

# High Efficiency Blue LED, ø 3 mm Tinted Diffused Package

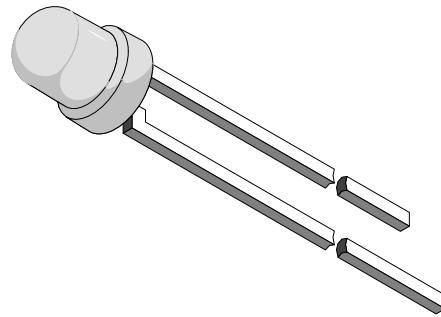
Color	Type	Technology	Angle of Half Intensity $\pm\varphi$
Blue	TLHB440.	GaN on SiC	30°

## Description

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This device has been redesigned in 1998 replacing SiC by GaN technology to meet the increasing demand for high efficiency blue LEDs.

It is housed in a 3 mm tinted diffused plastic package. All packing units are categorized in luminous intensity groups. That allows users to assemble LEDs with uniform appearance.



## Features

- GaN on SiC technology
- Standard ø 3 mm (T-1) package
- Small mechanical tolerances
- Wide viewing angle
- Very high intensity
- Luminous intensity categorized
- ESD class 1

## Applications

- Status lights
- OFF / ON indicator
- Background illumination
- Readout lights
- Maintenance lights
- Legend light

## Absolute Maximum Ratings

$T_{amb} = 25^\circ\text{C}$ , unless otherwise specified

### TLHB440.

Parameter	Test Conditions	Symbol	Value	Unit
Reverse voltage		$V_R$	5	V
DC forward current	$T_{amb} \leq 60^\circ\text{C}$	$I_F$	20	mA
Surge forward current	$t_p \leq 10 \mu\text{s}$	$I_{FSM}$	0.1	A
Power dissipation	$T_{amb} \leq 60^\circ\text{C}$	$P_V$	100	mW
Junction temperature		$T_j$	100	°C
Operating temperature range		$T_{amb}$	-40 to +100	°C
Storage temperature range		$T_{stg}$	-40 to +100	°C
Soldering temperature	$t \leq 5 \text{ s}$ , 2 mm from body	$T_{sd}$	260	°C
Thermal resistance junction/ambient		$R_{thJA}$	400	K/W

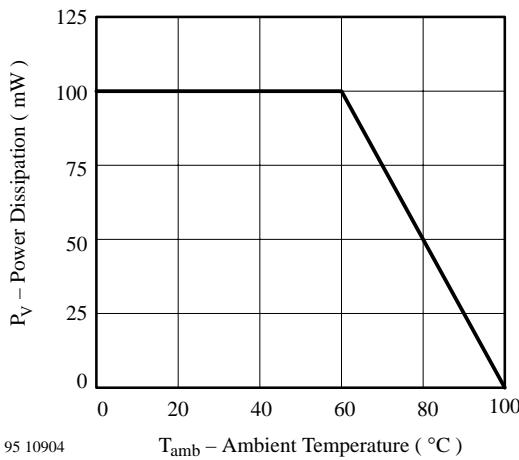
## Optical and Electrical Characteristics

$T_{amb} = 25^\circ C$ , unless otherwise specified

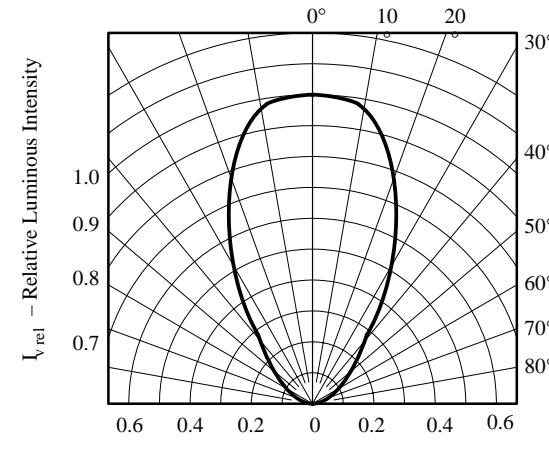
Blue (TLHB440.)

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Luminous intensity	$I_F = 20 \text{ mA}$	TLHB4400	$I_V$	6.3	15		mcd
		TLHB4401	$I_V$	10		32	mcd
Dominant wavelength	$I_F = 10 \text{ mA}$		$\lambda_d$		466		nm
Peak wavelength	$I_F = 10 \text{ mA}$		$\lambda_p$		428		nm
Angle of half intensity	$I_F = 10 \text{ mA}$		$\varphi$		$\pm 30$		deg
Forward voltage	$I_F = 20 \text{ mA}$		$V_F$		3.9	4.5	V
Reverse voltage	$I_R = 10 \mu\text{A}$		$V_R$	5			V

## Typical Characteristics ( $T_{amb} = 25^\circ C$ , unless otherwise specified)



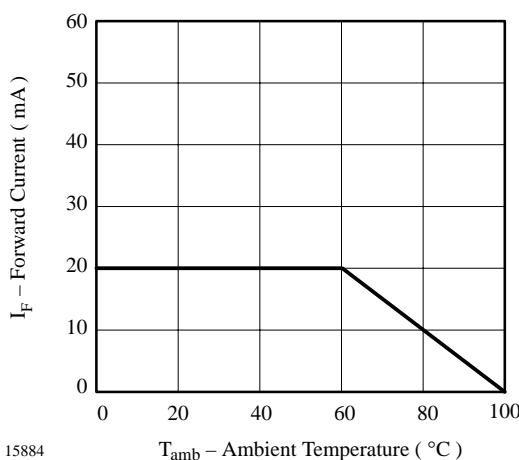
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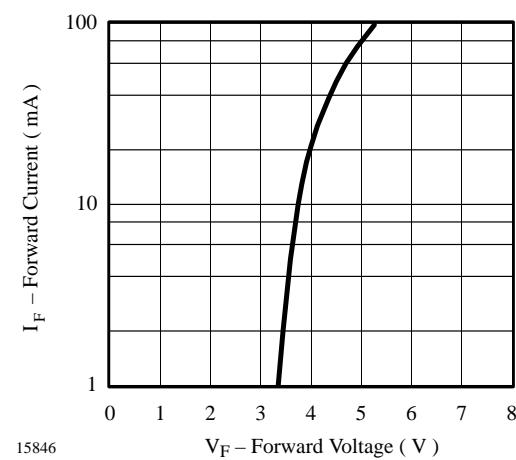
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Figure 1. Power Dissipation vs. Ambient Temperature

Figure 3. Rel. Luminous Intensity vs. Angular Displacement



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Figure 2. Forward Current vs. Ambient Temperature

Figure 4. Forward Current vs. Forward Voltage

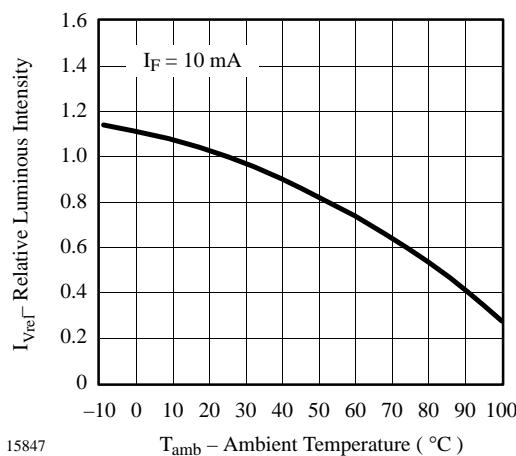


Figure 5. Rel. Luminous Intensity vs. Ambient Temperature

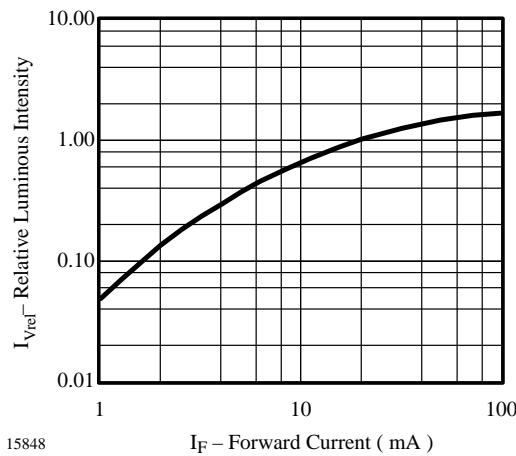


Figure 6. Relative Luminous Intensity vs. Forward Current

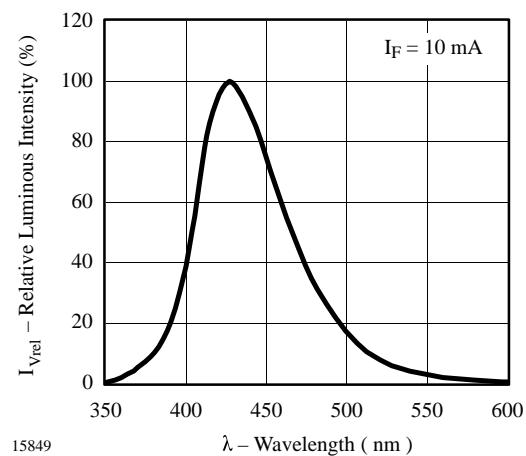
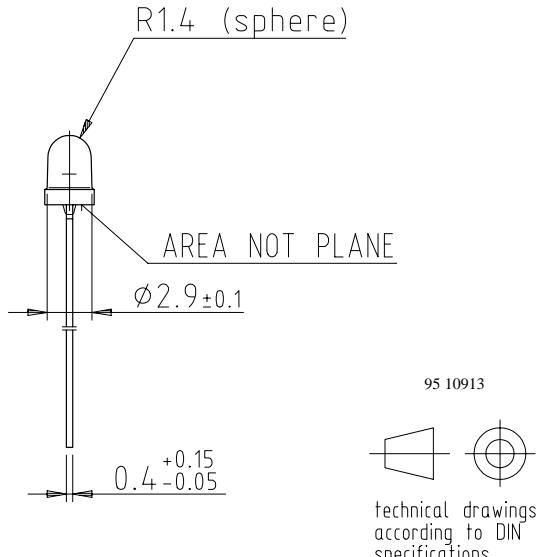
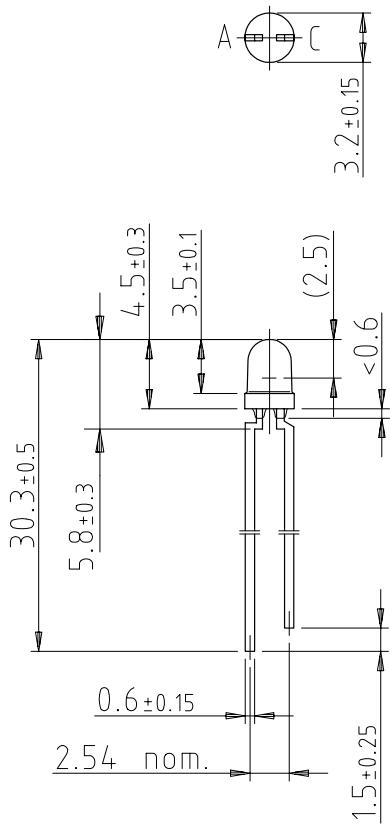
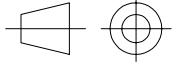


Figure 7. Relative Luminous Intensity vs. Wavelength

## Dimensions in mm



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 technical drawings  
 according to DIN  
 specifications

## 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 operating systems 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.

**We reserve the right to make changes to improve technical design and may do so without further notice.**

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use Vishay-Telefunken products for any unintended or unauthorized application, the buyer shall indemnify Vishay-Telefunken against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

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