

High Intensity LED in Ø 3 mm Tinted Diffused Package



19222

DESCRIPTION

This device has been designed to meet the increasing demand for AlInGaP technology for general indicating and lighting purposes.

It is housed in a 3 mm diffused plastic package. The wide viewing angle of these devices provides a high brightness across a large field of view.

All packing units are categorized in luminous intensity groups. That allows users to assemble LEDs with uniform appearance.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 3 mm
- Product series: standard
- Angle of half intensity: $\pm 30^\circ$

FEATURES

- AlInGaP technology
- Standard Ø 3 mm (T-1) package
- Small mechanical tolerances
- Suitable for DC and high peak current
- Small viewing angle
- Very high intensity
- Luminous intensity categorized
- Material categorization:
for definitions of compliance please see www.vishay.com/doc?99912



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.		
TLHK44R1S2	Red	112	180	280	20	-	630	-	20	-	1.9	2.6	20	AlInGaP on GaAs

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

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage ⁽¹⁾		V _R	5	V
DC forward current	T _{amb} ≤ 60 °C	I _F	30	mA
Surge forward current	t _p ≤ 10 μs	I _{FSM}	0.1	A
Power dissipation	T _{amb} ≤ 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/ambient		R _{thJA}	400	K/W

Note

⁽¹⁾ Driving the LED in reverse direction is suitable for a short term application

OPTICAL AND ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
TLHK44R1S2, RED						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity ⁽¹⁾	I _F = 20 mA	I _V	112	180	280	mcd
Dominant wavelength	I _F = 20 mA	λ _d	-	630	-	nm
Peak wavelength	I _F = 20 mA	λ _p	-	643	-	nm
Angle of half intensity	I _F = 20 mA	φ	-	± 30	-	deg
Forward voltage	I _F = 20 mA	V _F	-	1.9	2.6	V
Reverse voltage	I _R = 10 μA	V _R	5	-	-	V
Junction capacitance	V _R = 0, f = 1 MHz	C _j	-	15	-	pF

Note

(1) In one packing unit I_{Vmax}/I_{Vmin} ≤ 1.6

LUMINOUS INTENSITY CLASSIFICATION			
GROUP	LIGHT INTENSITY (mcd)		
	STANDARD	OPTIONAL	MAX.
R	1	112	140
	2	140	180
S	1	180	224
	2	224	280

Note

- Luminous intensity is tested at a current pulse duration of 25 ms and an accuracy of ± 11 %.
- 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 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)

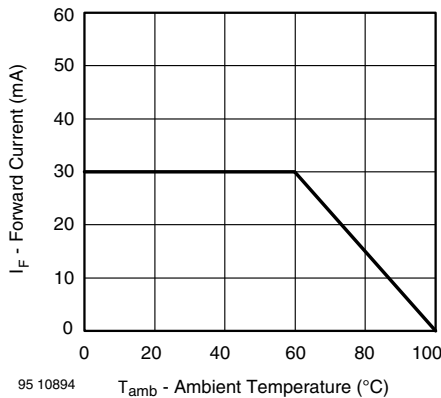


Fig. 1 - Forward Current vs. Ambient Temperature for InGaN

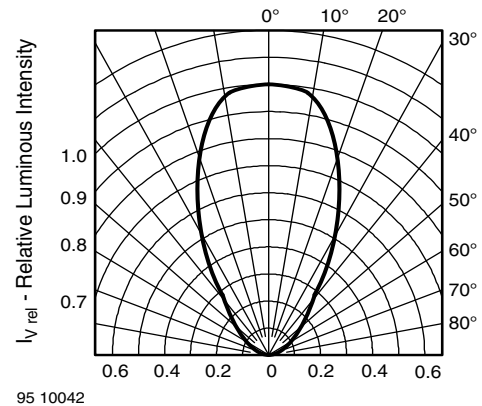


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement



Fig. 3 - Forward Current vs. Forward Voltage

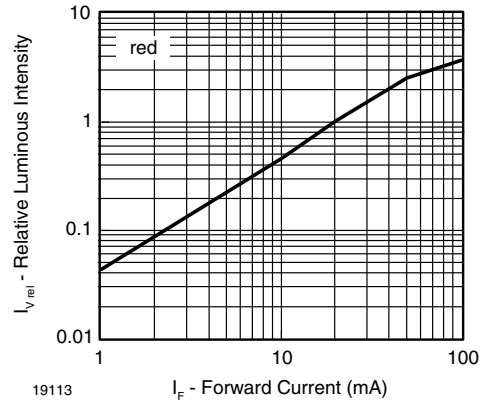


Fig. 6 - Relative Luminous Intensity vs. Forward Current

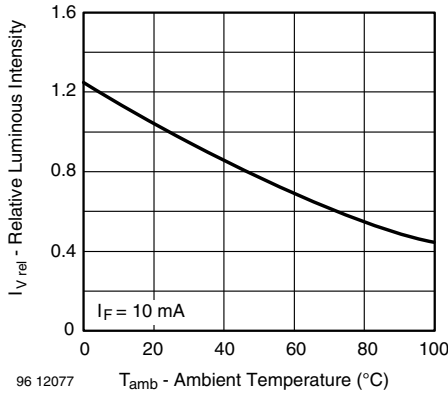


Fig. 4 - Rel. Luminous Intensity vs. Ambient Temperature

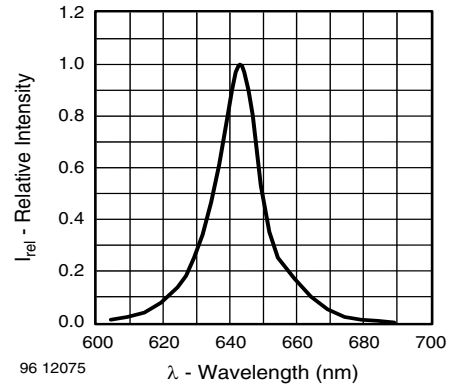


Fig. 7 - Relative Intensity vs. Wavelength

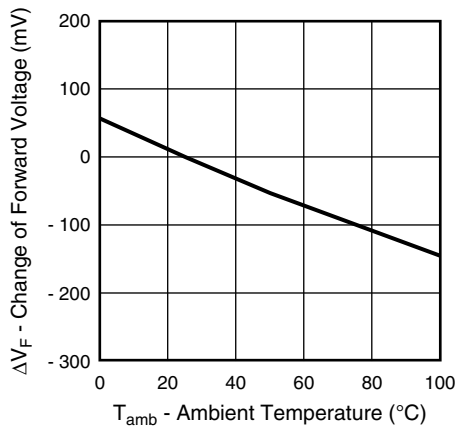


Fig. 5 - Change of Forward Voltage vs. Ambient Temperature



PACKAGE DIMENSIONS in millimeters



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