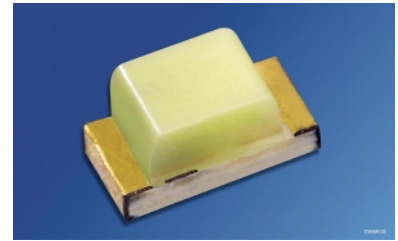


Hyper CHIPLED Hyper-Bright LED

LW Q983



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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:** 80
- **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:** 80
- **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

Type	Emissions- farbe	Farbe der Lichtaustritts- fläche Color of the Light Emitting Area	Lichtstärke Luminous Intensity $I_F = 6 \text{ mA}$ $I_V (\text{mcd})$		Bestellnummer Ordering Code
			min.	typ.	
LW Q983	white	colored diffused	5	15	Q62702-P5225

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Anm.: Farbselektiert nach Farbortgruppen, Lieferung in Einzelgruppen (siehe **Seite 5**)

Die Standardlieferform von Serientypen beinhaltet eine untere bzw. eine obere Familiengruppe, die aus nur 3 bzw. 4 Halbgruppen besteht. Einzelne Halbgruppen sind nicht erhältlich.
In einer Verpackungseinheit / Gurt ist immer nur eine Halbgruppe enthalten.

Note: Color selection acc. to chromaticity coordinate groups, delivery in single groups (see **page 5**)

The standard shipping format for serial types includes a lower or upper family group of 3 or 4 individual groups. Individual half groups are not available.
No packing unit / tape ever contains more than one luminous intensity half group.

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 consumption	P_{tot}	60	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/ambient	$R_{th JA}$	650	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 $\geq 16 \text{ mm}^2$)	$R_{th JS}$	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 $I_F = 6\text{ mA}$	x	0.35	–
Farbkoordinate y nach CIE 1931 ¹⁾ Chromaticity coordinate y acc. to CIE 1931 $I_F = 6\text{ mA}$	y	0.34	–
Abstrahlwinkel bei 50 % I_V (Vollwinkel) (typ.) Viewing angle at 50 % I_V	2 ϕ	160	Grad deg.
Durchlassspannung ²⁾ (typ.) Forward voltage (max.) $I_F = 6\text{ mA}$	V_F V_F	3.3 3.6	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} $I_F = 6\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	TC_x	– 0.4	$10^{-3}/\text{K}$
Temperaturkoeffizient von λ_{dom} (typ.) Temperature coefficient of λ_{dom} $I_F = 6\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	TC_y	– 0.3	$10^{-3}/\text{K}$
Temperaturkoeffizient von V_F (typ.) Temperature coefficient of V_F $I_F = 6\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	TC_V	– 2.9	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 6\text{ mA}$	η_{opt}	4	lm/W

¹⁾ Farbortgruppen werden mit einer Stromeinprägungsdauer 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 a tolerance of ± 0.01 .

²⁾ Spannungswerte werden mit einer Stromeinprägungsdauer 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 $\pm 0.1\text{ V}$.

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

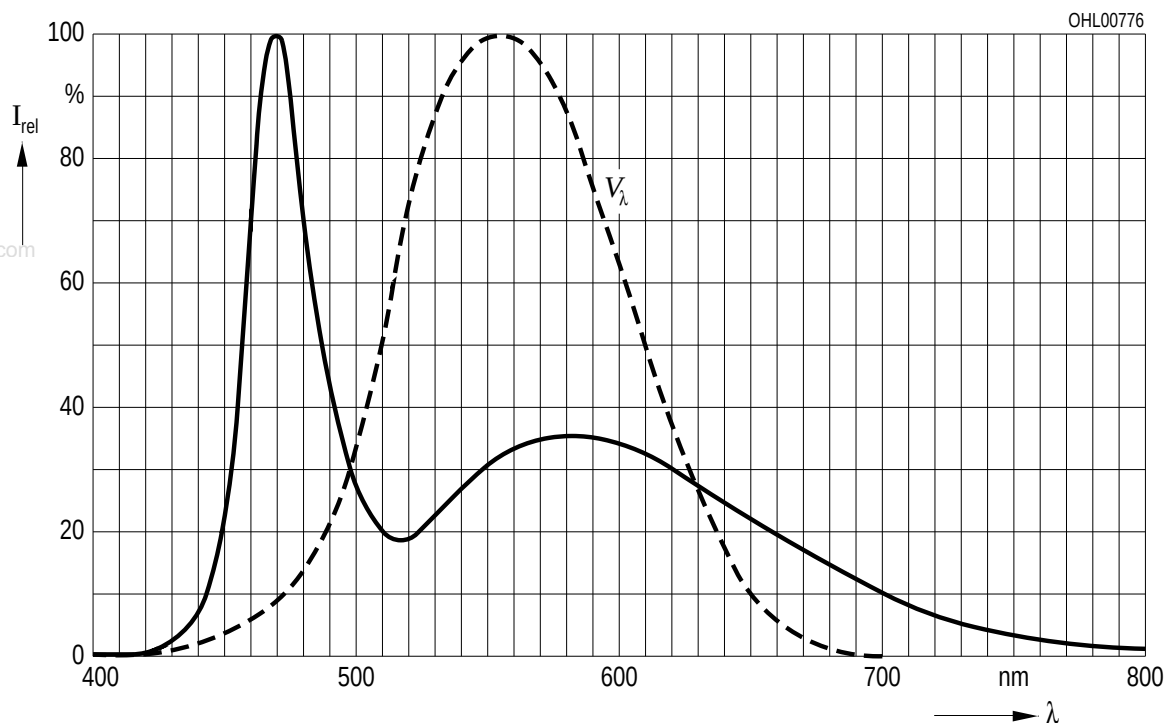
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Relative spektrale Emission $I_{\text{rel}} = f(\lambda)$, $T_A = 25\text{ °C}$, $I_F = 6\text{ mA}$

Relative Spectral Emission

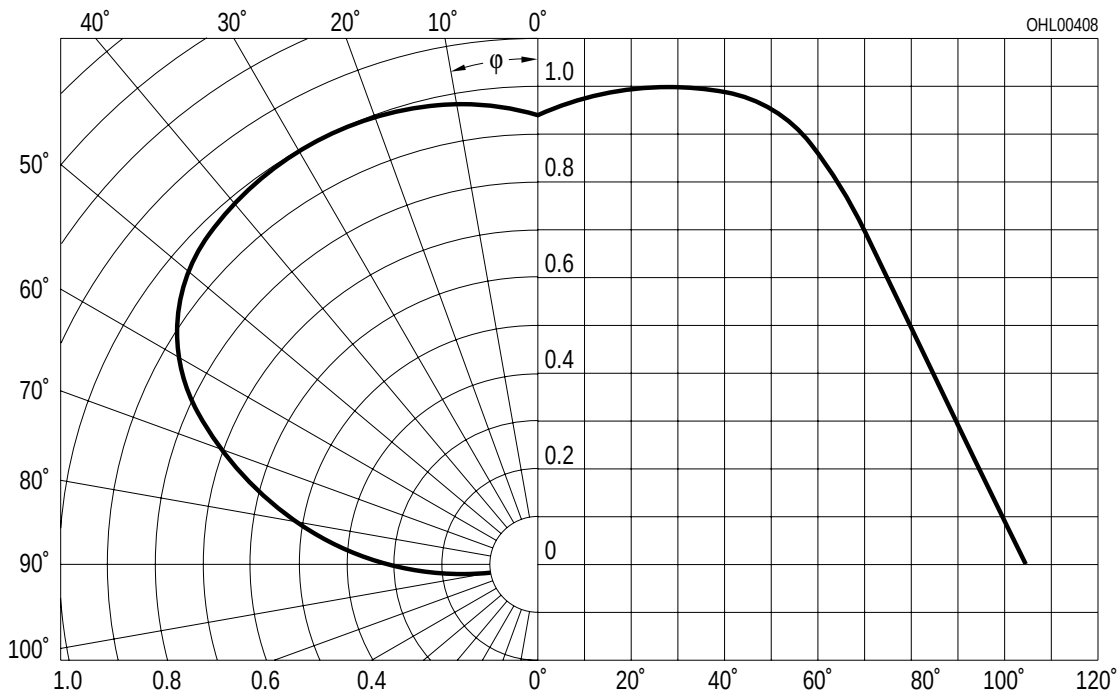
$V(\lambda)$ = spektrale Augenempfindlichkeit

Standard eye response curve



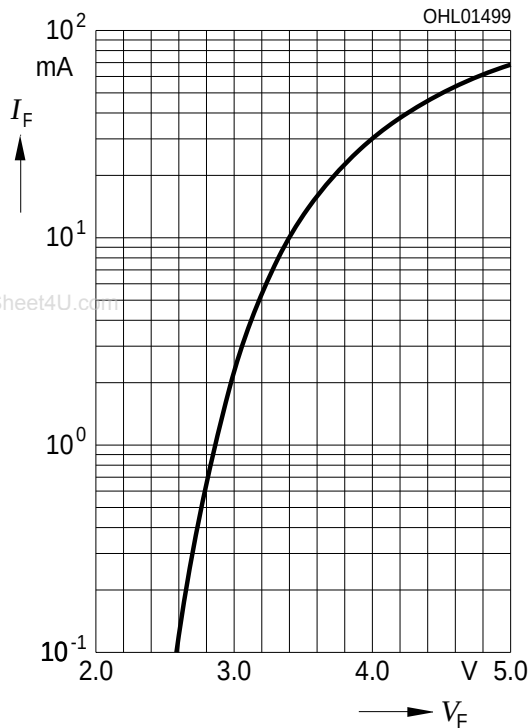
Abstrahlcharakteristik $I_{\text{rel}} = f(\varphi)$

Radiation Characteristic

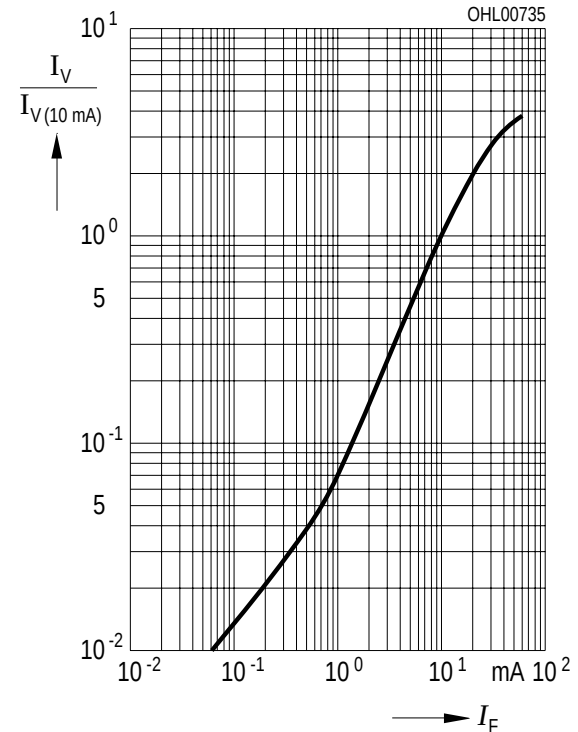


Durchlassstrom $I_F = f(V_F)$

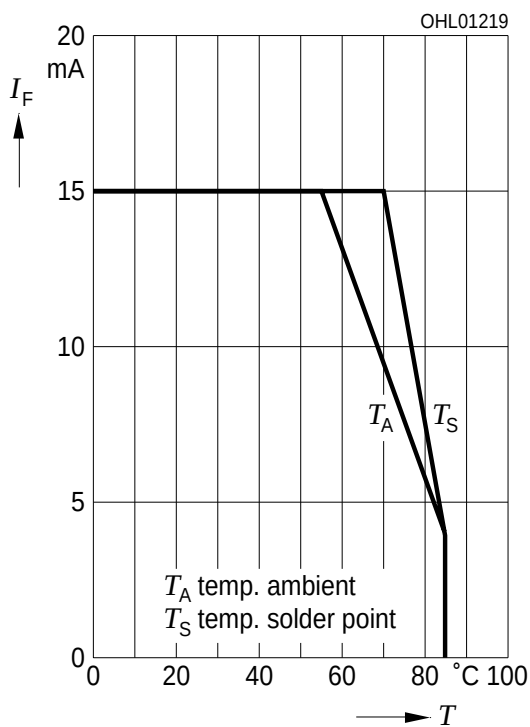
Forward Current

 $T_A = 25\text{ °C}$ Relative Lichtstärke $I_V/I_{V(6\text{ mA})} = f(I_F)$

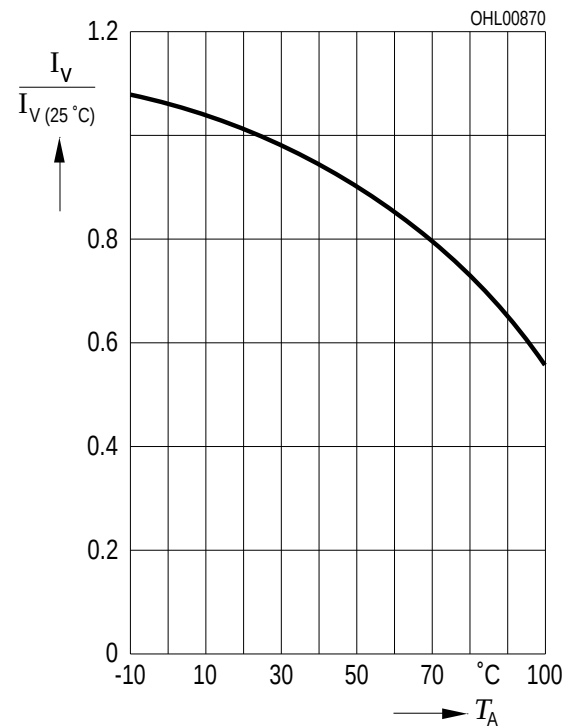
Relative Luminous Intensity

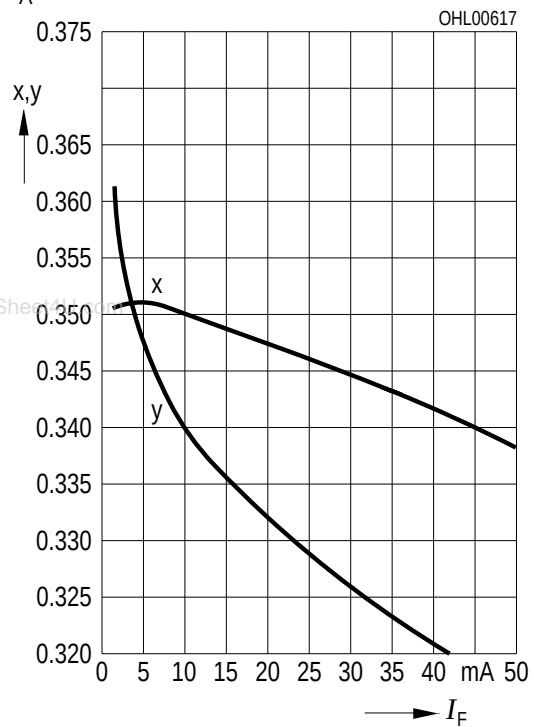
 $T_A = 25\text{ °C}$ Maximal zulässiger Durchlassstrom $I_F = f(T)$

Max. Permissible Forward Current

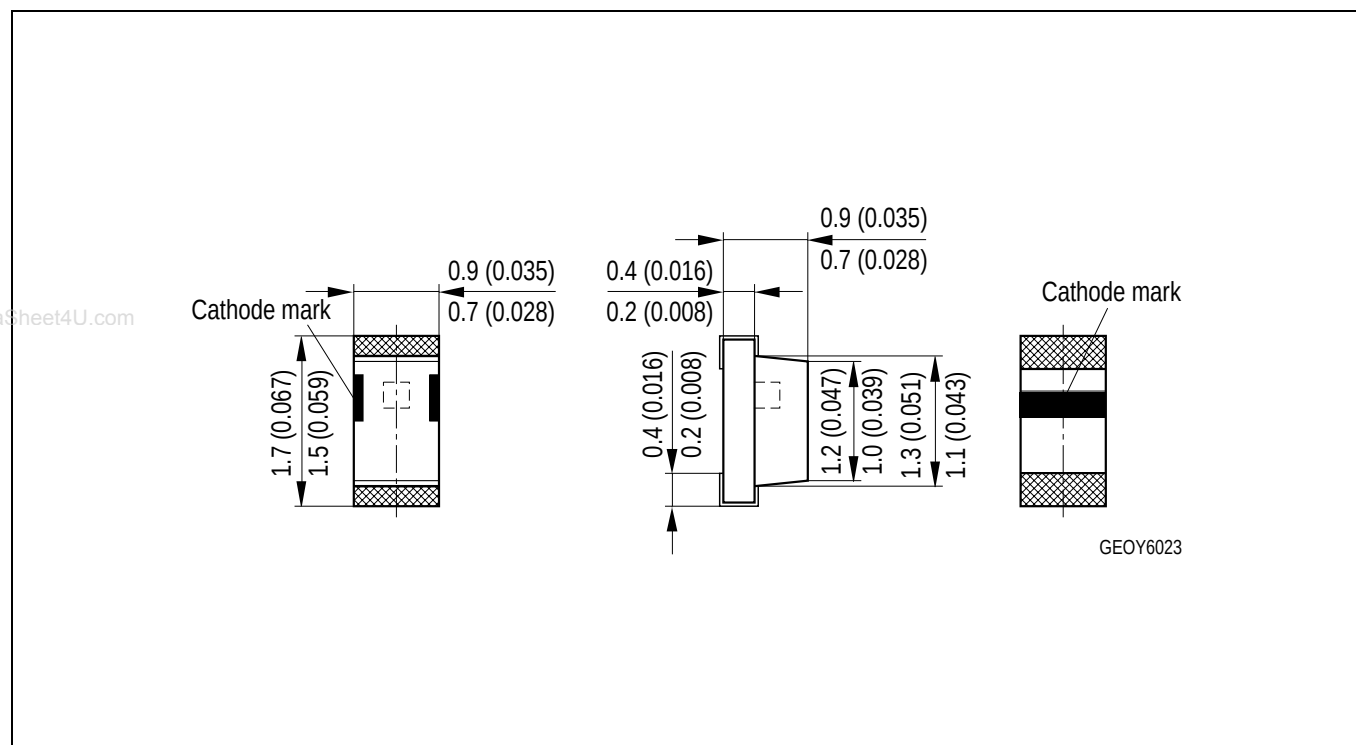
Relative Lichtstärke $I_V/I_{V(25\text{ °C})} = f(T_A)$

Relative Luminous Intensity

 $I_F = 6\text{ mA}$ 

Farbortverschiebung $x, y = f(T)$ **Chromaticity Coordinate Shift** $T_A = 25\text{ °C}$ 

Maßzeichnung Package Outlines

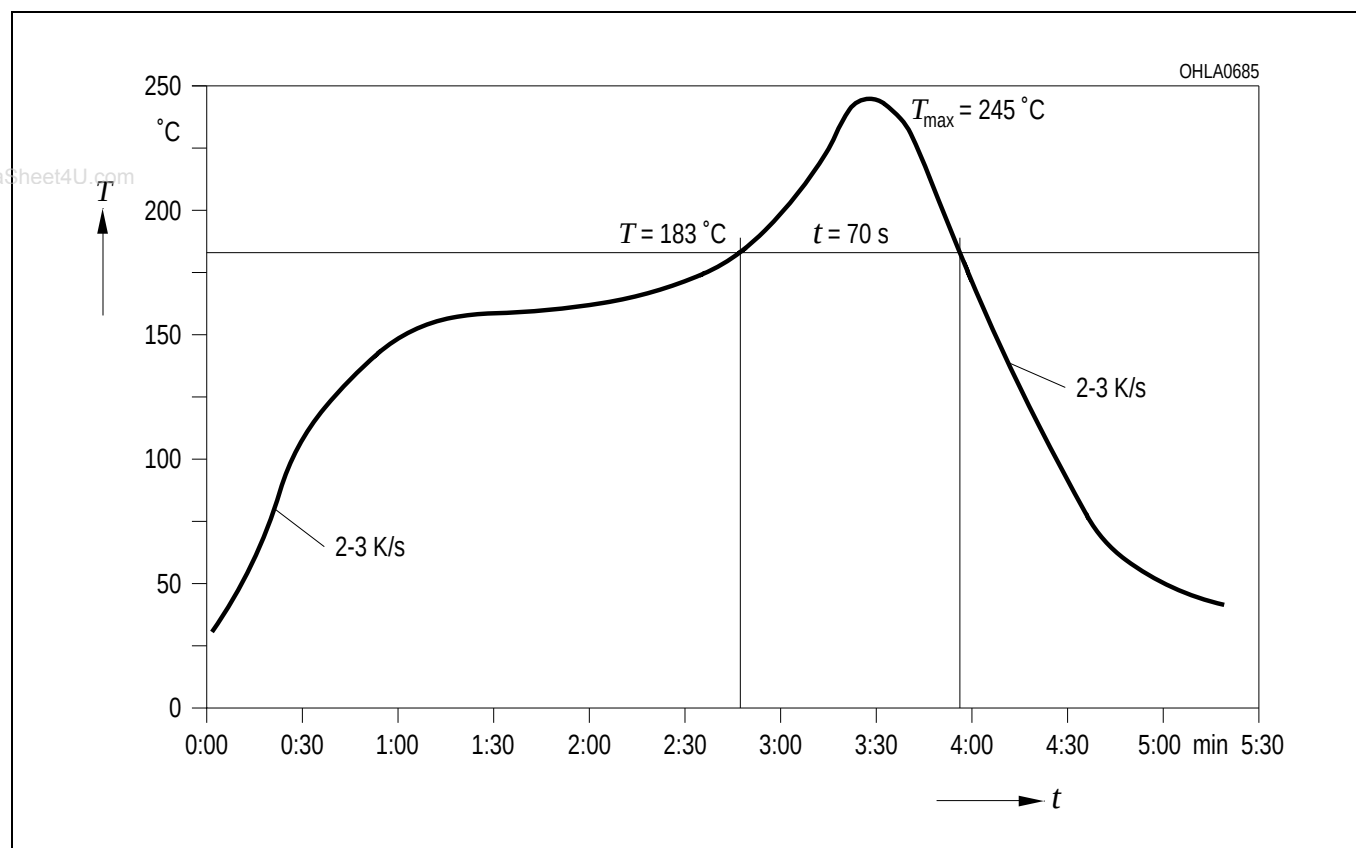


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

Gewicht / Approx. weight: 1.4 mg

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)



Revision History: 2001-03-16

Previous Version: 2001-02-28

Page	Subjects (major changes since last revision)
2	I_F reduced from 10 mA to 6 mA

Patent List**Patent No.**

US 6 066 861

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