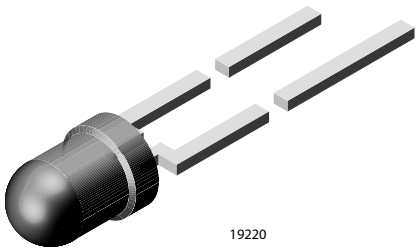
High Efficiency LED, Ø 3 mm Tinted Total Diffused Package



FEATURES

- AlInGaP technology
- Standard Ø 3 (T-1) package
- Small mechanical tolerances
- Suitable for DC and high peak current
- Wide viewing angle
- Very high intensity
- Luminous intensity categorized
- ESD-withstand voltage: up to 2 kV HBM according to JESD22-A114-B
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE

GREEN (5-2008)

DESCRIPTION

The TLHA44.. series was developed for applications which need a very wide radiation angle like backlighting, general indicating and lighting purposes.

It is housed in a 3 mm tinted total diffused plastic package. The wide viewing angle of these devices provides a high on-off contrast.

All LEDs are categorized in luminous intensity groups.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 3 mm
- Product series: standard
- Angle of half intensity: ± 30°

APPLICATIONS

- Status lights
- Off / on indicator
- Background illumination
- Readout lights
- Maintenance lights
- Legend light

PARTS TABLE

PART	COLOR	LUMINOUS INTENSITY (mcd)			at I_F (mA)	WAVELENGTH (nm)			at I_F (mA)	FORWARD VOLTAGE (V)			at I_F (mA)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
TLHA44R1S2	Amber	112	-	280	20	612	617	625	20	-	2	2.6	20	AlInGaP on GaAs

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)

TLHA44R1S2

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	5	V
DC forward current	$T_{amb} \leq 60$ °C	I_F	30	mA
Surge forward current	$t_p \leq 10$ µs	I_{FSM}	0.5	A
Power dissipation	$T_{amb} \leq 60$ °C	P_V	80	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-to-ambient		R_{thJA}	400	K/W

For technical questions, contact: LED@vishay.com

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OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified) **TLHA44R1S2, AMBER**							
PARAMETER	**TEST CONDITION**	**PART**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous intensity (1)	I_F = 20 mA	TLHA44R1S2	I_V	112	-	280	mcd
Dominant wavelength	I_F = 20 mA		λ_d	612	617	625	nm
Peak wavelength	I_F = 20 mA		λ_p	-	624	-	nm
Angle of half intensity	I_F = 20 mA		φ	-	± 30	-	deg
Forward voltage	I_F = 20 mA		V_F	-	2	2.6	V
Reverse voltage	I_R = 10 µA		V_R	5	-	-	V
Junction capacitance	V_R = 0 V, f = 1 MHz		C_j	-	15	-	pF

Note

(1) In one packing unit $I_{Vmin.}/I_{Vmax.} \leq 0.5$

LUMINOUS INTENSITY CLASSIFICATION		
GROUP	**LIGHT INTENSITY (mcd)**	
STANDARD	**MIN.**	**MAX.**
R1	112	140
R2	140	180
S1	180	224
S2	224	280

Note

- Luminous intensity is tested at a current pulse duration of 25 ms and an accuracy of ± 11 %.
  These 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 on 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 °C, unless otherwise specified)

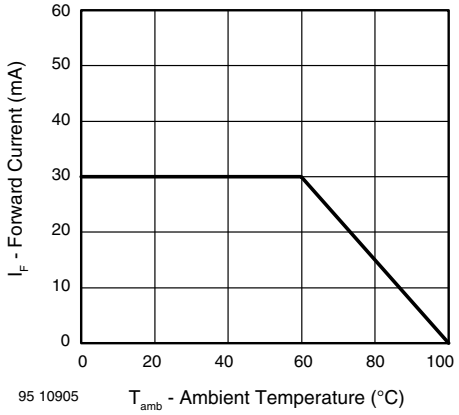


Fig. 1 - Forward Current vs. Ambient Temperature

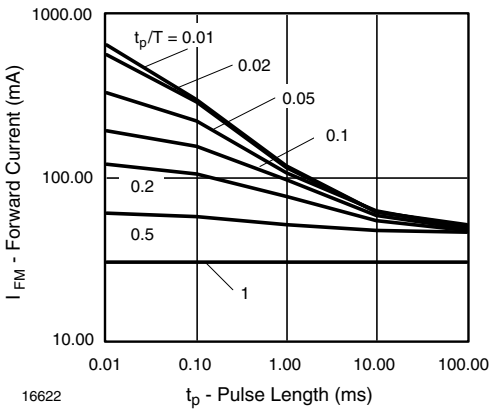


Fig. 2 - Forward Current vs. Pulse Length

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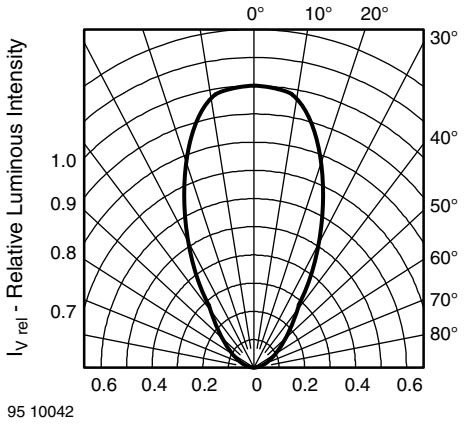


Fig. 3 - Relative Luminous Intensity vs. Angular Displacement

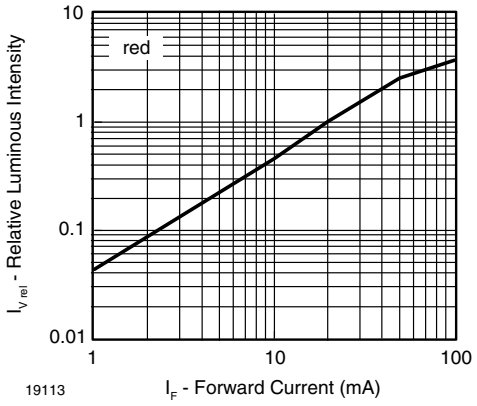


Fig. 6 - Relative Luminous Intensity vs. Forward Current

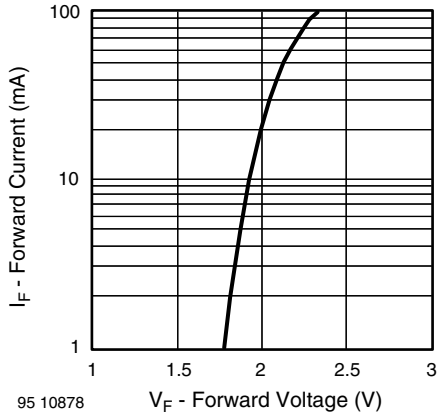


Fig. 4 - Forward Current vs. Forward Voltage

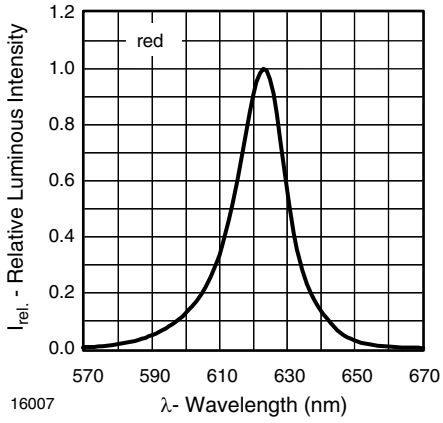


Fig. 7 - Relative Intensity vs. Wavelength

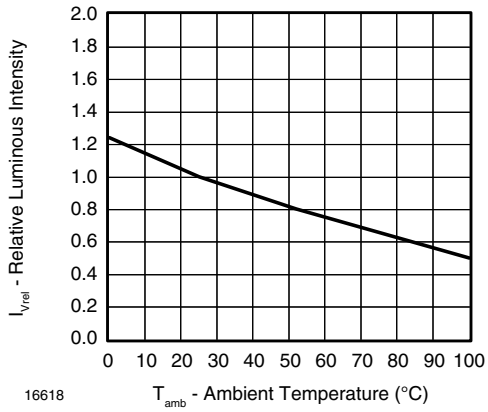
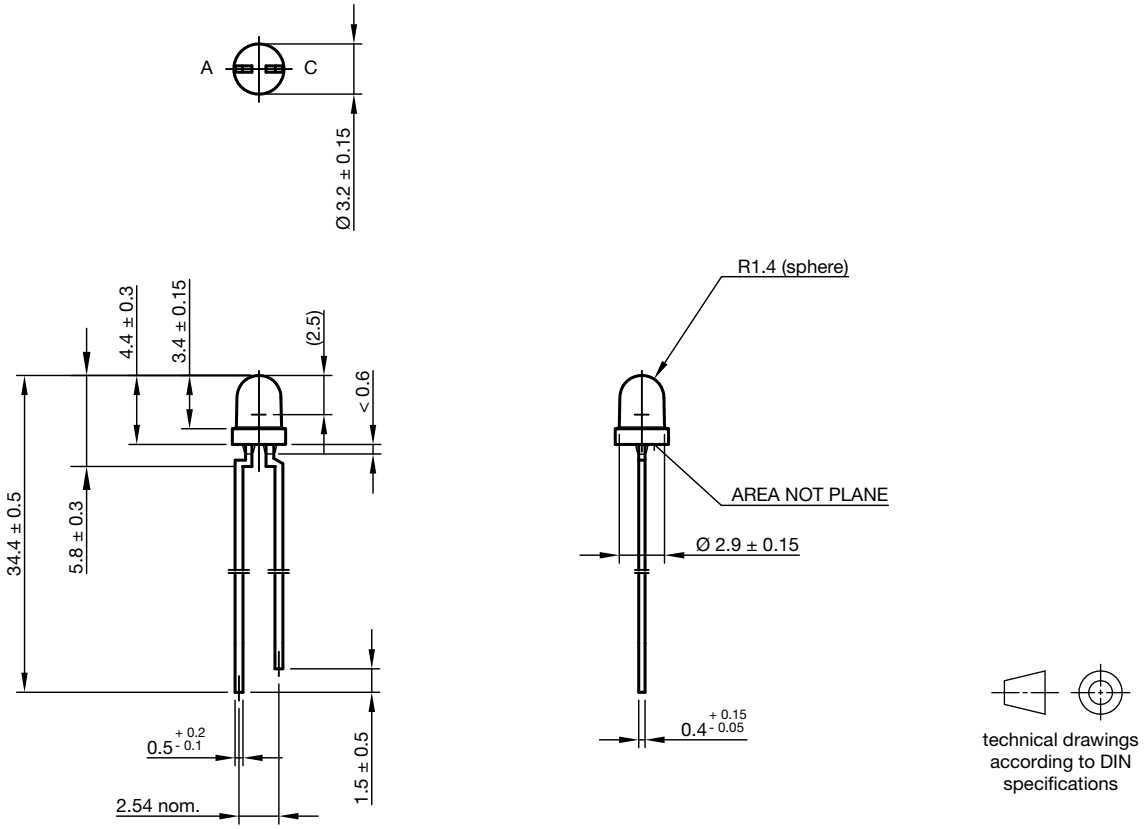


Fig. 5 - Relative Luminous Intensity vs. Ambient Temperature

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PACKAGE DIMENSIONS in millimeters



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