

### Vorläufige Daten / Preliminary Data

#### Besondere Merkmale

- **Gehäusotyp:** 0603
- **Besonderheit des Bauteils:** kleinste Bauform für Anwendungen mit wenig Platzbedarf
- **Farbort:**  $x = 0,30$ ,  $y = 0,33$  nach CIE 1931 (weiß)
- **Typische Farbtemperatur:** 7200 K
- **Farbwiedergabeindex:** 80
- **Abstrahlwinkel:** extrem breite Abstrahlcharakteristik ( $160^\circ$ )
- **Technologie:** GaN
- **optischer Wirkungsgrad:** 2 lm/W
- **Verarbeitungsmethode:** für alle SMT-Bestücktechniken geeignet
- **Lötmethode:** IR Reflow Löten
- **Vorbehandlung:** nach JEDEC Level 2
- **Gurtung:** 8-mm Gurt mit 4000/Rolle,  $\varnothing 180$  mm

#### Anwendungen

- Einkopplung in Lichtleiter
- Flache Hinterleuchtung (LCD, Handy, Schalter, Display)
- Spielsachen

#### Features

- **package:** 0603
- **feature of the device:** smallest package for applications where small space is required
- **color coordinates:**  $x = 0.30$ ,  $y = 0.33$  acc. to CIE 1931 (white)
- **typ. color temperature:** 7200 K
- **color reproduction index:** 80
- **viewing angle:** extremely wide ( $160^\circ$ )
- **technology:** GaN
- **optical efficiency:** 2 lm/W
- **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,  $\varnothing 180$  mm

#### Applications

- coupling into light guides
- 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 Q98A	white	colored diffused	7.1	15	Q62702-P5185

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.: Farbselektiert nach Farbortgruppen (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 (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 $t \leq 10 \mu s, D = 0.1$	$I_{FM}$	0.1	A
Sperrspannung Reverse voltage	$V_R$	5	V
Leistungsaufnahme Power consumption	$P_{tot}$	70	mW
Wärmewiderstand Thermal resistance Sperrschicht/Umgebung Junction/ambient	$R_{th JA}$	700	K/W
Sperrschicht/Lötpad Junction/solder point	$R_{th JS}$	400	K/W

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

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Farbkoordinate x nach CIE 1931 <sup>1)</sup> (typ.) Chromaticity coordinate x acc. to CIE 1931 $I_F = 10\text{ mA}$	x	0.30	–
Farbkoordinate y nach CIE 1931 <sup>1)</sup> (typ.) Chromaticity coordinate y acc. to CIE 1931 $I_F = 10\text{ mA}$	y	0.33	–
Abstrahlwinkel bei 50 % $I_V$ (Vollwinkel) (typ.) Viewing angle at 50 % $I_V$	2φ	160	Grad deg.
Durchlassspannung <sup>2)</sup> (typ.) Forward voltage (max.) $I_F = 10\text{ mA}$	$V_F$ $V_F$	3.5 4.1	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 x $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_x$	0.07	$10^{-3}/\text{K}$
Temperaturkoeffizient von y (typ.) Temperature coefficient of y $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_y$	0.25	$10^{-3}/\text{K}$
Temperaturkoeffizient von $V_F$ (typ.) Temperature coefficient of $V_F$ $I_F = 10\text{ mA}; -10\text{ °C} \leq T \leq 100\text{ °C}$	$TC_V$	– 3.1	mV/K
Optischer Wirkungsgrad (typ.) Optical efficiency $I_F = 10\text{ mA}$	$\eta_{\text{opt}}$	2	lm/W

<sup>1)</sup> 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  $\pm 0.01$ .

<sup>2)</sup> 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  $\pm 0.1\text{ V}$ .

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<sup>1)</sup> **Farbortgruppen**  
**Chromaticity coordinate groups**

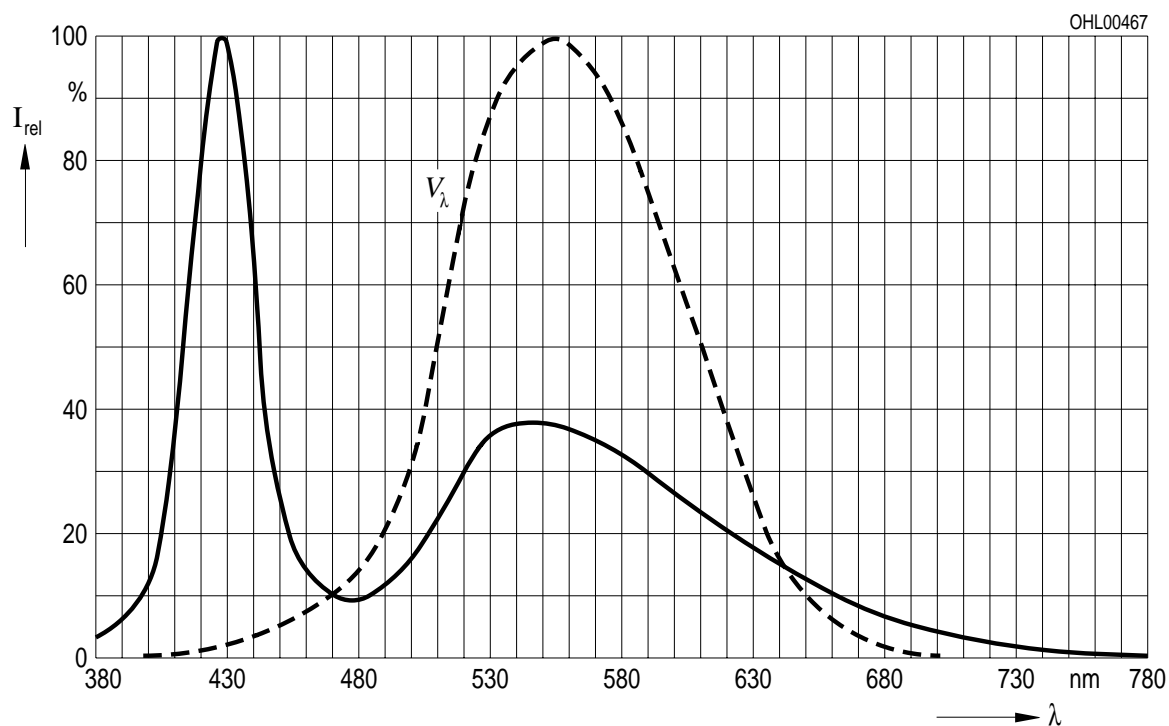
<b>Gruppe Group</b>	<b>x</b>		<b>y</b>	
	<b>min.</b>	<b>max.</b>	<b>min.</b>	<b>max.</b>
A	0.265	0.305	0.250	0.360
B	0.305	0.345	0.300	0.410

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

### Relative Spectral Emission

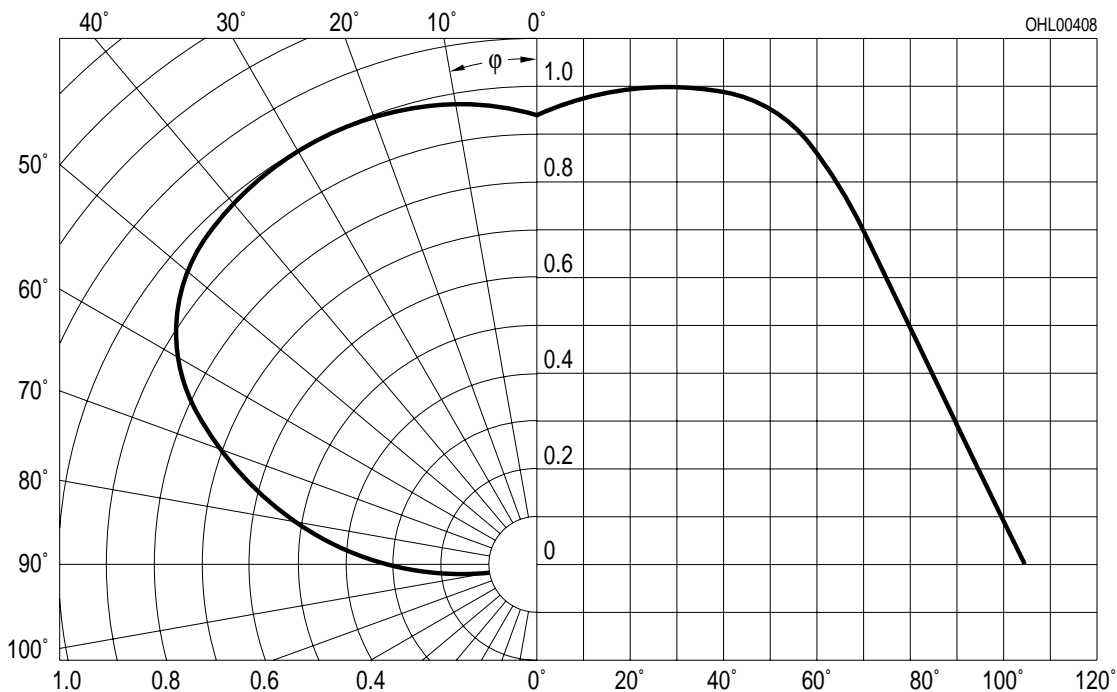
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



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

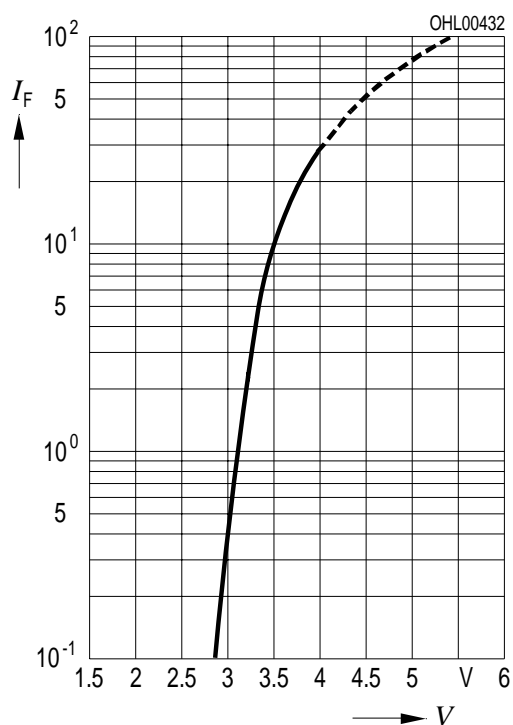
### Radiation Characteristic



Durchlassstrom  $I_F = f(V_F)$

Forward Current

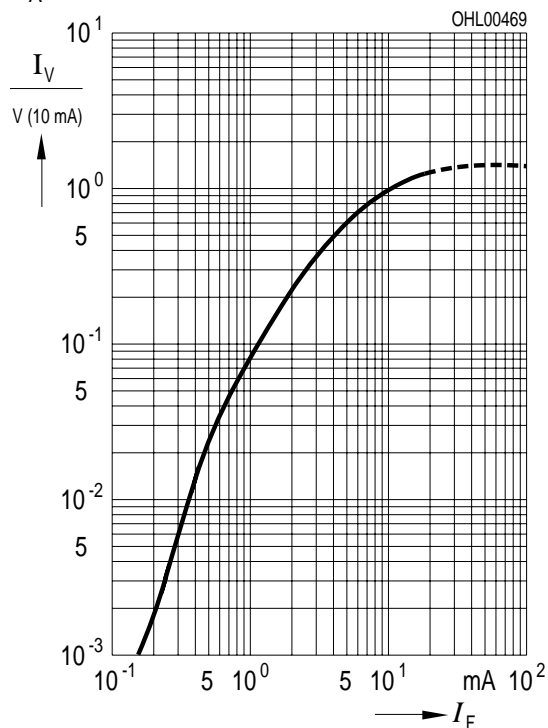
$T_A = 25\text{ °C}$



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

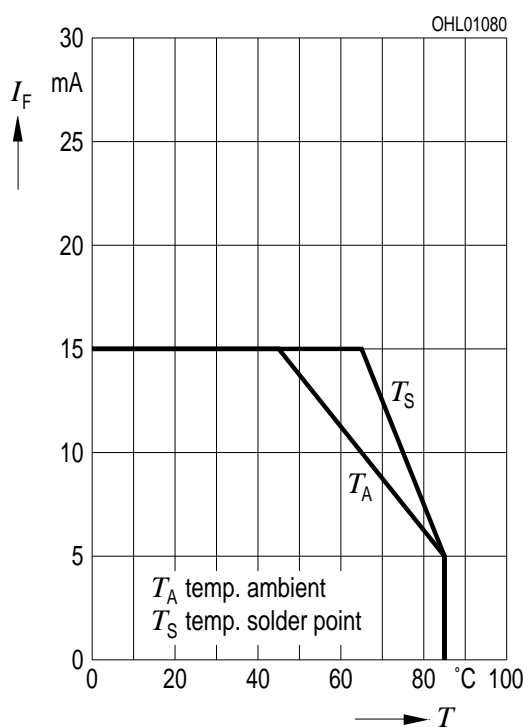
Relative Luminous Intensity

$T_A = 25\text{ °C}$



Maximal zulässiger Durchlassstrom  $I_F = f(T)$

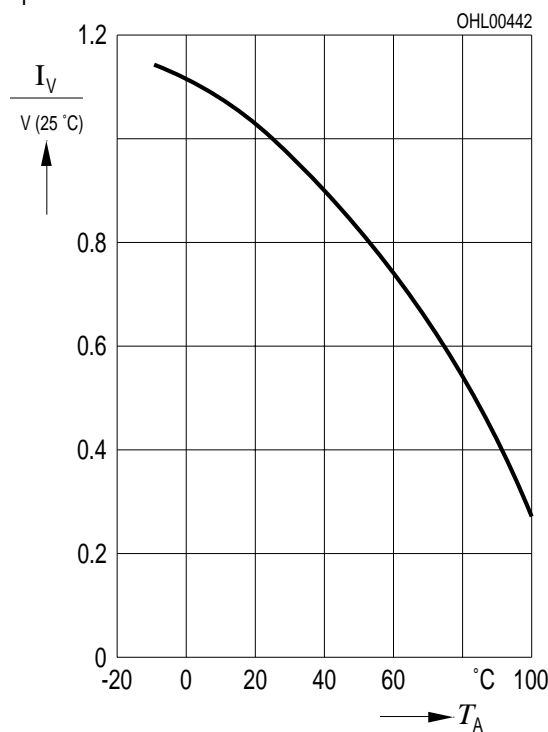
Max. Permissible Forward Current



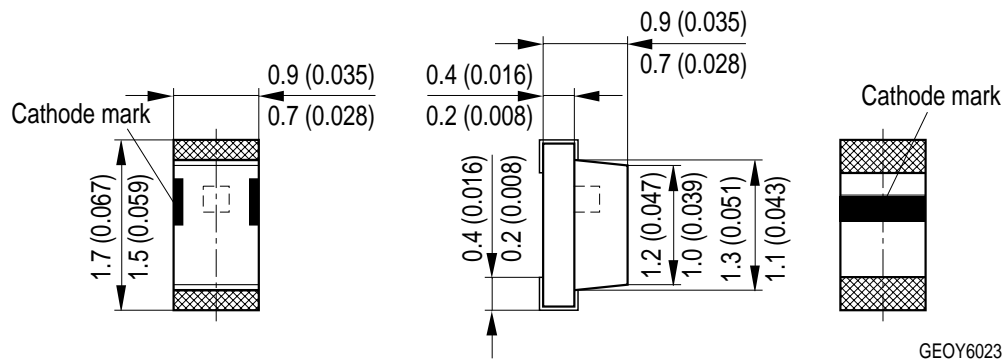
Relative Lichtstärke  $I_V/I_{V(25\text{ °C})} = f(T_A)$

Relative Luminous Intensity

$I_F = 10\text{ mA}$



# **Maßzeichnung Package Outlines**



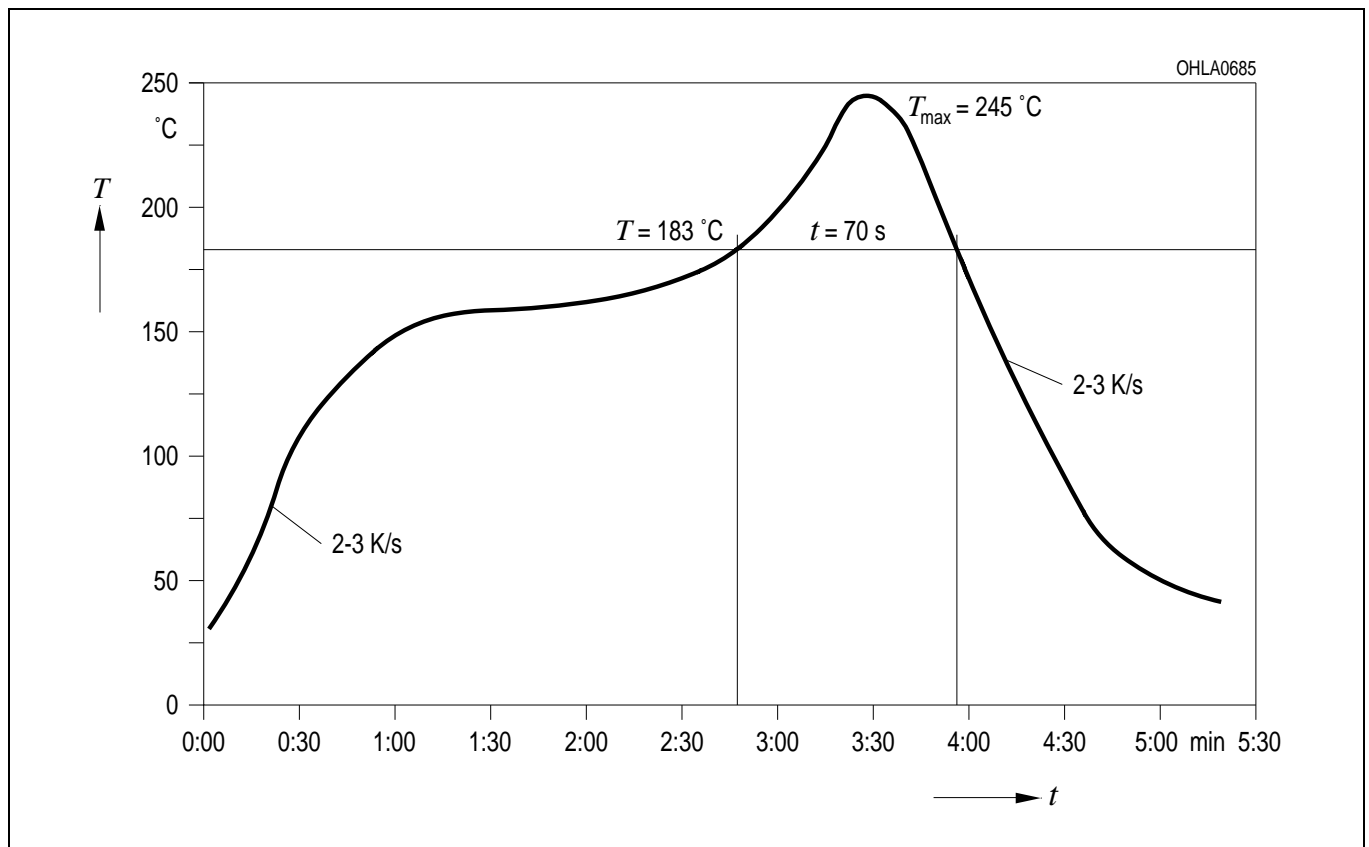
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

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

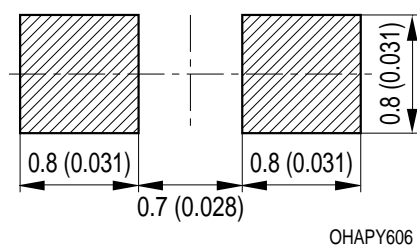


**Lötbedingungen** Vorbehandlung nach JEDEC Level 2  
**Soldering Conditions** Preconditioning acc. to JEDEC Level 2

**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



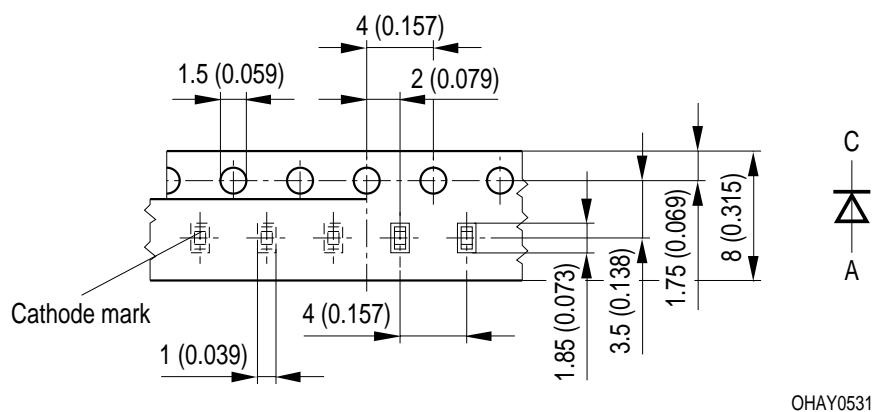
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

**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).

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**Revision History: 2001-03-07**

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Previous Version: 2001-03-07

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Page	Subjects (major changes since last revision)

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**Patent List**

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**Patent No.**

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