

Hyper TOPLED® White LED

LW T676



Vorläufige Daten / Preliminary Data

Besondere Merkmale

- **Gehäusetyp:** weißes P-LCC-2 Gehäuse
- **Besonderheit des Bauteils:** extrem breite Abstrahlcharakteristik; ideal für Hinterleuchtungen und Einkopplungen in Lichtleiter
- **Farbort:** $x = 0,30$, $y = 0,32$ nach CIE 1931 (weiß)
- **typische Farbtemperatur:** 7300 K
- **Farbwiedergabeindex:** 85
- **Abstrahlwinkel:** extrem breite Abstrahlcharakteristik (120°)
- **Technologie:** GaN
- **optischer Wirkungsgrad:** 2 lm/W
- **Gruppierungsparameter:** Lichtstärke, Farbort
- **Verarbeitungsmethode:** für alle SMT-Bestücktechniken geeignet
- **Lötmethode:** IR Reflow Löten und Wellenlöten (TTW)
- **Vorbehandlung:** nach JEDEC Level 2
- **Gurtung:** 8 mm Gurt mit 2000/Rolle, $\varnothing 180$ mm oder 8000/Rolle, $\varnothing 330$ mm
- **ESD-Festigkeit:** ESD-sicher bis 2 kV nach MIL STD 883 D, Method 3015.7

Anwendungen

- Informationsanzeigen im Innenbereich
- Hinterleuchtung (LCD, Schalter, Tasten, Displays, Werbebeleuchtung, Allgemeinbeleuchtung)
- Innenbeleuchtung im Automobilbereich (z.B. Instrumentenbeleuchtung, u.ä.)
- Signal- und Symbolleuchten
- Markierungsbeleuchtung (z.B. Stufen, Fluchtwege, u.ä.)
- Allgemeinbeleuchtung

Features

- **package:** white P-LCC-2 package
- **feature of the device:** extremely wide viewing angle; ideal for backlighting and coupling in light guides
- **color coordinates:** $x = 0.30$, $y = 0.32$ acc. to CIE 1931 (white)
- **typ. color temperature:** 7300 K
- **color reproduction index:** 85
- **viewing angle:** extremely wide (120°)
- **technology:** GaN
- **optical efficiency:** 2 lm/W
- **grouping parameter:** luminous intensity, color coordinates
- **assembly methods:** suitable for all SMT assembly methods
- **soldering methods:** IR reflow soldering and TTW soldering
- **preconditioning:** acc. to JEDEC Level 2
- **taping:** 8 mm tape with 2000/reel, $\varnothing 180$ mm or 8000/reel, $\varnothing 330$ mm
- **ESD-withstand voltage:** up to 2 kV acc. to MIL STD 883 D, Method 3015.7

Applications

- indoor displays
- backlighting (LCD, switches, keys, displays, illuminated advertising, general lighting)
- interior automotive lighting. (e.g. dashboard backlighting, etc.)
- signal and symbol luminaire
- marker lights (e.g. steps, exit ways, etc.)
- general lighting

Typ	Emissions- farbe	Farbe der Lichtaustritts- fläche	Lichtstärke	Lichtstrom	Bestellnummer
Type	Color of Emission	Color of the Light Emitting Area	Luminous Intensity $I_F = 10 \text{ mA}$ $I_V \text{ (mcd)}$	Luminous Flux $I_F = 10 \text{ mA}$ $\Phi_V \text{ (lm)}$	Ordering Code
LW T676-M1N1-1	white	colored diffused	18.0 ... 35.5	80.3 (typ.)	Q62703-Q5107
LW T676-N1P2-1			28.0 ... 71.0	148.5 (typ.)	Q62703-Q5108
LW T676-M1			18.0 ... 22.4	60.6 (typ.)	
LW T676-M2			22.4 ... 28.0	75.6 (typ.)	
LW T676-N1			28.0 ... 35.5	95.3 (typ.)	
LW T676-N2			35.5 ... 45.0	120.8 (typ.)	
LW T676-P1			45.0 ... 56.0	151.5 (typ.)	
LW T676-P2			56.0 ... 71.0	190.5 (typ.)	

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 Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebstemperatur Operating temperature range	T_{op}	- 40 ... + 100	°C
Lagertemperatur Storage temperature range	T_{stg}	- 40 ... + 100	°C
Sperrschichttemperatur Junction temperature	T_j	+ 100	°C
Durchlaßstrom Forward current	I_F	20	mA
Sperrspannung Reverse voltage	V_R	5	V
Leistungsaufnahme Power dissipation $T_A \leq 25 \text{ °C}$	P_{tot}	90	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/ambient	$R_{th JA}$	500	K/W
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 $\geq 16 \text{ mm}^2$)	$R_{th JS}$	280	K/W

Kennwerte ($T_A = 25\text{ °C}$)

Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Farbkoordinate x nach CIE 1931 ¹⁾ (typ.) Chromaticity coordinate x acc. to CIE 1931 ¹⁾ $I_F = 10\text{ mA}$	x	0.30	–
Farbkoordinate y nach CIE 1931 ¹⁾ (typ.) Chromaticity coordinate y acc. to CIE 1931 ¹⁾ $I_F = 10\text{ mA}$	y	0.32	–
Abstrahlwinkel bei 50 % I_V (Vollwinkel) (typ.) Viewing angle at 50 % I_V	2 ϕ	120	Grad deg.
Durchlaßspannung (typ.) Forward voltage (max.) $I_F = 10\text{ mA}$	V_F V_F	3.5 4.2	V V
Sperrstrom (typ.) Reverse current (max.) $V_R = 5\text{ V}$	I_R I_R	0.01 10	μA μA
Temperaturkoeffizient von x (typ.) Temperature coefficient of y $I_F = 10\text{ mA}$	TC_x	0.07	$10^{-3}/\text{K}$
Temperaturkoeffizient von y (typ.) Temperature coefficient of y $I_F = 10\text{ mA}$	TC_y	0.25	$10^{-3}/\text{K}$
Temperaturkoeffizient von V_F (typ.) Temperature coefficient of V_F $I_F = 10\text{ mA}$	TC_V	– 3.1	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 10\text{ mA}$	η_{opt}	2	lm/W

1) **Farbortgruppen****Chromaticity coordinate groups**

Gruppe Group	x		y	
	min.	max.	min.	max.
3	0.280	0.305	0.295	0.325
4	0.290	0.315	0.310	0.340
5	0.295	0.320	0.340	0.370
6	0.305	0.330	0.355	0.385

Farbortgruppen werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von $\pm 0,01$ ermittelt.

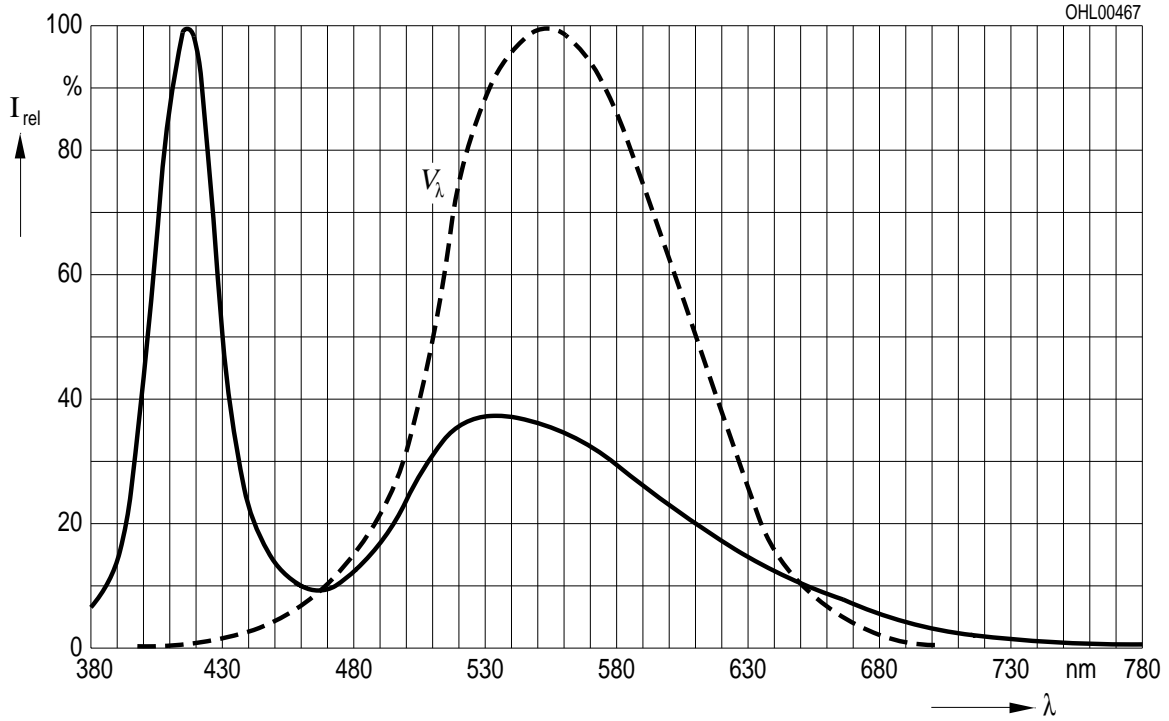
Chromaticity coordinate groups are tested at a current pulse duration of 25 ms and an accuracy of ± 0.01 .

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

Relative Spectral Emission

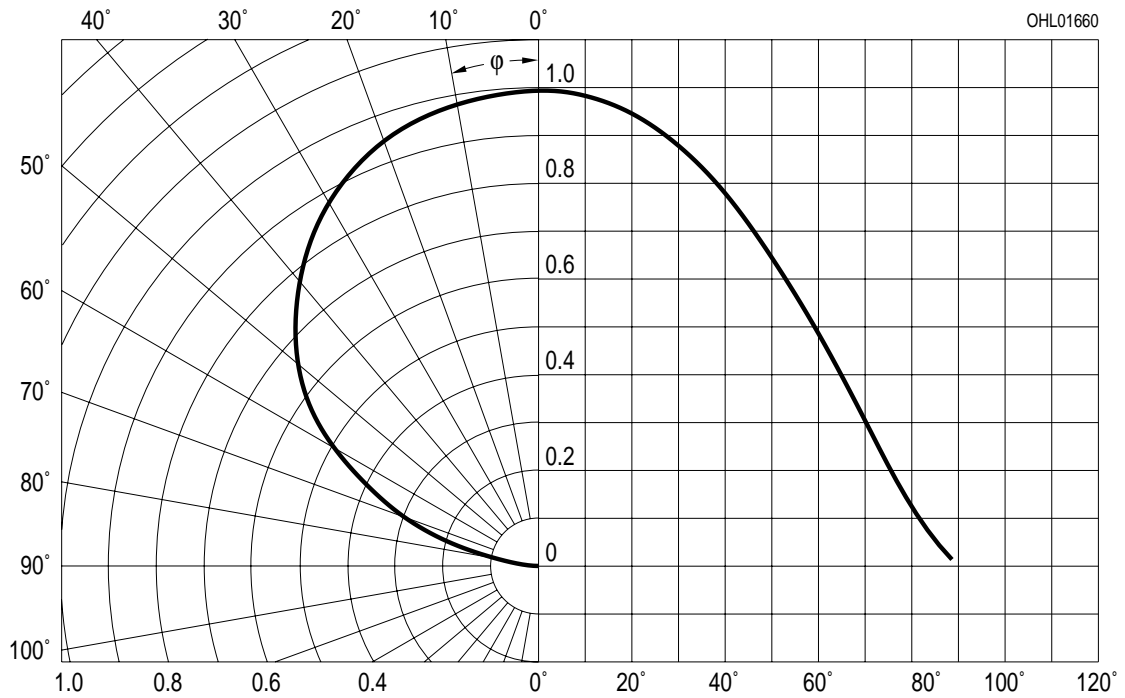
$V(\lambda)$ = spektrale Augenempfindlichkeit

Standard eye response curve



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

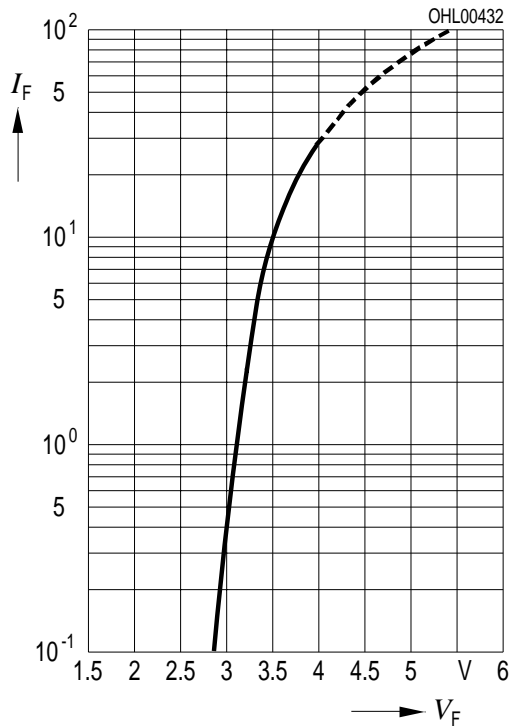
Radiation Characteristic



Durchlaßstrom $I_F = f(V_F)$

Forward Current

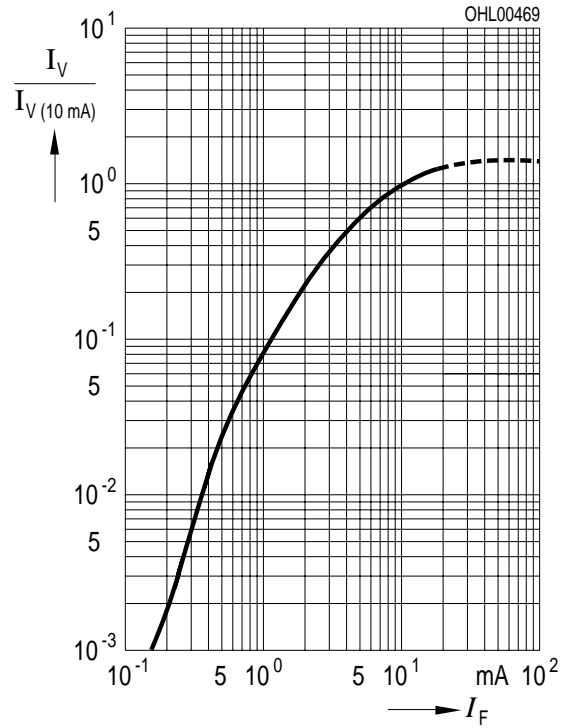
$T_A = 25\text{ °C}$



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

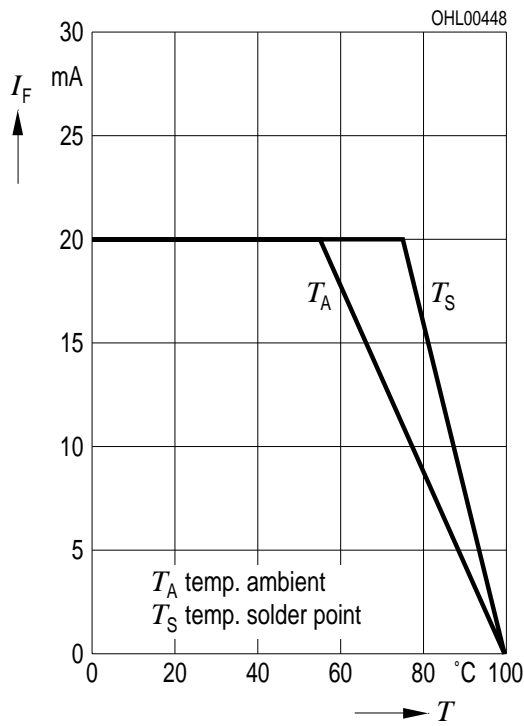
Relative Luminous Intensity

$T_A = 25\text{ °C}$



Maximal zulässiger Durchlaßstrom $I_F = f(T)$

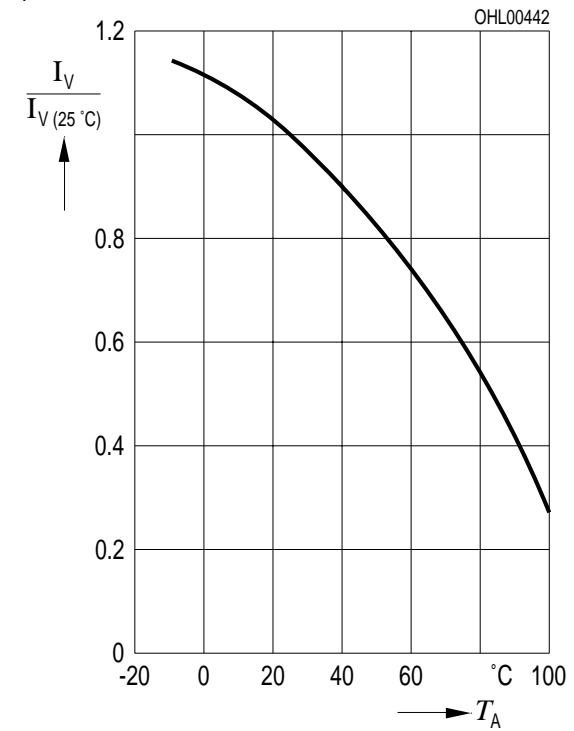
Max. Permissible Forward Current



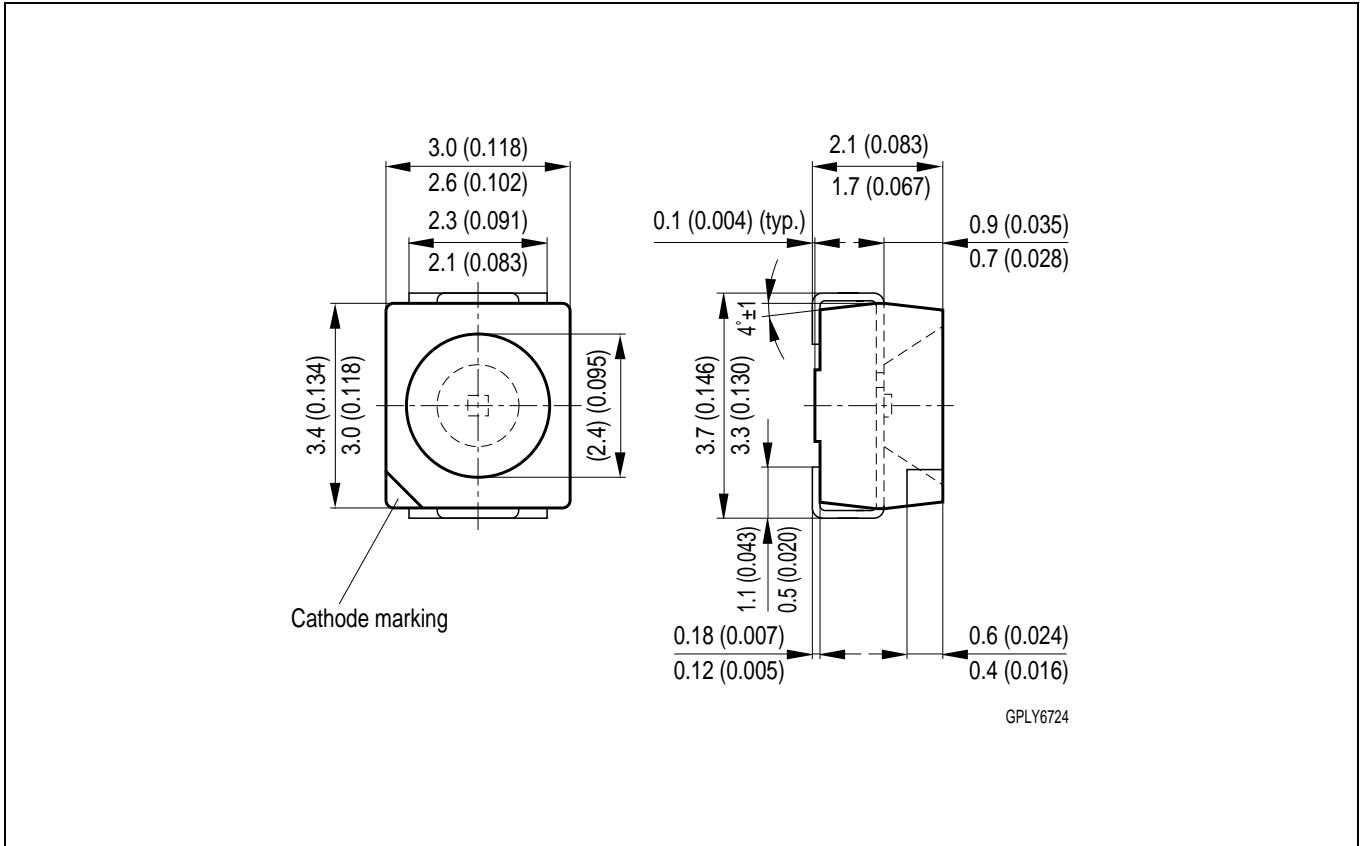
Relative Lichtstärke $I_V/I_{V(25\text{ °C})} = f(T_A)$

Relative Luminous Intensity

$I_F = 10\text{ mA}$



**Maßzeichnung
Package Outlines**

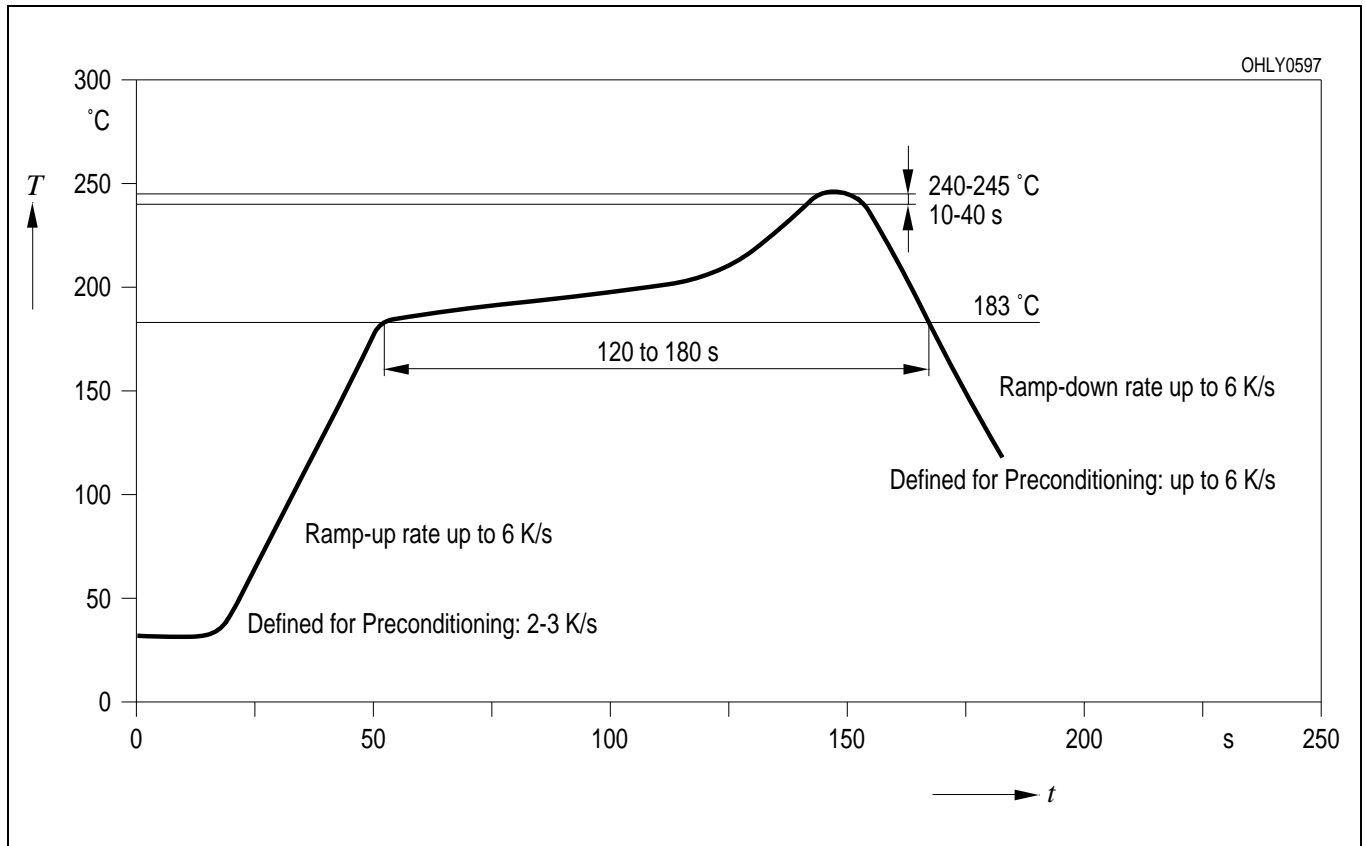


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

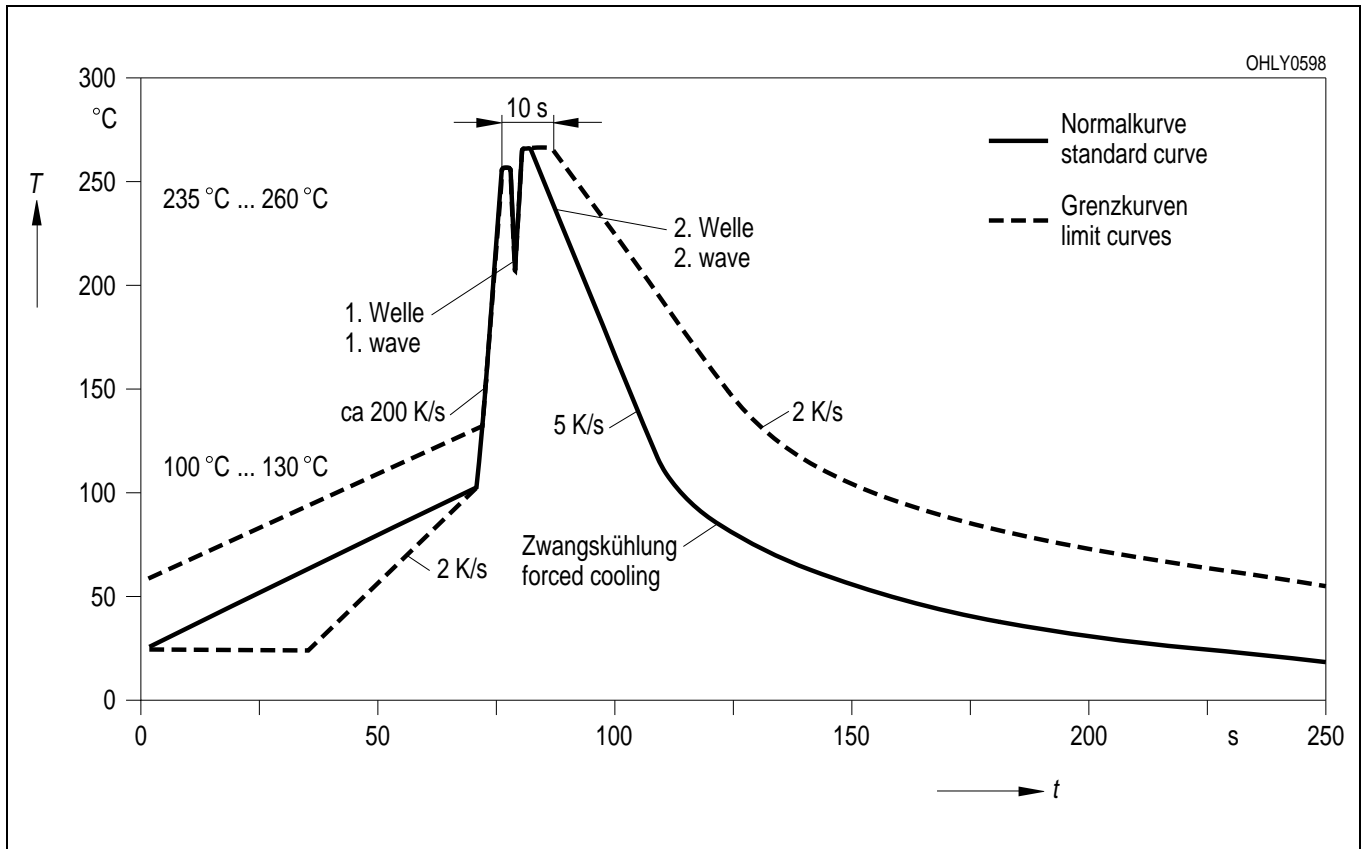
Kathodenkennung: abgeschrägte Ecke
Cathode mark: bevelled edge

Lötbedingungen Vorbehandlung nach JEDEC Level 2
Soldering Conditions Preconditioning acc. to JEDEC Level 2

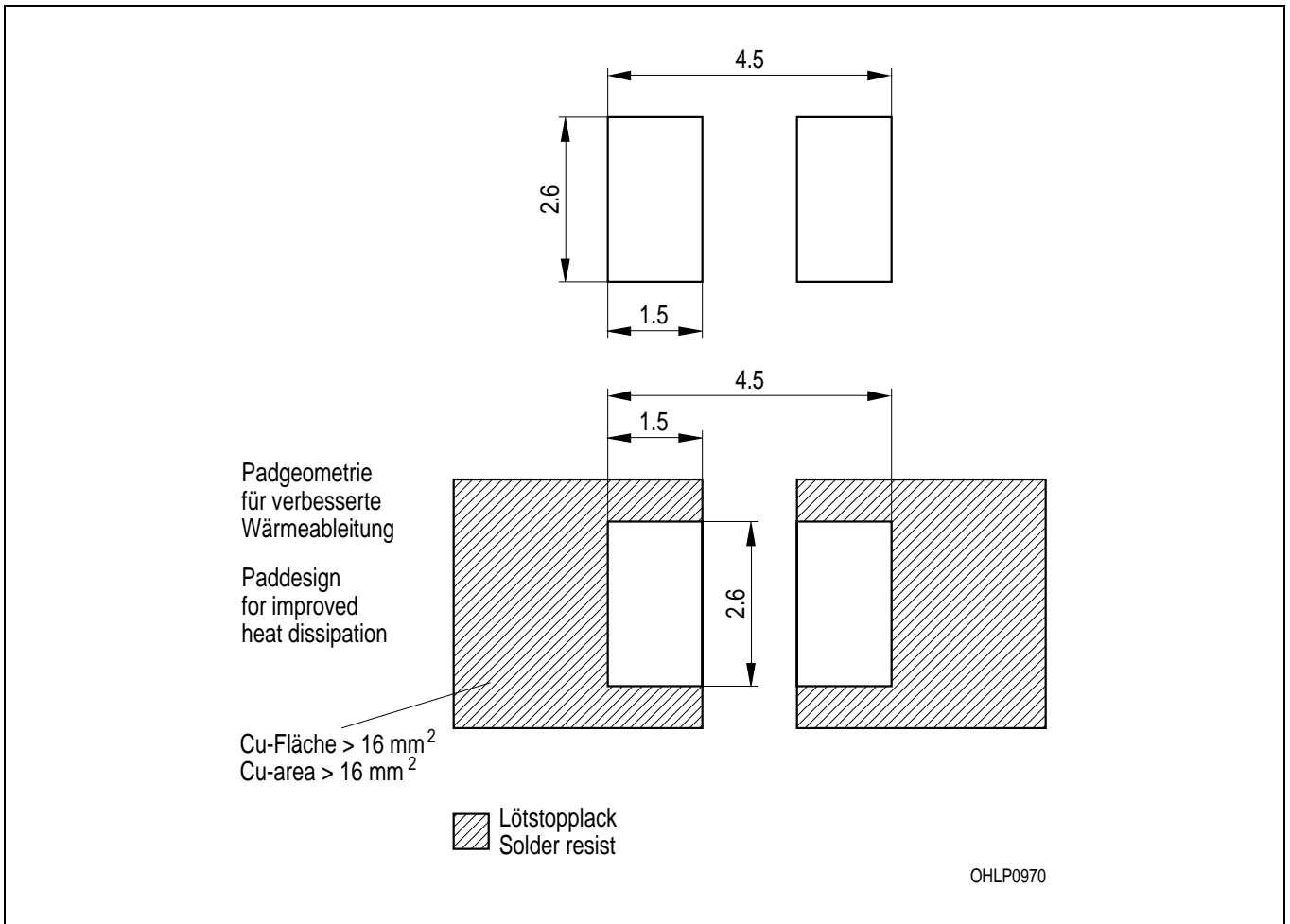
IR-Reflow Lötprofil (nach IPC 9501)
IR Reflow Soldering Profile (acc. to IPC 9501)



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



Empfohlenes Lötpadding IR Reflow Löten / Wellenlöten (TTW)
Recommended Solder Pad IR Reflow Soldering / TTW Soldering

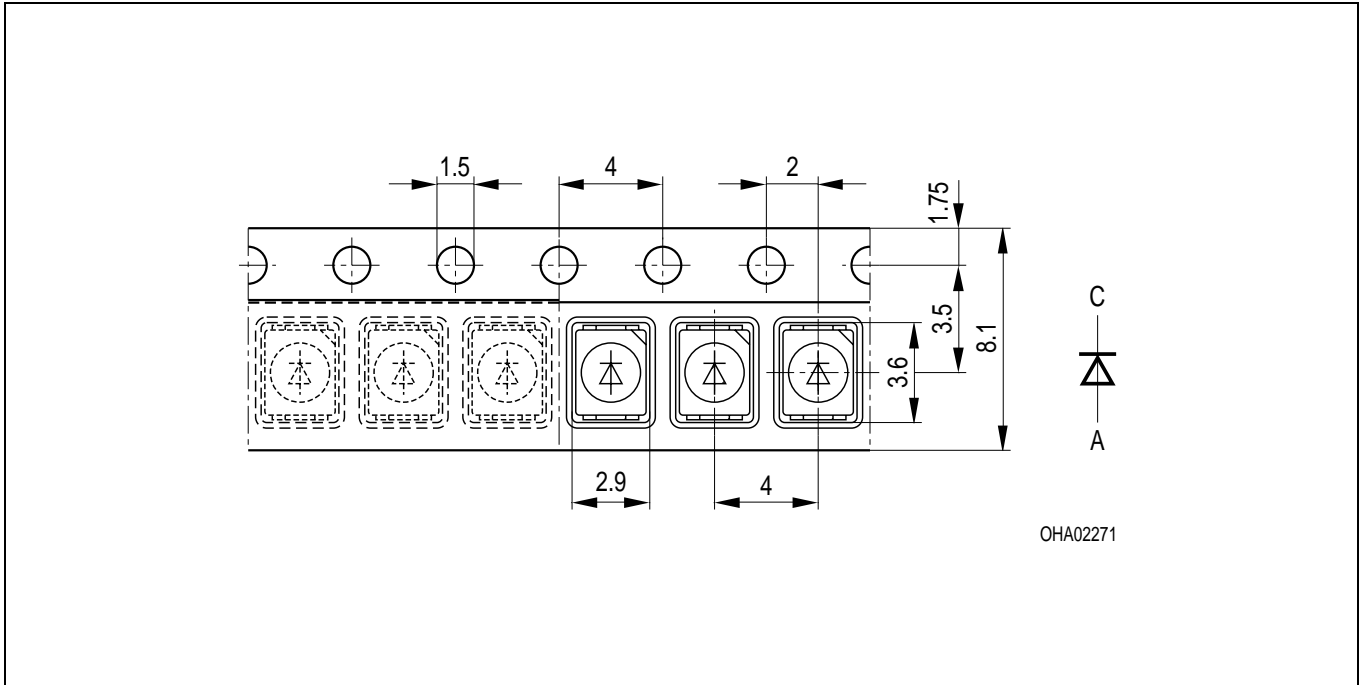


Gurtung / Polarität und Lage

Verpackungseinheit 2000/Rolle, \varnothing 180 mm
 oder 8000/Rolle, \varnothing 330 mm

Method of Taping / Polarity and Orientation

Packing unit 2000/reel, \varnothing 180 mm
 or 8000/reel, \varnothing 330 mm



Revision History: 2001-01-30

Previous Version: 2001-01-30

Page	Subjects (major changes since last revision)

Patent List

Patent No.

US 6 066 861

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