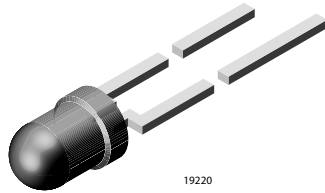


Universal LED in \varnothing 3 mm Tinted Diffused Package



FEATURES

- For DC and pulse operation
- Luminous intensity categorized
- Standard \varnothing 3 mm (T-1) package
- Lead (Pb)-free device
- Component in acc. to RoHS 2002/95/EC and WEEE 2002/96/EC
- ESD-withstand voltage: up to 2 kV according to JESD22-A114-B



APPLICATIONS

- General indicating and lighting purposes

PARTS TABLE

| PART | COLOR, LUMINOUS INTENSITY | ANGLE OF HALF INTENSITY ($\pm \phi$) | TECHNOLOGY |
|----------|-------------------------------------|--|---------------|
| TLUR4400 | Red, $I_V > 4$ mcd | 30° | GaAsP on GaAs |
| TLUR4401 | Red, $I_V = (4 \text{ to } 32)$ mcd | 30° | GaAsP on GaAs |

ABSOLUTE MAXIMUM RATINGS¹⁾, TLUR44..

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|-------------------------------------|------------------------------|------------|---------------|------|
| Reverse voltage ²⁾ | | V_R | 6 | V |
| DC Forward current | | I_F | 20 | mA |
| Surge forward current | $t_p \leq 10 \mu\text{s}$ | I_{FSM} | 0.5 | A |
| Power dissipation | | P_V | 60 | mW |
| Junction temperature | | T_J | 100 | °C |
| Operating temperature range | | T_{amb} | - 40 to + 100 | °C |
| Storage temperature range | | T_{stg} | - 55 to + 100 | °C |
| Soldering temperature | $t \leq 5$ s, 2 mm from body | T_{sd} | 260 | °C |
| Thermal resistance junction/ambient | | R_{thJA} | 500 | K/W |

Note:

1) $T_{amb} = 25$ °C unless otherwise specified

2) Driving the LED in reverse direction is suitable for a short term application

| OPTICAL AND ELECTRICAL CHARACTERISTICS ¹⁾ , TLUR44.., RED | | | | | | | |
|--|------------------------------|----------|-------------|-----|----------|-----|------|
| PARAMETER | TEST CONDITION | PART | SYMBOL | MIN | TYP. | MAX | UNIT |
| Luminous intensity | $I_F = 10 \text{ mA}$ | TLUR4400 | I_V | 4 | 15 | | mcd |
| | | TLUR4401 | I_V | 4 | | 32 | mcd |
| Dominant wavelength | $I_F = 10 \text{ mA}$ | | λ_d | | 630 | | nm |
| Peak wavelength | $I_F = 10 \text{ mA}$ | | λ_p | | 640 | | nm |
| Angle of half intensity | $I_F = 10 \text{ mA}$ | | φ | | ± 30 | | deg |
| Forward voltage | $I_F = 20 \text{ mA}$ | | V_F | | 2 | 3 | V |
| Reverse voltage | $I_R = 10 \mu\text{A}$ | | V_R | 6 | 15 | | V |
| Junction capacitance | $V_R = 0, f = 1 \text{ MHz}$ | | C_j | | 50 | | pF |

Note:

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

| LUMINOUS INTENSITY CLASSIFICATION | | |
|-----------------------------------|-----------------------|------|
| GROUP | LIGHT INTENSITY [MCD] | |
| | STANDARD | MIN |
| P | 4 | 8 |
| Q | 6.3 | 12.5 |
| R | 10 | 20 |
| S | 16 | 32 |
| T | 25 | 50 |
| U | 40 | 80 |
| V | 63 | 125 |
| W | 100 | 200 |
| X | 130 | 260 |
| Y | 180 | 360 |
| Z | 240 | 480 |

Note:

Luminous intensity is tested at a current pulse duration of 25 ms and an accuracy of $\pm 11 \%$.

The above type numbers represent the order groups which include only a few brightness groups. Only one group will be shipped on each bag (there will be no mixing of two groups on each bag).

In order to ensure availability, single brightness groups will not be orderable.

In a similar manner for colors where wavelength groups are measured and binned, single wavelength groups will be shipped on any one bag.

In order to ensure availability, single wavelength groups will not be orderable.

TYPICAL CHARACTERISTICS

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

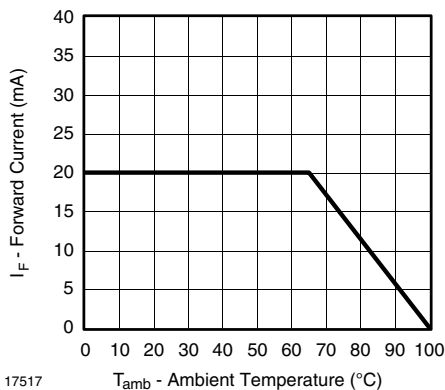


Figure 1. Forward Current vs. Ambient Temperature

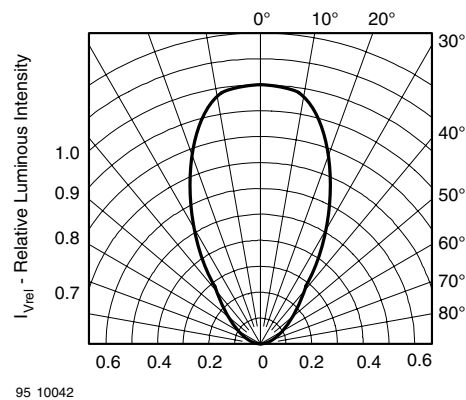


Figure 2. Rel. Luminous Intensity vs. Angular Displacement

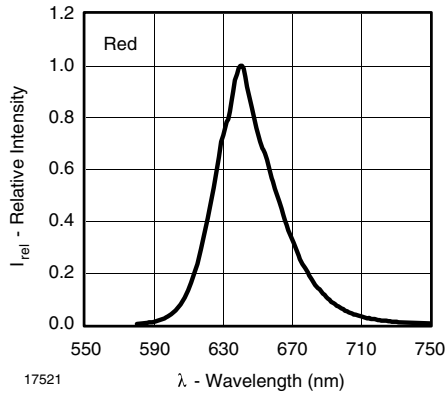


Figure 3. Relative Intensity vs. Wavelength

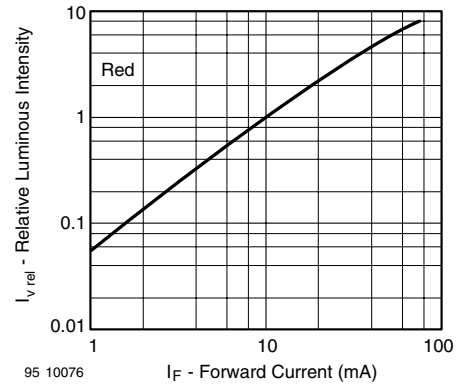


Figure 5. Relative Luminous Intensity vs. Forward Current

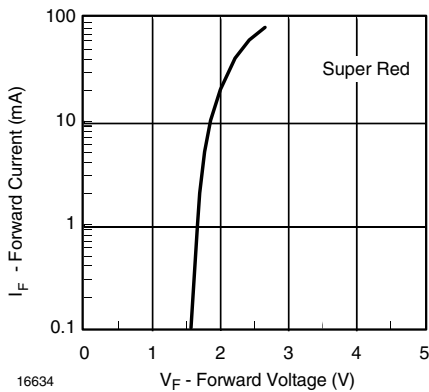


Figure 4. Forward Current vs. Forward Voltage

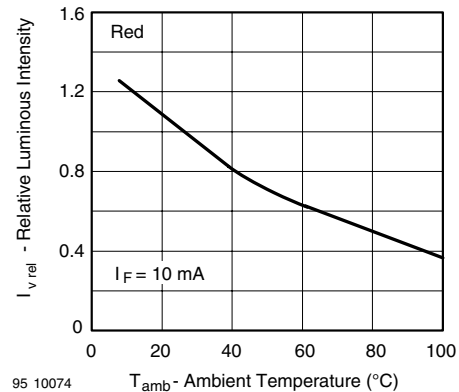
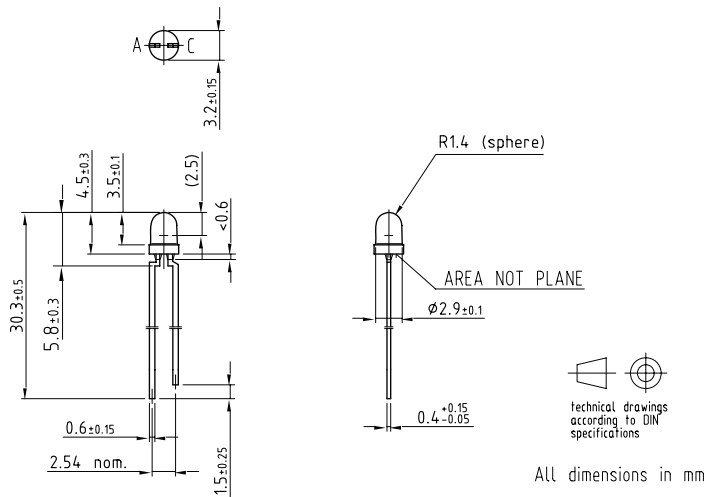


Figure 6. Rel. Luminous Intensity vs. Ambient Temperature

PACKAGE DIMENSIONS



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Vishay Semiconductors

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
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