

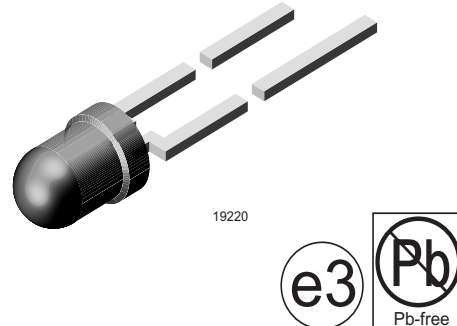
High Intensity LED, \varnothing 3 mm Tinted Diffused

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 3 mm tinted diffused package.



Features

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

Applications

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

Parts Table

Part	Color, Luminous Intensity	Angle of Half Intensity ($\pm\phi$)	Technology
TLDR4400	Red, $I_V > 25$ mcd	40 °	GaAlAs on GaAs
TLDR4401	Red, $I_V = (25 \text{ to } 50)$ mcd	40 °	GaAlAs on GaAs

Absolute Maximum Ratings

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

TLDR440.

Parameter	Test condition	Symbol	Value	Unit
Reverse voltage		V_R	6	V
DC Forward current	$T_{amb} \leq 60$ °C	I_F	50	mA
Surge forward current	$t_p \leq 10$ μ s	I_{FSM}	1	A
Power dissipation	$T_{amb} \leq 60$ °C	P_V	100	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}	400	K/W

Optical and Electrical Characteristics

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

Red

TLDR440.

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity ¹⁾	$I_F = 20\text{ mA}$	TLDR4400	I_V	25	45		mcd
		TLDR4401	I_V	25		50	mcd
Luminous intensity	$I_F = 1\text{ mA}$		I_V		2		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		± 40		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

¹⁾ in one Packing Unit $I_{Vmin}/I_{Vmax} \leq 0.5$

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

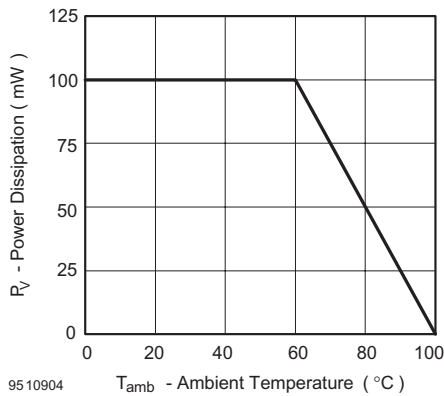


Figure 1. Power Dissipation vs. Ambient Temperature

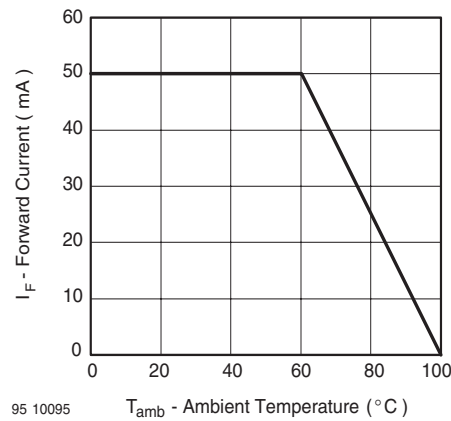


Figure 2. Forward Current vs. Ambient Temperature for InGaN

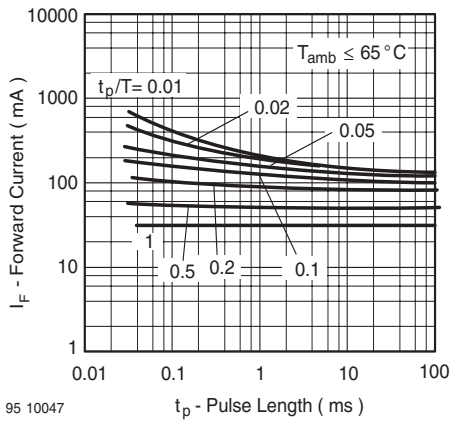


Figure 3. Forward Current vs. Pulse Length

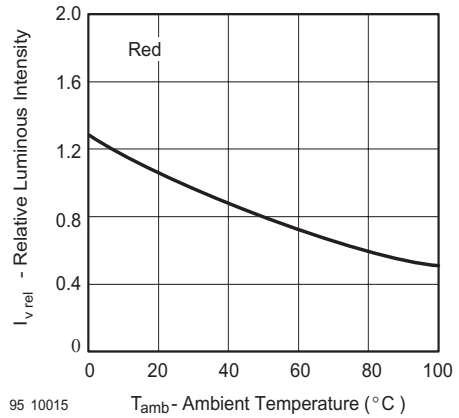


Figure 6. Rel. Luminous Intensity vs. Ambient Temperature

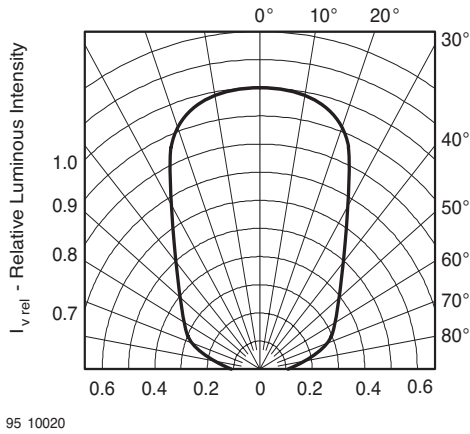


Figure 4. Rel. Luminous Intensity vs. Angular Displacement

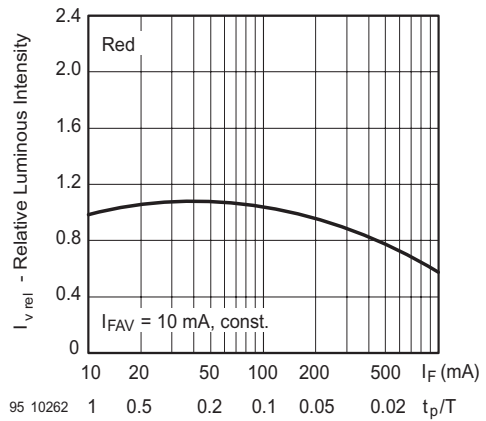


Figure 7. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

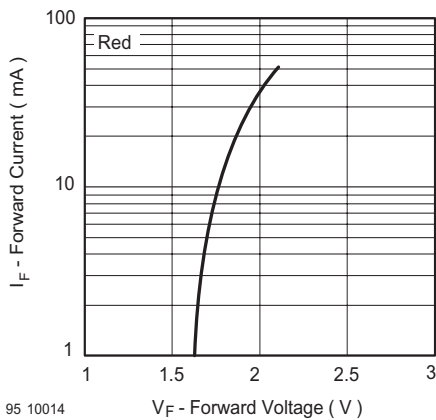


Figure 5.

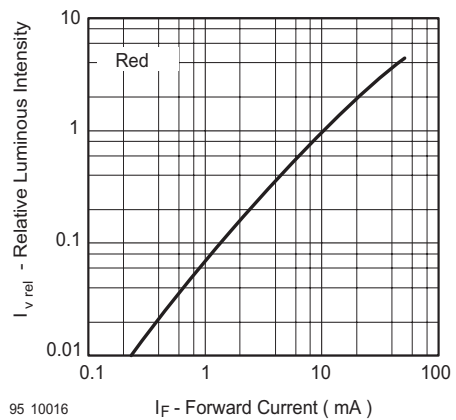


Figure 8. Relative Luminous Intensity vs. Forward Current

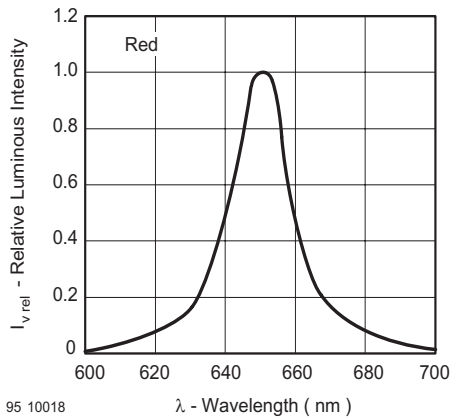
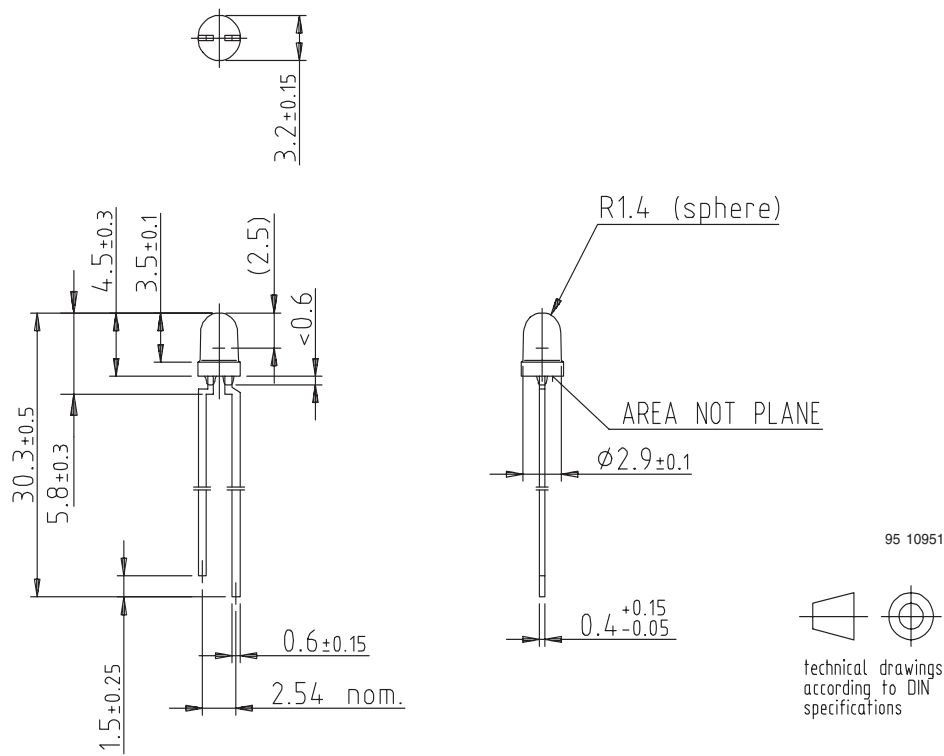


Figure 9. Relative Intensity vs. Wavelength

Package Dimensions in mm





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 Semiconductors products for any unintended or unauthorized application, the buyer shall indemnify Vishay Semiconductors 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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