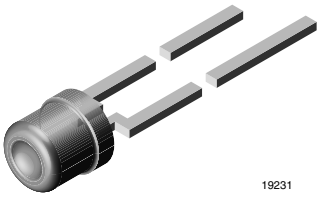
DH Backlighting LED in ∅ 3 mm Tinted Non-Diffused Package



DESCRIPTION

The TLVD4200 serie was developed for backlighting in the extrem bright double heterojunction (DH) red GaAlAs on GaAs technology. Due to its special shape the spatial distribution of the radiation is qualified for backlighting.

To optimize the brightness of backlighting a custom-built reflector (with scattering) is required. Uniform illumination can be enhanced by covering the front of the reflector with diffusor material.

This is a bright and flexible solution for backlighting different areas.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 3 mm backlighting
- Product series: standard
- Angle of half intensity: ± 85°

FEATURES

- High brightness
- Wide viewing angle
- Categorized for luminous flux
- Available in DH red
- Tinted clear package
- Low power dissipation
- Low self heating
- Rugged design
- High reliability
- Lead (Pb)-free device

APPLICATIONS

- Backlighting of display panels, LCD displays, symbols on switches, keyboards, graphic boards and measuring scales
- Illumination of large areas e.g. dot matrix displays

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLVD4200	Red, ϕ_V > 40 mlm	GaAlAs on GaAs

ABSOLUTE MAXIMUM RATINGS[1] TLVD420.

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	6	V
DC Forward current		I_F	50	mA
Surge forward current	$t_p \leq 10$ µs	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 ≤ 5 s, 2 mm from body	T_{sd}	260	°C
Thermal resistance junction/ ambient		R_{thJA}	400	K/W

Note:
[1] T_{amb} = 25 °C, unless otherwise specified

OPTICAL AND ELECTRICAL CHARACTERISTICS[1] TLVD4200, RED						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN**	**TYP.**	**MAX**	**UNIT**
Luminous flux	I_F = 15 mA	ϕ_V	40	80		mlm
Dominant wavelength	I_F = 10 mA	λ_d		640		nm
Peak wavelength	I_F = 10 mA	λ_p		650		nm
Angle of half intensity	I_F = 10 mA	φ		± 85		deg
Forward voltage	I_F = 20 mA	V_F		1.8	2.2	V
Reverse voltage	I_R = 10 µA	V_R	6	15		V
Junction capacitance	V_R = 0, f = 1 MHz	C_j		50		pF

Note:
[1] T_{amb} = 25 °C unless otherwise specified

TYPICAL CHARACTERISTICS

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

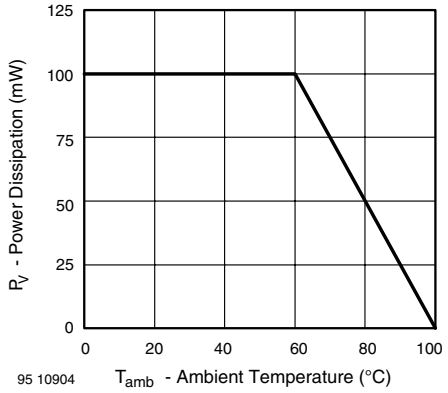


Figure 1. Power Dissipation vs. Ambient Temperature

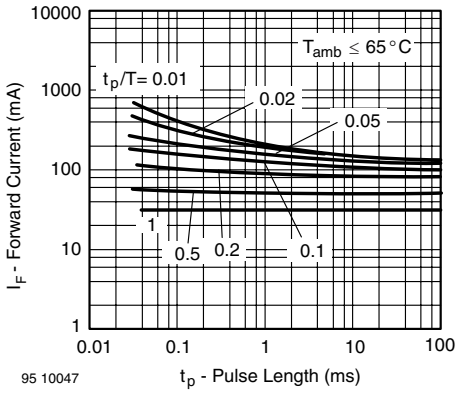


Figure 3. Forward Current vs. Pulse Length

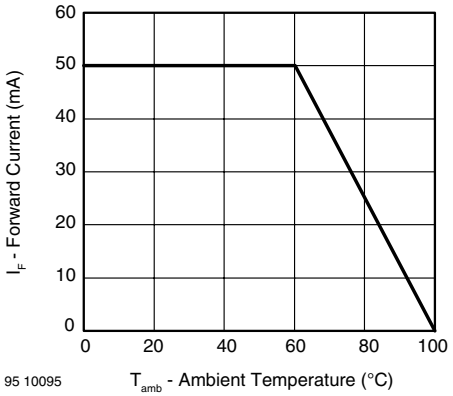


Figure 2. Forward Current vs. Ambient Temperature for InGaN

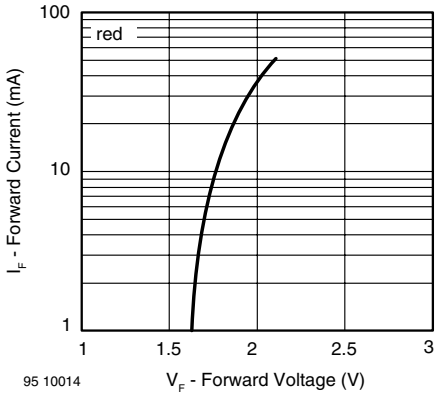


Figure 4.

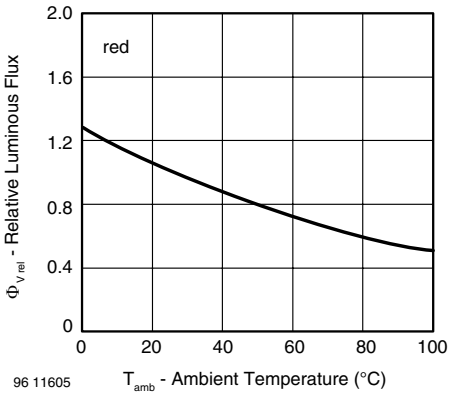


Figure 5. Rel. Luminous Flux vs. Ambient Temperature

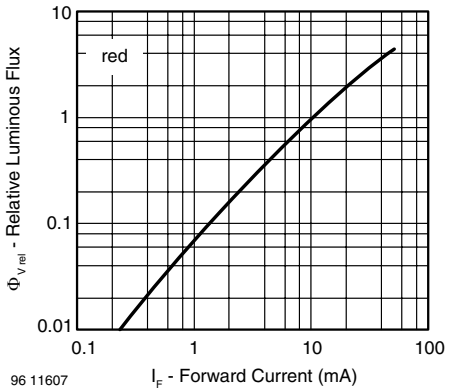


Figure 7. Relative Luminous Flux vs. Forward Current

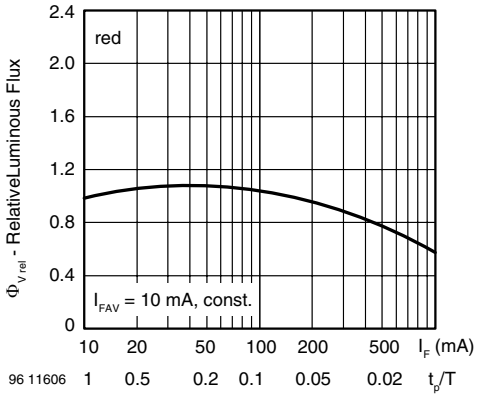


Figure 6. Rel. Luminous Flux vs. Forw. Current/Duty Cycle

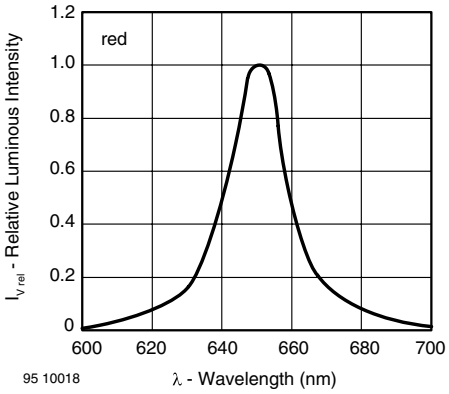


Figure 8. Relative Intensity vs. Wavelength

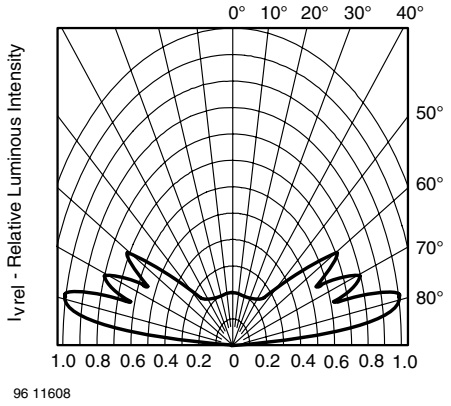
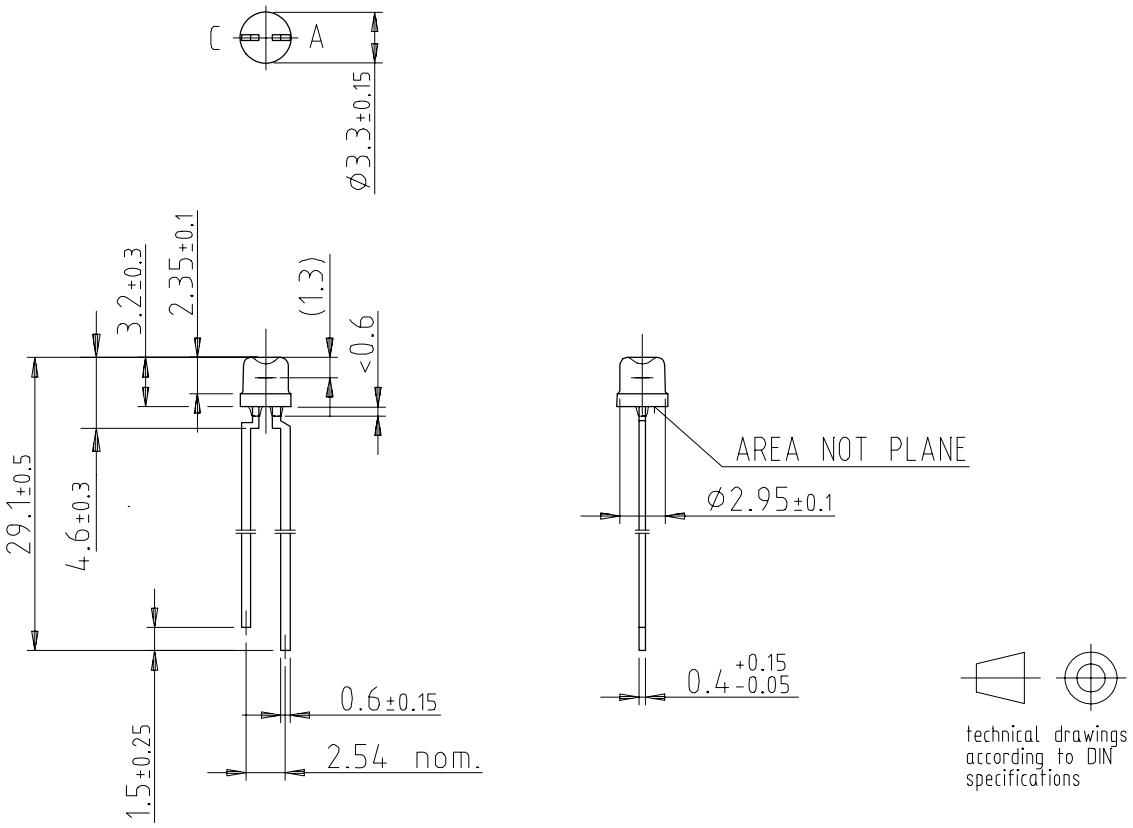


Figure 9. Rel. Luminous Intensity vs.
Angular Displacement for 90 ° Emission Angle

PACKAGE DIMENSIONS in millimeters



9510953

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.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.