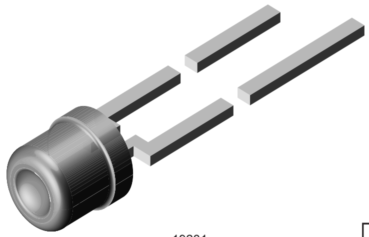
Backlighting Blue LED, ∅ 3 mm Tinted Non-Diffused Package

Description

The TLVB4200 series was developed for backlighting. Due to its special shape the spatial distribution of the radiation is qualified for backlighting.

To optimize the brightness of backlighting a custom-built reflector (with scattering) is required. Uniform illumination can be enhanced by covering the front of the reflector with diffusor material.

This is a flexible solution for backlighting different areas.



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Features

- High light output
- Wide viewing angle (Backlighting)
- Categorized for luminous flux
- Tinted clear package
- Low power dissipation
- Low self heating
- Rugged design
- High reliability
- ESD class 1
- Lead-free device

Applications

Backlighting of display panels, LCD displays, symbols on switches, keyboards, graphic boards and measuring scales

Illumination of large areas e.g. dot matrix displays

Parts Table

Part	Color, Luminous Intensity	Angle of Half Intensity (±φ)	Technology
TLVB4200	Blue, ϕ_V > 25 mlm	85 °	GaN on SiC

Absolute Maximum Ratings

T_{amb} = 25 °C, unless otherwise specified

TLVB4200

Parameter	Test condition	Symbol	Value	Unit
Reverse voltage		V_R	5	V
DC Forward current	$T_{amb} \le 60$ °C	I_F	20	mA
Surge forward current	$t_p \le 10$ µs	I_{FSM}	0.1	A
Power dissipation	$T_{amb} \le 60$ °C	P_V	100	mW
Junction temperature		T_j	100	°C
Operating temperature range		T_{amb}	- 40 to + 100	°C

Parameter	Test condition	Symbol	Value	Unit
Storage temperature range		T_{stg}	- 40 to + 100	°C
Soldering temperature	t ≤ 5 s, 2 mm from body	T_{sd}	260	°C
Thermal resistance junction/ ambient		R_{thJA}	400	K/W

Optical and Electrical Characteristics

T_{amb} = 25 °C, unless otherwise specified

Blue

TLVB4200

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Luminous intensity	I_F = 15 mA	I_V	25	38		mlm
Dominant wavelength	I_F = 10 mA	λ_d		466		nm
Peak wavelength	I_F = 10 mA	λ_p		428		nm
Angle of half intensity	I_F = 10 mA	φ		± 85		deg
Forward voltage	I_F = 20 mA	V_F		3.9	4.5	V
Reverse voltage	I_R = 10 µA	V_R	5			V

Typical Characteristics (T_{amb} = 25 °C unless otherwise specified)

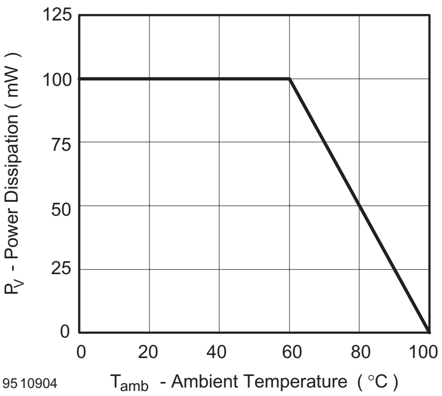


Figure 1. Power Dissipation vs. Ambient Temperature

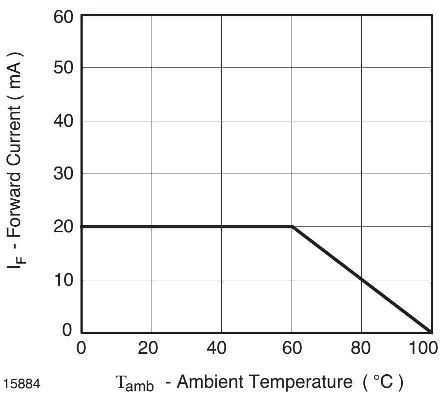


Figure 2. Forward Current vs. Ambient Temperature for InGaN

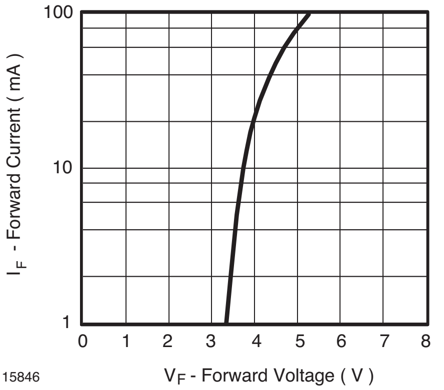


Figure 3. Forward Current vs. Forward Voltage

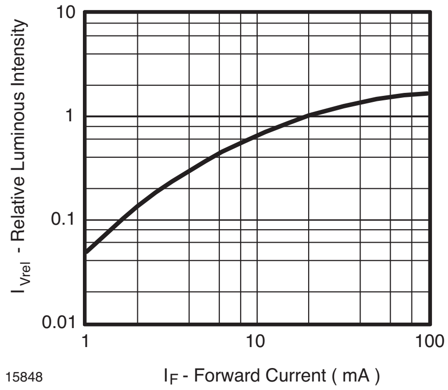


Figure 5. Relative Luminous Flux vs. Forward Current

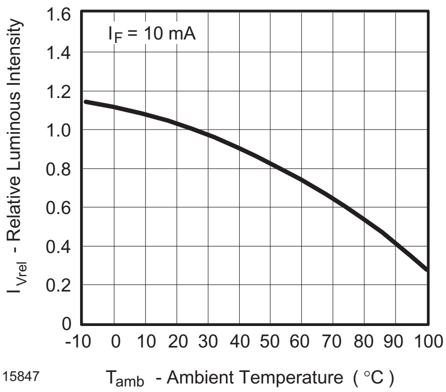


Figure 4. Rel. Luminous Flux vs. Ambient Temperature

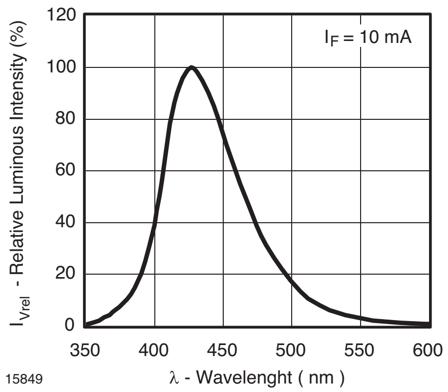


Figure 6. Relative Intensity vs. Wavelength

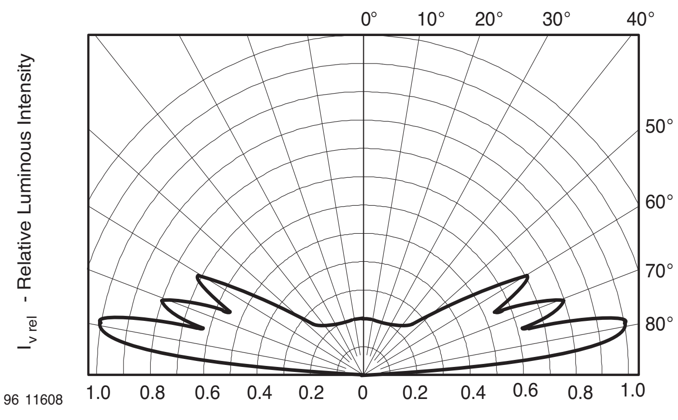
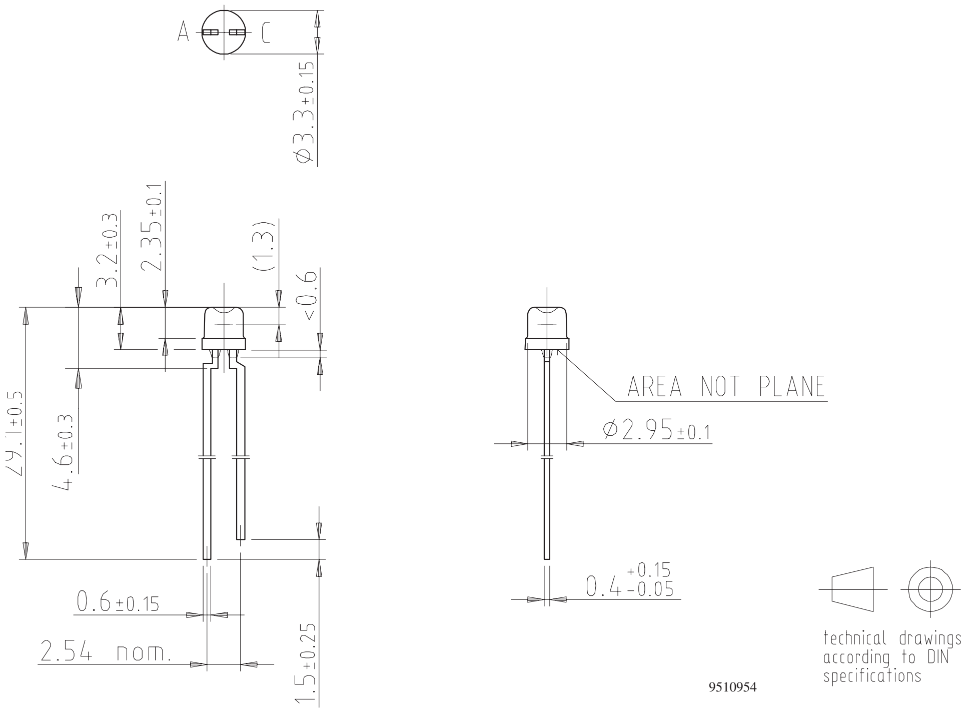


Figure 7. Rel. Luminous Intensity vs. Angular Displacement
for 90 ° Emission Angle

Package Dimensions in mm



Ozone Depleting Substances Policy Statement

It is the policy of **Vishay Semiconductor GmbH** to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operatingsystems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany
Telephone: 49 (0)7131 67 2831, Fax number: 49 (0)7131 67 2423