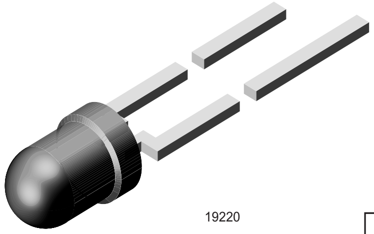
High Intensity LED, ∅ 3 mm Tinted Diffused

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.



e3 Pb Pb-free

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 (±φ)	Technology
TLDR4400	Red, I_V > 25 mcd	40 °	GaAIAs on GaAs
TLDR4401	Red, I_V = (25 to 50) mcd	40 °	GaAIAs 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	$T_{amb} \le 60$ °C	I_F	50	mA
Surge forward current	$t_p \le 10$ µs	I_{FSM}	1	A
Power dissipation	$T_{amb} \le 60$ °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 ≤ 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 °C, unless otherwise specified

Red

TLDR440.

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity [1)]	I_F = 20 mA	TLDR4400	I_V	25	45		mcd
		TLDR4401	I_V	25		50	mcd
Luminous intensity	I_F = 1 mA		I_V		2		mcd
Dominant wavelength	I_F = 20 mA		λ_d		648		nm
Peak wavelength	I_F = 20 mA		λ_p		650		nm
Spectral line half width	I_F = 20 mA		$\Delta\lambda$		20		nm
Angle of half intensity	I_F = 20 mA		φ		± 40		deg
Forward voltage	I_F = 20 mA		V_F		1.8	2.2	V
Reverse current	V_R = 6 V		I_R			10	µA
Junction capacitance	V_R = 0, f = 1 MHz		C_j		30		pF

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

Typical Characteristics (T_{amb} = 25 °C unless otherwise specified)

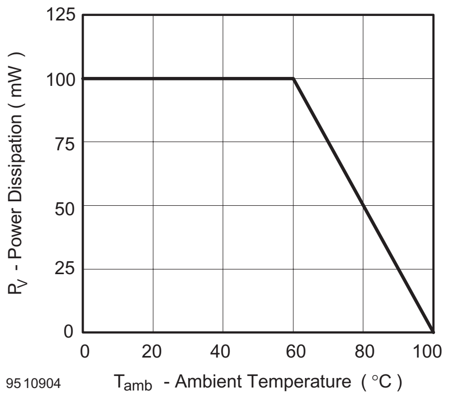


Figure 1. Power Dissipation vs. Ambient Temperature

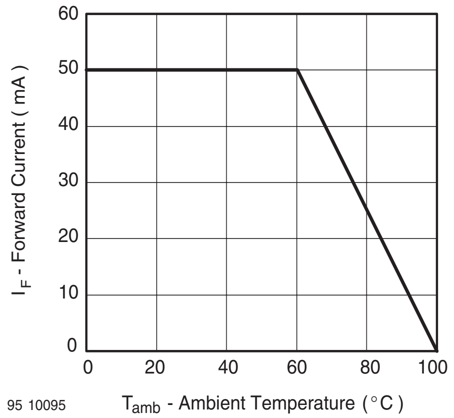


Figure 2. Forward Current vs. Ambient Temperature for InGaN

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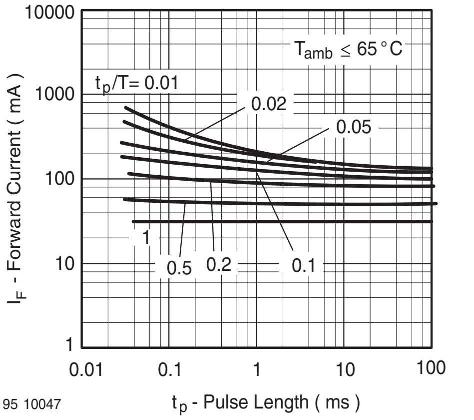


Figure 3. Forward Current vs. Pulse Length

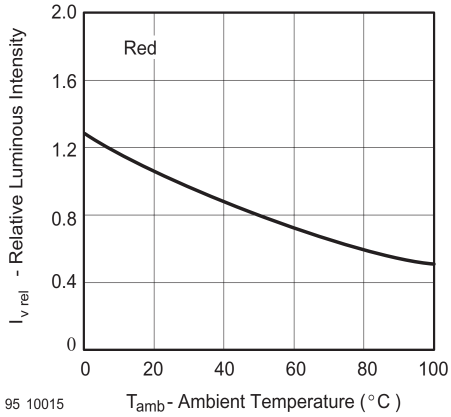


Figure 6. Rel. Luminous Intensity vs. Ambient Temperature

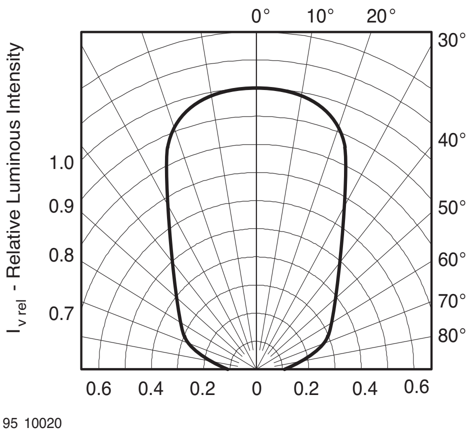


Figure 4. Rel. Luminous Intensity vs. Angular Displacement

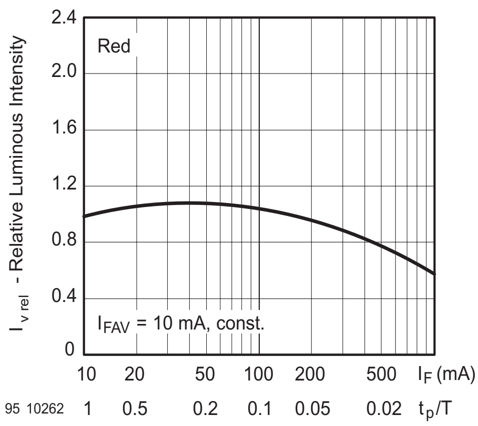


Figure 7. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

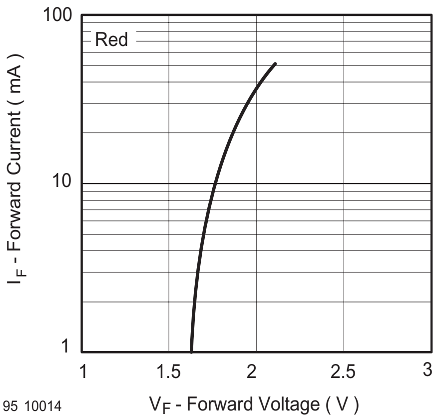


Figure 5.

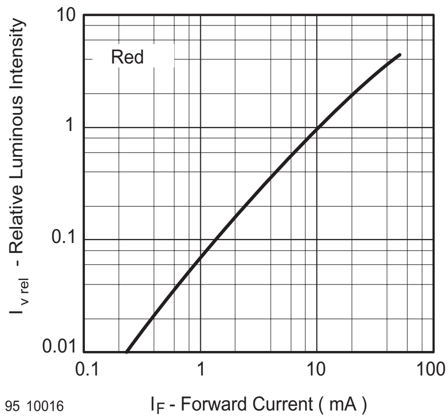


Figure 8. Relative Luminous Intensity vs. Forward Current

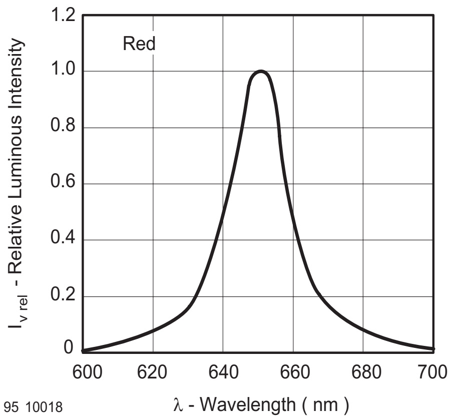
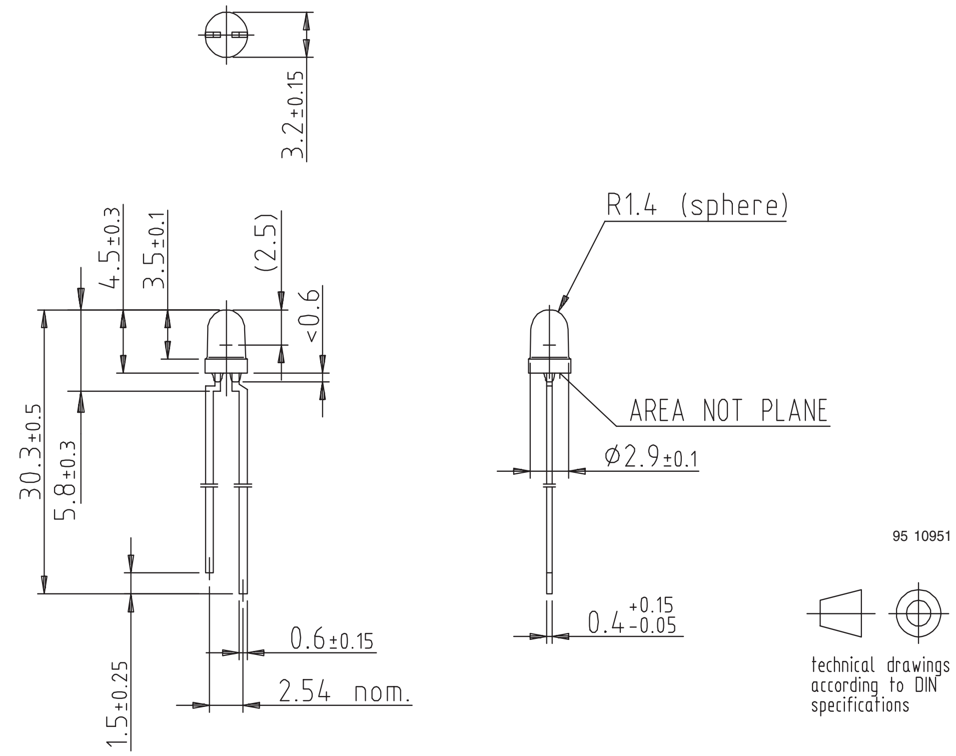


Figure 9. Relative Intensity vs. Wavelength

Package Dimensions in mm



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1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operatingsystems 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.

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