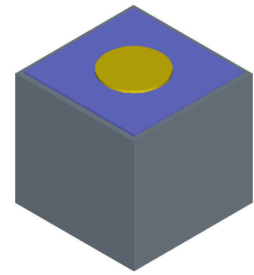


# InGaN-High Brightness Lumineszenzdiode (460 nm) InGaN High Brightness Light Emitting Diode (460 nm)

F 0284B



## Vorläufige Daten / Preliminary Data

### Wesentliche Merkmale

- Typ. Gesamtleistung: 3.3 mW @ 20 mA (im 5mm Radial Gehäuse)
- Optische Effizienz: 2 lm/W (5mm Gehäuse)
- Chipgröße 260 x 260
- Wellenlänge 460 nm (blau)
- Technologie: InGaN
- SiC-Substrat
- ESD-Klasse 2

### Features

- Typ. radiant power: 3.3 mW @ 20 mA (in 5mm Radial package)
- Optical efficiency: 2lm/W (5mm package)
- Chipsize 260 x 260
- Wavelength 460 nm (blue)
- Technology: InGaN
- SiC-substrate
- ESD class 2 rating

### Anwendungen

- Informationsanzeigen im Außenbereich
- optischer Indikator
- Hinterleuchtung (LCD, Schalter, Tasten, Displays, Werbebeleuchtung, Allgemeinbeleuchtung)
- Innenbeleuchtung im Automobilbereich
- Markierungsbeleuchtung
- Signal- und Symbolleuchten
- Scanner

### Applications

- Outdoor displays
- Optical indicators
- backlighting (LCD, switches, keys, displays, illuminated advertising, general lighting)
- Interior automotive lighting
- Marker lights
- Signal and symbol luminaire
- Scanner

Typ Type	Bestellnummer Ordering Code	Gehäuse Package
F 0284B	on request	Blau (460 nm)emittierender Chip InGaN Chip blue light (460 nm) emitting InGaN diode

**Elektrische Werte** (gemessen in 5mm Radial package,  $T_A = 25\text{ °C}$ )

**Electrical values** (measured in 5mm Radial package,  $T_A = 25\text{ °C}$ )

Bezeichnung Parameter	Symbol Symbol	Wert <sup>1)</sup> Value <sup>1)</sup>			Einheit Unit
		min.	typ.	max.	
Wellenlänge der Strahlung Wavelength at peak emission $I_F = 20\text{ mA}$	$\lambda_{\text{peak}}$		456		nm
Dominantwellenlänge Dominant wavelength $I_F = 20\text{ mA}$	$\lambda_{\text{dom}}$	456	461	466	nm
Spektrale Bandbreite bei 50% von $I_{\text{rel max}}$ , Spectral bandwidth at 50% of $I_{\text{rel max}}$ $I_F = 20\text{ mA}$	$\Delta\lambda$		30		nm
Sperrspannung reverse voltage $I_R = 10\text{ }\mu\text{A}$	$V_R$	5			V
Schaltzeiten, $I_e$ von 10% auf 90% und von 90% auf 10%, bei $I_F = 20\text{ mA}$ , $R_L = 50\text{ }\Omega$ Switching times, $I_e$ from 10% to 90% and from 90% to 10%, $I_F = 100\text{ mA}$ , $R_L = 50\text{ }\Omega$	$t_r, t_f$		30		ns
Durchlaßspannung, $I_F = 20\text{ mA}$ , Forward voltage, $I_F = 20\text{ mA}$	$V_F$	2.9	3.5	3.8	V
Gesamtstrahlungsfluß <sup>4)</sup> Radiant power <sup>4)</sup> $I_F = 20\text{ mA}$	$\Phi_e$	1.8	3.3		mW
Temperaturkoeffizient <sup>2)</sup> von $\lambda_{\text{dom}}$ Temperature coefficient <sup>2)</sup> of $\lambda_{\text{dom}}$ $I_F = 50\text{ mA}$ ; $-10\text{ °C} < T < 100\text{ °C}$	$\text{TC}_{\lambda_{\text{dom}}}$		0.04		nm/K
Temperaturkoeffizient <sup>2)</sup> von $V_F$ Temperature coefficient <sup>2)</sup> of $V_F$ $I_F = 50\text{ mA}$ ; $-10\text{ °C} < T < 100\text{ °C}$	$\text{TC}_V$		-2.9		mV/K

**Mechanische Werte**  
**Mechanical values**

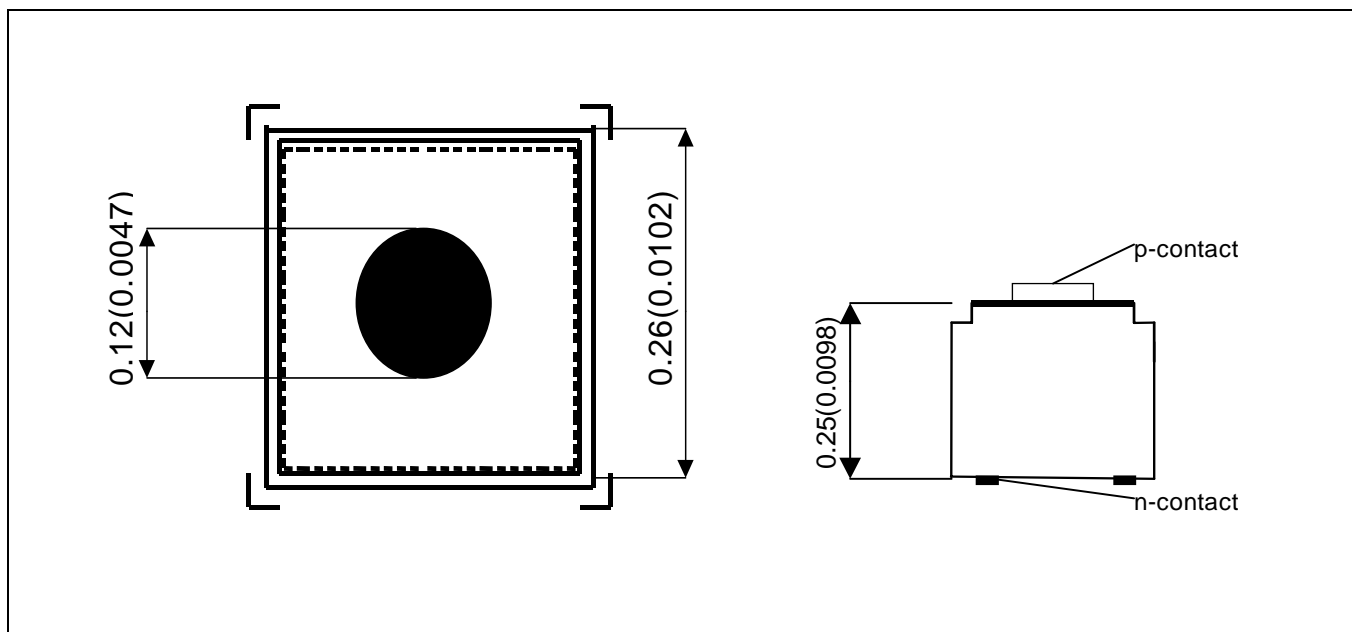
Bezeichnung Parameter	Symbol Symbol	Wert <sup>1)</sup> Value <sup>1)</sup>			Einheit Unit
		min.	typ.	max.	
Chipkantenlänge (x-Richtung) Length of chip edge (x-direction)	$L_x$	0.235	0.26	0.285	mm
Chipkantenlänge (y-Richtung) Length of chip edge (y-direction)	$L_y$	0.235	0.26	0.285	mm
Durchmesser des Wafers Diameter of the wafer	$D$		50.8		mm
Chiphöhe Die height	$H$	225	250	275	$\mu\text{m}$
Bondpaddurchmesser Diameter of bondpad	d	100	120	140	$\mu\text{m}$

Bezeichnung Parameter	Wert Value
Vorderseitenmetallisierung Metallization frontside	Au
Rückseitenmetallisierung Metallization backside	Au-partiell Au-partial
Trennverfahren Dicing	Sägen Sawing
Verbindung Chip - Träger Die bonding	Kleben Epoxy bonding

**Grenzwerte<sup>3)</sup> ( $T_A = 25^\circ\text{C}$ )**  
**Maximum Ratings<sup>3)</sup>**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Maximale Betriebstemperatur Maximum Operating temperature range	$T_{op}$	$-55^\circ\text{C} \dots +100^\circ\text{C}$	$^\circ\text{C}$
Maximale Lagertemperatur Maximum storage temperature range	$T_{stg}$	$-55^\circ\text{C} \dots +100^\circ\text{C}$	$^\circ\text{C}$
Maximaler Durchlaßstrom Maximum forward current	$I_F$	30	mA
Maximaler Pulsstrom, $t_p < 10\mu\text{s}$ , $D=0.005$ Maximum pulse current	$I_P$	200	mA
Maximale Sperrschichttemperatur Maximum junction temperature	$T_j$	125	$^\circ\text{C}$
Elektrostatische Durchbruchsspannung (HBM) Electrostatic Discharge Threshold (HBM)	$ESD_{th}$	1000	V

## Maßzeichnung Chip Outlines



Maße werden als typische<sup>1)</sup> Werte wie folgt angegeben: mm (inch) / Dimensions are specified as typical<sup>1)</sup> values as follows: mm (inch).

---

**Published by OSRAM Opto Semiconductors GmbH**

**Wernerwerkstrasse 2, D-93049 Regensburg**

**© All Rights Reserved.**

**Attention please!**

The information generally describes the type of component and shall not be considered as assured characteristics or detailed specification.

Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our sales organization.

**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 will have to 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.

**Components used in life-support devices or systems must be expressly authorized by us for such purpose!**

Critical components<sup>5)</sup>, may only be used in life-support devices or systems<sup>6)</sup> with the express written approval of OSRAM OS.

<sup>1)</sup> Typical (referred to as typ.) data are defined as long-term production mean values and are only given for information. This is not a specified value.

<sup>2)</sup> Based on data measured in OSRAM Opto Semiconductor's TOPLED® package. They represent typical<sup>1)</sup> data.

<sup>3)</sup> Maximum ratings are strongly package dependent and may differ between different packages. The values given represent the chip in a 5mm Radial package and are only valid for this package.

<sup>4)</sup> Value is referenced to the vendor's measurement system (correlation to customer product(s) is required).

<sup>5)</sup> A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or effectiveness of that device or system.

<sup>6)</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.