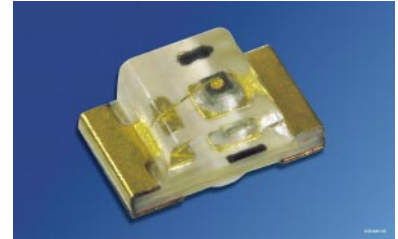


# Hyper CHIPLD Hyper-Bright LED

LB R99A



## Vorläufige Daten / Preliminary Data

### Besondere Merkmale

- **Gehäusotyp:** 0805
- **Besonderheit des Bauteils:** kleine Bauform für Anwendungen mit wenig Platzbedarf
- **Wellenlänge:** 466 nm (blau)
- **Abstrahlwinkel:** extrem breite Abstrahlcharakteristik (160°)
- **Technologie:** GaN
- **optischer Wirkungsgrad:** 1 lm/W
- **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

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

### Features

- **package:** 0805
- **feature of the device:** small package for applications where small space is required
- **wavelength:** 466 nm (blue)
- **viewing angle:** extremely wide (160°)
- **technology:** GaN
- **optical efficiency:** 1 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, ø180 mm

### Applications

- optical indicators
- coupling into light guides
- flat backlighting (LCD, cellular phones, switches, displays)
- toys

| Typ     | Emissionsfarbe       | Farbe der<br>Lichtaustritts-<br>fläche | Lichtstärke                                                           |      | Bestellnummer |
|---------|----------------------|----------------------------------------|-----------------------------------------------------------------------|------|---------------|
| Type    | Color of<br>Emission | Color of the<br>Light Emitting<br>Area | Luminous<br>Intensity<br>$I_F = 20 \text{ mA}$<br>$I_V \text{ (mcd)}$ |      | Ordering Code |
|         |                      |                                        | min.                                                                  | typ. |               |
| LB R99A | blue                 | colorless clear                        | 2.8                                                                   | 10   | Q62702-P5175  |

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 an accuracy of  $\pm 11 \%$ .

**Grenzwerte**  
**Maximum Ratings**

| Bezeichnung<br>Parameter                                                                                                                                                                                                                                          | Symbol<br>Symbol               | Wert<br>Value  | Einheit<br>Unit |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------|-----------------|
| Betriebstemperatur<br>Operating temperature range                                                                                                                                                                                                                 | $T_{op}$                       | – 30 ... + 85  | °C              |
| Lagertemperatur<br>Storage temperature range                                                                                                                                                                                                                      | $T_{stg}$                      | – 40 ... + 85  | °C              |
| Sperrschichttemperatur<br>Junction temperature                                                                                                                                                                                                                    | $T_j$                          | + 95           | °C              |
| Durchlaßstrom<br>Forward current                                                                                                                                                                                                                                  | $I_F$                          | 20             | mA              |
| Stoßstrom<br>Surge current<br>$t \leq 10 \mu s, D = 0.1$                                                                                                                                                                                                          | $I_{FM}$                       | t.b.d.         | A               |
| Sperrspannung<br>Reverse voltage                                                                                                                                                                                                                                  | $V_R$                          | 5              | V               |
| Leistungsaufnahme<br>Power dissipation                                                                                                                                                                                                                            | $P_{tot}$                      | 90             | mW              |
| Wärmewiderstand<br>Thermal resistance<br>Sperrschicht/Umgebung<br>Junction/ambient<br>Sperrschicht/Lötpad<br>Junction/solder point<br>Montage auf PC-Board FR 4 (Padgröße $\geq 16 \text{ mm}^2$ )<br>mounted on PC board FR 4 (pad size $\geq 16 \text{ mm}^2$ ) | $R_{th JA}$<br><br>$R_{th JS}$ | 680<br><br>390 | K/W<br><br>K/W  |

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

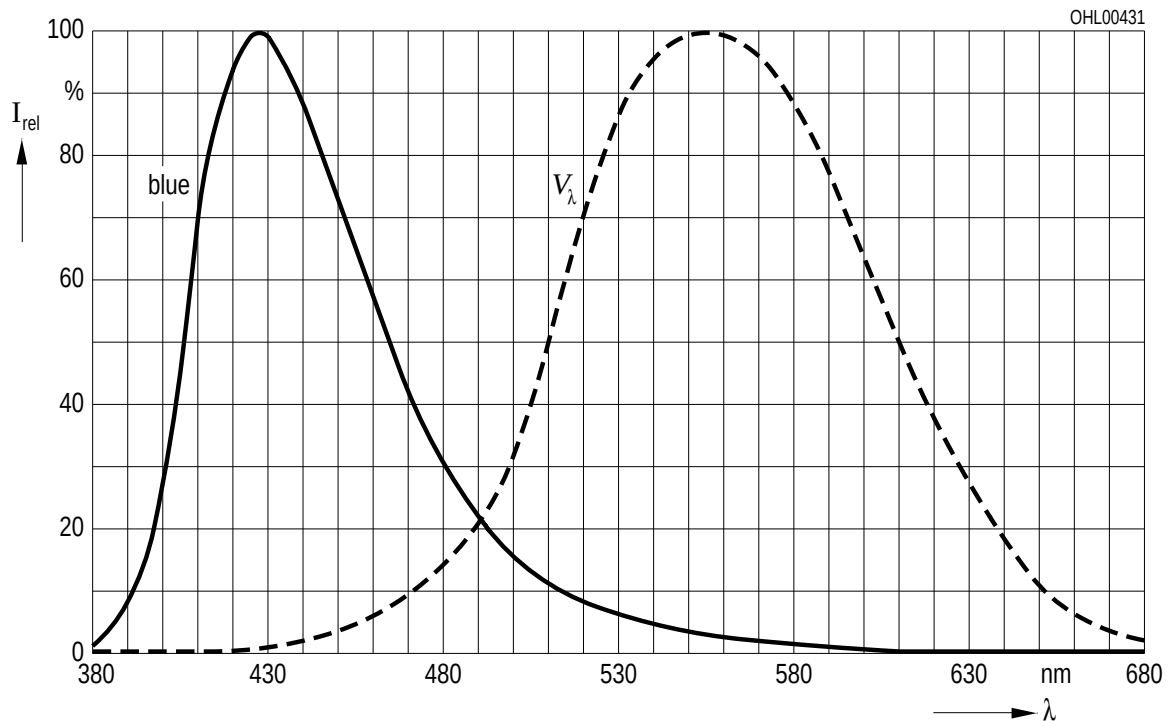
| Bezeichnung<br>Parameter                                                                                                               | Symbol<br>Symbol             | Wert<br>Value | Einheit<br>Unit                |
|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------|--------------------------------|
| Wellenlänge des emittierten Lichtes (typ.)<br>Wavelength at peak emission<br>$I_F = 20\text{ mA}$                                      | $\lambda_{\text{peak}}$      | 428           | nm                             |
| Dominantwellenlänge (typ.)<br>Dominant wavelength<br>$I_F = 20\text{ mA}$                                                              | $\lambda_{\text{dom}}$       | 465           | nm                             |
| Spektrale Bandbreite (typ.)<br>Spectral bandwidth<br>$I_F = 20\text{ mA}$                                                              | $\Delta\lambda$              | 60            | nm                             |
| Abstrahlwinkel bei 50 % $I_V$ (Vollwinkel) (typ.)<br>Viewing angle at 50 % $I_V$                                                       | $2\phi$                      | 160           | Grad<br>deg.                   |
| Durchlaßspannung (typ.)<br>Forward voltage<br>$I_F = 20\text{ mA}$                                                                     | $V_F$<br>(max.) $V_F$        | 3.8<br>4.5    | V<br>V                         |
| Sperrstrom (typ.)<br>Reverse current<br>$V_R = 5\text{ V}$                                                                             | $I_R$<br>(max.) $I_R$        | 0.01<br>10    | $\mu\text{A}$<br>$\mu\text{A}$ |
| Temperaturkoeffizient von $\lambda_{\text{peak}}$ (typ.)<br>Temperature coefficient of $\lambda_{\text{peak}}$<br>$I_F = 20\text{ mA}$ | $TC_{\lambda_{\text{peak}}}$ | 0.004         | nm/K                           |
| Temperaturkoeffizient von $\lambda_{\text{dom}}$ (typ.)<br>Temperature coefficient of $\lambda_{\text{dom}}$<br>$I_F = 20\text{ mA}$   | $TC_{\lambda_{\text{dom}}}$  | 0.03          | nm/K                           |
| Temperaturkoeffizient von $V_F$ (typ.)<br>Temperature coefficient of $V_F$<br>$I_F = 20\text{ mA}$                                     | $TC_V$                       | – 3.1         | mV/K                           |
| Optischer Wirkungsgrad (typ.)<br>Optical efficiency<br>$I_F = 20\text{ mA}$                                                            | $\eta_{\text{opt}}$          | 1             | lm/W                           |

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

### Relative Spectral Emission

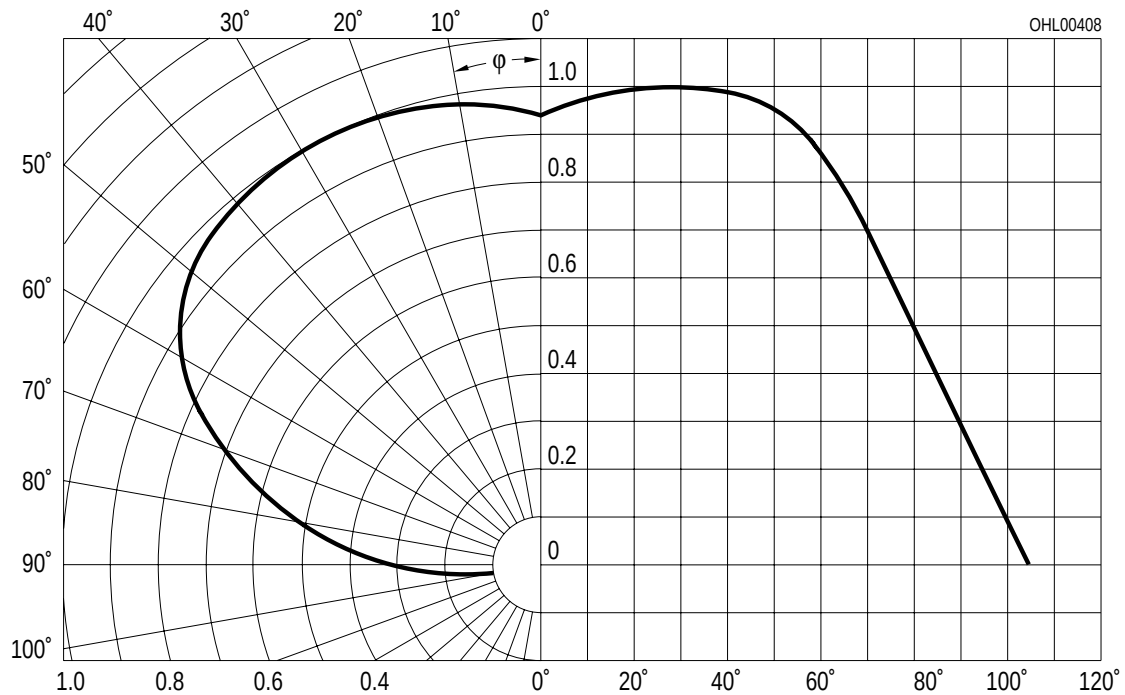
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



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

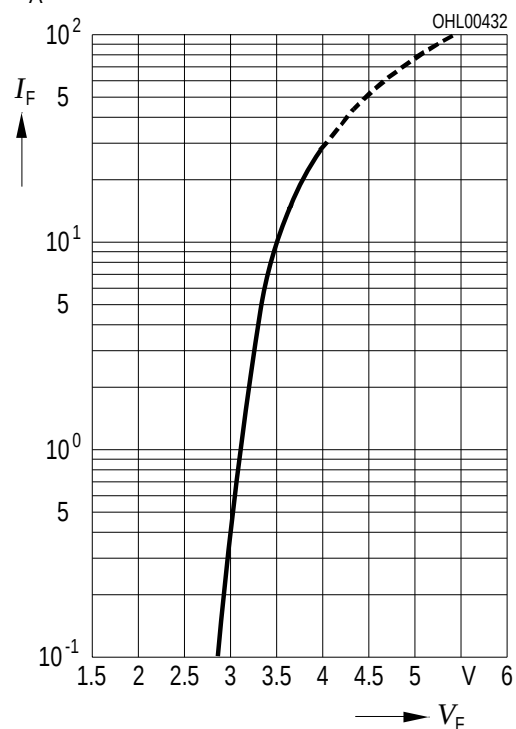
### Radiation Characteristic



Durchlaßstrom  $I_F = f(V_F)$

Forward Current

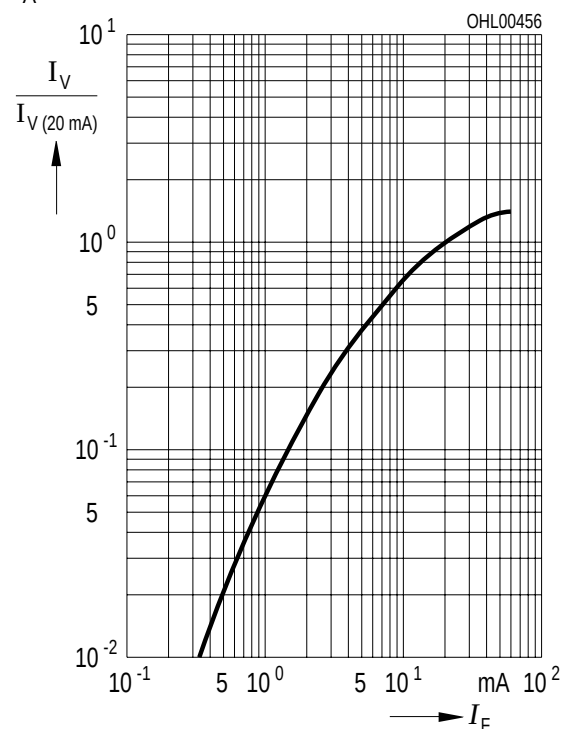
$T_A = 25^\circ\text{C}$



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

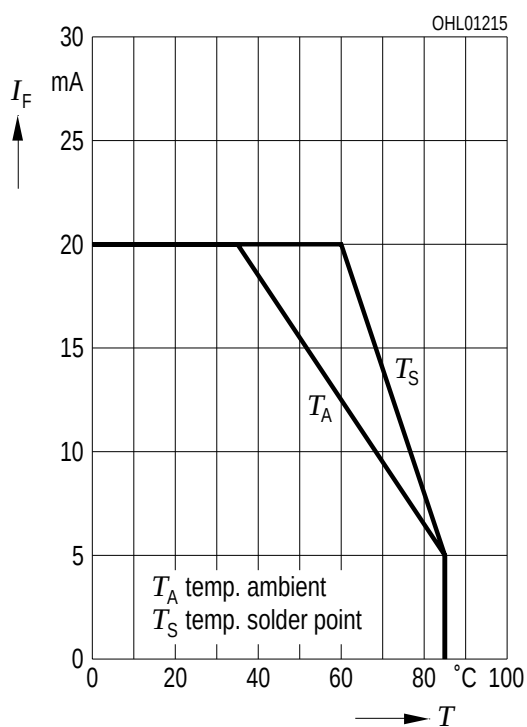
Relative Luminous Intensity

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



Maximal zulässiger Durchlaßstrom  $I_F = f(T)$

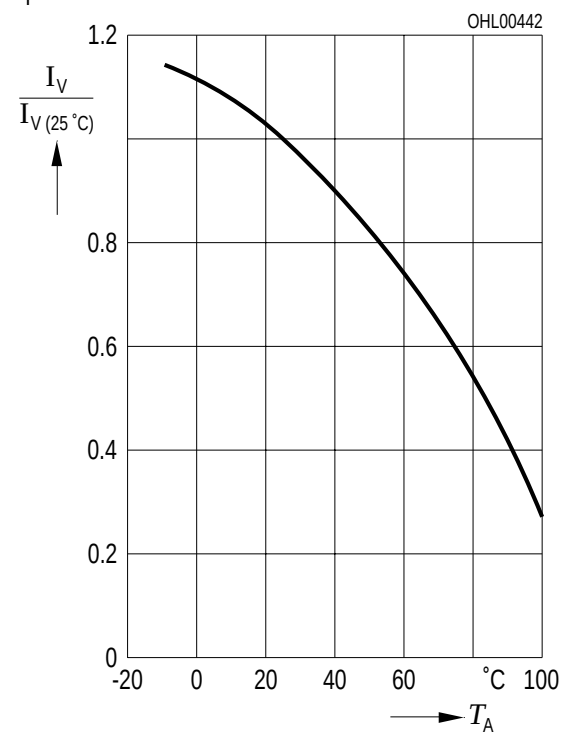
Max. Permissible Forward Current



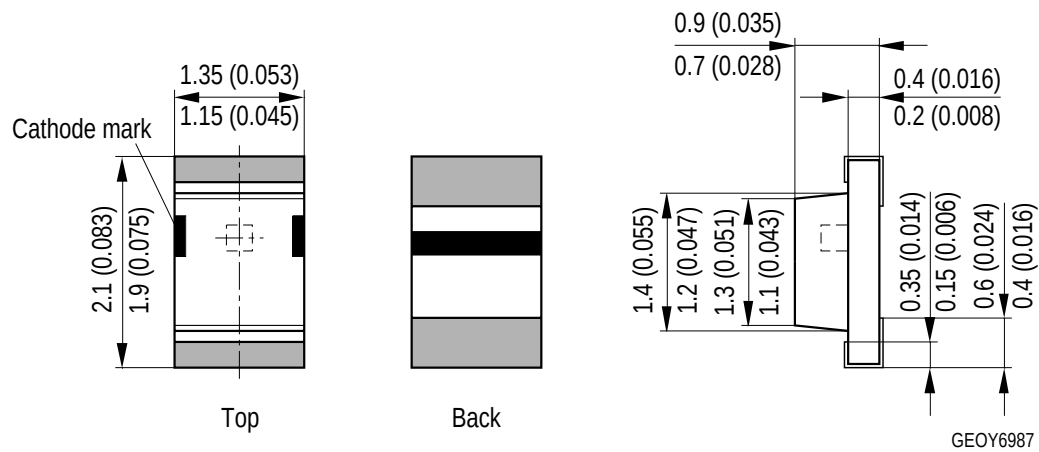
Relative Lichtstärke  $I_V/I_{V(25^\circ\text{C})} = f(T_A)$

Relative Luminous Intensity

$I_F = 20\text{ mA}$



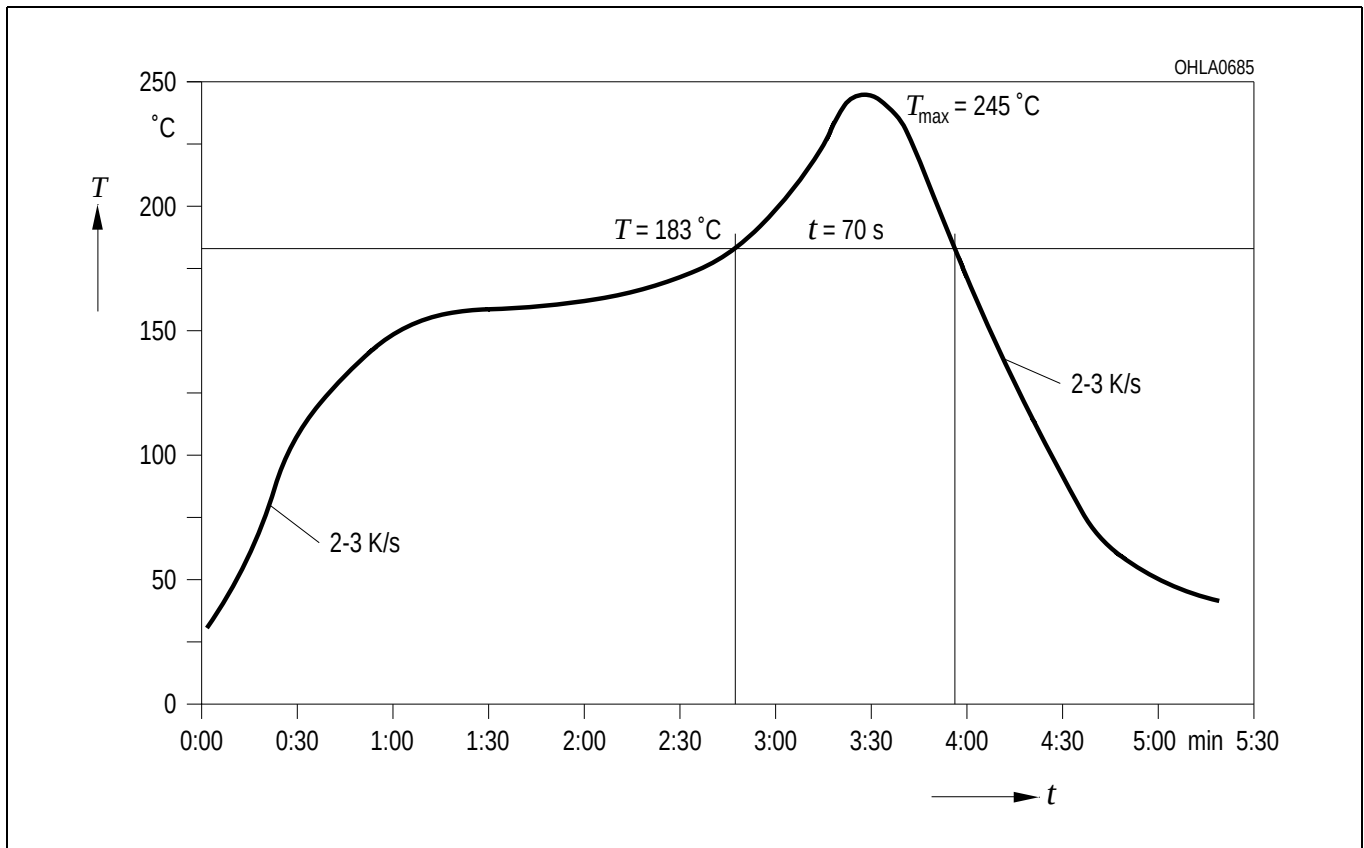
# Maßzeichnung Package Outlines



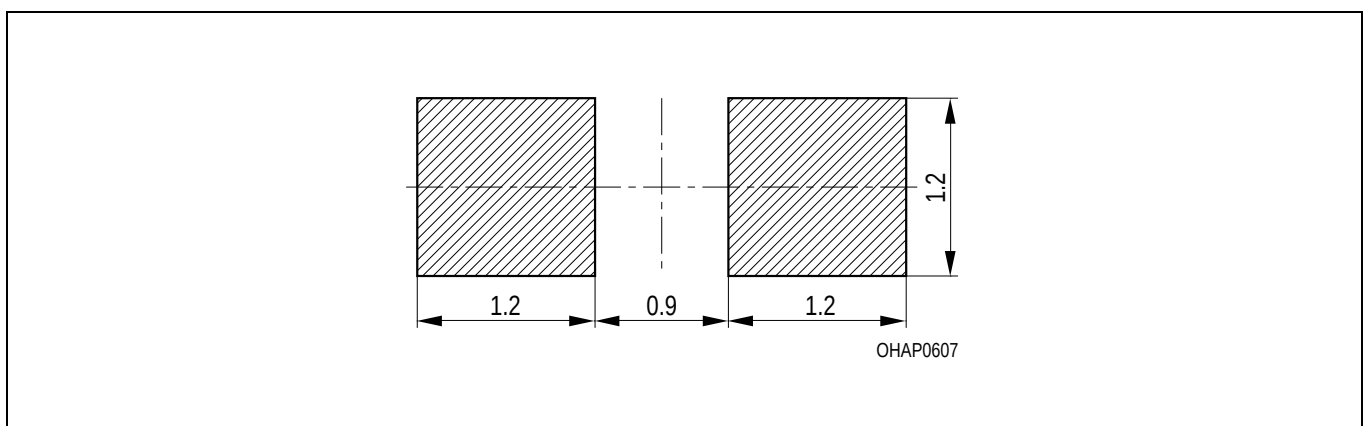
Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

**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 Lötpad design** IR Reflow Löten  
**Recommended Solder Pad** IR Reflow Soldering





**Gurtung / Polarität und Lage**Verpackungseinheit 4000/Rolle,  $\varnothing 180$  mm**Method of Taping / Polarity and Orientation**Packing unit 4000/reel,  $\varnothing 180$  mm