

Vishay Semiconductors

High Intensity LED in Ø 3 mm Tinted Diffused Package



DESCRIPTION

This device has been designed to meet the increasing demand for AllnGaP technology 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: LEDPackage: 3 mm

Product series: standard
Angle of half intensity: ± 30°

FEATURES

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

Pb-free



ROHS COMPLIANT HALOGEN FREE

GREEN (5-2008)

APPLICATIONS

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

PARTS TABLE														
PART	COLOR	LUMINOUS INTENSITY (mcd)		at I _F	WAVELENGTH (nm)		at I _F	FORWARD VOLTAGE (V)		at I _F	TECHNOLOGY			
		MIN.	TYP.	MAX.	(mA)	MIN.	TYP.	MAX	(mA)	MIN.	TYP.	MAX.	(IIIA)	
TLHK4400L	Red	16	70	-	10	626	630	639	10	-	1.9	2.6	20	AllnGaP on GaAs

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) TLHK4400L						
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	Α		
Power dissipation		P _V	80	mW		
Junction temperature		Tj	100	°C		
Operating temperature range		T _{amb}	-40 to +100	°C		
Storage temperature range		T _{stg}	-55 to +100	°C		
Soldering temperature	$t \le 5$ s, 2 mm from body	T _{sd}	260	°C		
Thermal resistance junction/ambient		R _{thJA}	400	K/W		

Note

• Driving the LED in reverse direction is suitable for a short term application



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OPTICAL AND ELECTRICAL CHARACTERISTICS ($T_{amb} = 25$ °C, unless otherwise specified) TLHK4400L, RED						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity	I _F = 10 mA	I _V	16	70	-	mcd
Dominant wavelength	I _F = 10 mA	λ_{d}	626	630	639	nm
Peak wavelength	I _F = 10 mA	λρ	-	643	-	nm
Angle of half intensity	I _F = 10 mA	φ	-	± 30	-	deg
Forward voltage	I _F = 20 mA	V _F	-	1.9	2.6	V
Reverse current	V _R = 5 V	I _R	-	-	10	μΑ
Junction capacitance	V _R = 0 V, f = 1 MHz	Cj	-	15	-	pF

LUMINOUS INTENSITY CLASSIFICATION						
GROUP	LIGHT INTE	IGHT INTENSITY (mcd)				
STANDARD	MIN.	MAX.				
S	16	32				
Т	25	50				
U	40	80				
V	63	125				
W	100	200				
X	130	260				
Y	180	360				
Z	240	480				
AA	320	640				
BB	430	860				

U	40	80
V	63	125
W	100	200
X	130	260
Υ	180	360
Z	240	480
AA	320	640
BB	430	860

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 reel (there will be no mixing of two groups on each reel).

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 reel.

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

COLOR CLASSIFICATION					
RED					
GROUP	DOM. WAVELENGTH (nm)				
	MIN.	MAX.			
1	626	629			
2	628	631			
3	630	633			
4	632	635			
5	634	637			
6	636	639			

Note

· Wavelengths are tested at a current pulse duration of 25 ms

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

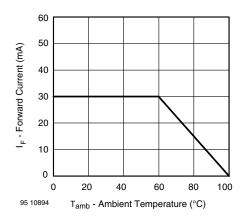


Fig. 1 - Forward Current vs. Ambient Temperature

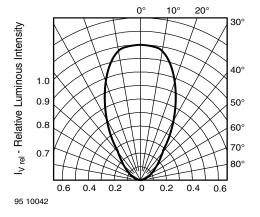


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement





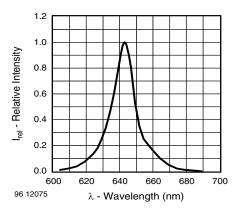


Fig. 3 - Relative Intensity vs. Wavelength

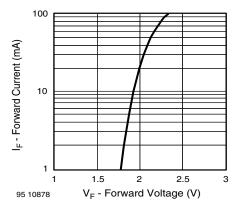


Fig. 4 - Forward Current vs. Forward Voltage

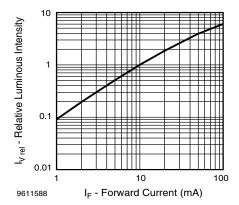


Fig. 5 - Relative Luminous Intensity vs. Forward Current

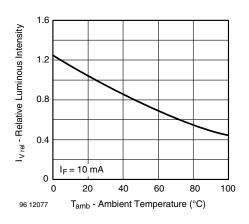


Fig. 6 - Relative Luminous Intensity vs. Ambient Temperature

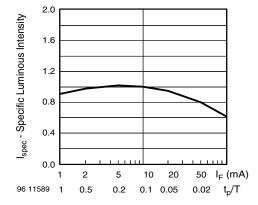
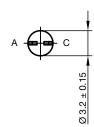


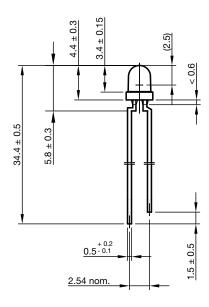
Fig. 7 - Relative Luminous Intensity vs. Forward Current/Duty Cycle

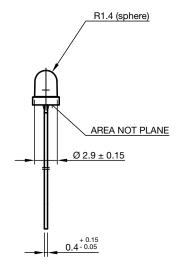


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PACKAGE DIMENSIONS in millimeters









Drawing-No.: 6.544-5255.01-4

Issue: 9; 28.07.14

PACKING METHOD
BULK
1 x 5000 pcs



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