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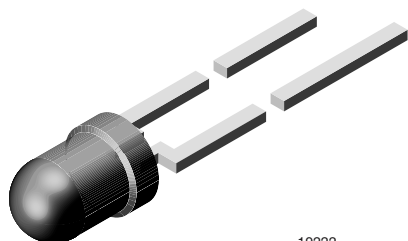


www.vishay.com

TLHK42T1U2, TLHK42S1T2

Vishay Semiconductors

High Intensity LED in Ø 3 mm Tinted Non-Diffused Package



19222

DESCRIPTION

This device has been designed to meet the increasing demand for AllnGaP technology.

It is housed in a 3 mm clear plastic package. The small viewing angle of these devices provides a high brightness.

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

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 3 mm
- Product series: standard
- Angle of half intensity: $\pm 22^\circ$

FEATURES

- AllnGaP 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 color categorized
- Material categorization:
for definitions of compliance please see www.vishay.com/doc?99912



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 (mA)	WAVELENGTH (nm)			at I _F (mA)	FORWARD VOLTAGE (V)			at I _F (mA)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
TLHK42T1U2	Red	280	360	710	20	-	630	-	20	-	1.9	2.6	20	AllnGaP on GaAs
TLHK42S1T2	Red	180	-	450	20	-	630	-	20	-	1.9	2.6	20	AllnGaP on GaAs

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) TLHK42T1U2, TLHK42S1T2				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		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



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OPTICAL AND ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)							
TLHK42T1U2, TLHK42S1T2, RED							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity ⁽¹⁾	I _F = 20 mA	TLHK42T1U2	I _v	280	360	710	mcd
		TLHK42S1T2		180	-	450	
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	-	± 22	-	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	STANDARD	LIGHT INTENSITY (mcd)	
		OPTIONAL	MIN. / MAX.
S		1	180 / 224
		2	224 / 280
T		1	280 / 355
		2	355 / 450
U		1	450 / 560
		2	560 / 710

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)

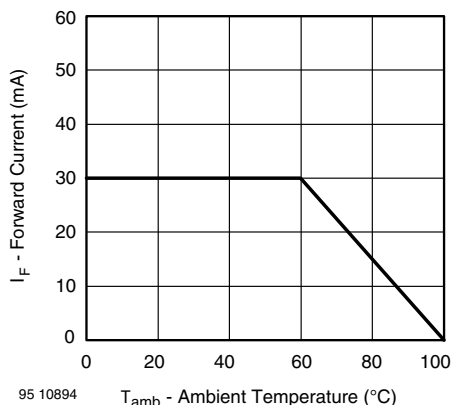


Fig. 1 - Forward Current vs. Ambient Temperature for InGaN

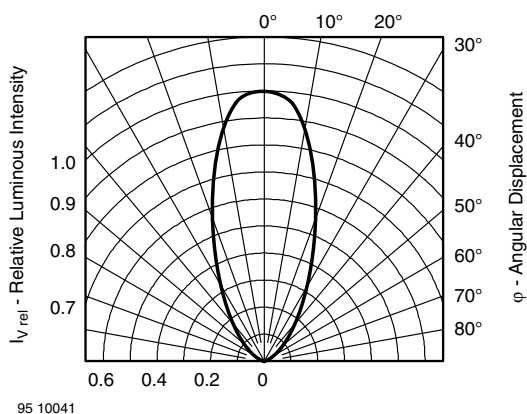


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement



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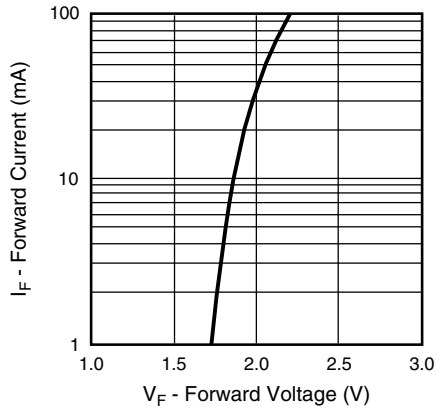


Fig. 3 - Forward Current vs. Forward Voltage

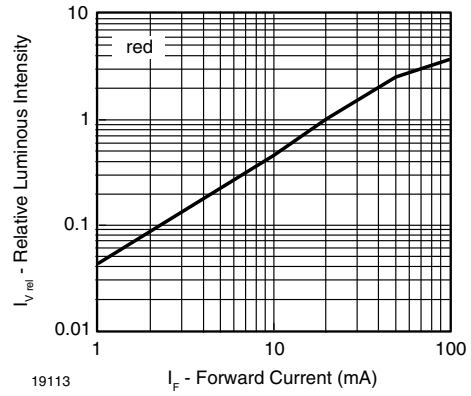


Fig. 5 - Relative Luminous Intensity vs. Forward Current

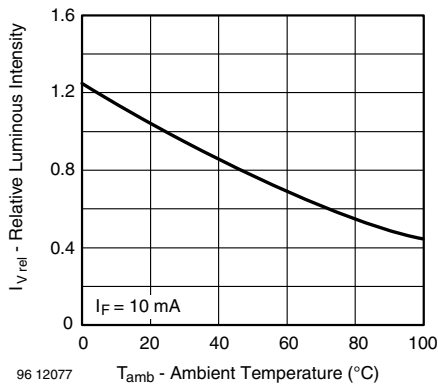


Fig. 4 - Relative Luminous Intensity vs. Ambient Temperature

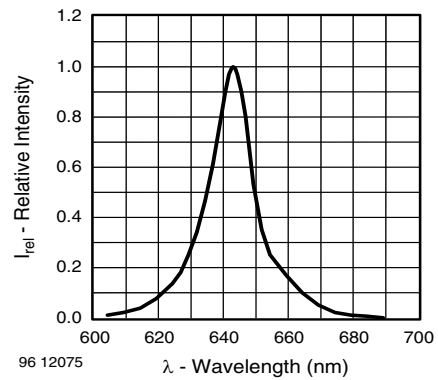


Fig. 6 - Relative Intensity vs. Wavelength

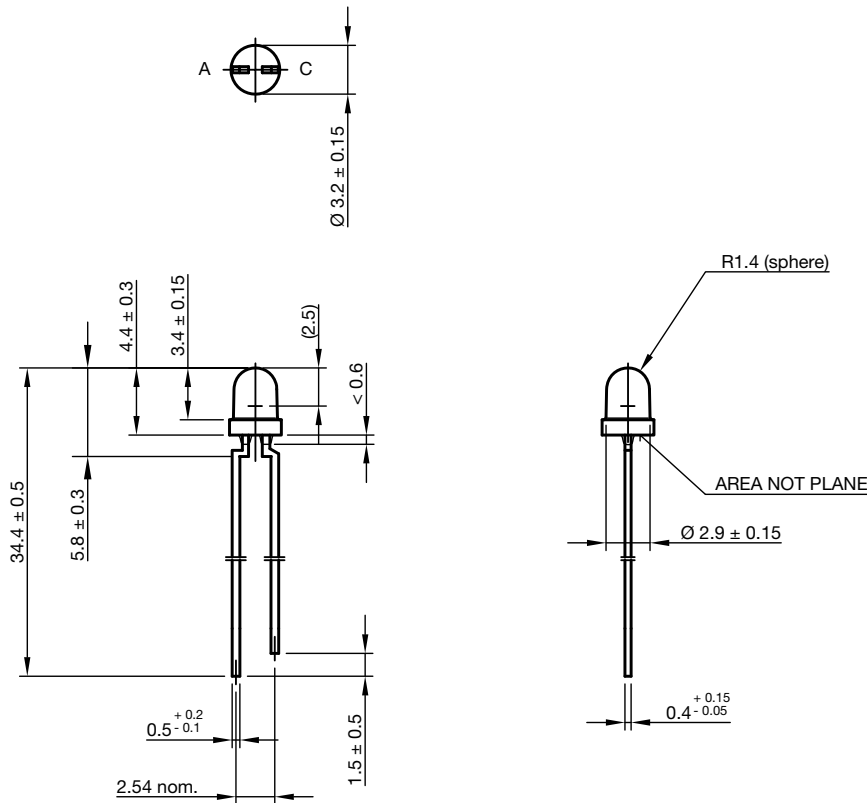


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PACKAGE DIMENSIONS in millimeters



technical drawings
according to DIN
specifications

Drawing-No.: 6.544-5255.01-4
 Issue: 9; 28.07.14



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