

## High Efficiency Blue LED, Ø 5 mm Tinted Diffused Package



19223

### DESCRIPTION

This device has been redesigned in 1998 replacing SiC by GaN technology to meet the increasing demand for high efficiency blue LEDs.

It is housed in a 5 mm tinted diffused plastic package.

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: LED
- Package: 5 mm
- Product series: standard
- Angle of half intensity:  $\pm 30^\circ$

### FEATURES

- GaN on SiC technology
- Standard Ø 5 mm T-1 $\frac{3}{4}$  package
- Small mechanical tolerances
- Wide viewing angle
- Very high intensity
- Luminous intensity categorized
- ESD class 1
- Material categorization:  
For definitions of compliance please see [www.vishay.com/doc?99912](http://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 <sub>F</sub> (mA)	WAVELENGTH (nm)			at I <sub>F</sub> (mA)	FORWARD VOLTAGE (V)			at I <sub>F</sub> (mA)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
TLHB5400	Blue	6.3	15	-	20	-	466	-	10	-	3.9	4.5	20	GaN on SiC

### ABSOLUTE MAXIMUM RATINGS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

#### TLHB5400

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V <sub>R</sub>	5	V
DC forward current	T <sub>amb</sub> ≤ 65 °C	I <sub>F</sub>	20	mA
Surge forward current	t <sub>p</sub> ≤ 10 μs	I <sub>FSM</sub>	0.1	A
Power dissipation	T <sub>amb</sub> ≤ 65 °C	P <sub>V</sub>	100	mW
Junction temperature		T <sub>j</sub>	100	°C
Operating temperature range		T <sub>amb</sub>	- 40 to + 100	°C
Storage temperature range		T <sub>stg</sub>	- 40 to + 100	°C
Soldering temperature	t ≤ 5 s, 2 mm from body	T <sub>sd</sub>	260	°C
Thermal resistance junction/ambient		R <sub>thJA</sub>	350	K/W

<b>OPTICAL AND ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
<b>TLHB5400, BLUE</b>						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity <sup>(1)</sup>	$I_F = 20\text{ mA}$	$I_V$	6.3	15	-	mcd
Dominant wavelength	$I_F = 10\text{ mA}$	$\lambda_d$	-	466	-	nm
Peak wavelength	$I_F = 10\text{ mA}$	$\lambda_p$	-	428	-	nm
Angle of half intensity	$I_F = 10\text{ mA}$	$\varphi$	-	$\pm 30$	-	deg
Forward voltage	$I_F = 20\text{ mA}$	$V_F$	-	3.9	4.5	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$	$V_R$	5	-	-	V

**Note**

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

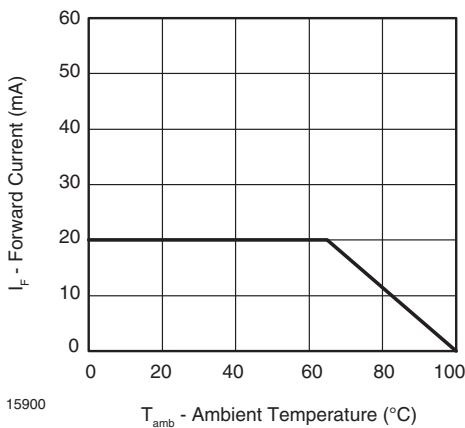
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Forward Current vs. Ambient Temperature

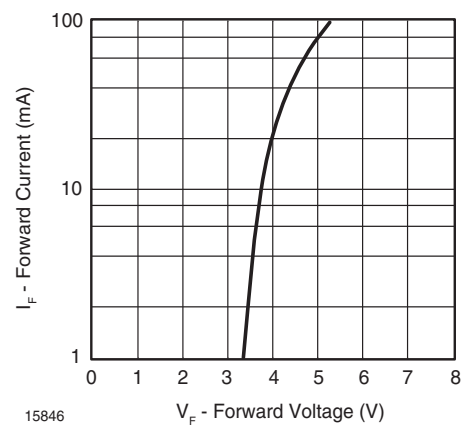


Fig. 3 - Forward Current vs. Forward Voltage

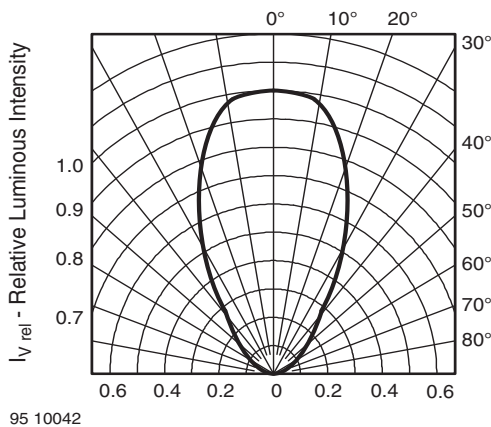


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

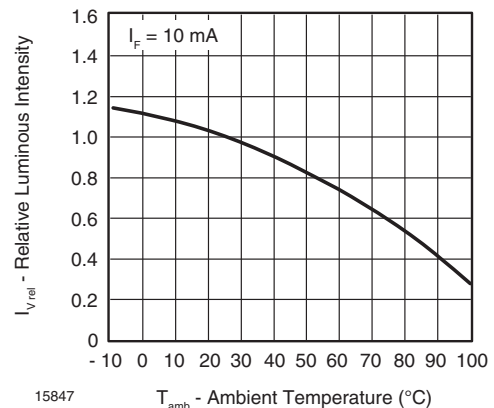


Fig. 4 - Relative Luminous Flux vs. Ambient Temperature

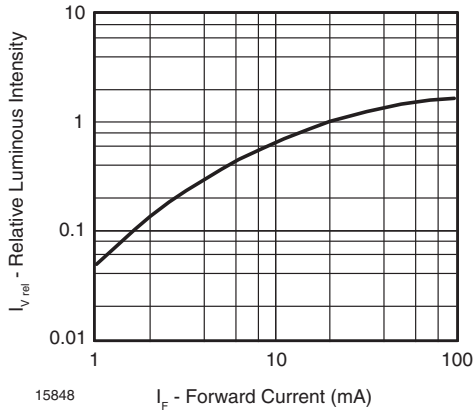


Fig. 5 - Relative Luminous Flux vs. Forward Current

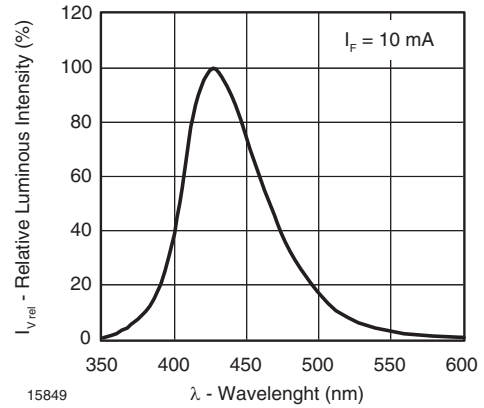
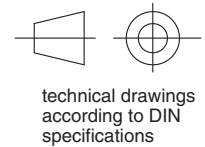
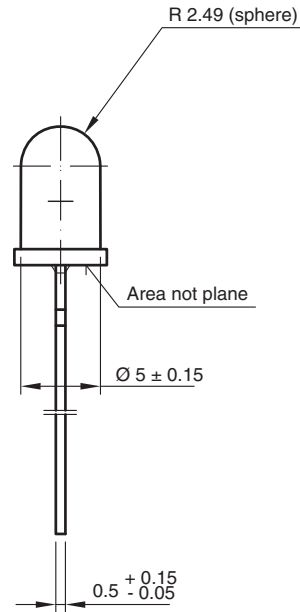
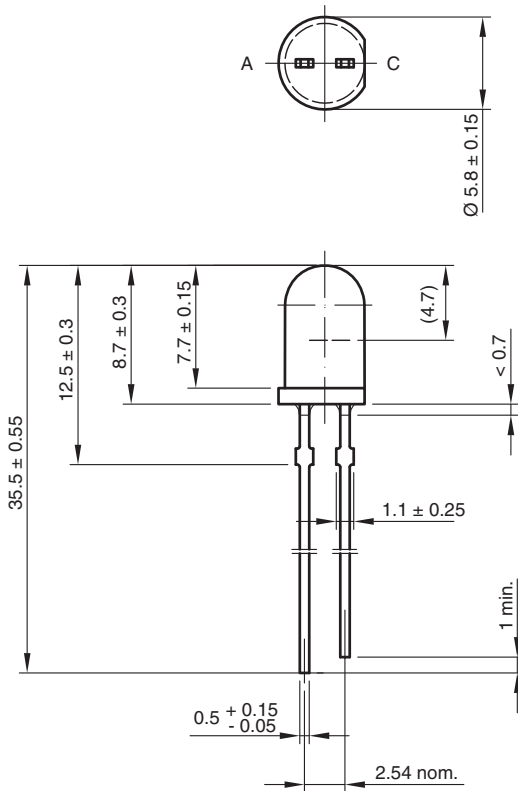


Fig. 6 - Relative Intensity vs. Wavelength

**PACKAGE DIMENSIONS** in millimeters



6.544-5258.02-4  
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95 10916



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