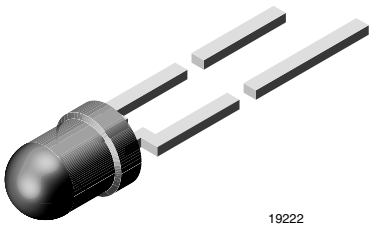
High Intensity LED in Ø 3 mm Tinted Diffused Package



FEATURES

- AlInGaP 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 and color categorized
- ESD-withstand voltage: up to 2 kV HBM according to JESD22-A114-B
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

Pb-free

e8

RoHS COMPLIANT

GREEN (5-2008)**

DESCRIPTION

This series has been designed to meet the increasing demand for AlInGaP technology.
It is housed in a 3 mm tinted, 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 and color 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: ± 30°

APPLICATIONS

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

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLHF4400	Soft orange, I_V > 40 mcd	AlInGaP on GaAs
TLHF4401	Soft orange, I_V = (100 to 360) mcd	AlInGaP on GaAs

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified) **TLHF44..**

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

** Please see document “Vishay Material Category Policy”: www.vishay.com/doc?99902

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)
SOFT ORANGE, TLHF44..

PARAMETER	TEST CONDITION	PARTS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity [1]	I_F = 10 mA	TLHF4400	I_V	40	-	-	mcd
		TLHF4401	I_V	100	200	360	mcd
Dominant wavelength	I_F = 10 mA	TLHF4400	λ_d	598	-	611	nm
		TLHF4401	λ_d	602	605	609	nm
Peak wavelength	I_F = 10 mA		λ_p		610		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 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 $I_{Vmin.}/I_{Vmax.} \leq 0.5$

LUMINOUS INTENSITY CLASSIFICATION

GROUP	LIGHT INTENSITY (mcd)	
STANDARD	MIN.	MAX.
U	40	80
V	63	125
W	100	200
X	130	260
Y	180	360

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 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.

COLOR CLASSIFICATION

GROUP	SOFT ORANGE	
	DOM. WAVELENGTH (nm)	
	MIN.	MAX.
1	598	601
2	600	603
3	602	605
4	604	607
5	606	609
6	608	611

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

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

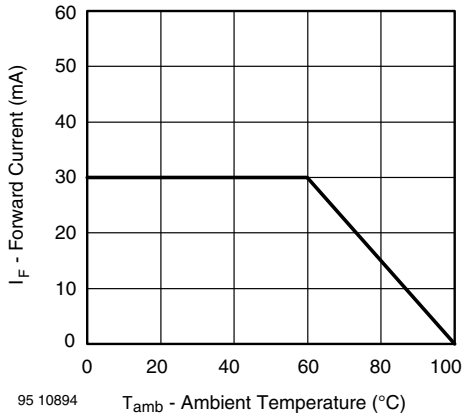


Figure 1. Forward Current vs. Ambient Temperature

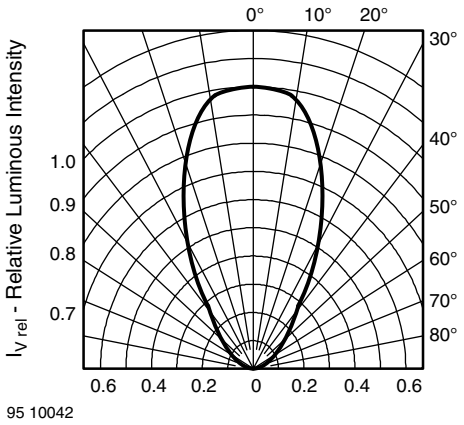


Figure 2. Rel. Luminous Intensity vs. Angular Displacement

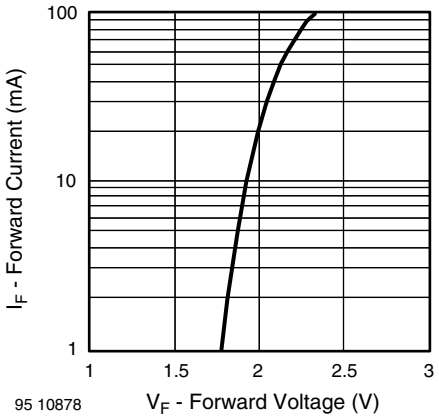


Figure 3. Forward Current vs. Forward Voltage

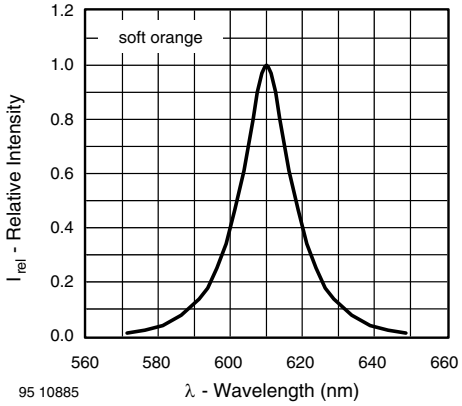


Figure 6. Relative Intensity vs. Wavelength

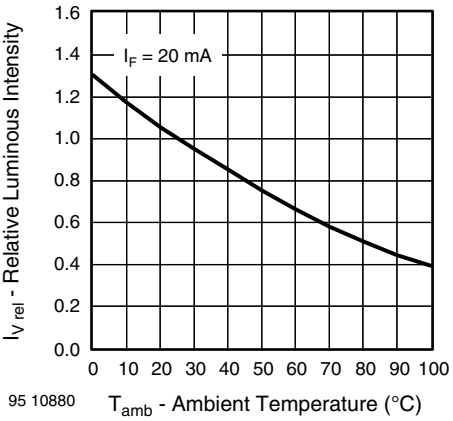


Figure 4. Rel. Luminous Intensity vs. Ambient Temperature

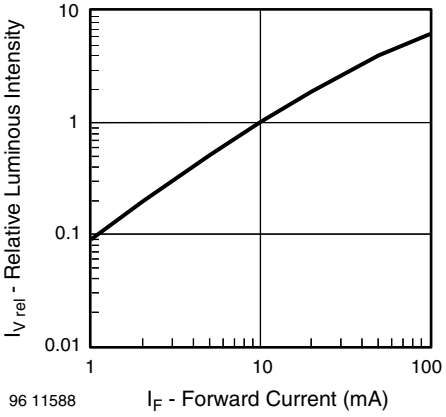
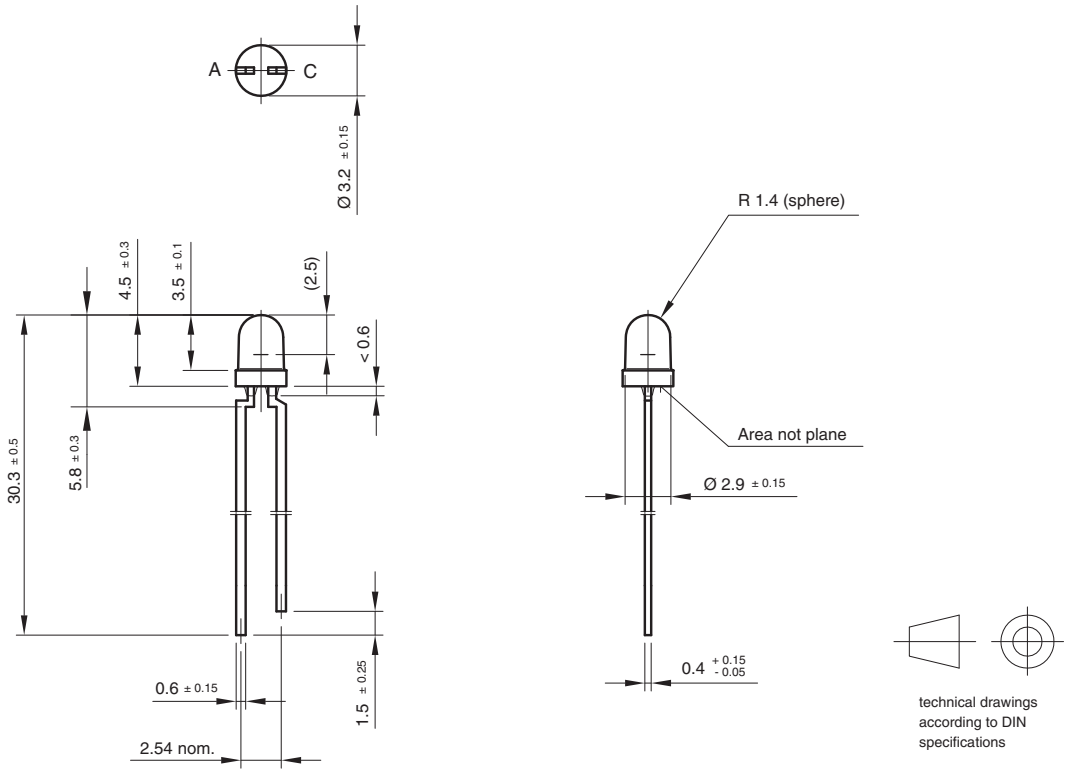


Figure 5. Relative Luminous Intensity vs. Forward Current

PACKAGE DIMENSIONS in millimeters



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