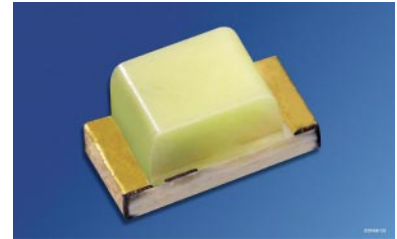


Hyper CHIPLLED Hyper-Bright LED

LW Q983



Besondere Merkmale

- **Gehäusotyp:** SMT Gehäuse 0603
- **Besonderheit des Bauteils:** kleinste Bauform 1,6 x 0,8 x 0,8 mm (LxBxH)
- **Farbort:** x = 0,35, y = 0,34 nach CIE 1931 (weiß)
- **Typische Farbtemperatur:** 4770 K
- **Farbwiedergabeindex:** 85
- **Abstrahlwinkel:** extrem breite Abstrahlcharakteristik (160°)
- **Technologie:** InGaN
- **optischer Wirkungsgrad:** 4 lm/W
- **Gruppierungsparameter:** Lichtstärke, Farbort
- **Verarbeitungsmethode:** für alle SMT-Bestücktechniken geeignet
- **Lötmethode:** IR Reflow Löten
- **Vorbehandlung:** nach JEDEC Level 2
- **Gurtung:** 8 mm Gurt mit 4000/Rolle, ø180 mm
- **ESD-Festigkeit:** ESD-sicher bis 2 kV nach EOS/ESD-5.1-1993

Anwendungen

- flache Hinterleuchtung (LCD, Handy, Schalter, Display)
- Spielsachen

Features

- **package:** SMT package 0603
- **feature of the device:** smallest package 1.6 x 0.8 x 0.8 mm (LxWxH)
- **color coordinates:** x = 0.35, y = 0.34 acc. to CIE 1931 (white)
- **typ. color temperature:** 4770 K
- **color reproduction index:** 85
- **viewing angle:** extremely wide (160°)
- **technology:** InGaN
- **optical efficiency:** 4 lm/W
- **grouping parameter:** luminous intensity, color coordinates
- **assembly methods:** suitable for all SMT assembly methods
- **soldering methods:** IR reflow soldering
- **preconditioning:** acc. to JEDEC Level 2
- **taping:** 8 mm tape with 4000/reel, ø180 mm
- **ESD-withstand voltage:** up to 2 kV acc. to EOS/ESD-5.1-1993

Applications

- flat backlighting (LCD, cellular phones, switches, displays)
- toys

Typ	Emissions- farbe	Farbe der Lichtaustritts- fläche	Lichtstärke		Bestellnummer
Type	Color of Emission	Color of the Light Emitting Area	Luminous Intensity $I_F = 10 \text{ mA}$ $I_V \text{ (mcd)}$		Ordering Code
			min.	typ.	
LW Q983	white	colored diffused	11.2	20	Q62702-P5225

Helligkeitswerte werden mit einer Stromeinprägungsdauer 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}	- 30 ... + 85	°C
Lagertemperatur Storage temperature range	T_{stg}	- 40 ... + 85	°C
Sperrschichttemperatur Junction temperature	T_j	+ 95	°C
Durchlaßstrom Forward current	I_F	15	mA
Stoßstrom Surge current $t = 10 \mu s, D = 0.1$	I_{FM}	0.1	A
Sperrspannung Reverse voltage	V_R	5	V
Leistungsaufnahme Power dissipation	P_{tot}	60	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/ambient	$R_{th JA}$	650	K/W
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 $\geq 16 \text{ mm}^2$)	$R_{th JS}$	370	K/W

Kennwerte ($T_A = 25\text{ °C}$)

Characteristics

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Farbkoordinate x nach CIE 1931 ¹⁾ Chromaticity coordinate x acc. to CIE 1931 ¹⁾ $I_F = 10\text{ mA}$	x	0.35	–
Farbkoordinate y nach CIE 1931 ¹⁾ Chromaticity coordinate y acc. to CIE 1931 ¹⁾ $I_F = 10\text{ mA}$	y	0.34	–
Abstrahlwinkel bei 50 % I_V (Vollwinkel) (typ.) Viewing angle at 50 % I_V	2φ	160	Grad deg.
Durchlaßspannung ²⁾ (typ.) Forward voltage ²⁾ (max.) $I_F = 10\text{ mA}$	V_F V_F	3.4 3.8	V V
Sperrstrom (typ.) Reverse current (max.) $V_R = 5\text{ V}$	I_R I_R	0.01 10	μA μA
Temperaturkoeffizient von λ_{peak} (typ.) Temperature coefficient of λ_{peak} $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	TC_x	–0.4	$10^{-3}/\text{K}$
Temperaturkoeffizient von λ_{dom} (typ.) Temperature coefficient of λ_{dom} $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	TC_y	–0.3	$10^{-3}/\text{K}$
Temperaturkoeffizient von V_F (typ.) Temperature coefficient of V_F $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	TC_V	–2.9	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 10\text{ mA}$	η_{opt}	4	lm/W

1) **Farbortgruppen**
Chromaticity coordinate groups

Gruppe Group	x		y	
	min.	max.	min.	max.
1	0.290	0.350	0.250	0.410
2	0.350	0.410	0.270	0.430

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 .

2) Spannungswerte werden mit einer Stromeinprägedauer von 1 ms und einer Genauigkeit von $\pm 0,05$ V ermittelt.

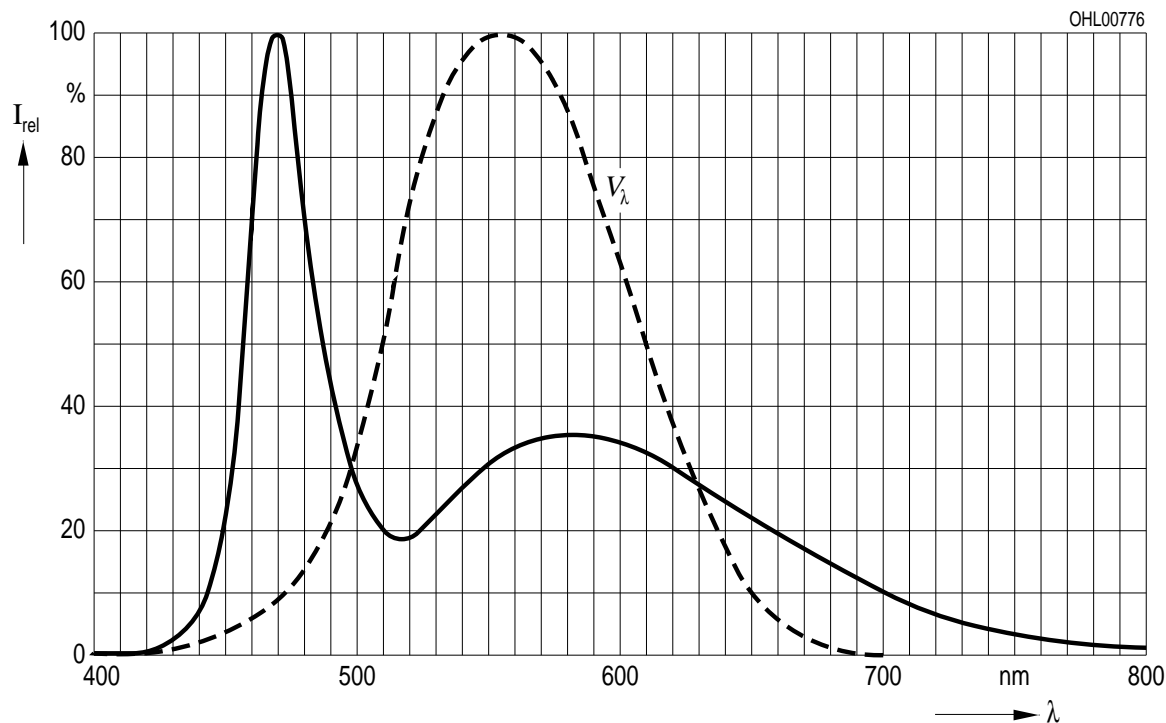
Voltages are tested at a current pulse duration of 1 ms and an accuracy of ± 0.05 V.

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

Relative Spectral Emission

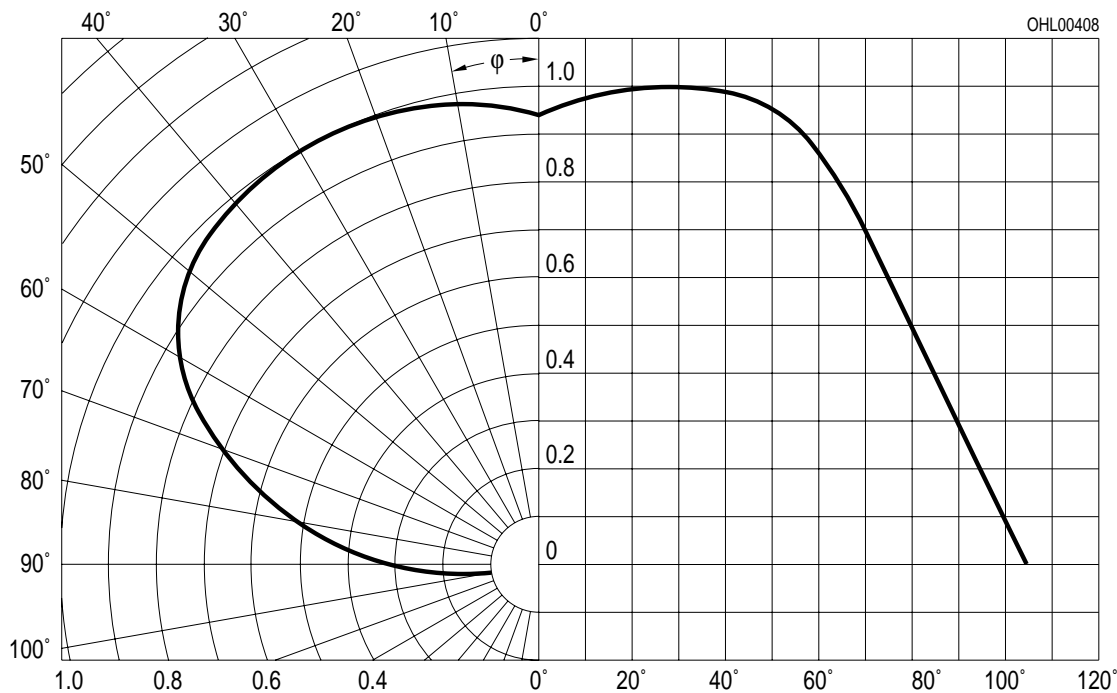
$V(\lambda)$ = spektrale Augenempfindlichkeit

Standard eye response curve



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

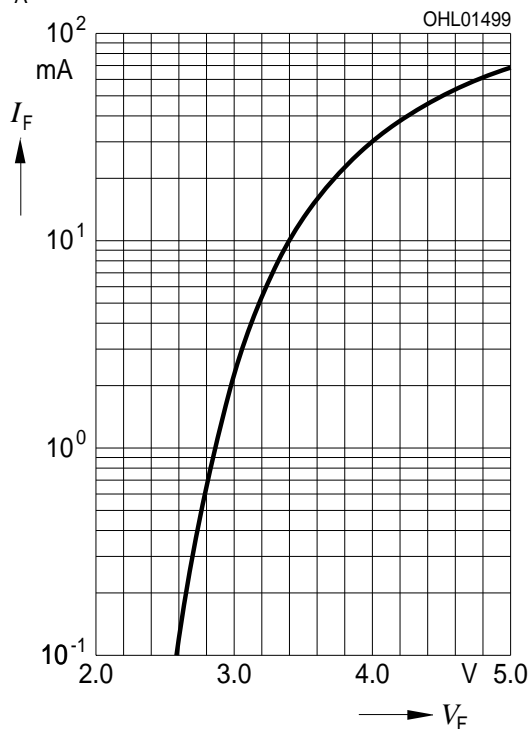
Radiation Characteristic



Durchlaßstrom $I_F = f(V_F)$

Forward Current

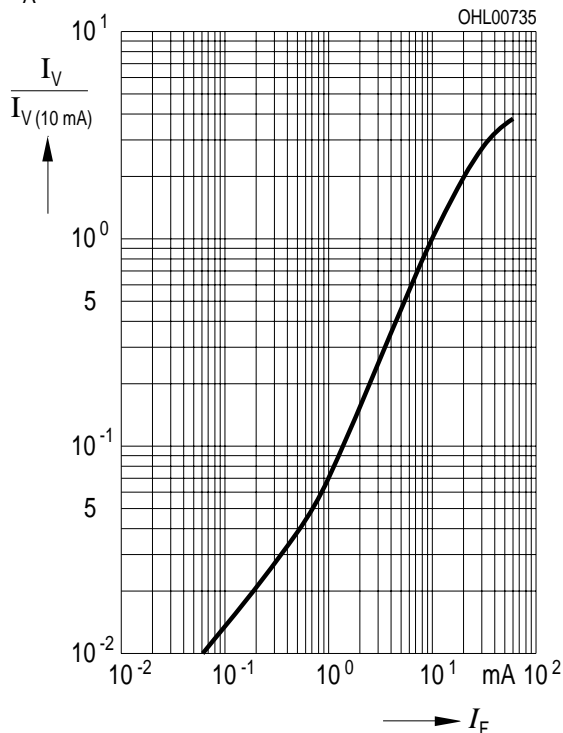
$T_A = 25\text{ °C}$



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

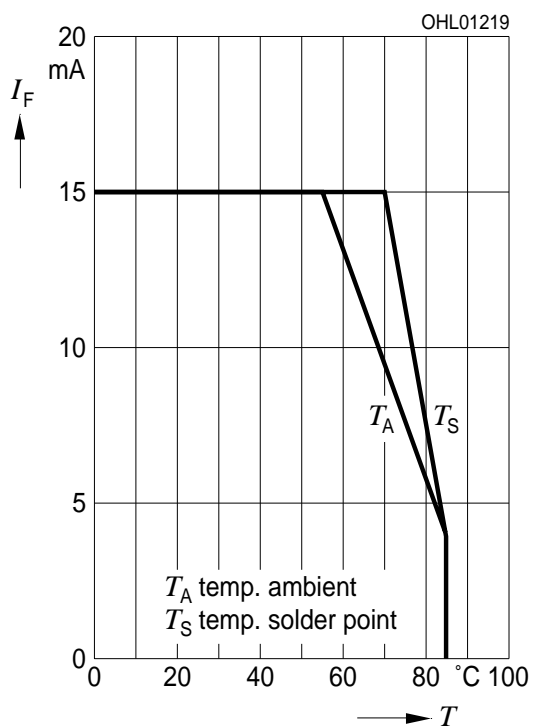
Relative Luminous Intensity

$T_A = 25\text{ °C}$



Maximal zulässiger Durchlaßstrom $I_F = f(T)$

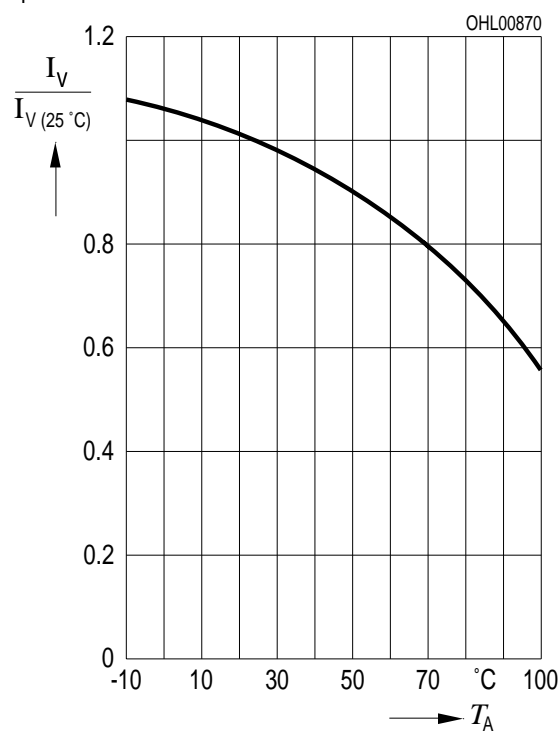
Max. Permissible Forward Current



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

Relative Luminous Intensity

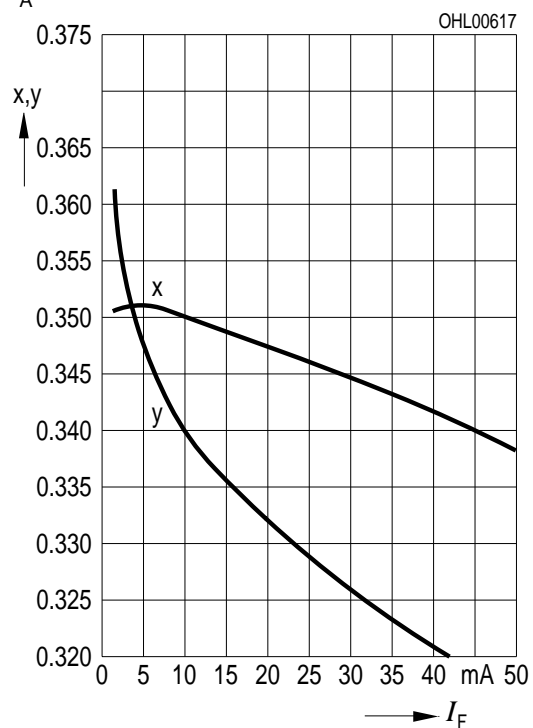
$I_F = 10\text{ mA}$

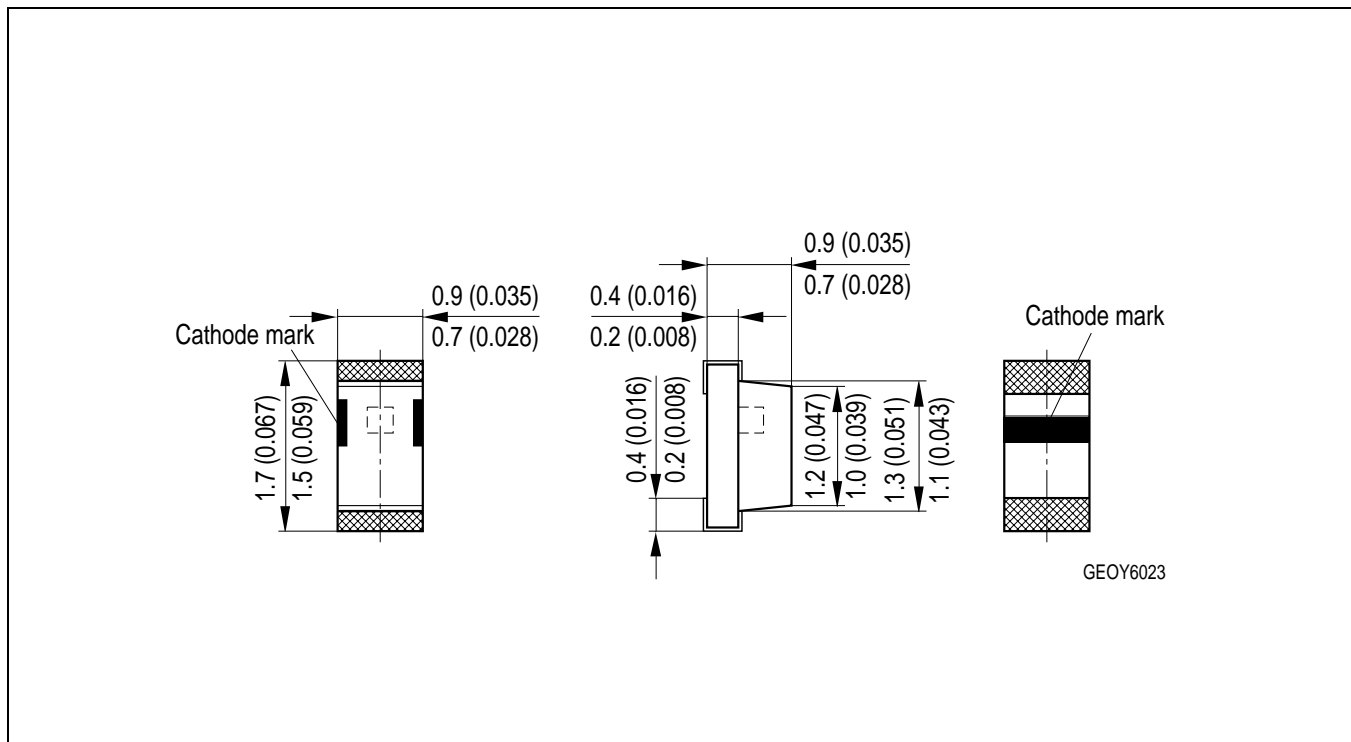


Farbortverschiebung $x, y = f(I)$

Chromaticity Coordinate Shift

$T_A = 25\text{ °C}$

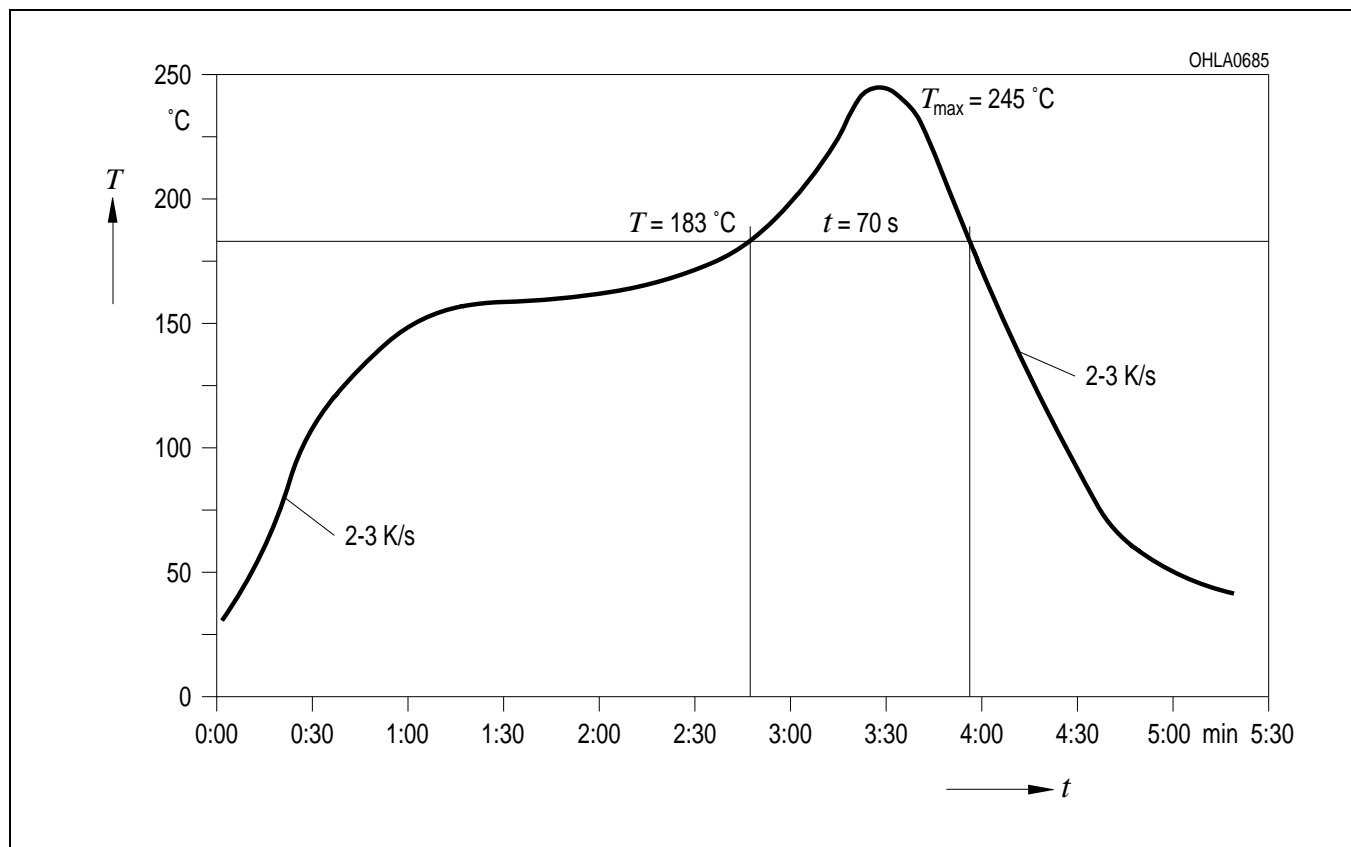


**Maßzeichnung
Package Outlines**

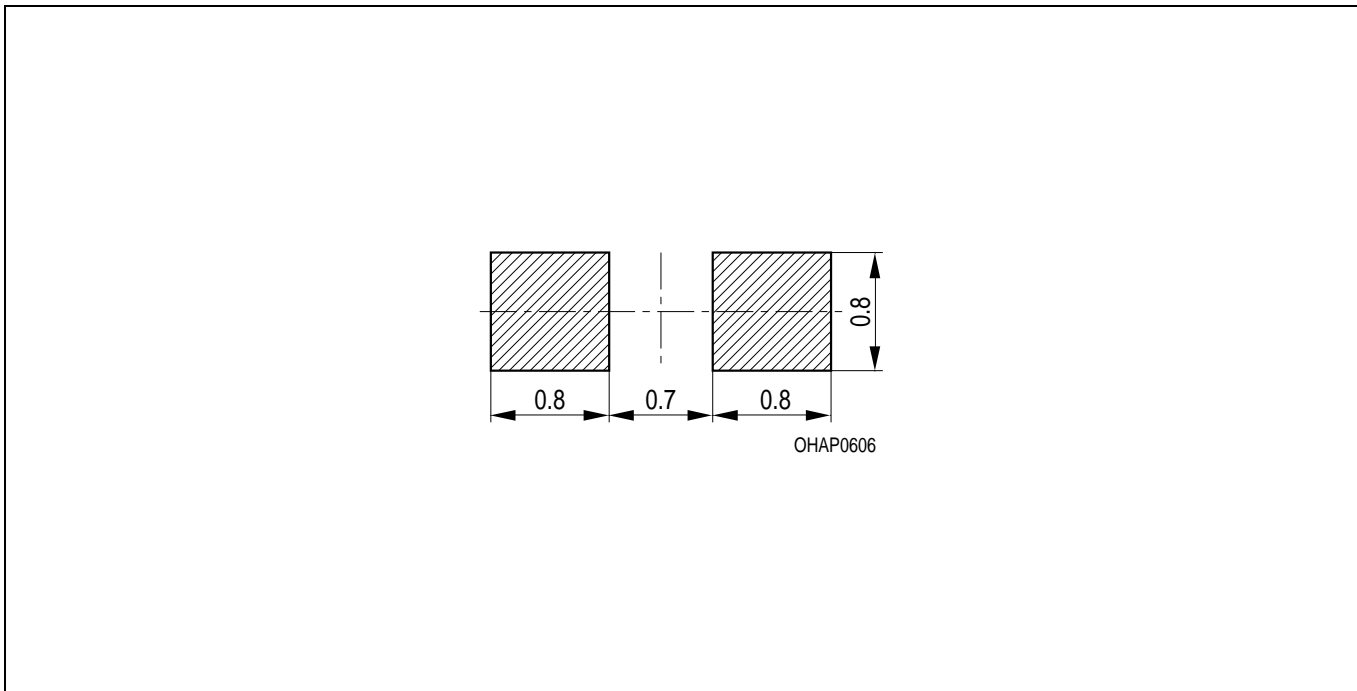
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

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

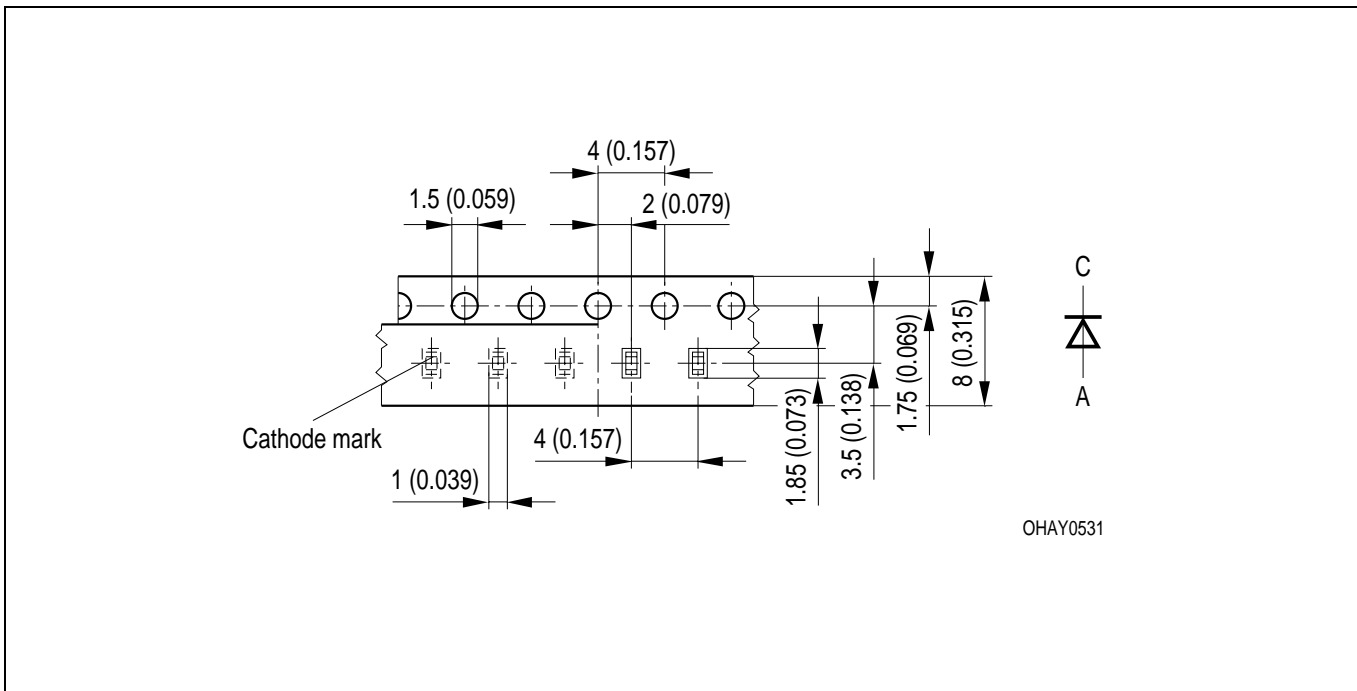
IR-Reflow Lötprofil (nach IPC 9501)
IR Reflow Soldering Profile (acc. to IPC 9501)



Empfohlenes Lötpaddingesign IR Reflow Löten
Recommended Solder Pad IR Reflow Soldering



Gurtung / Polarität und Lage Verpackungseinheit 4000/Rolle, ø180 mm
Method of Taping / Polarity and Orientation Packing unit 4000/reel, ø180 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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