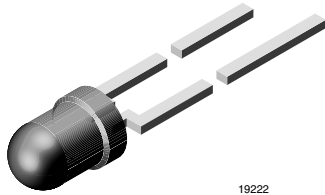


High Intensity LED in \varnothing 3 mm Clear Package



FEATURES

- AllnGaP technology
- Standard \varnothing 3 mm (T-1) 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

DESCRIPTION

This device has been designed to meet the increasing demand for AllnGaP technology.

It is housed in a 3 mm clear plastic package. The small viewing angle of these devices provides a high brightness.

All packing units are categorized in luminous intensity groups. That allows users to assemble LEDs with uniform appearance.

APPLICATIONS

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

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
TLHK4900	Red, $I_V > 40$	AllnGaP on GaAs

ABSOLUTE MAXIMUM RATINGS ¹⁾ TLHK4900				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	5	V
DC Forward current	$T_{amb} \leq 60^\circ\text{C}$	I_F	30	mA
Surge forward current	$t_p \leq 10 \mu\text{s}$	I_{FSM}	0.1	A
Power dissipation	$T_{amb} \leq 60^\circ\text{C}$	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	$t \leq 5 \text{ s, } 2 \text{ mm from body}$	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⁾ TLHK4900, RED						
PARAMETER	TEST CONDITION	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity ²⁾	$I_F = 10 \text{ mA}$	I_V	40	140		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		± 16		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) $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$, unless otherwise specified

2) in one packing unit $I_{V\text{min}}/I_{V\text{max}} \leq 0.5$

TYPICAL CHARACTERISTICS

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

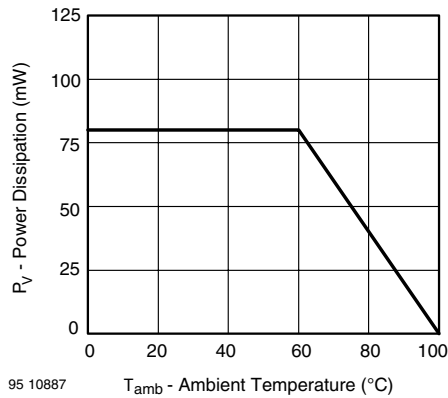


Figure 1. Power Dissipation vs. Ambient Temperature

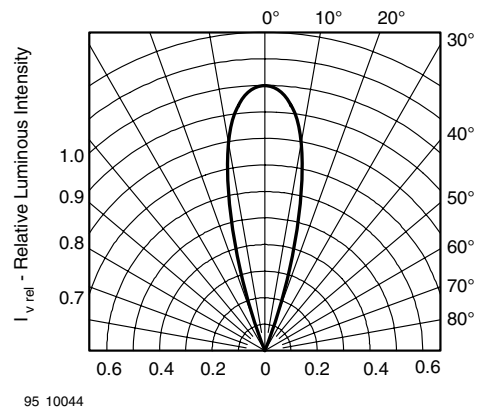


Figure 3. Rel. Luminous Intensity vs. Angular Displacement

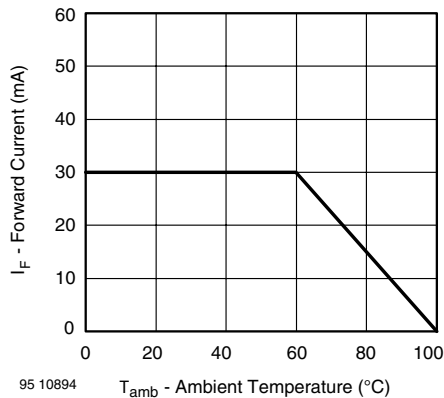


Figure 2. Forward Current vs. Ambient Temperature for InGaN

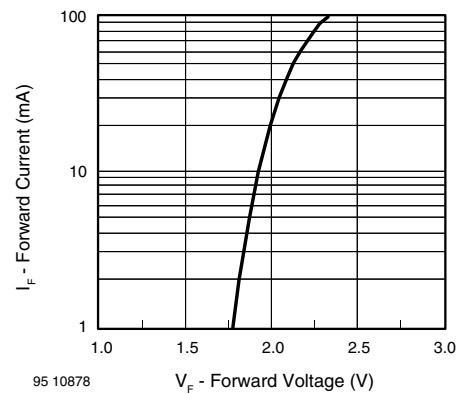


Figure 4. Forward Current vs. Forward Voltage

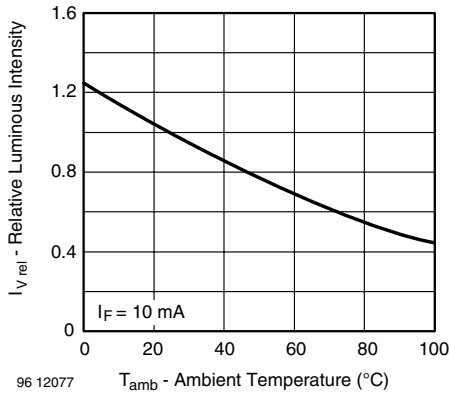


Figure 5. Rel. Luminous Intensity vs. Ambient Temperature

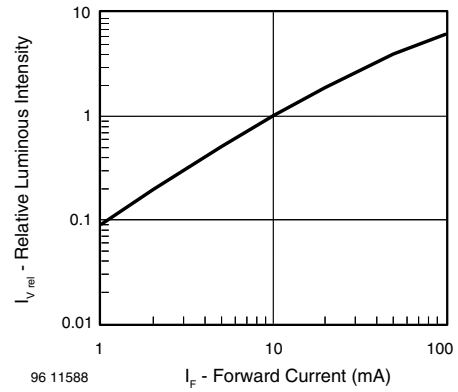


Figure 7. Relative Luminous Intensity vs. Forward Current

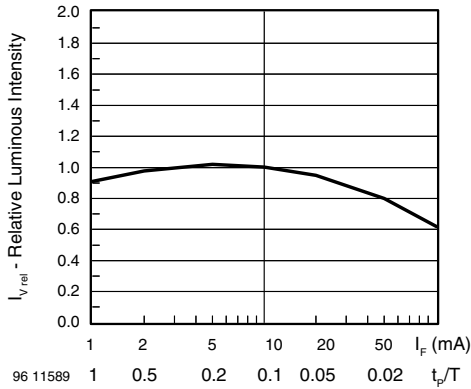


Figure 6. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

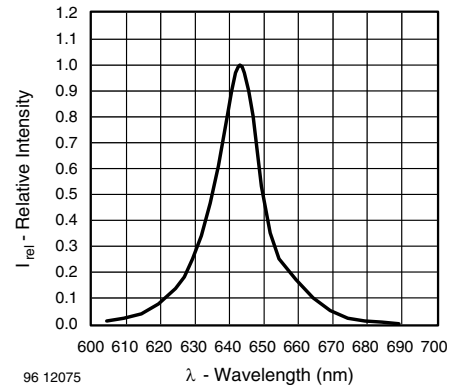
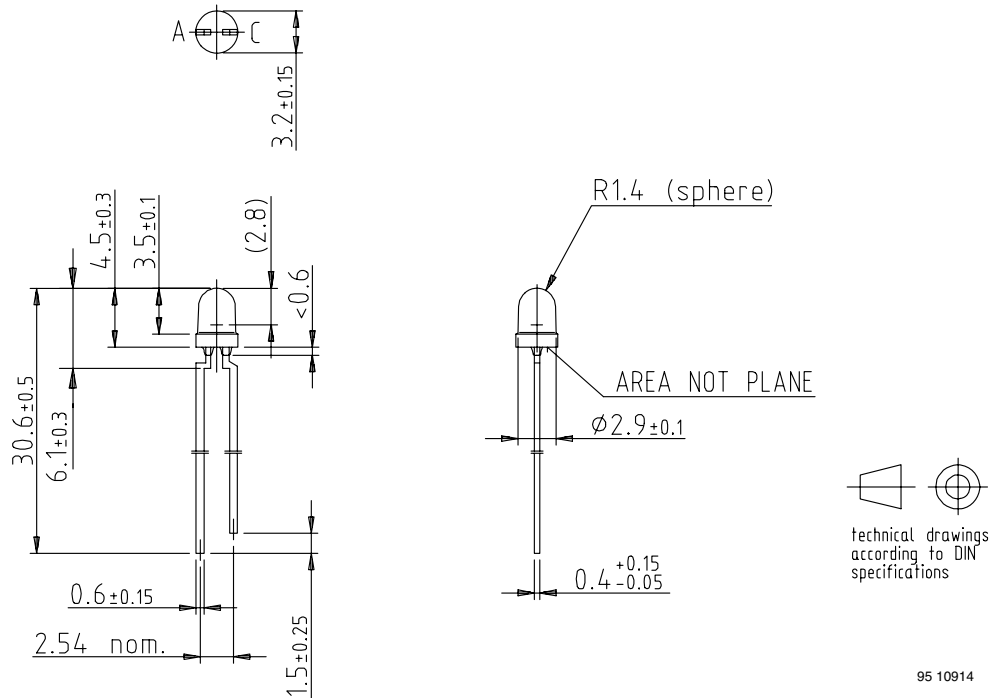


Figure 8. Relative Intensity vs. Wavelength

PACKAGE DIMENSIONS in millimeters



95 10914

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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