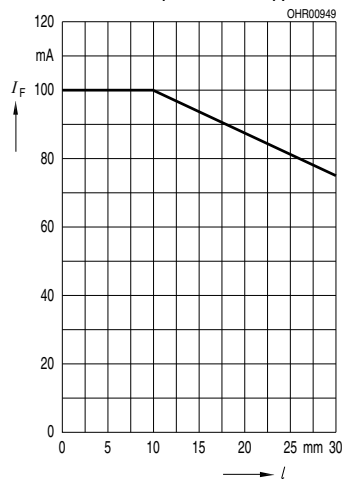
$I_F = f(V_F)$ , single pulse,  $t_p = 20 \mu\text{s}$



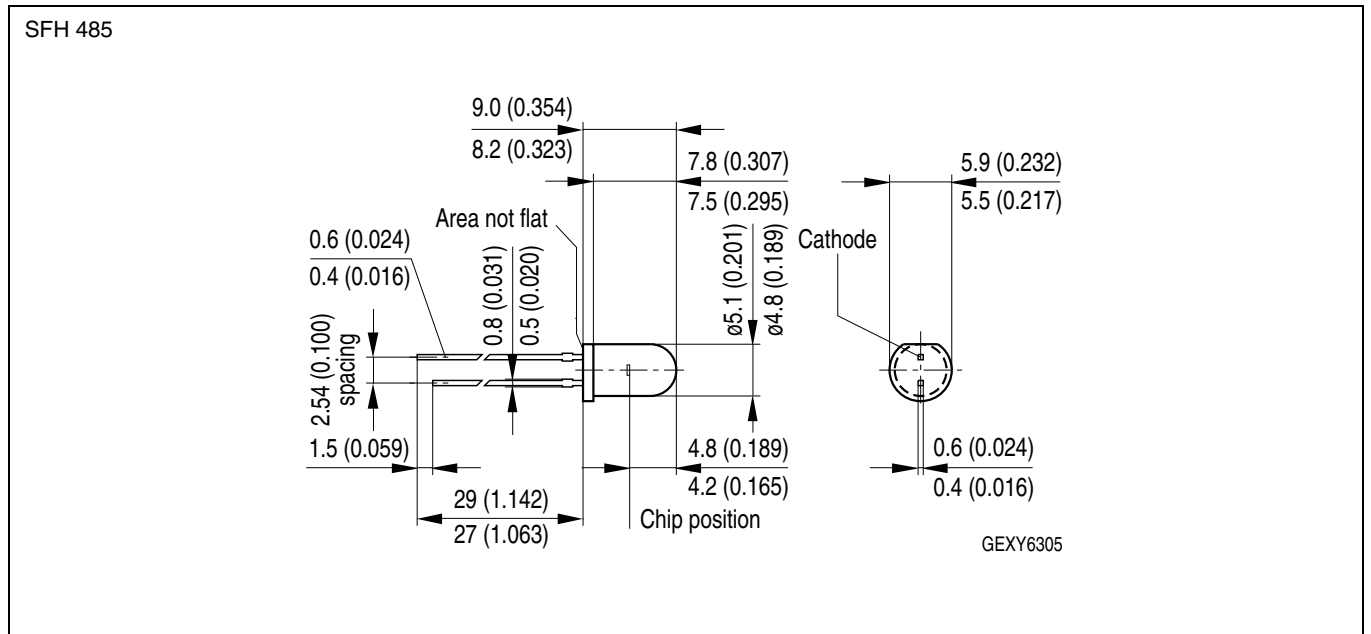
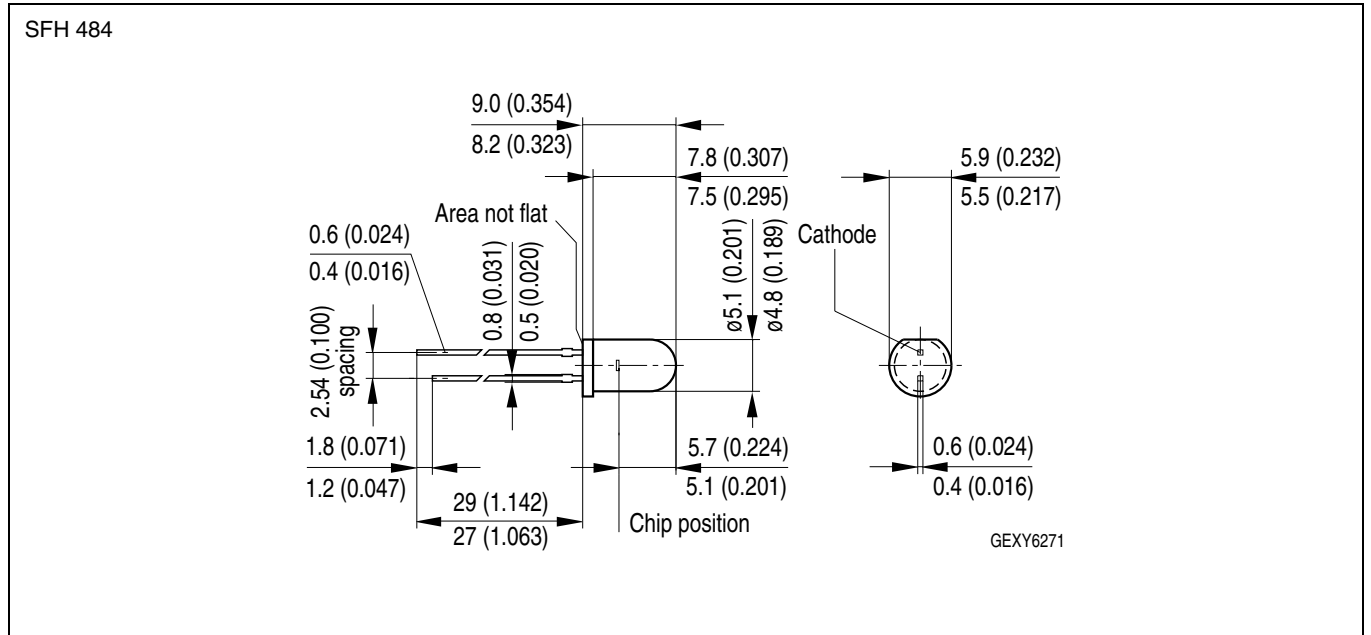
**Permissible Pulse Handling Capability**  $I_F = f(\tau)$ ,  $T_A = 25^\circ\text{C}$ , duty cycle  $D =$  parameter



**Forward Current vs. Lead Length between the Package Bottom and the PC-Board**  $I_F = f(l)$ ,  $T_A = 25^\circ\text{C}$



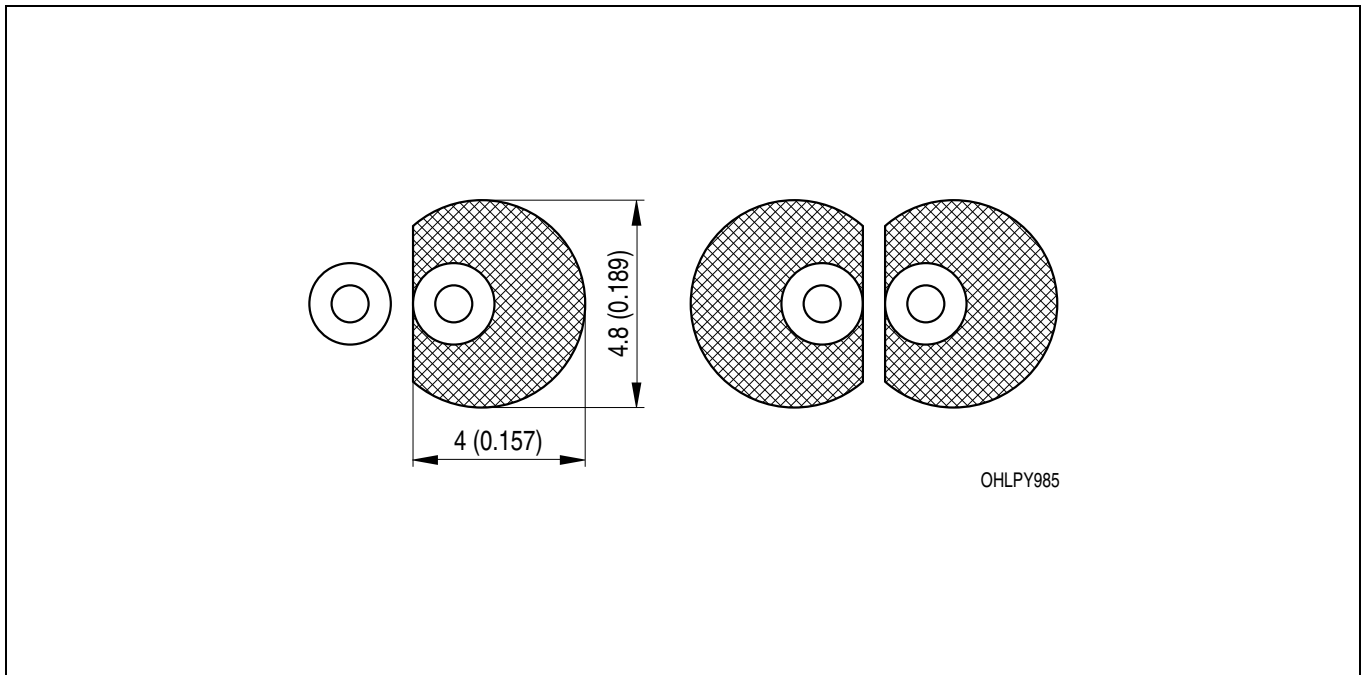
Maßzeichnung  
Package Outlines



Maße in mm (inch) / Dimensions in mm (inch).

**Empfohlenes Lötpaddesign**  
**Recommended Solder Pad**

Wellenlöten (TTW)  
 TTW Soldering

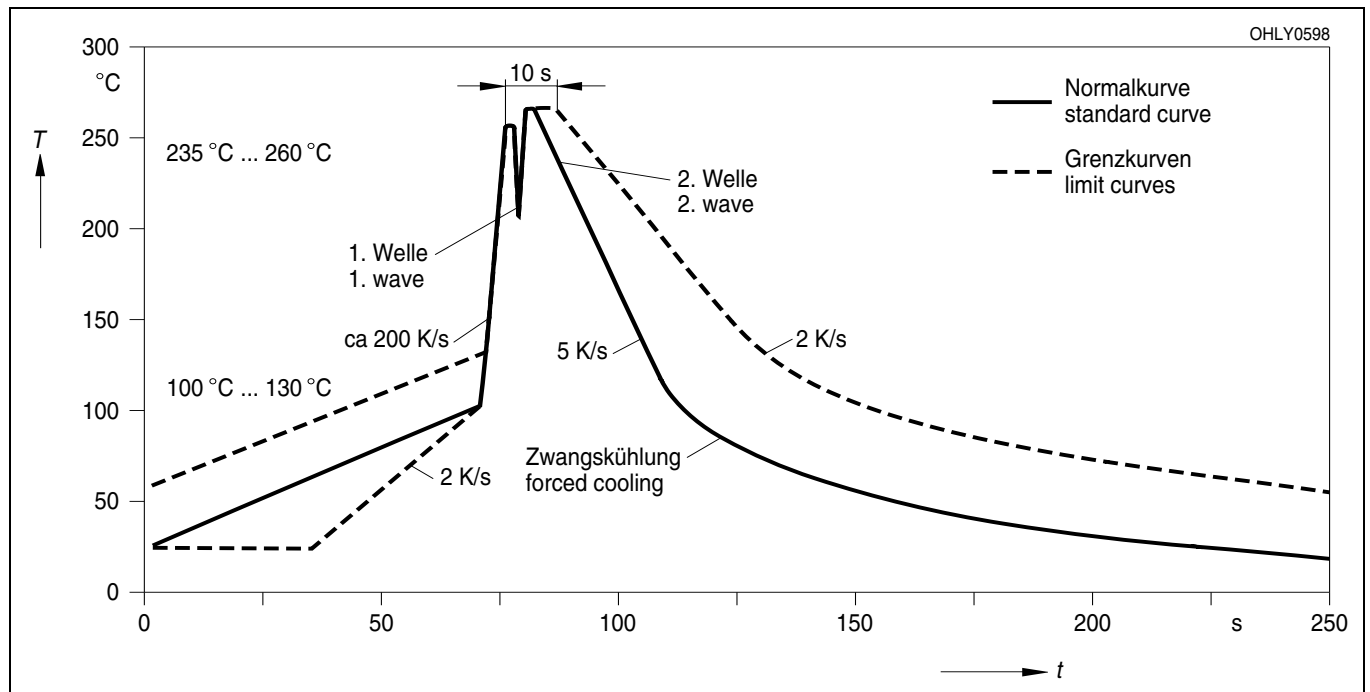


Maße in mm (inch) / Dimensions in mm (inch).



**Lötbedingungen**  
**Soldering Conditions**  
**Wellenlöten (TTW)**  
**TTW Soldering**

(nach CECC 00802)  
(acc. to CECC 00802)



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