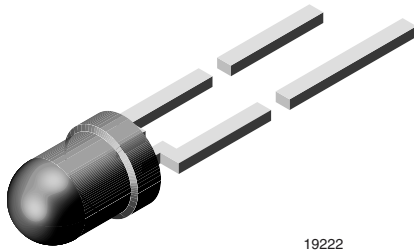


High Intensity LED in Ø 3 mm Tinted Diffused Package



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.

All packing units are categorized in luminous intensity and color groups. That allows users to assemble LEDs with uniform appearance developed for standard applications like general indicating and lighting purposes.

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 color 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

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 3 mm
- Product series: standard
- Angle of half intensity: $\pm 60^\circ$

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.		
TLHE4600	Yellow	10	26	-	10	581	588	594	10	-	1.9	2.6	20	AllnGaP on GaAs

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^\circ\text{C}$, unless otherwise specified)				
TLHE4600				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	5	V
DC forward current	$T_{amb} \leq 60^\circ\text{C}$	I_F	30	mA
Surge forward current	$t_p \leq 10 \mu\text{s}$	I_{FSM}	0.1	A
Power dissipation	$T_{amb} \leq 60^\circ\text{C}$	P_V	80	mW
Junction temperature		T_J	100	$^\circ\text{C}$
Operating temperature range		T_{amb}	-40 to +100	$^\circ\text{C}$
Storage temperature range		T_{stg}	-55 to +100	$^\circ\text{C}$
Soldering temperature	$t \leq 5 \text{ s}$, 2 mm from body	T_{sd}	260	$^\circ\text{C}$
Thermal resistance junction/ambient		R_{thJA}	400	K/W

**OPTICAL AND ELECTRICAL CHARACTERISTICS** ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)
TLHE4600, YELLOW

PARAMETER	TEST CONDITION	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity ⁽¹⁾	$I_F = 10\text{ mA}$	I_V	10	26	-	mcd
Dominant wavelength	$I_F = 10\text{ mA}$	λ_d	581	588	594	nm
Peak wavelength	$I_F = 10\text{ mA}$	λ_p	-	590	-	nm
Angle of half intensity	$I_F = 10\text{ mA}$	ϕ	-	± 60	-	deg
Forward voltage	$I_F = 20\text{ mA}$	V_F	-	1.9	2.6	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$	V_R	5	-	-	V
Junction capacitance	$V_R = 0\text{ V}$, $f = 1\text{ MHz}$	C_j	-	15	-	pF

Note

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

LUMINOUS INTENSITY CLASSIFICATION

GROUP	LIGHT INTENSITY (mcd)	
	MIN.	MAX.
R	10	20
S	16	32
T	25	50
U	40	80
V	63	125
W	100	200
X	130	260
Y	180	360
Z	240	480

Note

- Luminous intensity is tested at a current pulse duration of 25 ms. These 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 are 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 are not be orderable.

COLOR CLASSIFICATION

GROUP	YELLOW	
	DOM. WAVELENGTH (nm)	
	MIN.	MAX.
1	581	584
2	583	586
3	585	588
4	587	590
5	589	592
6	591	594

Note

- Wavelengths are tested at a current pulse duration of 25 ms.

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

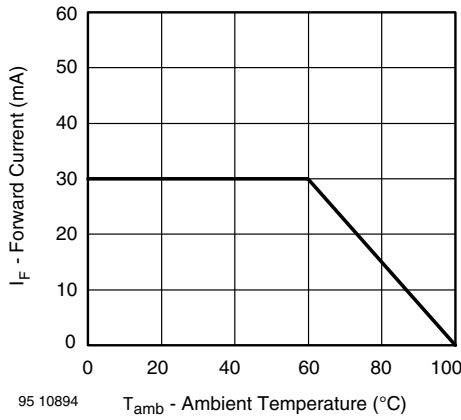


Fig. 1 - Forward Current vs. Ambient Temperature for InGaN

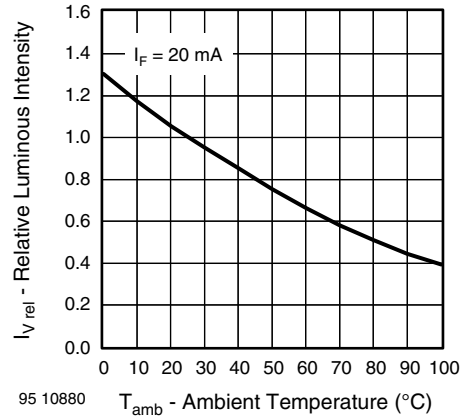


Fig. 4 - Relative Luminous Intensity vs. Ambient Temperature

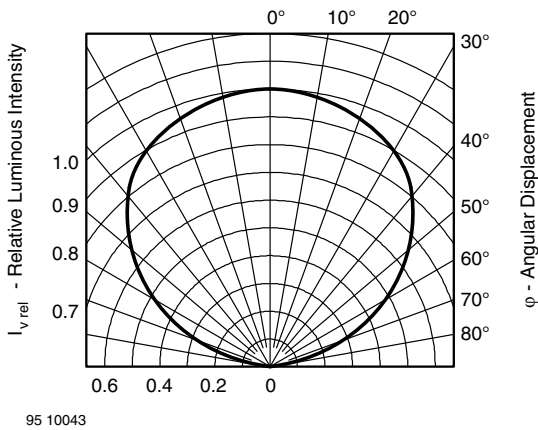


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

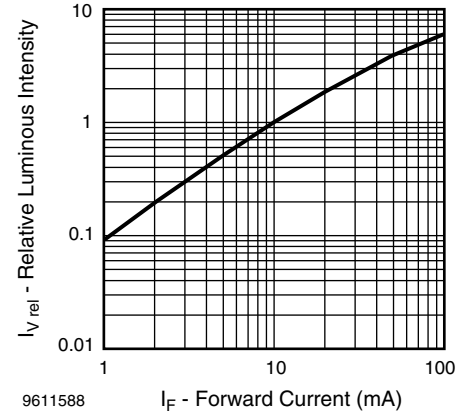


Fig. 5 - Relative Luminous Intensity vs. Forward Current

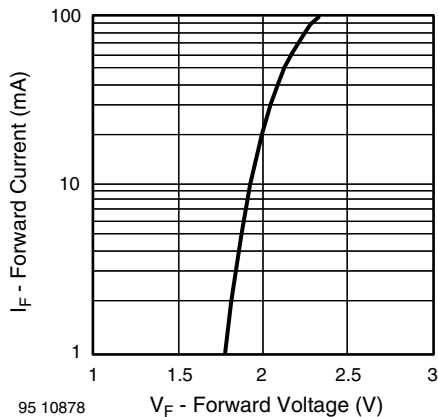


Fig. 3 - Forward Current vs. Forward Voltage

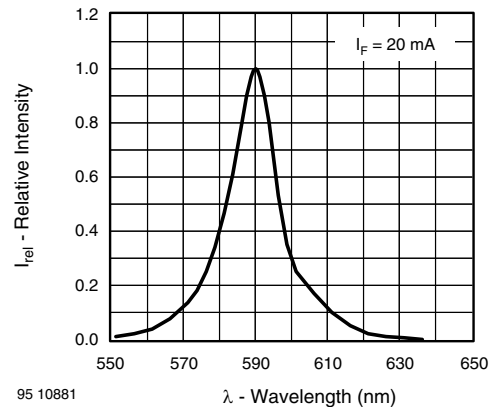
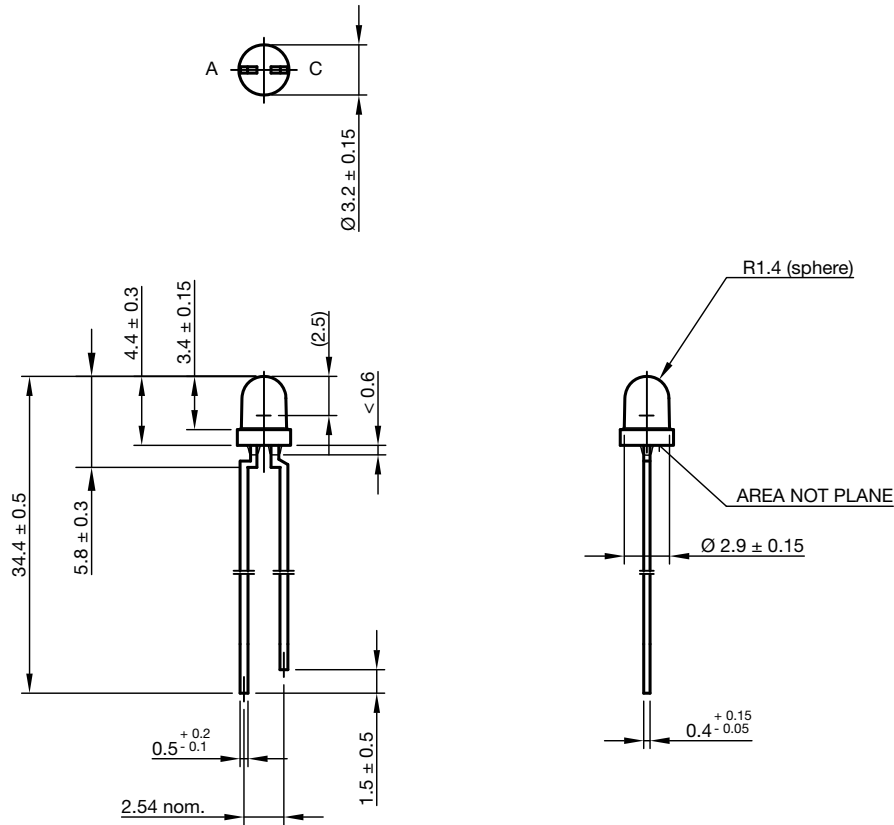
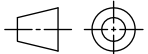


Fig. 6 - Relative Intensity vs. Wavelength



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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