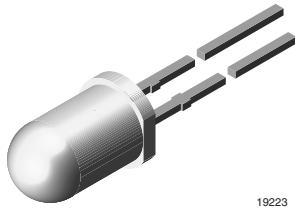


High Intensity LED, \varnothing 5 mm Untinted Non-Diffused



19223

DESCRIPTION

This device has been designed to meet the increasing demand for extremely bright red LEDs.

It is housed in a 5 mm untinted non-diffused plastic package. The very small viewing angle of this device provides a very high luminous intensity.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 5 mm
- Product series: standard
- Angle of half intensity: $\pm 4^\circ$

FEATURES

- AllnGaP technology
- Standard T-1 $\frac{3}{4}$ package
- Small mechanical tolerances
- Suitable for DC and high peak current
- Very small viewing angle
- Very high intensity
- Luminous intensity categorized
- Lead (Pb)-free device

APPLICATIONS

- Status lights
- OFF/ON indicators
- Lightpipes
- Outdoor displays
- Medical instruments
- Maintenance lights
- Legend lights

PARTS TABLE

| PART | COLOR, LUMINOUS INTENSITY | TECHNOLOGY |
|----------|---------------------------|-----------------|
| TLHK5800 | Red, $I_V > 1000$ mcd | AllnGaP on GaAs |

ABSOLUTE MAXIMUM RATINGS¹⁾

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|---|---------------------------------|------------|---------------|------------------|
| Reverse voltage | | V_R | 5 | V |
| DC Forward current | $T_{amb} \leq 65^\circ\text{C}$ | I_F | 30 | 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 | 80 | 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} | - 55 to + 100 | $^\circ\text{C}$ |
| Soldering temperature | $t \leq 5$ s, 2 mm from body | T_{sd} | 260 | $^\circ\text{C}$ |
| Thermal resistance junction/ ambient | | R_{thJA} | 350 | K/W |

Note:

¹⁾ $T_{amb} = 25^\circ\text{C}$, unless otherwise specified

| OPTICAL AND ELECTRICAL CHARACTERISTICS ¹⁾ RED | | | | | | |
|--|------------------------------|-------------|------|---------|-----|------|
| PARAMETER | TEST CONDITION | SYMBOL | MIN | TYP. | MAX | UNIT |
| Luminous intensity ²⁾ | $I_F = 20 \text{ mA}$ | I_V | 1000 | 2500 | | mcd |
| Dominant wavelength | $I_F = 10 \text{ mA}$ | λ_d | | 630 | | nm |
| Peak wavelength | $I_F = 10 \text{ mA}$ | λ_p | | 643 | | nm |
| Angle of half intensity | $I_F = 10 \text{ mA}$ | φ | | ± 4 | | deg |
| Forward voltage | $I_F = 20 \text{ mA}$ | V_F | | 1.9 | 2.6 | V |
| Reverse voltage | $I_R = 10 \mu\text{A}$ | V_R | 5 | | | V |
| Junction capacitance | $V_R = 0, f = 1 \text{ MHz}$ | C_j | | 15 | | pF |

Note:

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

2) in one packing unit $I_{Vmin}/I_{Vmax} \leq 0.5$

TYPICAL CHARACTERISTICS

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

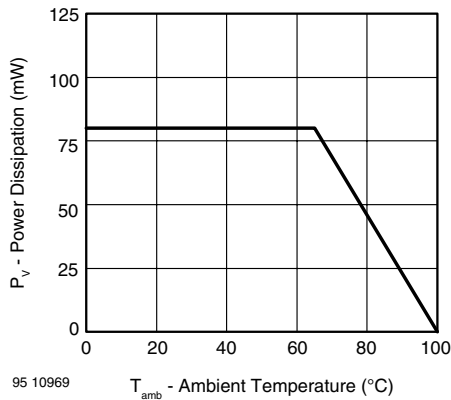


Figure 1. Power Dissipation vs. Ambient Temperature

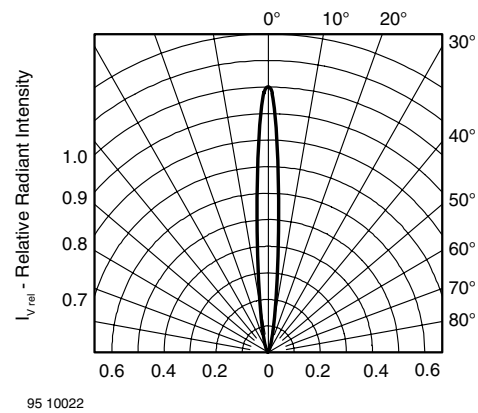


Figure 3. Rel. Luminous Intensity vs. Angular Displacement

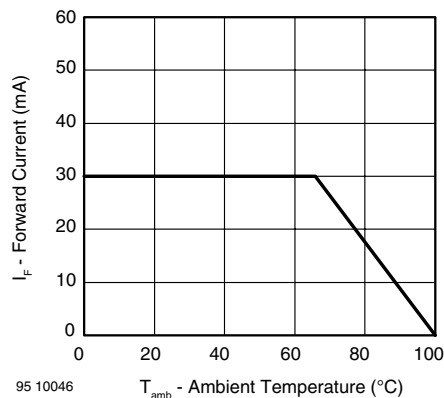


Figure 2. Forward Current vs. Ambient Temperature

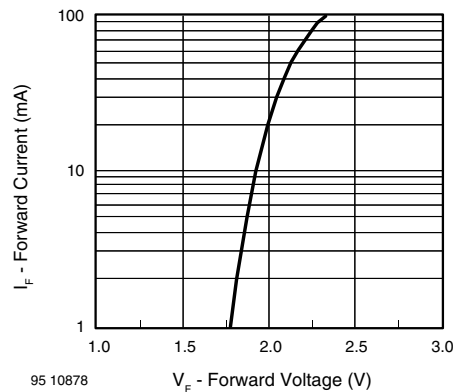


Figure 4. Forward Current vs. Forward Voltage

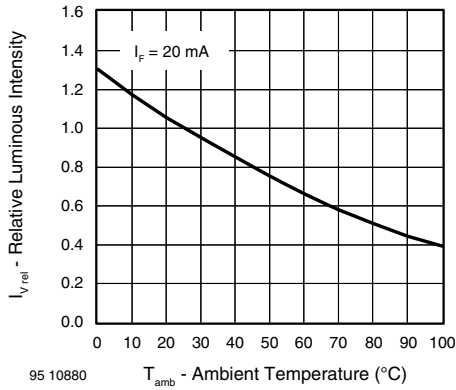


Figure 5. Rel. Luminous Intensity vs. Ambient Temperature

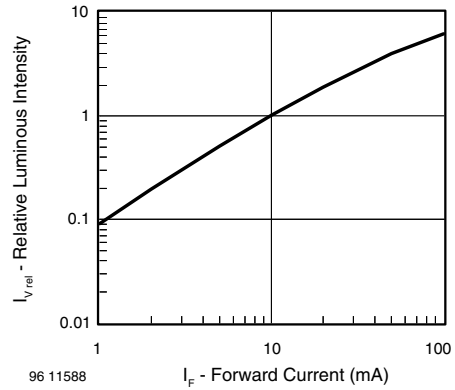


Figure 7. Relative Luminous Intensity vs. Forward Current

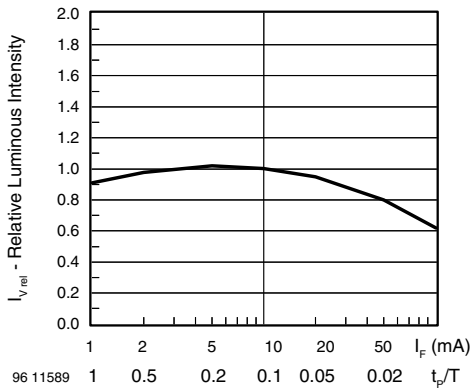


Figure 6. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

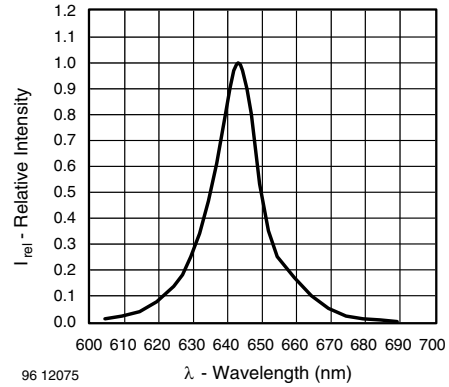
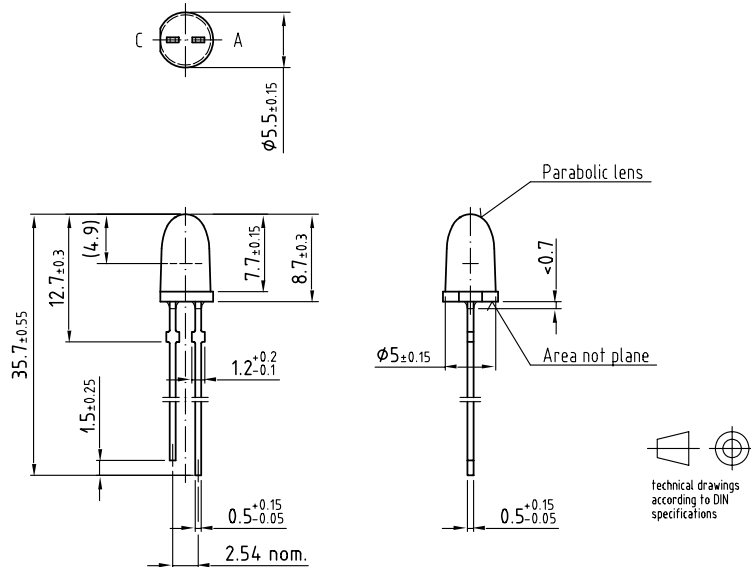


Figure 8. Relative Intensity vs. Wavelength

PACKAGE DIMENSIONS in millimeters



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95 11476

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.

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