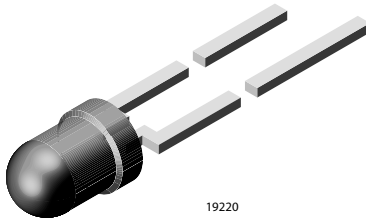


High Intensity LED in \varnothing 3 mm Clear Package



FEATURES

- Exceptional brightness
- Very high intensity even at low drive currents
- Small viewing angle
- Low forward voltage
- 3 mm (T-1) untinted non-diffused package
- Deep red color
- Categorized for luminous intensity
- Outstanding material efficiency
- Lead (Pb)-free device

DESCRIPTION

This LED contains the double heterojunction (DH) GaAlAs on GaAs technology.

This deep red LED can be utilized over a wide range of drive current. It can be DC or pulse driven to achieve desired light output.

The device is available in a clear 3 mm package.

APPLICATIONS

- Bright ambient lighting conditions
- Battery powered equipment
- Indoor and outdoor information displays
- Portable equipment
- Telecommunication indicators
- General use

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 3 mm
- Product series: standard
- Angle of half intensity: $\pm 16^\circ$

| PARTS TABLE | | |
|-------------|---------------------------------------|----------------|
| PART | COLOR, LUMINOUS INTENSITY | TECHNOLOGY |
| TLDR4900 | Red, $I_V > 63$ mcd | GaAlAs on GaAs |
| TLDR4901 | Red, $I_V = (63 \text{ to } 200)$ mcd | GaAlAs on GaAs |

| ABSOLUTE MAXIMUM RATINGS ¹⁾ TLDR490. | | | | |
|---|---------------------------------|------------|---------------|------------------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Reverse voltage | | V_R | 6 | V |
| DC Forward current | | I_F | 50 | mA |
| Surge forward current | $t_p \leq 10 \mu\text{s}$ | I_{FSM} | 1 | A |
| Power dissipation | $T_{amb} \leq 60^\circ\text{C}$ | 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} | - 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} | 400 | K/W |

Note:

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

| OPTICAL AND ELECTRICAL CHARACTERISTICS ¹⁾ TLDR490., RED | | | | | | | |
|--|------------------------------|----------|-----------------|-----|----------|-----|---------------|
| PARAMETER | TEST CONDITION | PART | SYMBOL | MIN | TYP. | MAX | UNIT |
| Luminous intensity ²⁾ | $I_F = 20 \text{ mA}$ | TLDR4900 | I_V | 63 | 200 | | mcd |
| | | TLDR4901 | I_V | 63 | | 200 | mcd |
| Luminous intensity | $I_F = 1 \text{ mA}$ | | I_V | | 8 | | mcd |
| Dominant wavelength | $I_F = 20 \text{ mA}$ | | λ_d | | 648 | | nm |
| Peak wavelength | $I_F = 20 \text{ mA}$ | | λ_p | | 650 | | nm |
| Spectral line half width | $I_F = 20 \text{ mA}$ | | $\Delta\lambda$ | | 20 | | nm |
| Angle of half intensity | $I_F = 20 \text{ mA}$ | | φ | | ± 16 | | deg |
| Forward voltage | $I_F = 20 \text{ mA}$ | | V_F | | 1.8 | 2.2 | V |
| Reverse current | $V_R = 6 \text{ V}$ | | I_R | | | 10 | μA |
| Junction capacitance | $V_R = 0, f = 1 \text{ MHz}$ | | C_j | | 30 | | pF |

Note:

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

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

TYPICAL CHARACTERISTICS

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

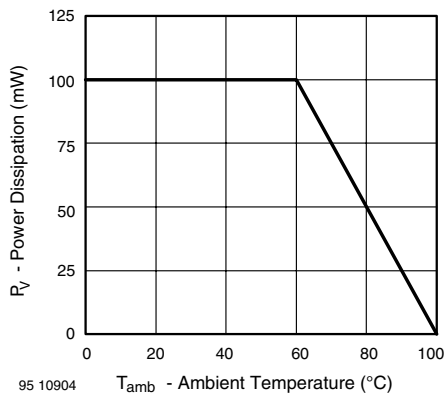


Figure 1. Power Dissipation vs. Ambient Temperature

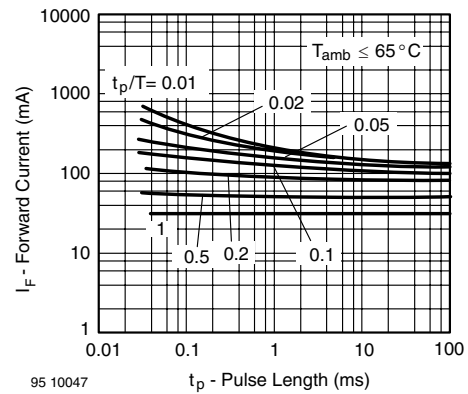


Figure 3. Forward Current vs. Pulse Length

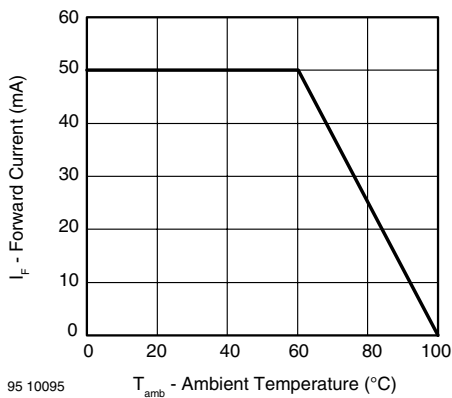


Figure 2. Forward Current vs. Ambient Temperature for InGaN

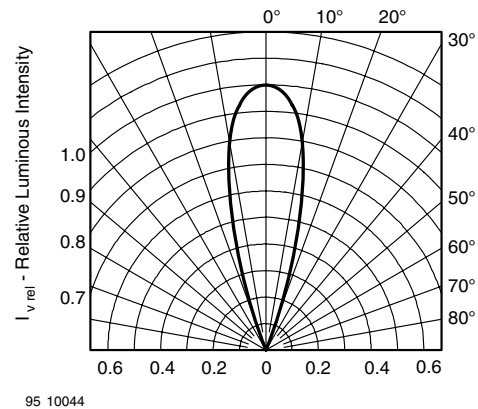
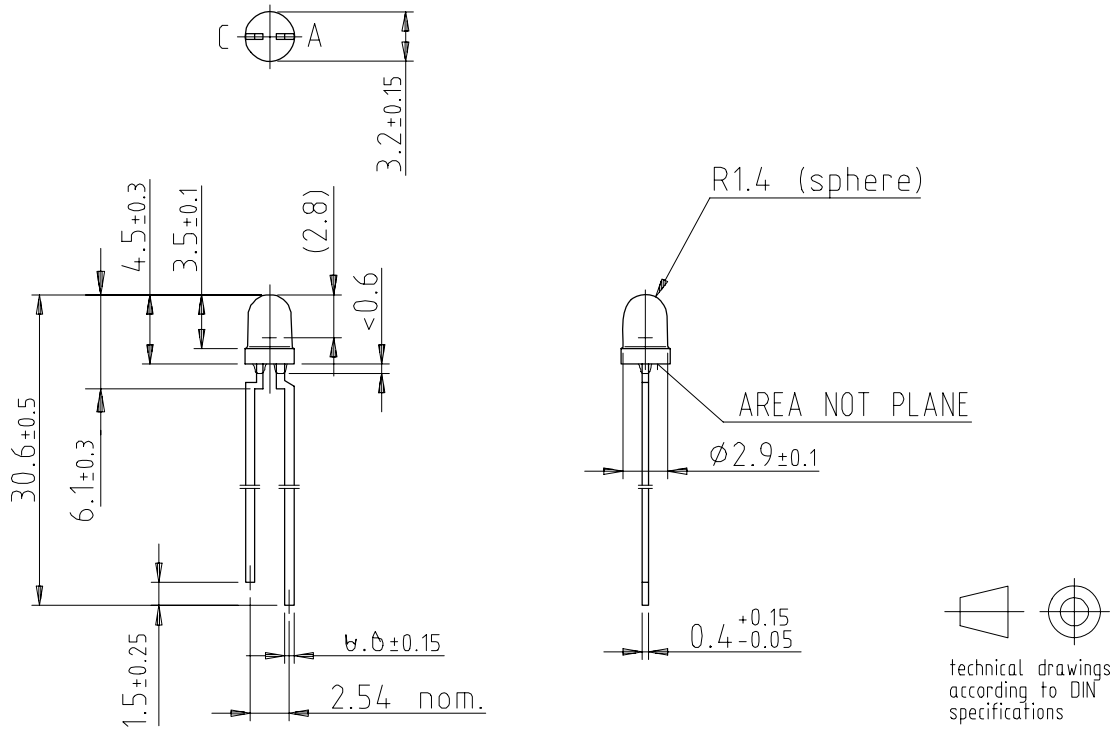


Figure 4. Rel. Luminous Intensity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters



95 10952