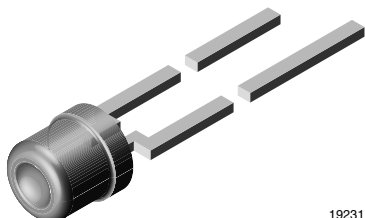


# DH Backlighting LED in Ø 3 mm Tinted Non-Diffused Package



## DESCRIPTION

The TLVD4200 series 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:  $\pm 85^\circ$

## 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
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

## 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 (mIm)			at I <sub>F</sub> (mA)	WAVELENGTH (nm)			at I <sub>F</sub> (mA)	FORWARD VOLTAGE (V)			at I <sub>F</sub> (mA)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
TLVD4200	Red	40	130	-	15	-	640	-	10	-	1.8	2.2	20	GaAlAs on GaAs
TLVD4200-MSZ	Red	40	130	-	15	-	640	-	10	-	1.8	2.2	20	GaAlAs on GaAs

## ABSOLUTE MAXIMUM RATINGS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V <sub>R</sub>	6	V
DC forward current		I <sub>F</sub>	50	mA
Surge forward current	t <sub>p</sub> ≤ 10μs	I <sub>FSM</sub>	1	A
Power dissipation	T <sub>amb</sub> ≤ 60 °C	P <sub>V</sub>	100	mW
Junction temperature		T <sub>j</sub>	100	°C
Operating temperature range		T <sub>amb</sub>	-40 to +100	°C
Storage temperature range		T <sub>stg</sub>	-55 to +100	°C
Soldering temperature	t ≤ 5 s, 2 mm from body	T <sub>sd</sub>	260	°C
Thermal resistance junction/ambient		R <sub>thJA</sub>	400	K/W

**OPTICAL AND ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)  
**TLVD4200, RED**

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous flux	$I_F = 15\text{ mA}$	$\phi_V$	40	130	-	mlm
Dominant wavelength	$I_F = 10\text{ mA}$	$\lambda_d$	-	640	-	nm
Peak wavelength	$I_F = 10\text{ mA}$	$\lambda_p$	-	650	-	nm
Angle of half intensity	$I_F = 10\text{ mA}$	$\phi$	-	$\pm 85$	-	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	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$	$C_j$	-	50	-	pF

**LUMINOUS FLUX CLASSIFICATION**

GROUP STANDARD	LUMINOUS FLUX (mlm)	
	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.

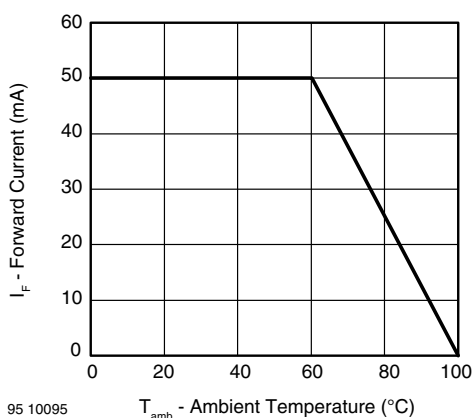
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Forward Current vs. Ambient Temperature

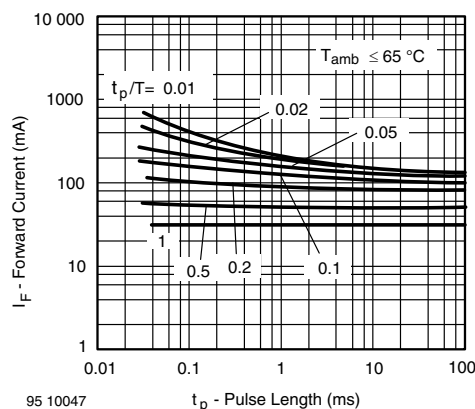


Fig. 2 - Forward Current vs. Pulse Length

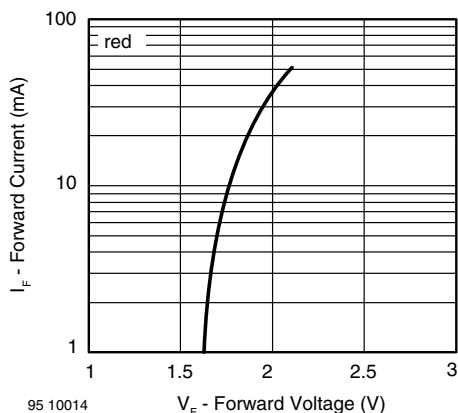


Fig. 3 - Forward Current vs. Forward Voltage

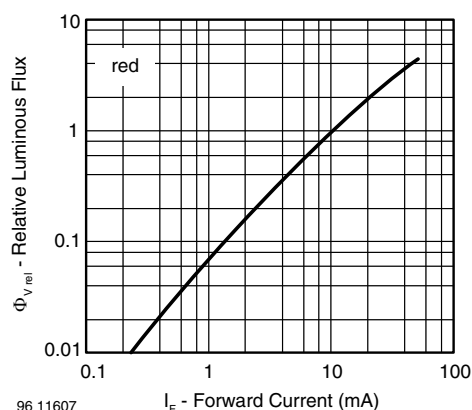


Fig. 6 - Relative Luminous Flux vs. Forward Current

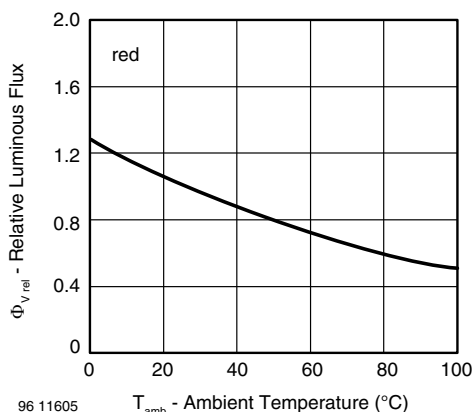


Fig. 4 - Relative Luminous Flux vs. Ambient Temperature

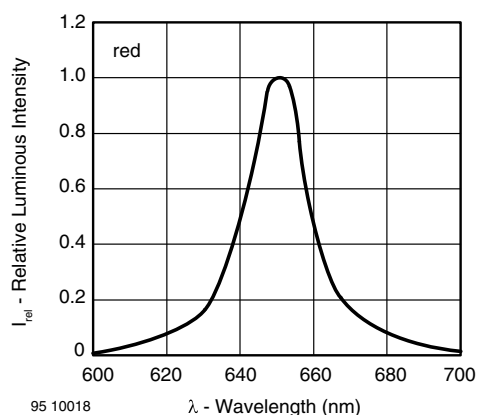


Fig. 7 - Relative Intensity vs. Wavelength

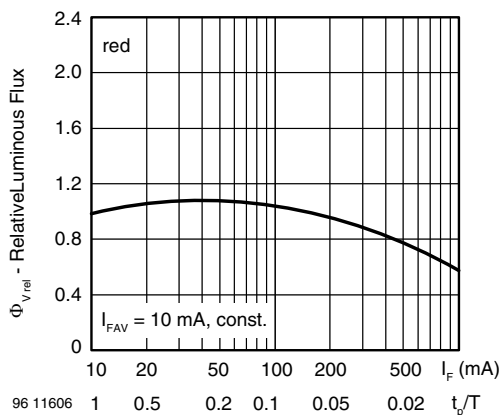


Fig. 5 - Relative Luminous Flux vs. Forward Current / Duty Cycle

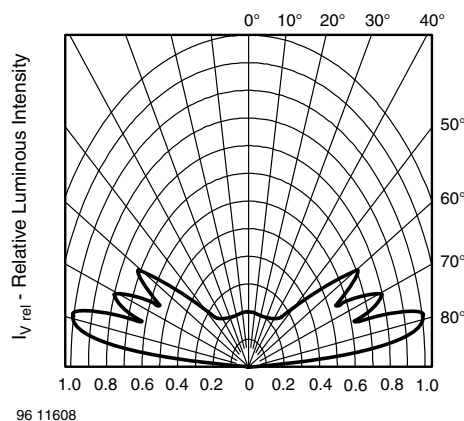
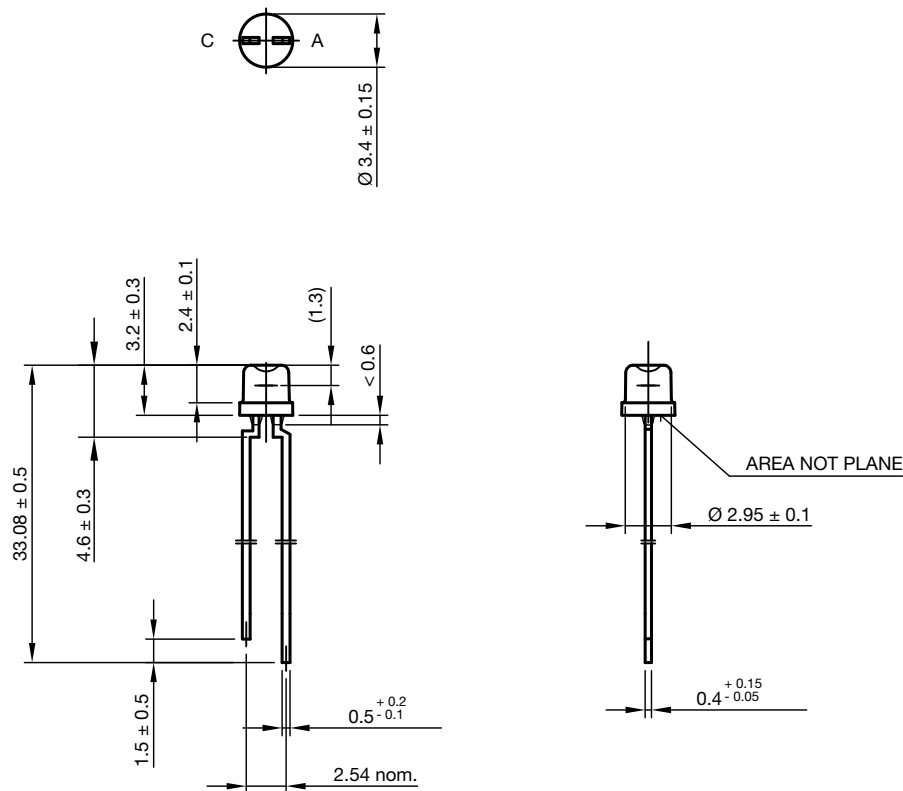


Fig. 8 - Relative Luminous Intensity vs. Angular Displacement for 90 ° Emission Angle

**PACKAGE DIMENSIONS** in millimeters


Drawing-No.: 6.544-5226.01-4

Issue: 2; 28.07.14

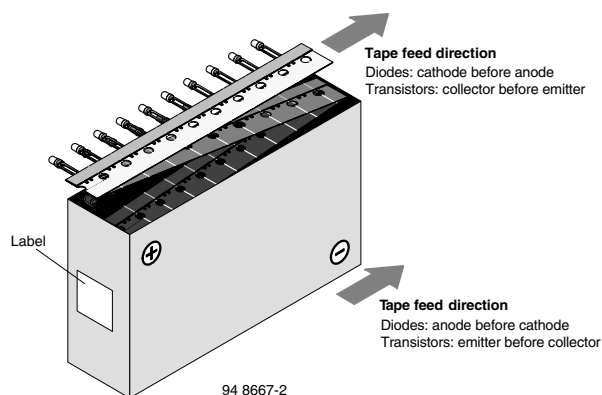
**AMMOPACK**


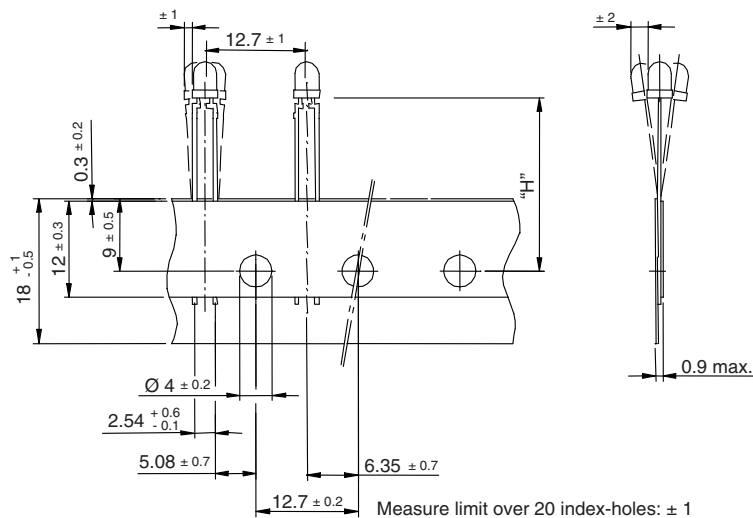
Fig. 9 - Tape Direction

**Note**

- The new nomenclature for ammopack is e.g. ASZ only, without suffix for the LED orientation. The carton box has to be turned to the desired position: "+" for anode first, or "-" for cathode first. AS12Z and AS21Z are still valid for already existing types, BUT NOT FOR NEW DESIGN.



**TAPE DIMENSIONS** in millimeters



Quantity per:	Reel (Mat. - No. 1764)
	2000

94 8171

Option	Dim. "H" $\pm 0.5$ mm
MS	25.5



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