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Vishay Semiconductor/Opto Division
TLHE4200

For any questions, you can email us directly:
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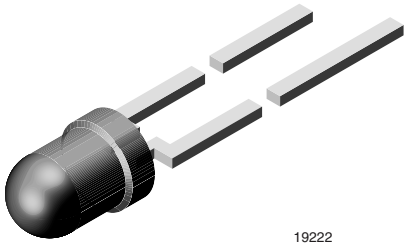
High Intensity LED, Ø 3 mm Tinted Non-Diffused Package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DESCRIPTION

This device has been designed to meet the increasing demand for AlInGaP 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: ± 22°

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

Pb-free
e3
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.		
TLHE4200	Yellow	40	120	-	10	581	588	594	10	-	1.9	2.6	20	AlInGaP on GaAs

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)
TLHE4200

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}	0.1	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/ambient		R_{thJA}	400	K/W

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)
TLHE4200, YELLOW

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity (1)	I_F = 10 mA	I_V	40	120	-	mcd
Dominant wavelength	I_F = 10 mA	λ_d	581	588	594	nm
Peak wavelength	I_F = 10 mA	λ_p	-	590	-	nm
Angle of half intensity	I_F = 10 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 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.
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. 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

GROUP	YELLLOW	
	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 °C, unless otherwise specified)

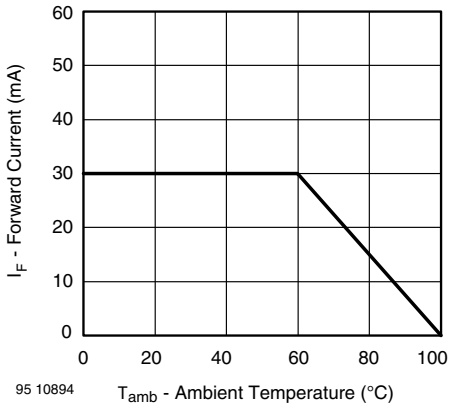


Fig. 1 - Forward Current vs. Ambient Temperature for InGaN

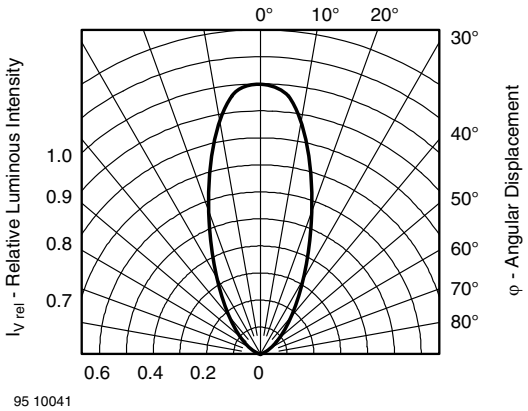


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

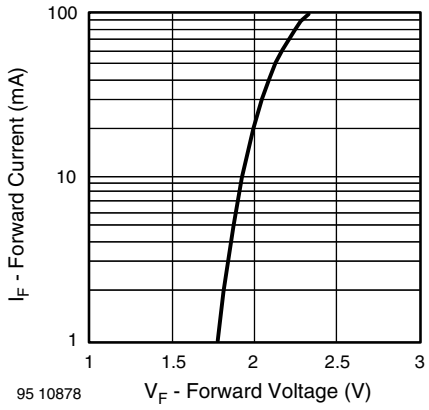


Fig. 3 - Forward Current vs. Forward Voltage

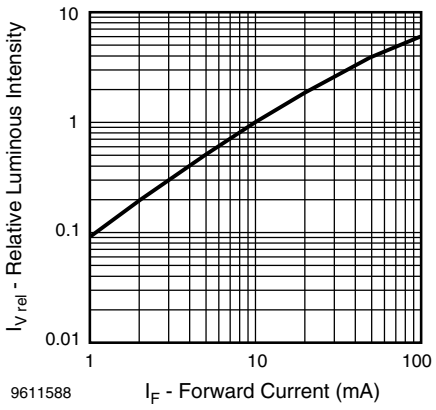


Fig. 6 - Relative Luminous Intensity vs. Forward Current

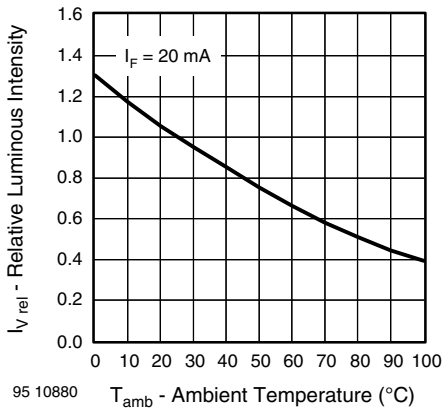


Fig. 4 - Relative Luminous Intensity vs. Ambient Temperature

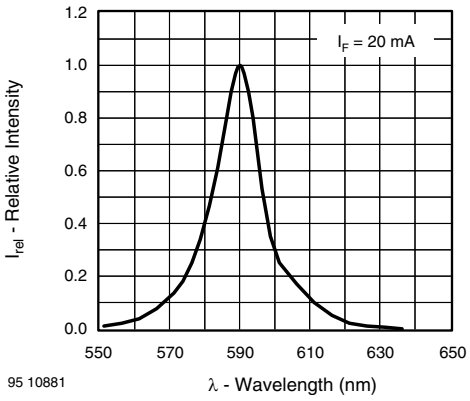


Fig. 7 - Relative Intensity vs. Wavelength

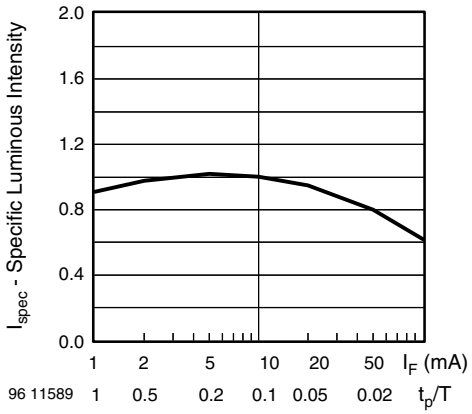
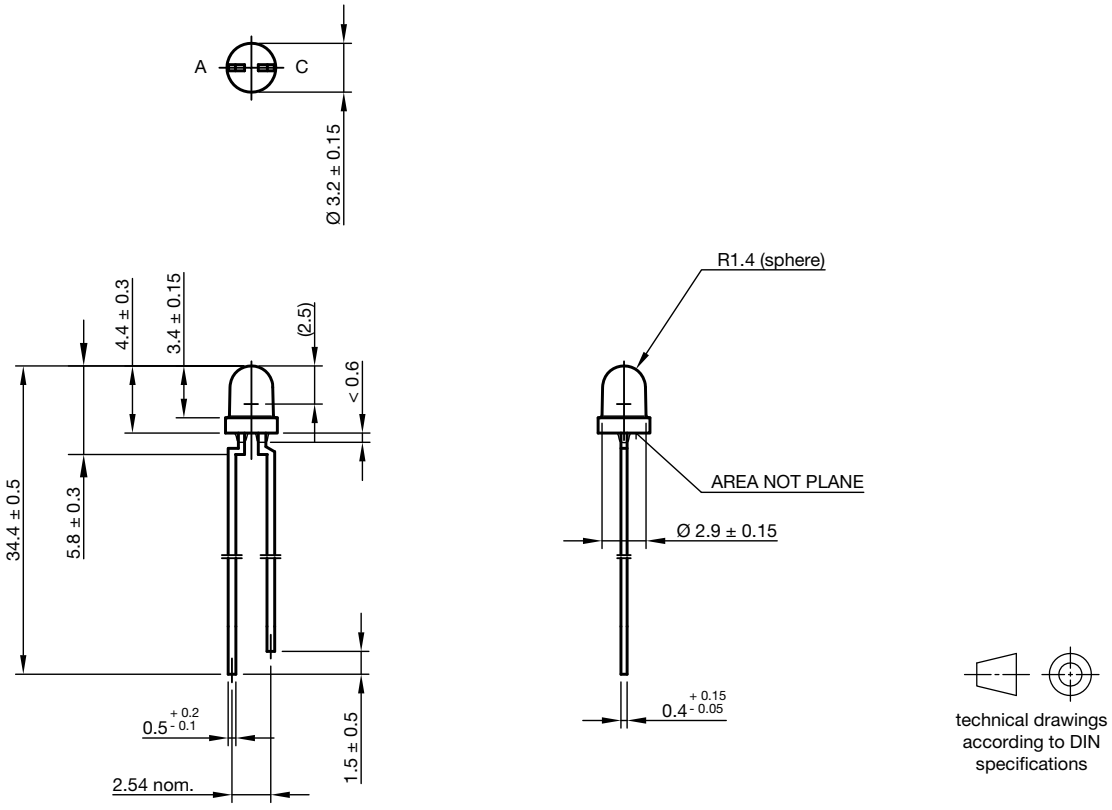


Fig. 5 - Change of Forward Voltage vs. Ambient Temperature

PACKAGE DIMENSIONS in millimeters



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

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