



TLHB580.
Vishay Telefunken

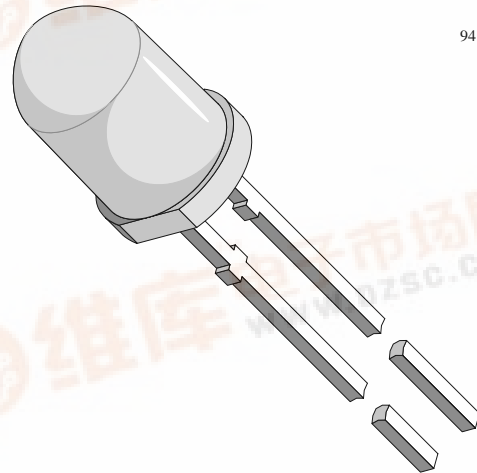
High Efficiency Blue LED, ø 5 mm Untinted Non - Diffused Package

| Color | Type | Technology | Angle of Half Intensity $\pm\varphi$ |
|-------|----------|------------|---|
| Blue | TLHB580. | GaN on SiC | 4° |

Description

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 5 mm waterclear plastic package. All LEDs are categorized in luminous intensity groups. That allows users to assemble LEDs with uniform appearance.



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Features

- GaN on SiC technology
- Standard ø 5 mm T-1 ³/₄ package
- Small mechanical tolerances
- Small 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



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Absolute Maximum Ratings

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

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| Parameter | Test Conditions | Symbol | Value | Unit |
|-------------------------------------|---------------------------------------|------------|-------------|--------------------|
| Reverse voltage | | V_R | 5 | V |
| DC forward current | $T_{amb} \leq 65^{\circ}\text{C}$ | I_F | 20 | mA |
| Surge forward current | $t_p \leq 10 \mu\text{s}$ | I_{FSM} | 0.1 | A |
| Power dissipation | $T_{amb} \leq 65^{\circ}\text{C}$ | P_V | 100 | mW |
| Junction temperature | | T_j | 100 | $^{\circ}\text{C}$ |
| Operating temperature range | | T_{amb} | -40 to +100 | $^{\circ}\text{C}$ |
| Storage temperature range | | T_{stg} | -40 to +100 | $^{\circ}\text{C}$ |
| Soldering temperature | $t \leq 5 \text{ s}$, 2 mm from body | T_{sd} | 260 | $^{\circ}\text{C}$ |
| Thermal resistance junction/ambient | | R_{thJA} | 350 | K/W |

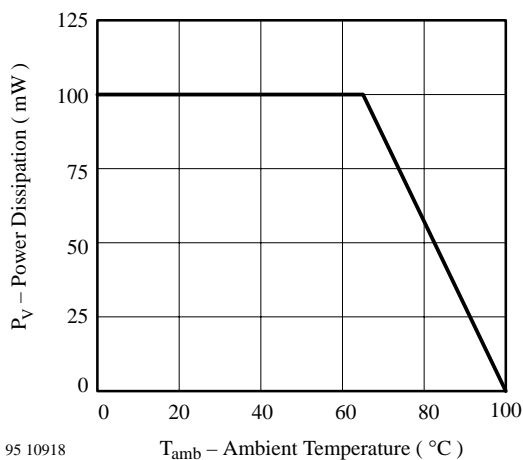
Optical and Electrical Characteristics

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

Blue (TLHB580.)

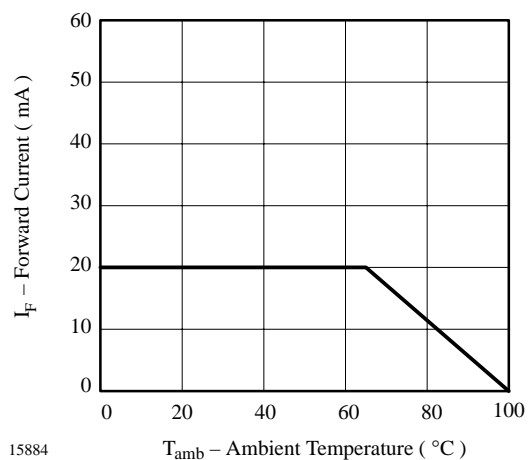
| Parameter | Test Conditions | Type | Symbol | Min | Typ | Max | Unit |
|-------------------------|------------------------|----------|-------------|-----|---------|-----|------|
| Luminous intensity | $I_F = 20 \text{ mA}$ | TLHB5800 | I_V | 130 | 380 | | mcd |
| | | TLHB5801 | I_V | 240 | | 640 | mcd |
| Dominant wavelength | $I_F = 10 \text{ mA}$ | | λ_d | | 466 | | nm |
| Peak wavelength | $I_F = 10 \text{ mA}$ | | λ_p | | 428 | | nm |
| Angle of half intensity | $I_F = 10 \text{ mA}$ | | ϕ | | ± 4 | | 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 ($T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified)



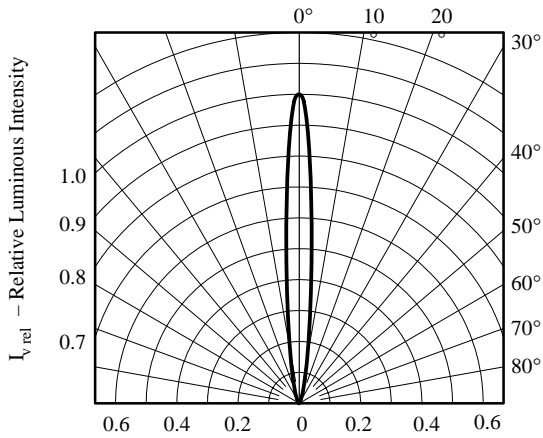
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Figure 1 Power Dissipation vs. Ambient Temperature



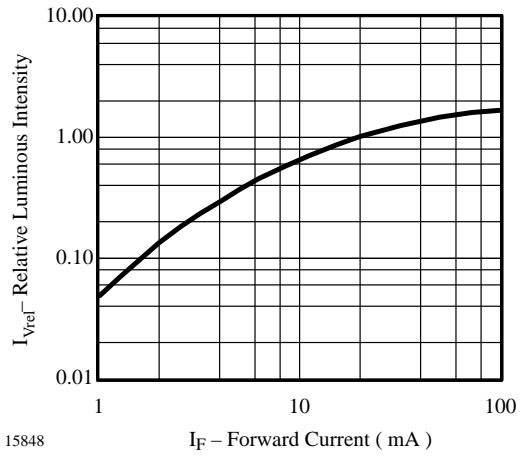
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Figure 2



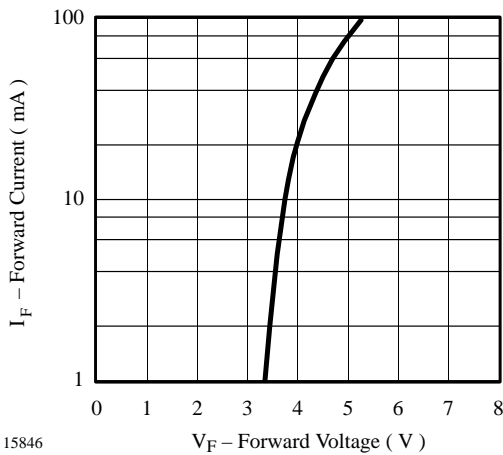
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Figure 3 Rel. Luminous Intensity vs. Angular Displacement



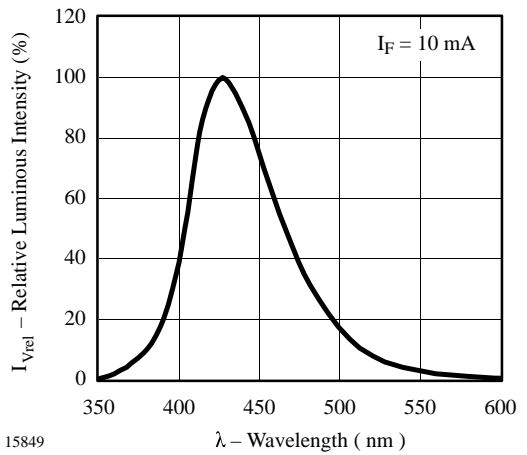
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Figure 6 Relative Luminous Intensity vs. Forward Current



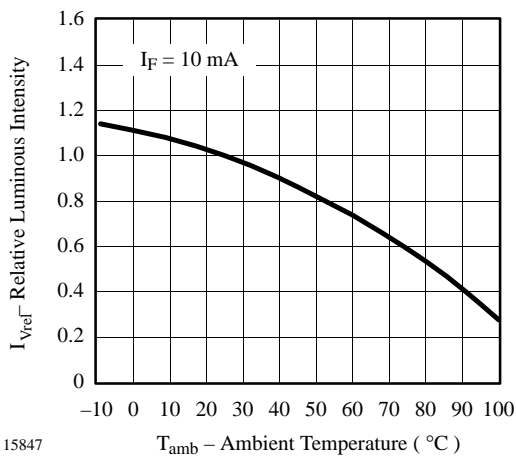
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Figure 4 Forward Current vs. Forward Voltage



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Figure 7 Relative Luminous Intensity vs. Wavelength



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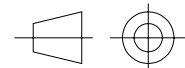
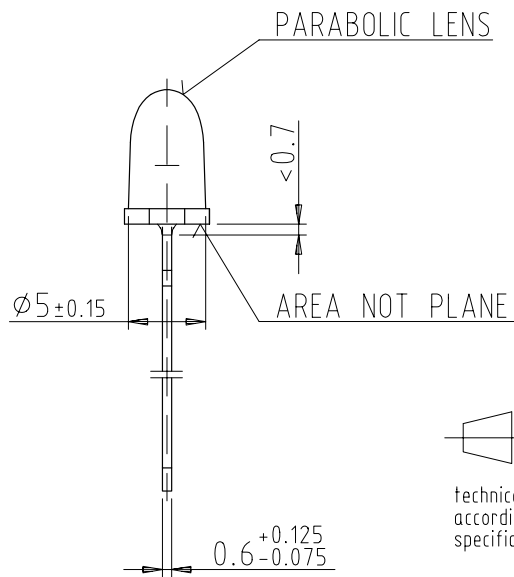
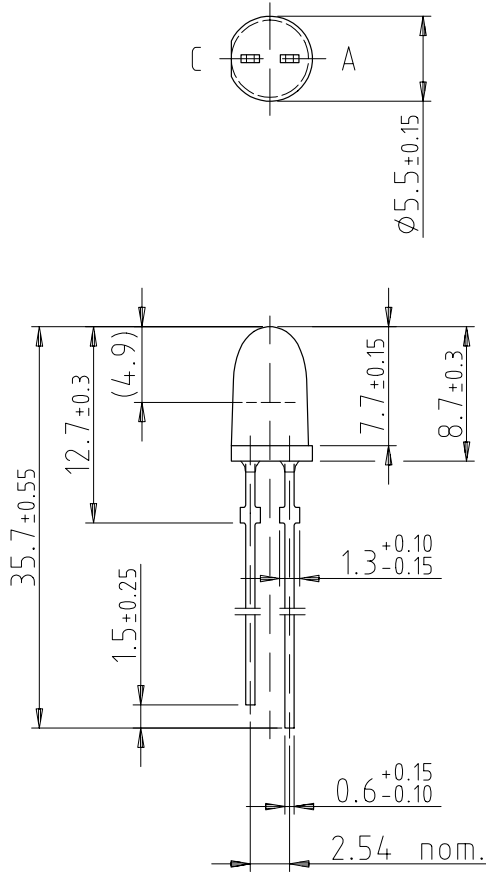
Figure 5 Rel. Luminous Intensity vs. Ambient Temperature

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Dimensions in mm



technical drawings
according to DIN
specifications

9511476



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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