



### Vorläufige Daten / Preliminary Data

#### Besondere Merkmale

- **Gehäusetypp:** weißes SMT-Gehäuse
- **Besonderheit des Bauteils:** kleine Bauform mit extrem breiter Abstrahlcharakteristik; ideal für Hinterleuchtungen und Einkopplungen in Lichtleiter
- **Wellenlänge:** 570 nm
- **Abstrahlwinkel:** Lambertscher Strahler (120°)
- **Technologie:** GaP
- **optischer Wirkungsgrad:** 2 lm/W
- **Gruppierungsparameter:** Lichtstärke
- **Verarbeitungsmethode:** für alle SMT-Bestücktechniken geeignet
- **Lötmethode:** IR Reflow Löten und Wellenlöten (TTW)
- **Vorbehandlung:** nach JEDEC Level 2
- **Gurtung:** 8 mm Gurt mit 3000/Rolle, ø180 mm oder 10000/Rolle, ø330 mm

#### Anwendungen

- optimale Einkopplung in Lichtleiter
- Hinterleuchtung (LCD, Mobiltelefone, Tasten, Allgemeinbeleuchtung, Werbebeleuchtung)
- Signal- und Symbolleuchten
- Automobilbereich (z. B. Instrumentenbeleuchtung)

#### Features

- **package:** white SMT package
- **feature of the device:** small package with extremely wide viewing angle; ideal for backlighting and coupling in light guides
- **wavelength:** 570 nm
- **viewing angle:** Lambertian Emitter (120°)
- **technology:** GaP
- **optical efficiency:** 2 lm/W
- **grouping parameter:** luminous intensity
- **assembly methods:** suitable for all SMT assembly methods
- **soldering methods:** IR reflow soldering and TTW soldering
- **preconditioning:** acc. to JEDEC Level 2
- **taping:** 8 mm tape with 3000/reel, ø180 mm or 10000/reel, ø330 mm

#### Applications

- optimized coupling into light guides
- backlighting (LCD, cellular phones, keys, general lightning, illuminated advertising)
- signal and symbol luminaire
- automotive (e. g. car radio backlighting)

| Typ            | Emissions-<br>farbe  | Farbe der<br>Lichtaustritts-<br>fläche | Lichtstärke                                                          | Lichtstrom                                                         | Bestellnummer |
|----------------|----------------------|----------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------|---------------|
| Type           | Color of<br>Emission | Color of the<br>Light Emitting<br>Area | Luminous<br>Intensity<br>$I_F = 10 \text{ mA}$<br>$I_V (\text{mcd})$ | Luminous<br>Flux<br>$I_F = 10 \text{ mA}$<br>$\Phi_V (\text{mlm})$ | Ordering Code |
| LG Y870-J2K2-1 | green                | colorless clear                        | 5.6 ... 11.2                                                         | 25 (typ.)                                                          | Q62703-Q6189  |
| LG Y870-K2M1-1 |                      |                                        | 9.0 ... 22.4                                                         | 45 (typ.)                                                          | Q62703-Q6190  |

Anm.: -1 gesamter Farbbereich

*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: -1 Total color tolerance range

*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<br>Parameter                                                                                                                                                       | Symbol<br>Symbol | Wert<br>Value  | Einheit<br>Unit |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------|-----------------|
| Betriebstemperatur<br>Operating temperature range                                                                                                                              | $T_{op}$         | – 40 ... + 100 | °C              |
| Lagertemperatur<br>Storage temperature range                                                                                                                                   | $T_{stg}$        | – 40 ... + 100 | °C              |
| Sperrschichttemperatur<br>Junction temperature                                                                                                                                 | $T_j$            | + 100          | °C              |
| Durchlassstrom<br>Forward current                                                                                                                                              | $I_F$            | 30             | mA              |
| Stoßstrom<br>Surge current<br>$t \leq 10 \mu s, D = 0.005$                                                                                                                     | $I_{FM}$         | t.b.d.         | A               |
| Sperrspannung<br>Reverse voltage                                                                                                                                               | $V_R$            | 5              | V               |
| Leistungsaufnahme<br>Power consumption                                                                                                                                         | $P_{tot}$        | 95             | mW              |
| Wärmewiderstand<br>Thermal resistance<br>Sperrschicht/Umgebung<br>Junction/air                                                                                                 | $R_{th JA}$      | 530            | K/W             |
| Sperrschicht/Lötpad<br>Junction/soldering point<br>Montage auf PC-Board FR 4 (Padgröße $\geq 16 \text{ mm}^2$ )<br>mounted on PC board FR 4 (pad size $\geq 16 \text{ mm}^2$ ) | $R_{th JS}$      | 300            | K/W             |

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

| Bezeichnung<br>Parameter                                                                                                                                                         | Symbol<br>Symbol             | Wert<br>Value | Einheit<br>Unit |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------|-----------------|
| Wellenlänge des emittierten Lichtes (typ.)<br>Wavelength at peak emission<br>$I_F = 10\text{ mA}$                                                                                | $\lambda_{\text{peak}}$      | 572           | nm              |
| Dominantwellenlänge <sup>1)</sup><br>Dominant wavelength <sup>1)</sup><br>$I_F = 10\text{ mA}$                                                                                   | $\lambda_{\text{dom}}$       | 570<br>± 6    | nm              |
| Spektrale Bandbreite bei 50 % $I_{\text{rel max}}$<br>Spectral bandwidth at 50 % $I_{\text{rel max}}$<br>$I_F = 10\text{ mA}$                                                    | $\Delta\lambda$              | 25            | nm              |
| Abstrahlwinkel bei 50 % $I_V$ (Vollwinkel)<br>Viewing angle at 50 % $I_V$                                                                                                        | $2\varphi$                   | 120           | Grad<br>deg.    |
| Durchlassspannung <sup>2)</sup><br>Forward voltage <sup>2)</sup><br>$I_F = 10\text{ mA}$                                                                                         | $V_F$<br>(max.) $V_F$        | 2.0<br>2.5    | V<br>V          |
| Sperrstrom (typ.)<br>Reverse current (max.)<br>$V_R = 5\text{ V}$                                                                                                                | $I_R$<br>$I_R$               | 0.01<br>10    | µA<br>µA        |
| Temperaturkoeffizient von $\lambda_{\text{peak}}$<br>Temperature coefficient of $\lambda_{\text{peak}}$<br>$I_F = 10\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$ | $TC_{\lambda_{\text{peak}}}$ | 0.11          | nm/K            |
| Temperaturkoeffizient von $\lambda_{\text{dom}}$<br>Temperature coefficient of $\lambda_{\text{dom}}$<br>$I_F = 10\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$   | $TC_{\lambda_{\text{dom}}}$  | 0.07          | nm/K            |
| Temperaturkoeffizient von $V_F$<br>Temperature coefficient of $V_F$<br>$I_F = 10\text{ mA}; -10^\circ\text{C} \leq T \leq 100^\circ\text{C}$                                     | $TC_V$                       | – 1.4         | mV/K            |
| Optischer Wirkungsgrad (typ.)<br>Optical efficiency<br>$I_F = 10\text{ mA}$                                                                                                      | $\eta_{\text{opt}}$          | 2             | lm/W            |

<sup>1)</sup> Wellenlängen werden mit einer Stromeinprägedauer von 25 ms und einer Genauigkeit von ±1 nm ermittelt.  
Wavelengths are tested at a current pulse duration of 25 ms and a tolerance of ±1 nm.

<sup>2)</sup> 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.

## Helligkeits-Gruppierungsschema Luminous Intensity Groups

| Lichtgruppe<br>Luminous Intensity Group | Lichtstärke<br>Luminous Intensity<br>$I_V$ (mcd) | Lichtstrom<br>Luminous Flux<br>$\Phi_V$ (lm) |
|-----------------------------------------|--------------------------------------------------|----------------------------------------------|
| J2                                      | 5.6 ... 7.1                                      | 19 (typ.)                                    |
| K1                                      | 7.1 ... 9.0                                      | 24 (typ.)                                    |
| K2                                      | 9.0 ... 11.2                                     | 30 (typ.)                                    |
| L1                                      | 11.2 ... 14.0                                    | 40 (typ.)                                    |
| L2                                      | 14.0 ... 18.0                                    | 50 (typ.)                                    |
| M1                                      | 18.0 ... 22.4                                    | 60 (typ.)                                    |

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  $\pm 11\%$ .

## Gruppenbezeichnung auf Etikett

### Group Name on Label

Beispiel: L1

Example: L1

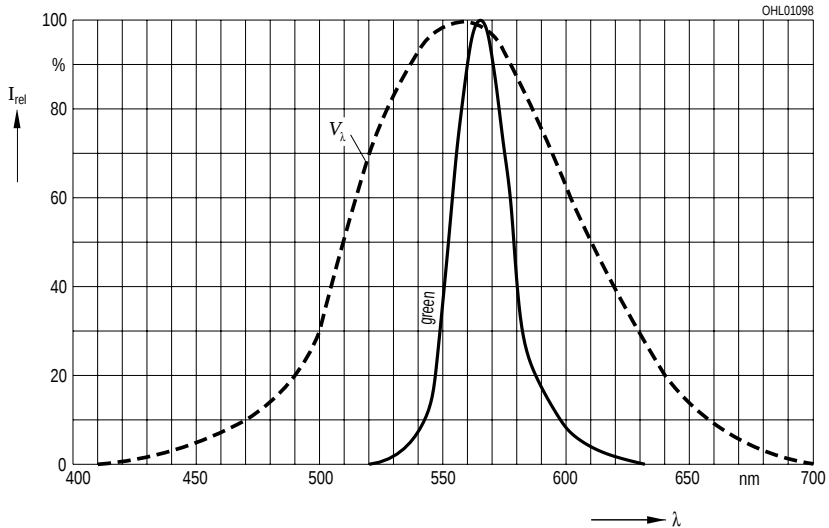
| Lichtgruppe<br>Luminous Intensity Group | Halbgruppe<br>Half Group |
|-----------------------------------------|--------------------------|
| L                                       | 1                        |

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

**Relative Spectral Emission**

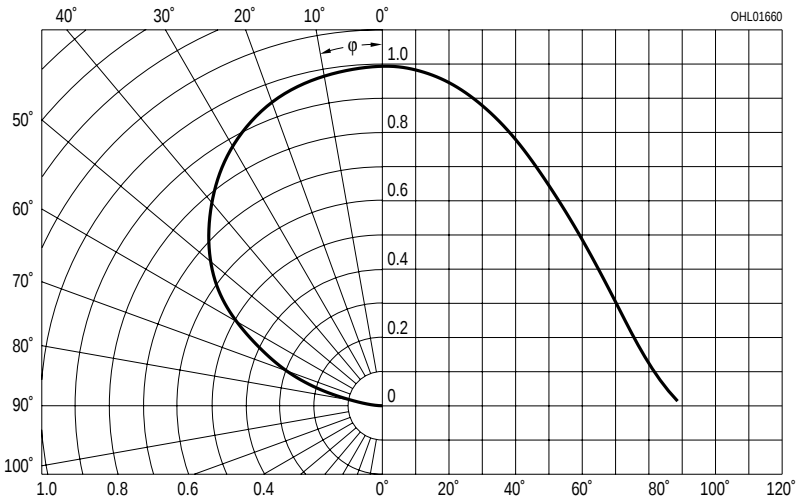
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



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

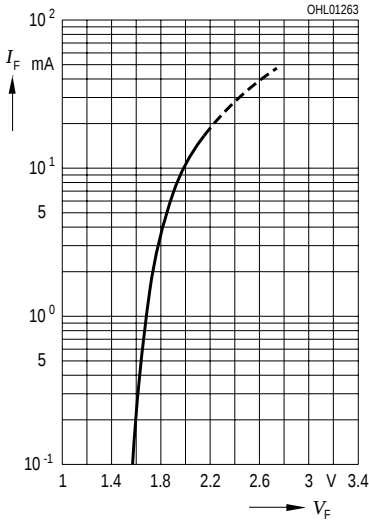
**Radiation Characteristic**



**Durchlassstrom  $I_F = f(V_F)$**

**Forward Current**

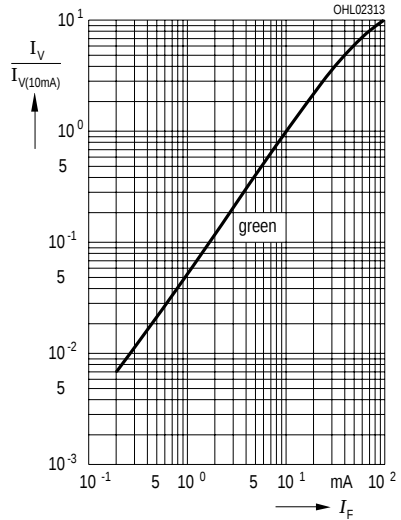
$T_A = 25^\circ\text{C}$



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

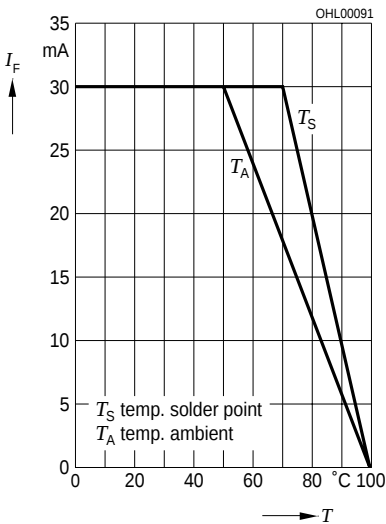
**Relative Luminous Intensity**

$T_A = 25^\circ\text{C}$



**Maximal zulässiger Durchlassstrom  $I_F = f(T_A)$**

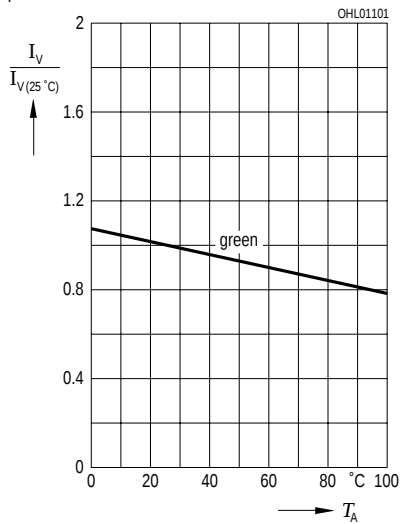
**Max. Permissible Forward Current**



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

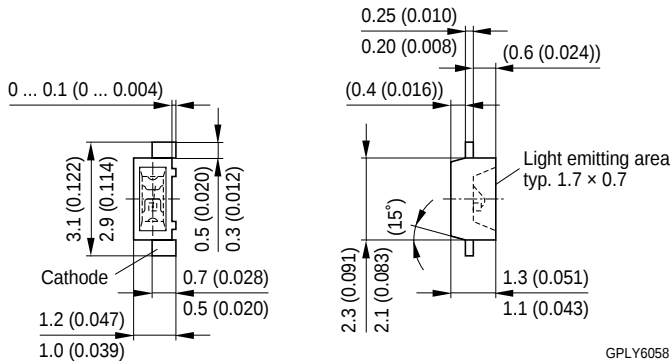
**Relative Luminous Intensity**

$I_F = 10\text{ mA}$



**Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$**   
**Permissible Pulse Handling Capability**  
Duty cycle  $D =$  parameter,  $T_A = 25\text{ °C}$

**Maßzeichnung  
Package Outlines**

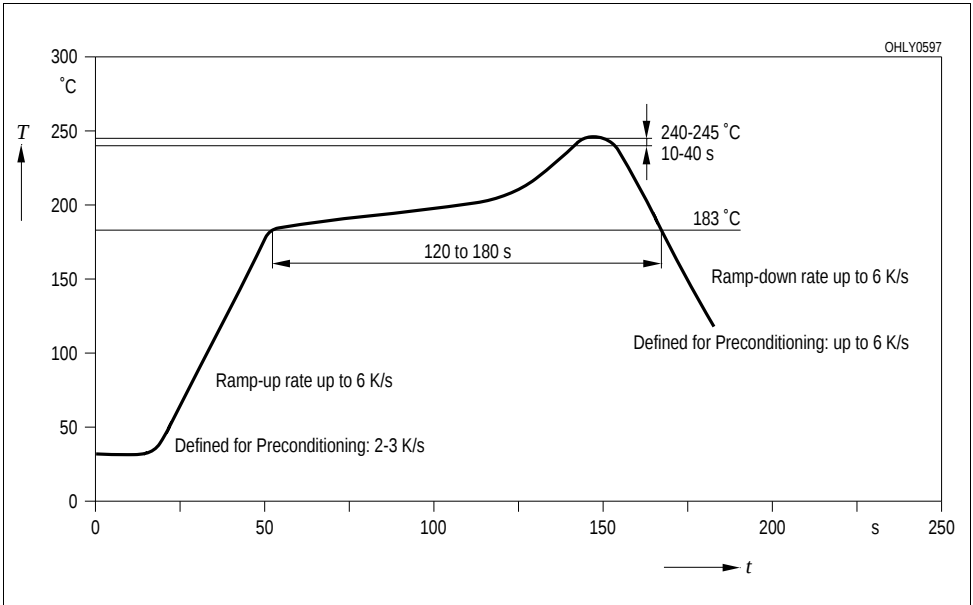


Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

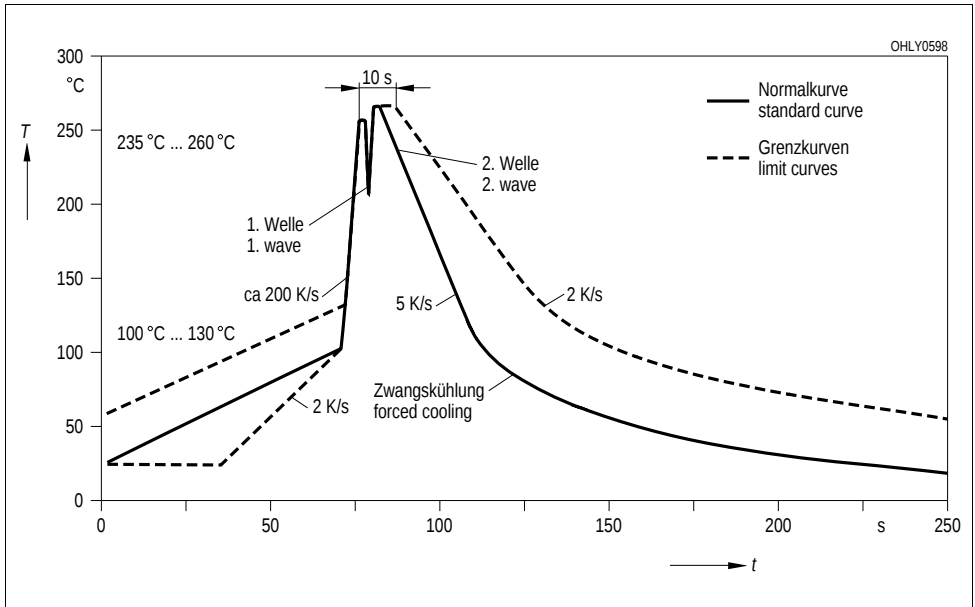
**Gewicht / Approx. weight:** 6 mg

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

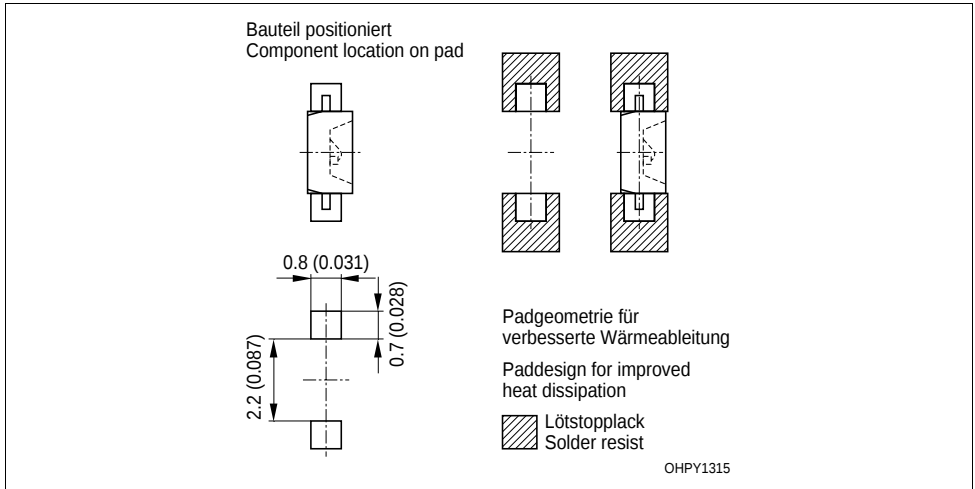
**IR-Reflow Lötprofil** (nach IPC 9501)  
**IR Reflow Soldering Profile** (acc. to IPC 9501)



**Wellenlöten (TTW)** (nach CECC 00802)  
**TTW Soldering** (acc. to CECC 00802)



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



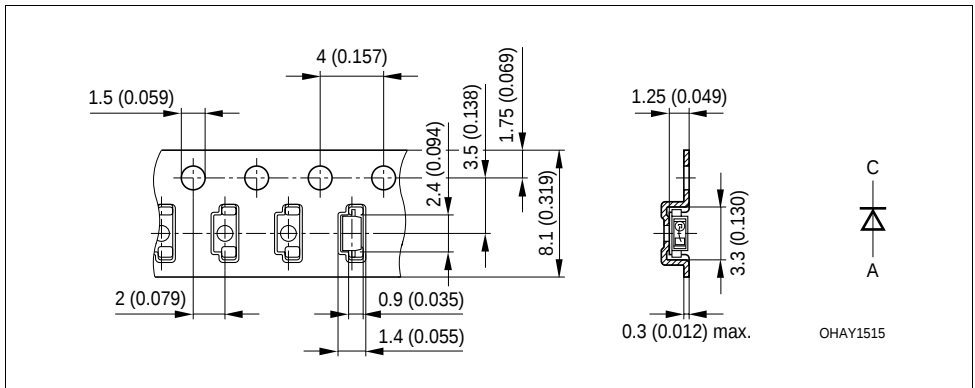
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).  
 Gehäuse für Wellenlöten (TTW) geeignet / Package suitable for TTW-soldering

**Gurtung / Polarität und Lage**

Verpackungseinheit 3000/Rolle, ø180 mm oder  
 10000/Rolle, ø330 mm

**Method of Taping / Polarity and Orientation**

Packing unit 3000/reel, ø180 mm  
 or 10000/reel, ø330 mm



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

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**Revision History: 2001-06-26**

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Previous Version: 2001-06-26

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| Page | Subjects (major changes since last revision) |
|------|----------------------------------------------|
|      |                                              |
|      |                                              |

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