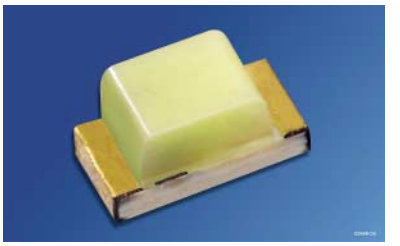
Hyper CHIPLED
Hyper-Bright LED

LW Q983



Besondere Merkmale

- **Gehäusetyp:** 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

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

*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 µs, 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 Sperrschicht/Lötpad Junction/solder point Montage auf PC-Board FR 4 (Padgröße ≥ 16 mm²) mounted on PC board FR 4 (pad size ≥ 16 mm²)	 $R_{th\ JA}$ $R_{th\ JS}$	 650 370	 K/W K/W

Kennwerte (T_A = 25 °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 mA		x	0.35	–
Farbkoordinate y nach CIE 1931[1] Chromaticity coordinate y acc. to CIE 1931 I_F = 6 mA		y	0.34	–
Abstrahlwinkel bei 50 % I_V (Vollwinkel) Viewing angle at 50 % I_V	(typ.)	2φ	160	Grad deg.
Durchlassspannung [2] Forward voltage I_F = 6 mA	(typ.) (max.)	V_F V_F	3.3 3.6	V V
Sperrstrom Reverse current V_R = 5 V	(typ.) (max.)	I_R I_R	0.01 10	µA µA
Temperaturkoeffizient von λ_{peak} Temperature coefficient of λ_{peak} I_F = 6 mA; –10°C ≤ T ≤ 100°C	(typ.)	TC_x	– 0.4	10^{-3}/K
Temperaturkoeffizient von λ_{dom} Temperature coefficient of λ_{dom} I_F = 6 mA; –10°C ≤ T ≤ 100°C	(typ.)	TC_y	– 0.3	10^{-3}/K
Temperaturkoeffizient von V_F Temperature coefficient of V_F I_F = 6 mA; –10°C ≤ T ≤ 100°C	(typ.)	TC_V	– 2.9	mV/K
Optischer Wirkungsgrad Optical efficiency I_F = 6 mA	(typ.)	η_{opt}	4	lm/W

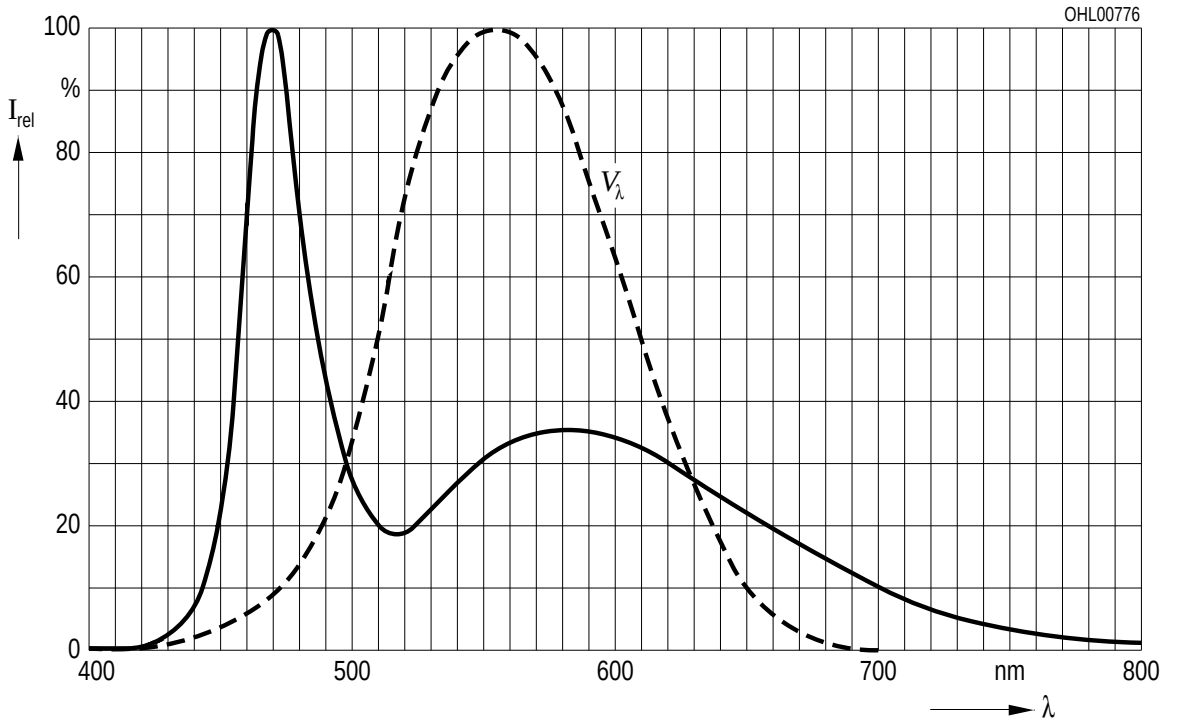
[1] Farbortgruppen werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von ±0,01 ermittelt.
Chromaticity coordinate groups are tested at a current pulse duration of 25 ms and a tolerance of ±0.01.

[2] Spannungswerte werden mit einer Stromeinprägedauer von 1 ms und einer Genauigkeit von ±0,1 V ermittelt.
Voltages are tested at a current pulse duration of 1 ms and a tolerance of ±0.1 V.

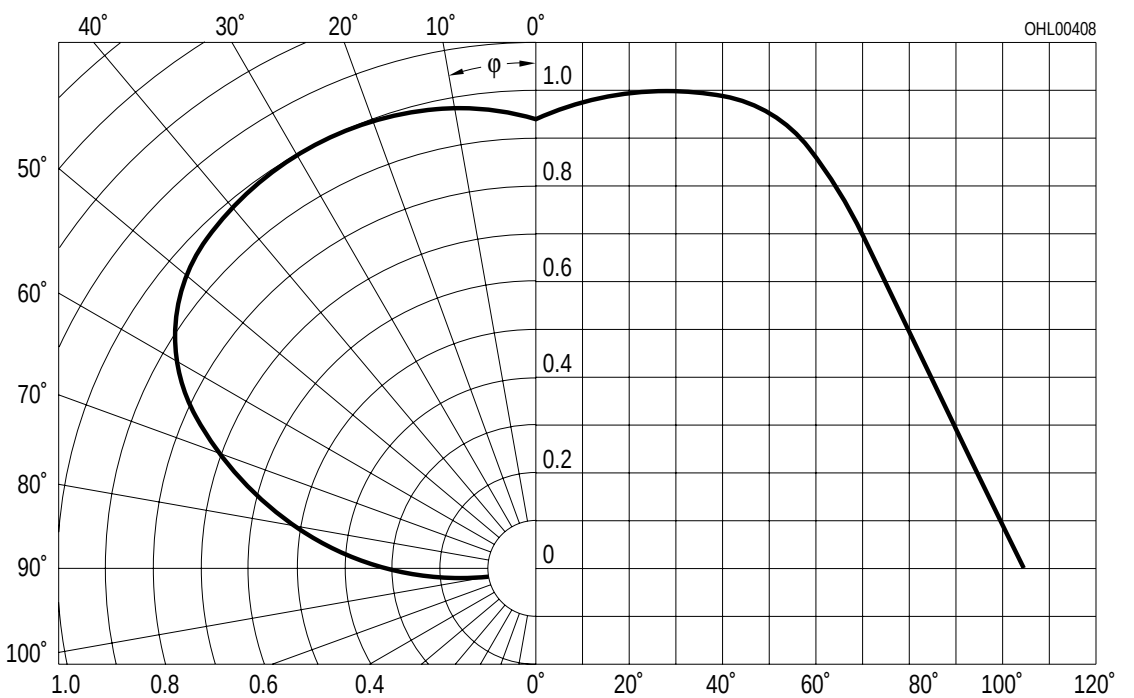
[1] **Farbortgruppen / Chromaticity coordinate groups**

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

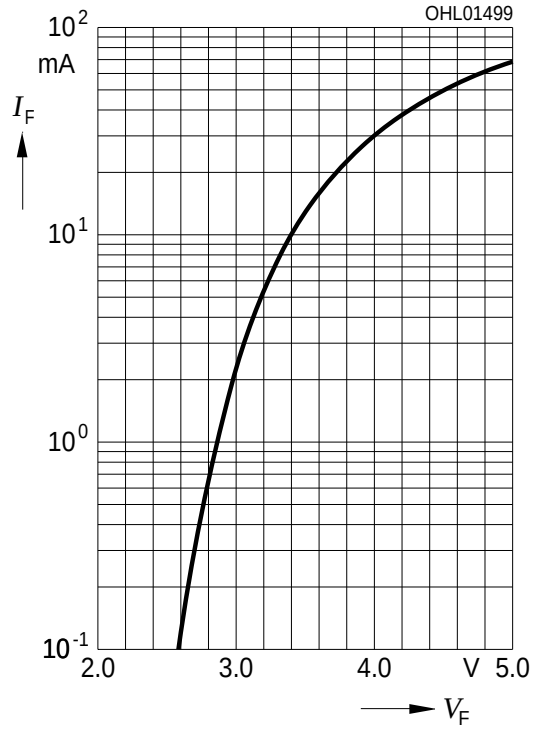
Relative spektrale Emission $I_{rel} = f(\lambda)$, T_A = 25 °C, I_F = 6 mA
Relative Spectral Emission
V(λ) = spektrale Augenempfindlichkeit
Standard eye response curve



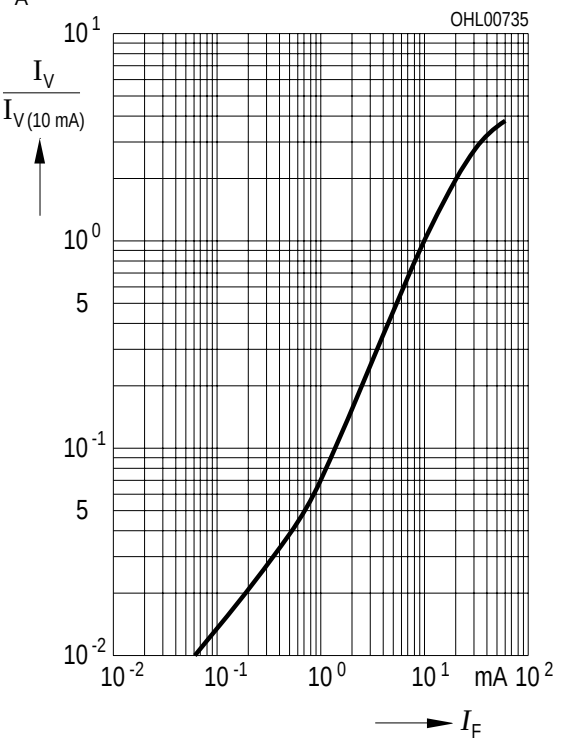
Abstrahlcharakteristik $I_{rel} = f(\varphi)$
Radiation Characteristic



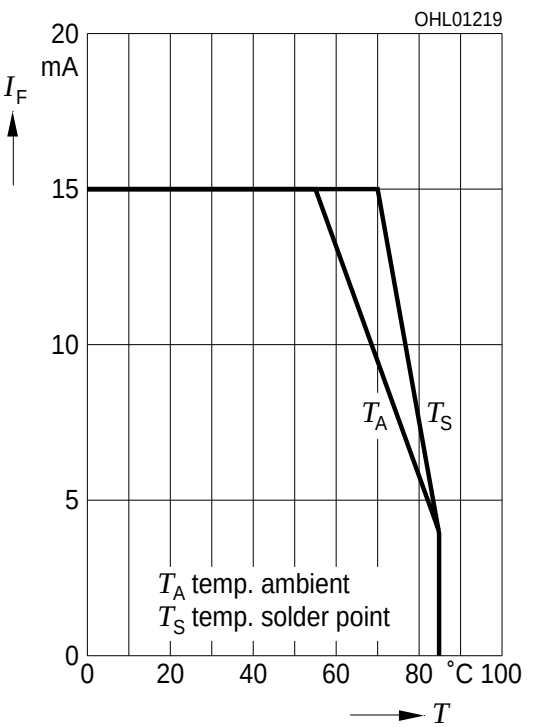
Durchlassstrom $I_F = f(V_F)$
Forward Current
T_A = 25 °C



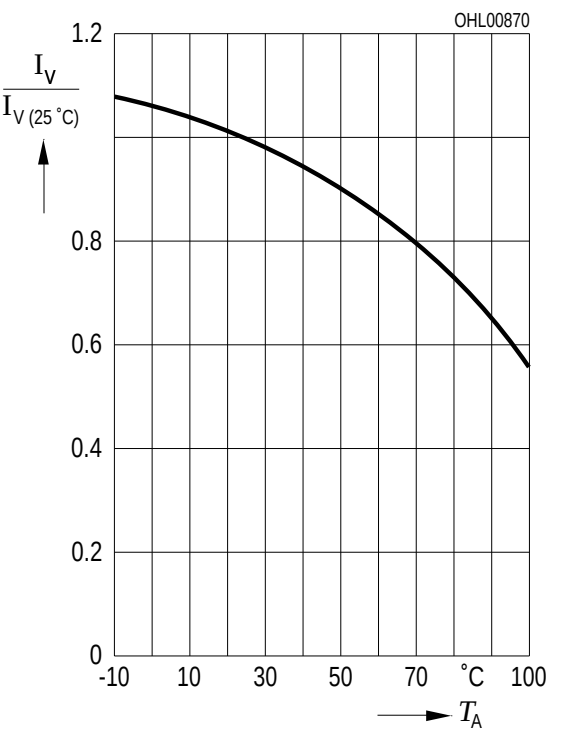
Relative Lichtstärke $I_V/I_{V(6\ mA)} = f(I_F)$
Relative Luminous Intensity
T_A = 25 °C



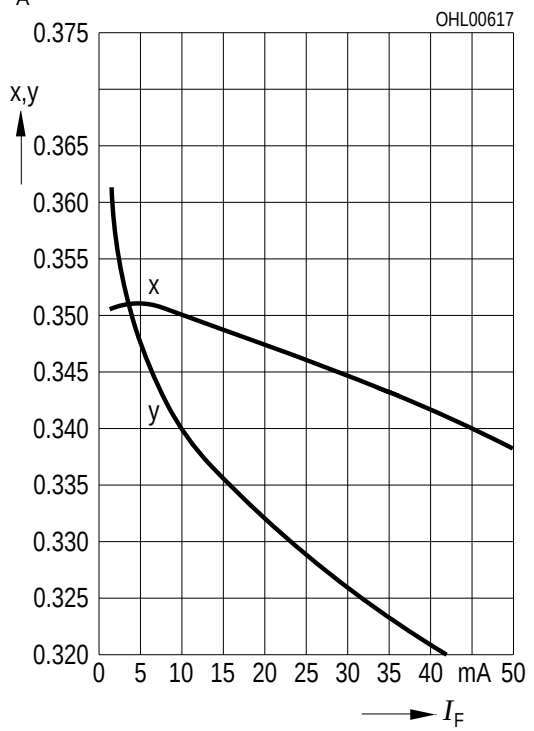
Maximal zulässiger Durchlassstrom $I_F = f(T)$
Max. Permissible Forward Current



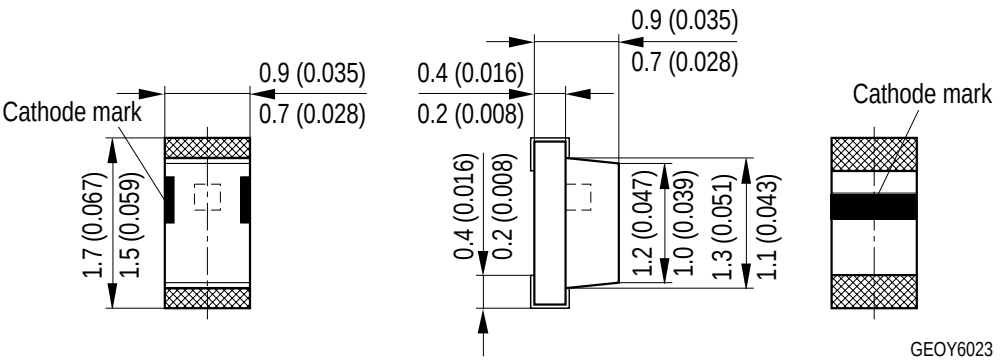
Relative Lichtstärke $I_V/I_{V(25\ °C)} = f(T_A)$
Relative Luminous Intensity
I_F = 6 mA



Farbortverschiebung x, y = $f(T)$
Chromacity Coordinate Shift
T_A = 25 °C



Maßzeichnung
Package Outlines

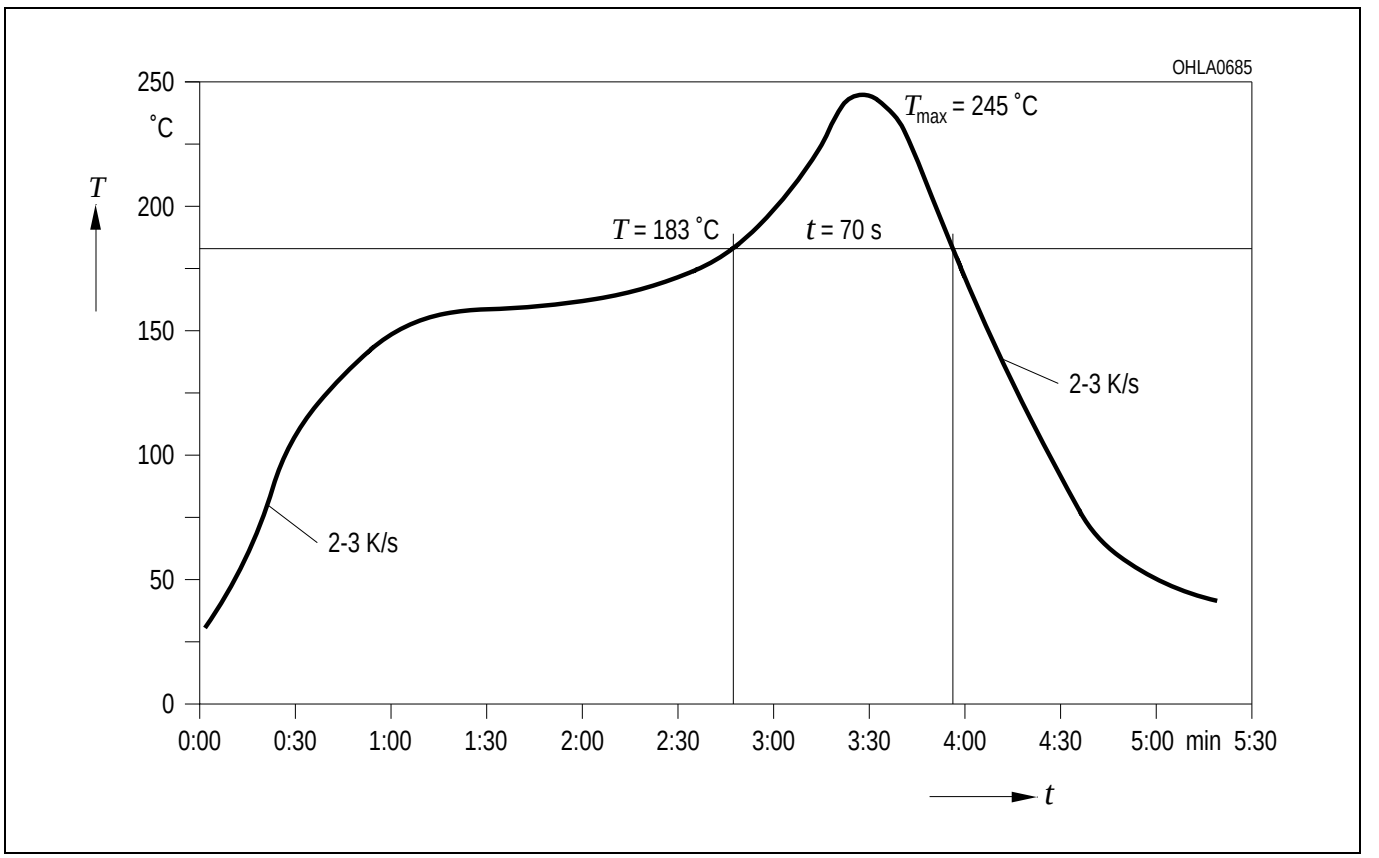


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

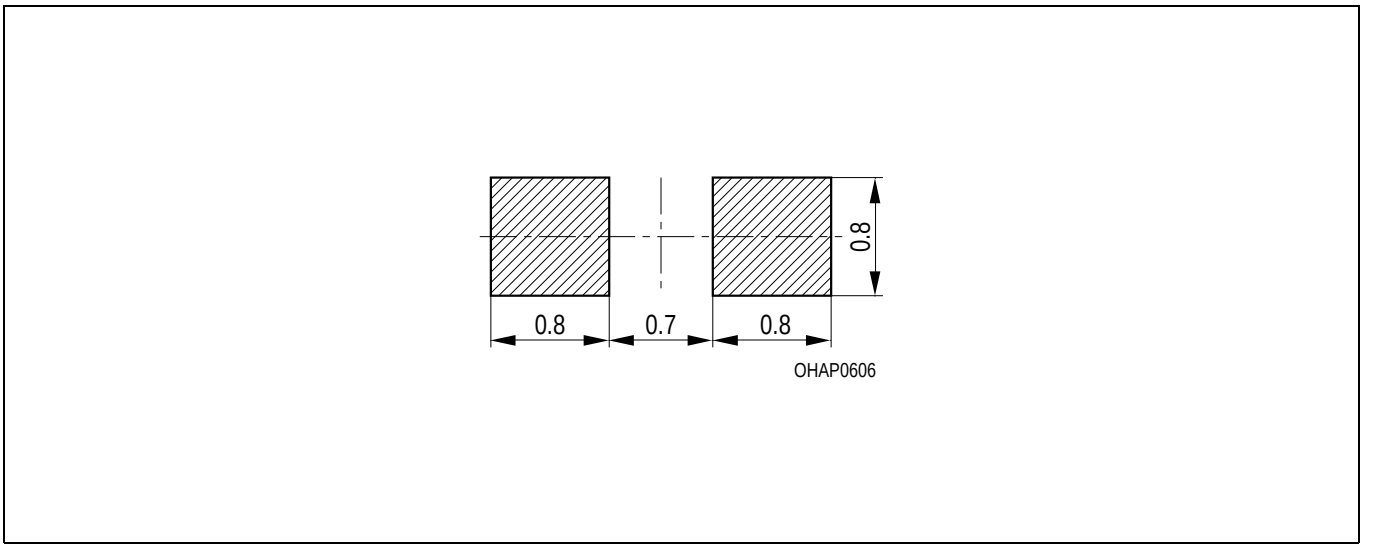
Gewicht / Approx. weight: 1.4 mg

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)

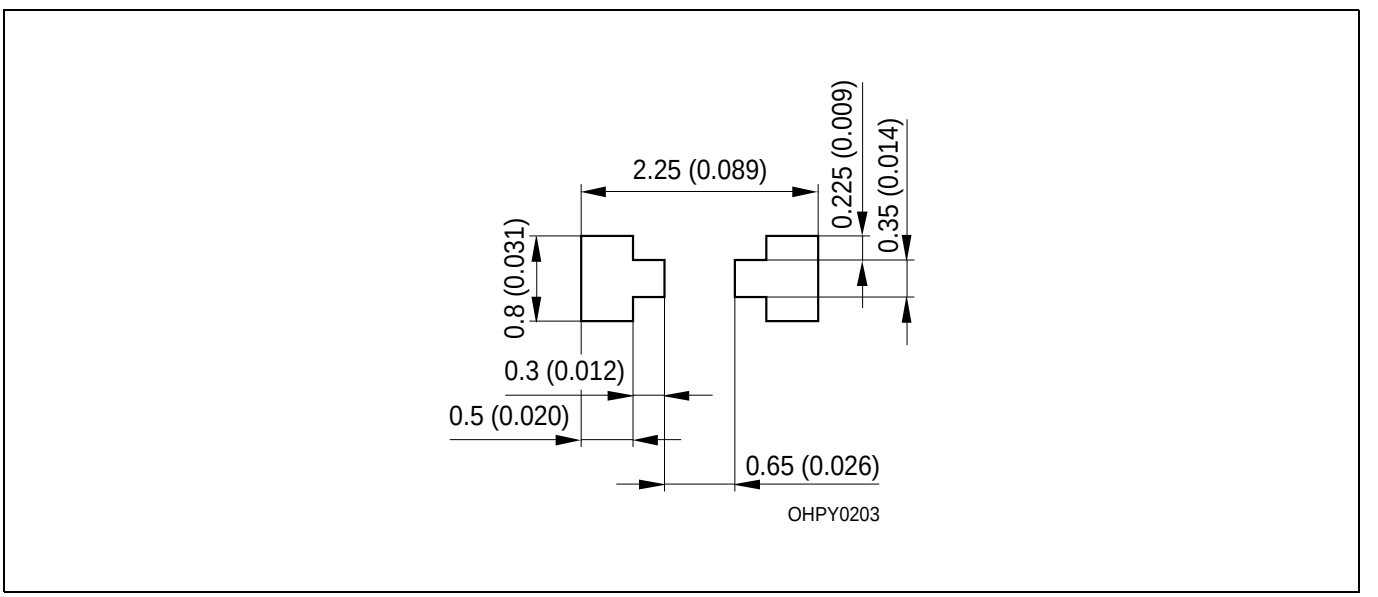


Empfohlenes Lötpaddesign IR Reflow Löten
Recommended Solder Pad IR Reflow Soldering



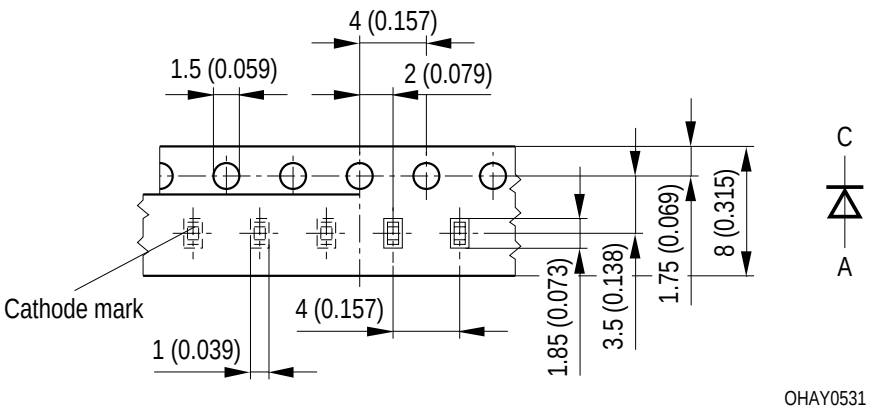
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

Empfohlenes Lötpaddesign verwendbar für Hyper CHIPLED und Chipled - Bauform 0603
IR Reflow Löten
Recommended Solder Pad useable for Hyper CHIPLED and Chipled - Package 0603
IR Reflow Soldering



Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).
Empfohlene Lötpastendicke: 120 µm/ recommended thickness of solder paste: 120 µm

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



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

Revision History: 2001-11-30	
Previous Version: 2001-02-28	
Page	**Subjects (major changes since last revision)**
2	I_F reduced from 10 mA to 6 mA
11	recommended solder pad

Patent List

Patent No.
US 6 066 861, US 6 277 301

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