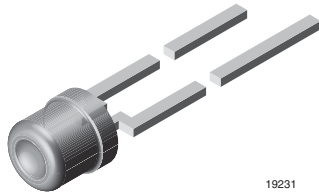


DH Backlighting LED in Ø 3 mm Tinted Non-Diffused Package



DESCRIPTION

The TLVD4200 serie was developed for backlighting in the extrem bright double heterojunction (DH) red GaAIAs 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: $\pm 85^\circ$

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
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



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 FLUX	TECHNOLOGY
TLVD4200	Red, $\phi_V > 40$ mlm	GaAIAs on GaAs

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^\circ\text{C}$, unless otherwise specified)

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

** Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902

OPTICAL AND ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous flux	$I_F = 15\text{ mA}$	ϕ_V	40	80		mlm
Dominant wavelength	$I_F = 10\text{ mA}$	λ_d		640		nm
Peak wavelength	$I_F = 10\text{ mA}$	λ_p		650		nm
Angle of half intensity	$I_F = 10\text{ mA}$	φ		± 85		deg
Forward voltage	$I_F = 20\text{ mA}$	V_F		1.8	2.2	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$	V_R	6	15		V
Junction capacitance	$V_R = 0, f = 1\text{ MHz}$	C_j		50		pF

LUMINOUS FLUX CLASSIFICATION		
GROUP	LUMINOUS FLUX (mlm)	
STANDARD	MIN.	MAX.
U	40	80
V	63	125
W	100	200
X	130	260
Y	180	360
Z	240	480

Note:

Luminous flux is tested at a current pulse duration of 25 ms.

The above type numbers represent the order groups which include only a few brightness groups. Only one group will be shipped on each bag (there will be no mixing of two groups in each bag).

In order to ensure availability, single brightness groups will not be orderable.

In a similar manner for colors where wavelength groups are measured and binned, single wavelength groups will be shipped on any one bag.

In order to ensure availability, single wavelength groups will not be orderable.

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

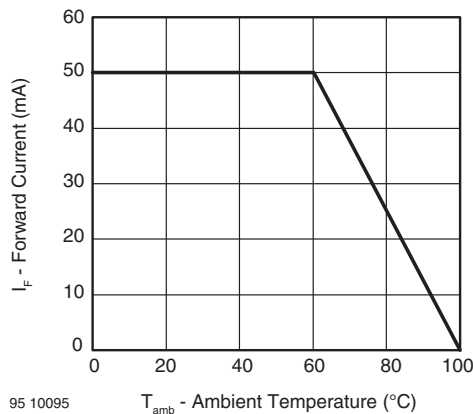


Figure 1. Forward Current vs. Ambient Temperature

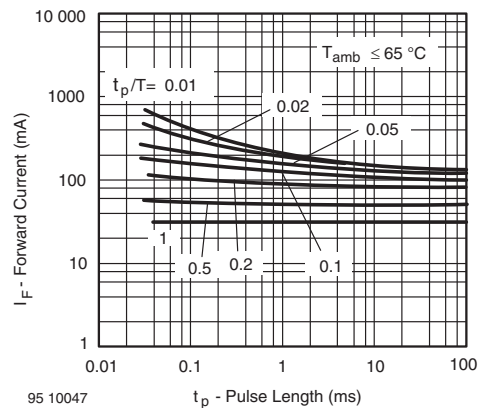
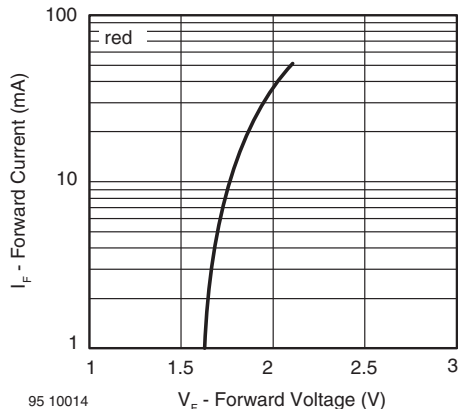
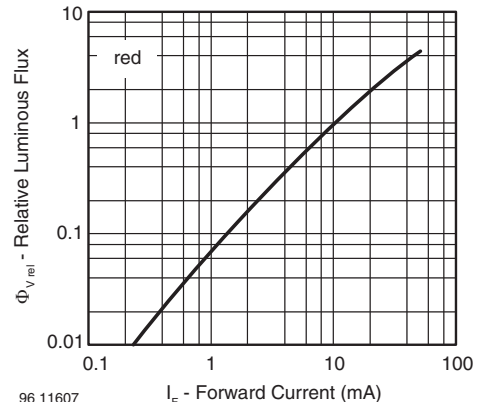


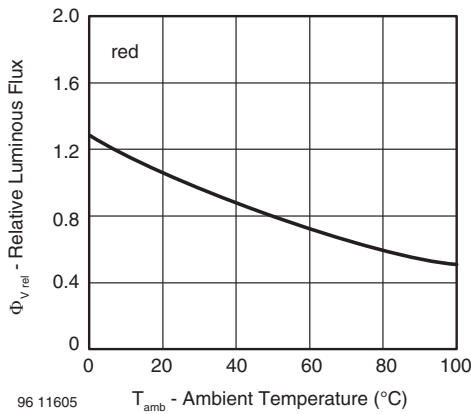
Figure 2. Forward Current vs. Pulse Length



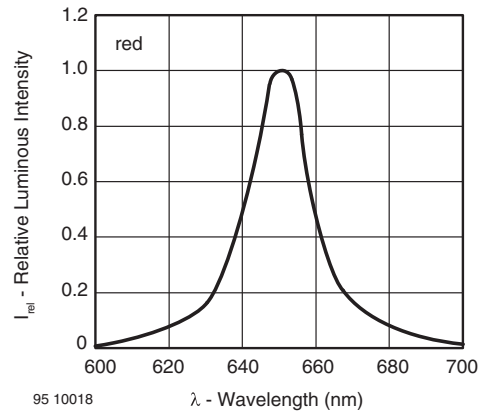
95 10014 V_F - Forward Voltage (V)
Figure 3. Forward Current vs. Forward Voltage



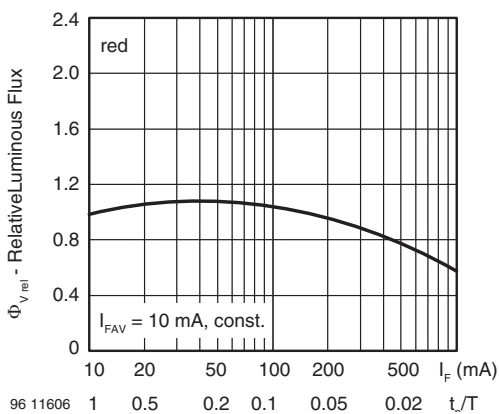
96 11607 I_F - Forward Current (mA)
Figure 6. Relative Luminous Flux vs. Forward Current



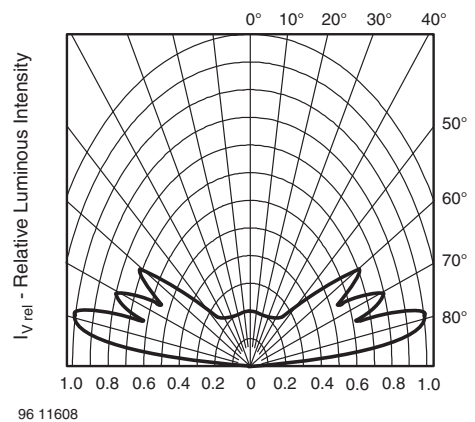
96 11605 T_{amb} - Ambient Temperature (°C)
Figure 4. Rel. Luminous Flux vs. Ambient Temperature



95 10018 λ - Wavelength (nm)
Figure 7. Relative Intensity vs. Wavelength

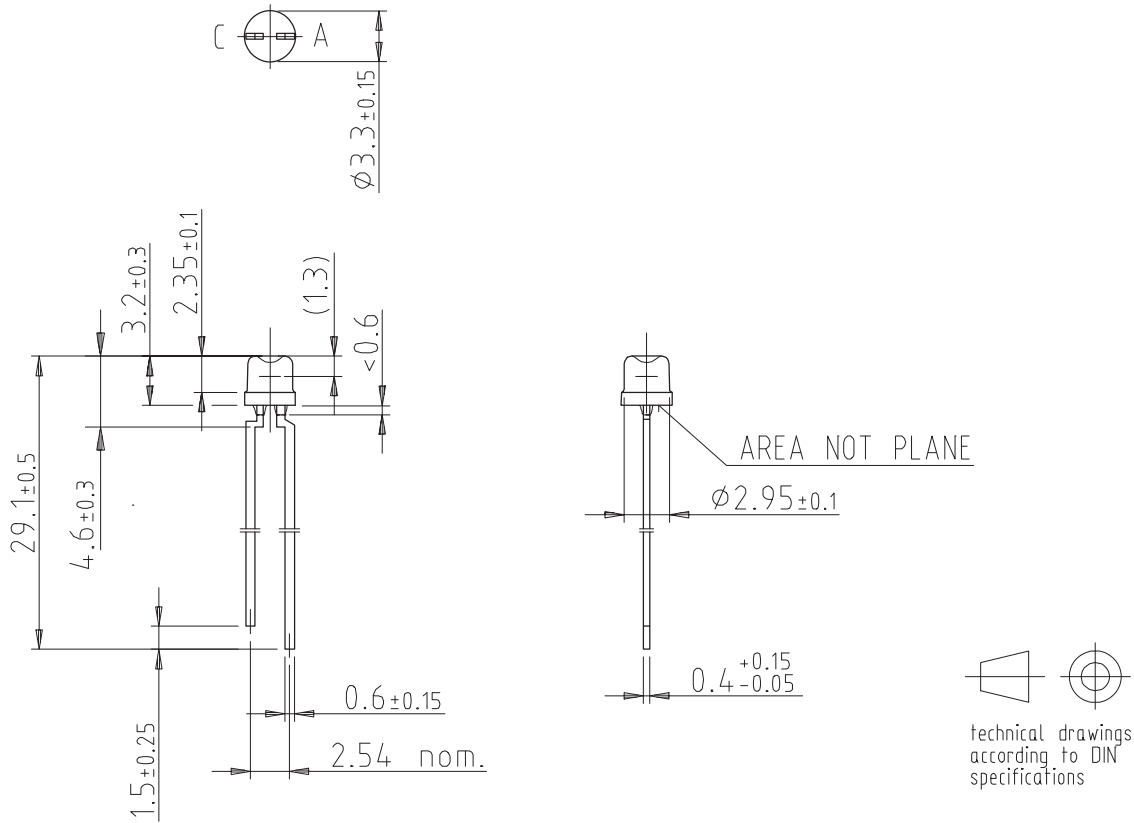


96 11606 $I_{FAV} = 10 \text{ mA, const.}$
Figure 5. Rel. Luminous Flux vs. Forw. Current/Duty Cycle



96 11608
Figure 8. Rel. Luminous Intensity vs. Angular Displacement for 90° Emission Angle

PACKAGE DIMENSIONS in millimeters



9510953



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