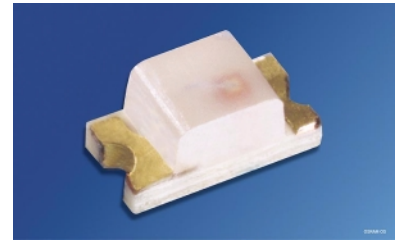


# CHIPLED

## LG Q971, LY Q971



### Besondere Merkmale

- **Gehäusotyp:** 0603
- **Besonderheit des Bauteils:** kleinste Bauform 1,6 mm x 0,8 mm x 0,8 mm
- **Wellenlänge:** 570 nm (grün), 590 nm (gelb)
- **Abstrahlwinkel:** extrem breite Abstrahlcharakteristik (160°)
- **Technologie:** GaP (grün), GaAsP (gelb)
- **optischer Wirkungsgrad:** 2,5 lm/W (grün), 1,5 lm/W (gelb)
- **Verarbeitungsmethode:** für alle SMT-Bestücktechniken geeignet
- **Lötmethode:** IR Reflow Löten
- **Vorbehandlung:** nach JEDEC Level 2
- **Gurtung:** 8 mm Gurt mit 4000/Rolle, ø180 mm

### Anwendungen

- Informationsanzeigen im Innenbereich
- optischer Indikator
- Flache Hinterleuchtung (LCD, Handy, Schalter, Display)
- Spielsachen

### Features

- **package:** 0603
- **feature of the device:** smallest package 1.6 mm x 0.8 mm x 0.8 mm
- **wavelength:** 570 nm (green), 590 nm (yellow)
- **viewing angle:** extremely wide (160°)
- **technology:** GaP (green), GaAsP (yellow)
- **optical efficiency:** 2.5 lm/W (green), 1.5 lm/W (yellow)
- **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

### Applications

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

Typ	Emissionsfarbe	Farbe der Lichtaustrittsfläche	Lichtstärke		Bestellnummer
Type	Color of Emission	Color of the Light Emitting Area	Luminous Intensity $I_F = 20 \text{ mA}$ $I_V \text{ (mcd)}$		Ordering Code
			min.	typ.	
LG Q971	green	colorless diffused	7.1	10	Q62702P5189
LY Q971	yellow	colorless diffused	2.8	6	Q62703P5269

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 a tolerance of  $\pm 11 \%$ .

*Anm.: Die Standardlieferform von Serientypen beinhaltet alle Gruppen. Einzelne Gruppen sind nicht erhältlich.*

*In einer Verpackungseinheit / Gurt ist immer nur eine Gruppe enthalten.*

*Note: The standard shipping format for serial types includes all groups. Individual groups are not available.*

*No packing unit / tape ever contains more than one luminous intensity 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	$I_F$	25 (green) 20 (yellow)	mA
Stoßstrom Surge current $t_p = 10 \mu s, D = 0.1$	$I_{FM}$	0.1	A
Sperrspannung <sup>1)</sup> Reverse voltage	$V_R$	12	V
Leistungsaufnahme Power consumption	$P_{tot}$	65	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/ambient	$R_{th JA}$	800	K/W
Sperrschicht/Lötpad Junction/solder point Montage auf PC-Board FR 4 (Padgröße $\geq 5 \text{ mm}^2$ ) mounted on PC board FR 4 (pad size $\geq 5 \text{ mm}^2$ )	$R_{th JS}$	450	K/W

<sup>1)</sup> für kurzzeitigen Betrieb geeignet / suitable for short term application

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

Bezeichnung Parameter	Symbol Symbol	Werte Values		Einheit Unit
		LG	LY	
Wellenlänge des emittierten Lichtes (typ.) Wavelength at peak emission $I_F = 20\text{ mA}$	$\lambda_{\text{peak}}$	572	589	nm
Dominantwellenlänge <sup>1)</sup> (typ.) Dominant wavelength <sup>1)</sup> $I_F = 20\text{ mA}$	$\lambda_{\text{dom}}$	570	590	nm
Spektrale Bandbreite (typ.) Spectral bandwidth $I_F = 20\text{ mA}$	$\Delta\lambda$	30	40	nm
Abstrahlwinkel bei 50 % $I_V$ (Vollwinkel) (typ.) Viewing angle at 50 % $I_V$	$2\phi$	160	160	Grad deg.
Durchlassspannung <sup>2)</sup> (typ.) Forward voltage <sup>2)</sup> (max.) $I_F = 20\text{ mA}$	$V_F$ $V_F$	2.2 2.6	2.2 2.6	V V
Sperrstrom (typ.) Reverse current (max.) $V_R = 12\text{ V}$	$I_R$ $I_R$	0.02 100	0.02 100	$\mu\text{A}$ $\mu\text{A}$
Temperaturkoeffizient von $\lambda_{\text{peak}}$ (typ.) Temperature coefficient of $\lambda_{\text{peak}}$ $I_F = 20\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_{\lambda_{\text{peak}}}$	0.10	0.11	nm/K
Temperaturkoeffizient von $\lambda_{\text{dom}}$ (typ.) Temperature coefficient of $\lambda_{\text{dom}}$ $I_F = 20\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_{\lambda_{\text{dom}}}$	0.06	0.08	nm/K
Temperaturkoeffizient von $V_F$ (typ.) Temperature coefficient of $V_F$ $I_F = 20\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC_V$	- 1.4	- 1.7	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 20\text{ mA}$	$\eta_{\text{opt}}$	2.5	1.5	lm/W

<sup>1)</sup> Wellenlängengruppen werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von  $\pm 1\text{ nm}$  ermittelt.  
Wavelength groups are tested at a current pulse duration of 25 ms and a tolerance of  $\pm 1\text{ nm}$ .

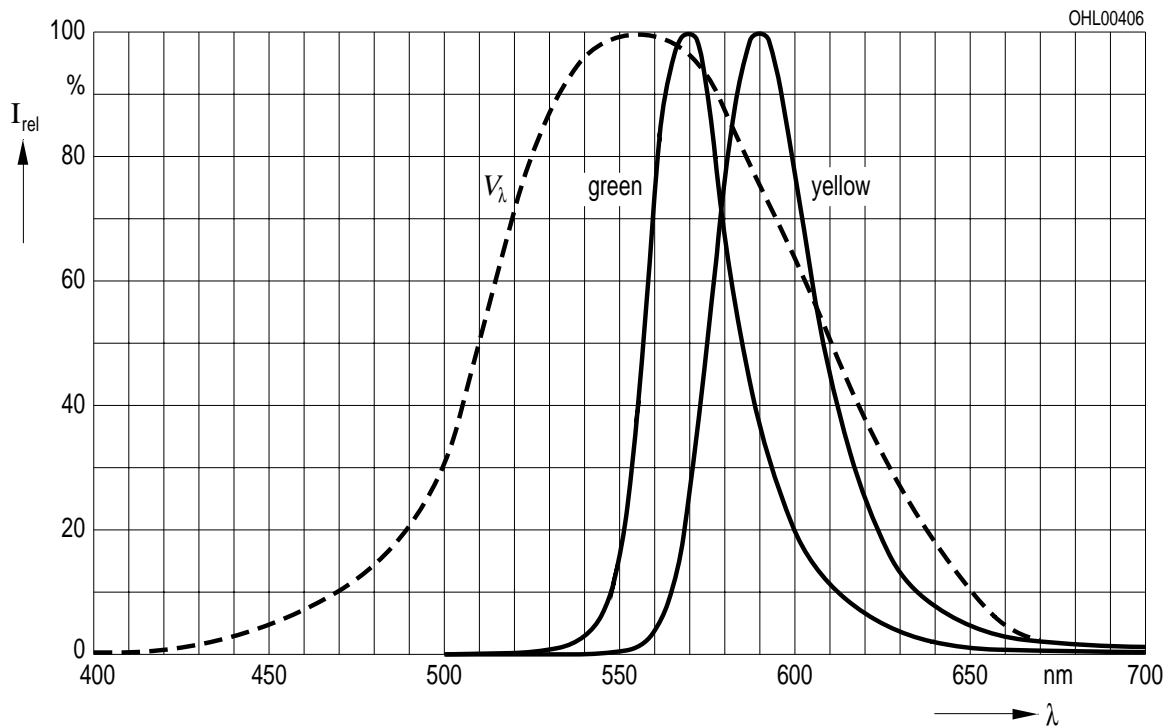
<sup>2)</sup> Spannungswerte werden mit einer Stromeinprägedauer von 1 ms und einer Genauigkeit von  $\pm 0,1\text{ V}$  ermittelt.  
Voltages are tested at a current pulse duration of 1 ms and a tolerance of  $\pm 0.1\text{ V}$ .

**Relative spektrale Emission**  $I_{\text{rel}} = f(\lambda)$ ,  $T_A = 25\text{ °C}$ ,  $I_F = 20\text{ mA}$

**Relative Spectral Emission**

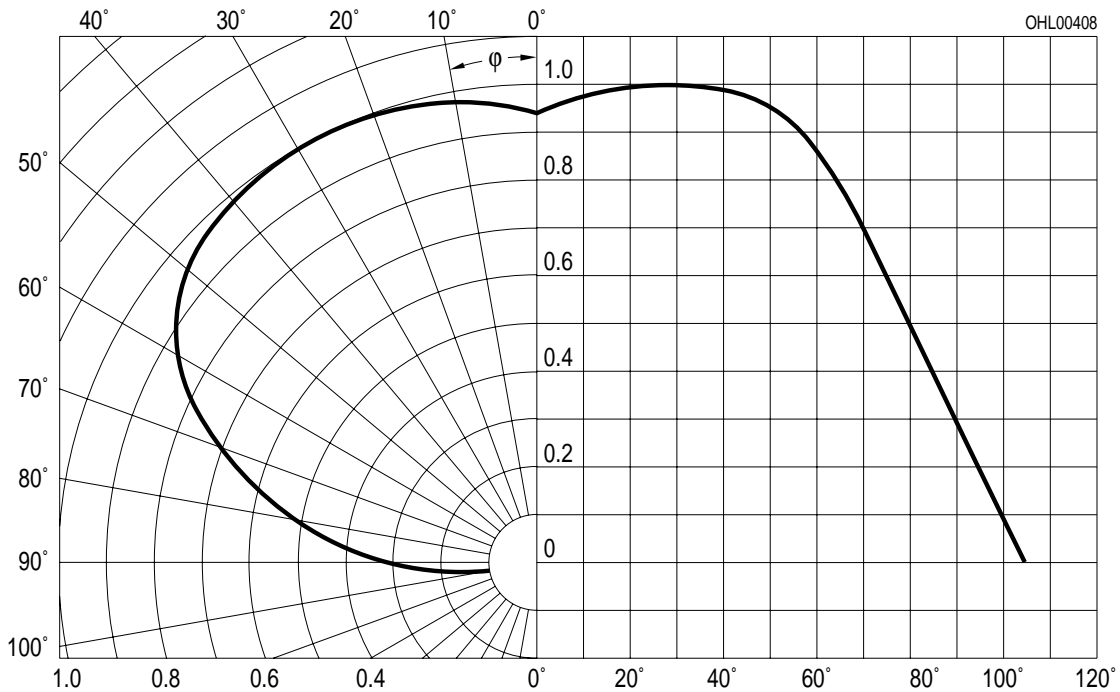
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



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

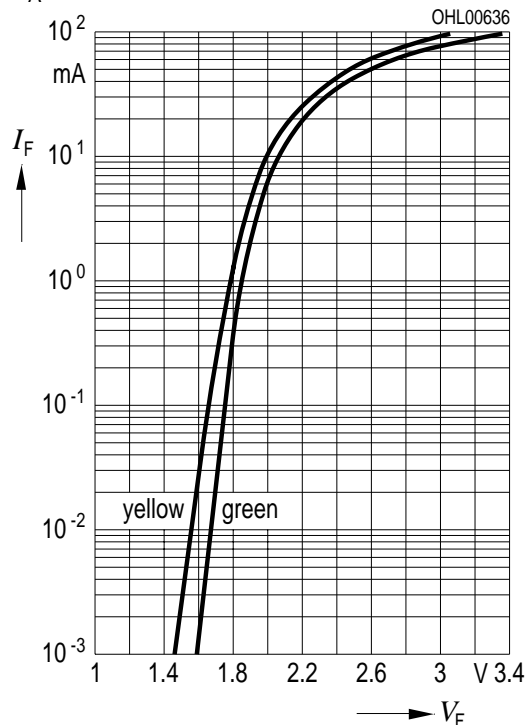
**Radiation Characteristic**



Durchlassstrom  $I_F = f(V_F)$

Forward Current

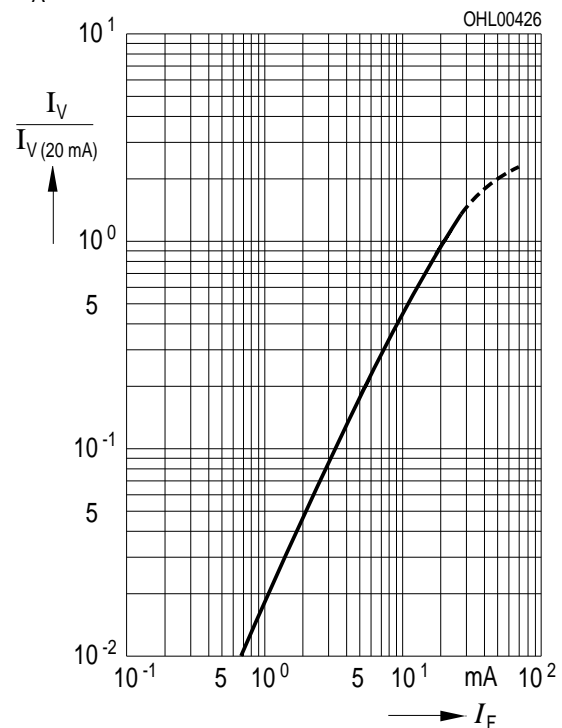
$T_A = 25\text{ °C}$



Relative Lichtstärke  $I_V/I_{V(20\text{ mA})} = f(I_F)$

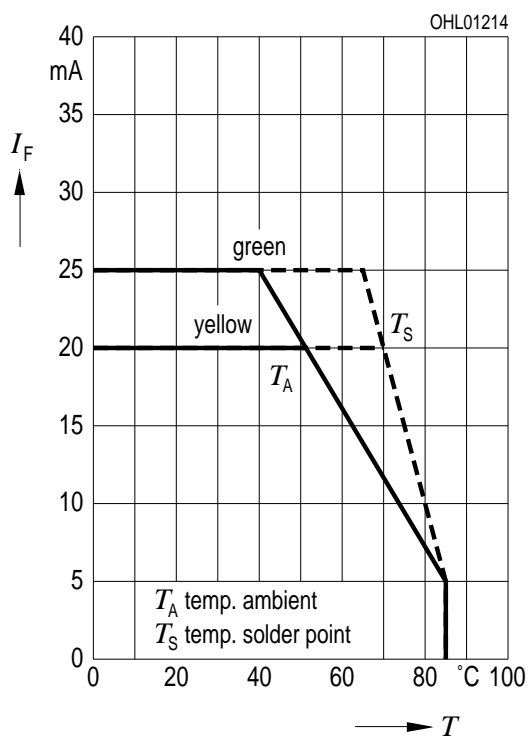
Relative Luminous Intensity

$T_A = 25\text{ °C}$



Maximal zulässiger Durchlassstrom  $I_F = f(T_A)$

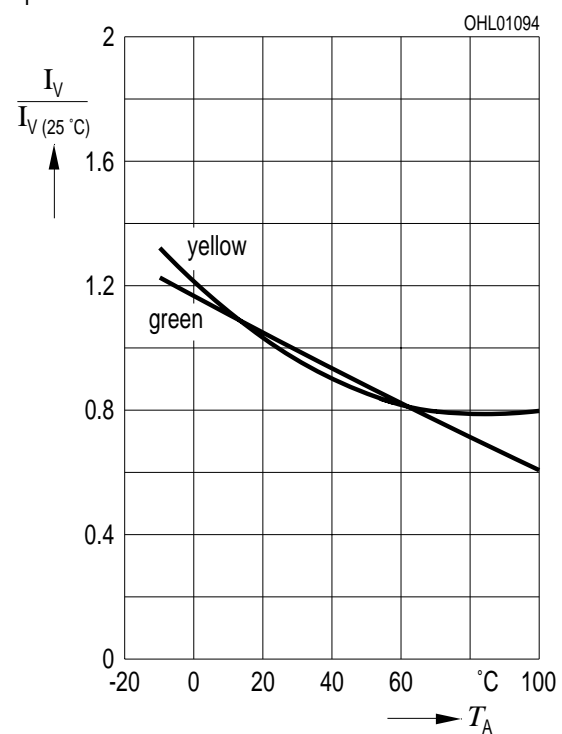
Max. Permissible Forward Current



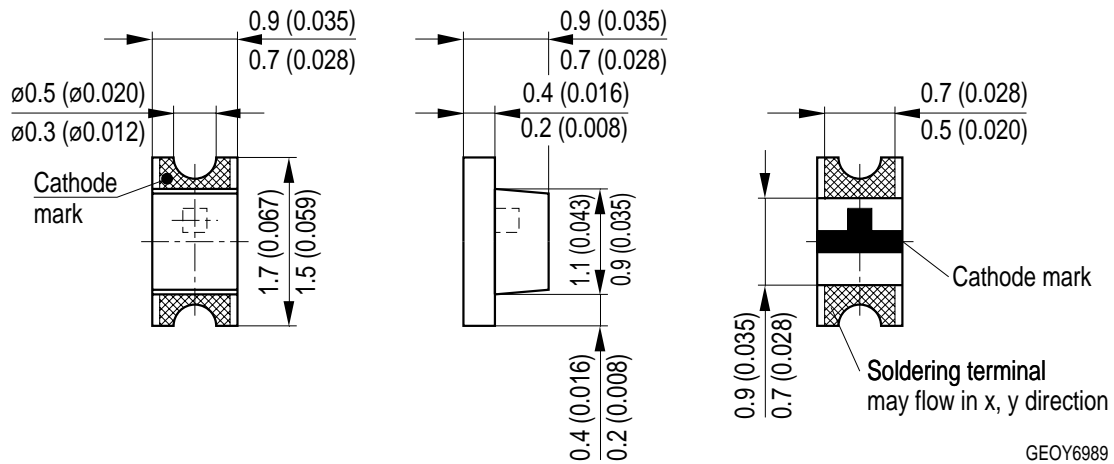
Relative Lichtstärke  $I_V/I_{V(25\text{ °C})} = f(T_A)$

Relative Luminous Intensity

$I_F = 20\text{ mA}$



**Maßzeichnung  
Package Outlines**

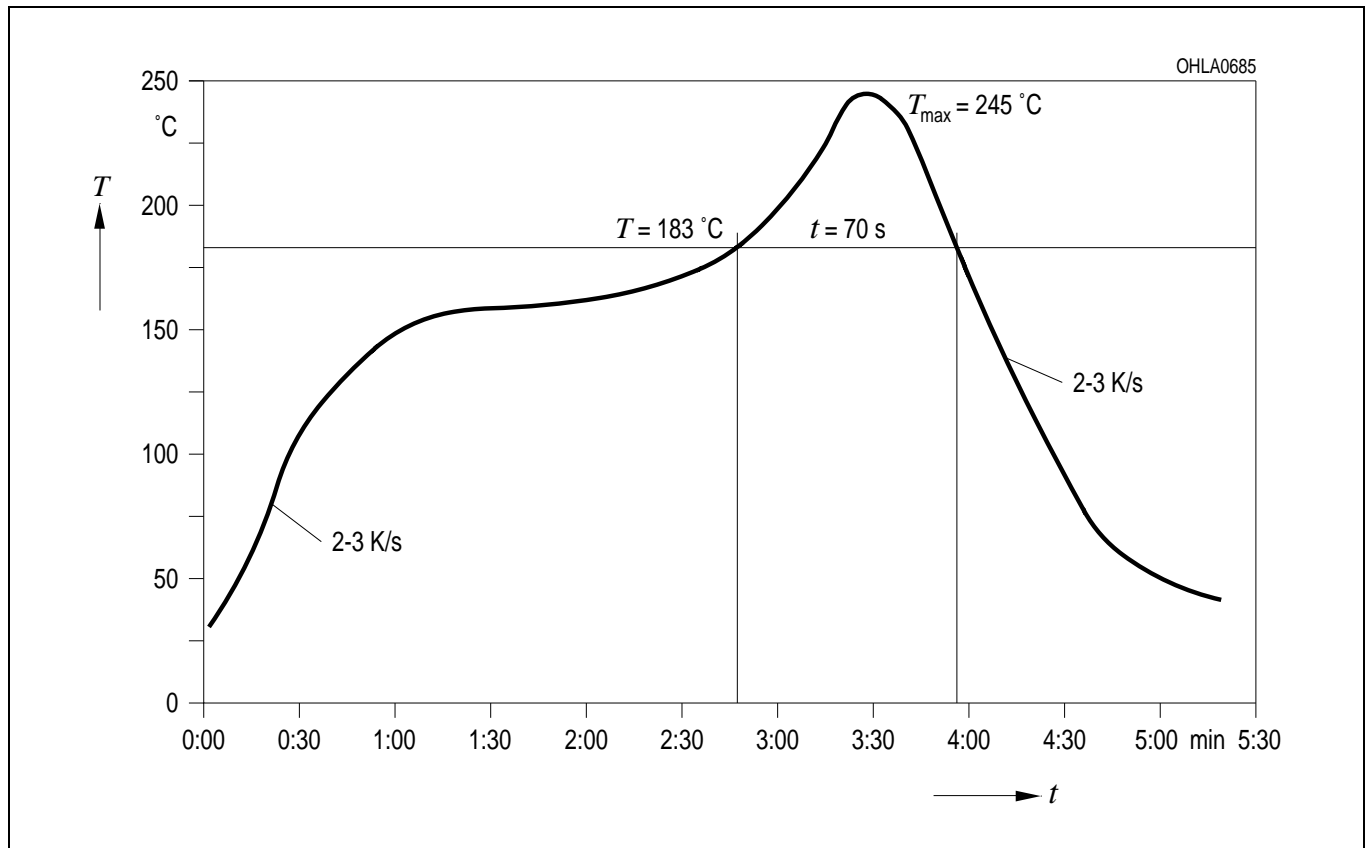


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

**Gewicht / Approx. weight:** 1.4 mg

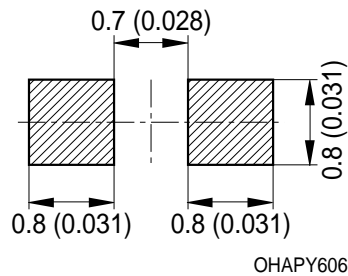
**Lötbedingungen** Vorbehandlung nach JEDEC Level 2  
**Soldering Conditions** Preconditioning acc. to JEDEC Level 2

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



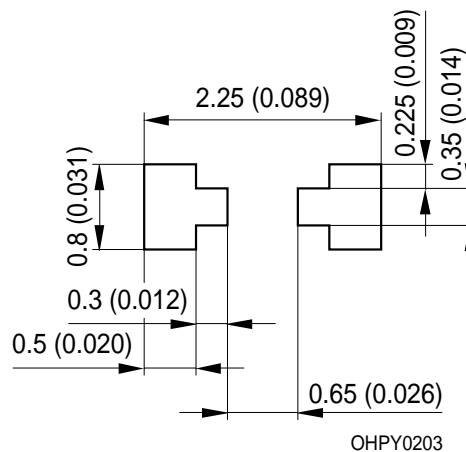


**Empfohlenes Lötpaddesign** IR Reflow Lötén  
**Recommended Solder Pad** IR Reflow Soldering



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

**Empfohlenes Lötpaddesign verwendbar für CHIPLED und Chiplid - Bauform 0603**  
 IR Reflow Lötén  
**Recommended Solder Pad useable for CHIPLED and Chiplid - Package 0603**  
 IR Reflow Soldering



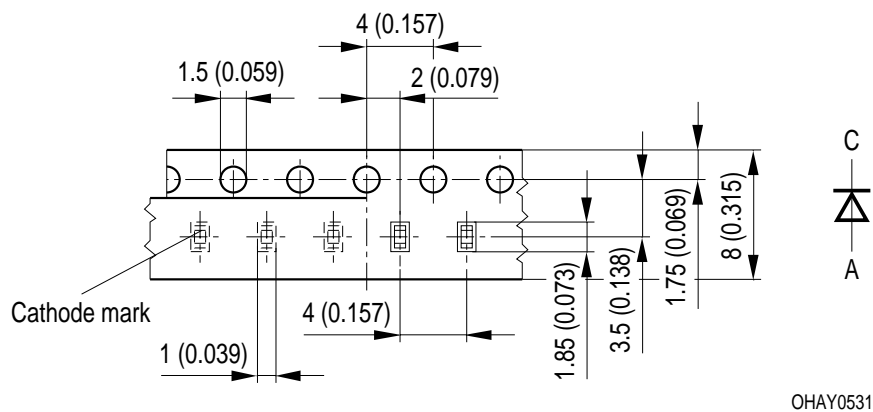
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).  
 Empfohlene Lötpastendicke: 120 µm/ recommended thickness of solder paste: 120 µm

**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: 2002-09-19		Date of change
Previous Version: 2002-08-19		
Page	Subjects (major changes since last revision)	
9	recommended solder pad	
4	forward voltage	
3	pad size from 16 mm <sup>2</sup> to 5 mm <sup>2</sup>	
11	annotations	2002-07-23
3, 4	value (reverse voltage from 5 V to 12 V)	2002-09-18
2	ordering code	2002-09-19

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#### Packing

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

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<sup>2</sup> Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered.