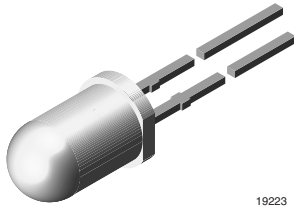


High Efficiency Blue LED, Ø 5 mm Untinted Non - Diffused Package



19223

DESCRIPTION

This device has been designed in GaN on SiC technology to meet the increasing demand for high efficiency blue LEDs.

It is housed in a 5 mm waterclear plastic package.

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

FEATURES

- GaN on SiC technology
- Standard Ø 5 mm T-1¾ package
- Small mechanical tolerances
- Small viewing angle
- Very high intensity
- Luminous intensity categorized
- ESD class 1
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC


RoHS
COMPLIANT

APPLICATIONS

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

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 5 mm
- Product series: standard
- Angle of half intensity: ± 9°

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLHB5100	Blue $I_V > 63$ mcd	GaN on SiC
TLHB5102	Blue $I_V = (130 \text{ to } 360)$ mcd	GaN on SiC

ABSOLUTE MAXIMUM RATINGS ¹⁾ TLHB510.

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	5	V
DC Forward current	$T_{amb} \leq 65$ °C	I_F	20	mA
Surge forward current	$t_p \leq 10$ µs	I_{FSM}	0.1	A
Power dissipation	$T_{amb} \leq 65$ °C	P_V	100	mW
Junction temperature		T_j	100	°C
Operating temperature range		T_{amb}	- 40 to + 100	°C
Storage temperature range		T_{stg}	- 40 to + 100	°C
Soldering temperature	$t \leq 5$ s, 2 mm from body	T_{sd}	260	°C
Thermal resistance junction/ambient		R_{thJA}	350	K/W

Note:

¹⁾ $T_{amb} = 25$ °C, unless otherwise specified

OPTICAL AND ELECTRICAL CHARACTERISTICS ¹⁾ TLHB5100, TLHB5102, BLUE							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity ²⁾	$I_F = 20 \text{ mA}$	TLHB5100	I_V	63	250		mcd
		TLHB5102	I_V	130		360	mcd
Dominant wavelength	$I_F = 10 \text{ mA}$		λ_d		466		nm
Peak wavelength	$I_F = 10 \text{ mA}$		λ_p		428		nm
Angle of half intensity	$I_F = 10 \text{ mA}$		ϕ		± 9		deg
Forward voltage	$I_F = 20 \text{ mA}$		V_F		3.9	4.5	V
Reverse voltage	$I_R = 10 \mu\text{A}$		V_R	5			V

Note:

¹⁾ $T_{amb} = 25 \text{ }^\circ\text{C}$, unless otherwise specified

²⁾ In one packing unit $I_{Vmin}/I_{Vmax} \leq 0.5$

LUMINOUS INTENSITY CLASSIFICATION			
GROUP	LUMINOUS INTENSITY (mcd)		
	STANDARD	MIN.	MAX.
V		63	125
W		100	200
X		130	260
Y		180	360
Z		240	480
AA		320	640
BB		430	860

Note:

Luminous intensity is tested at a current pulse duration of 25 ms and an accuracy of $\pm 11 \%$.

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 in any one bag.

In order to ensure availability, single wavelength groups will not be orderable.

TYPICAL CHARACTERISTICS

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

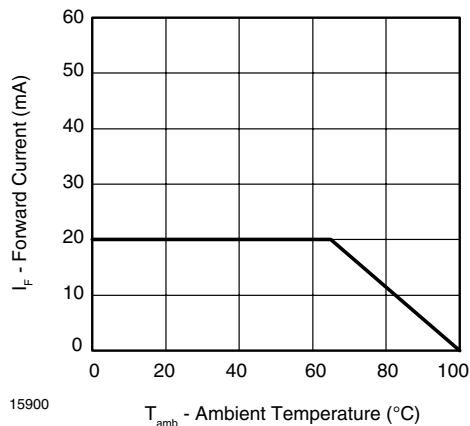


Figure 1. Forward Current vs. Ambient Temperature

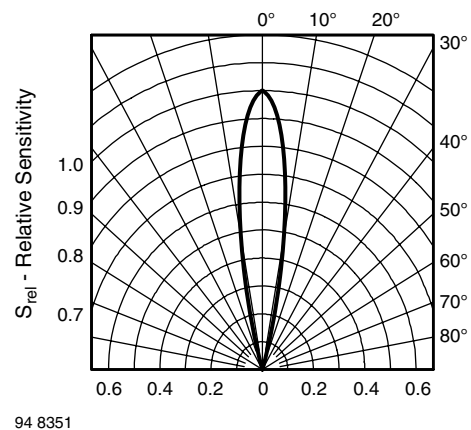


Figure 2. Relative Radiant Sensitivity vs. Angular Displacement

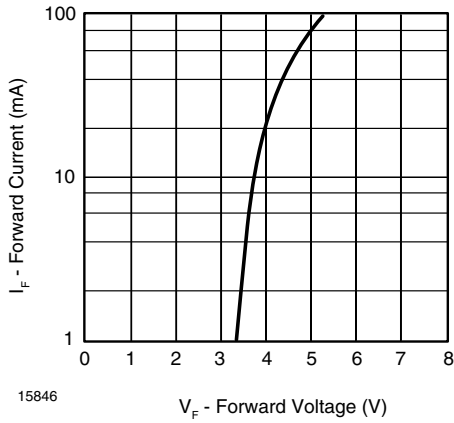


Figure 3. Forward Current vs. Forward Voltage

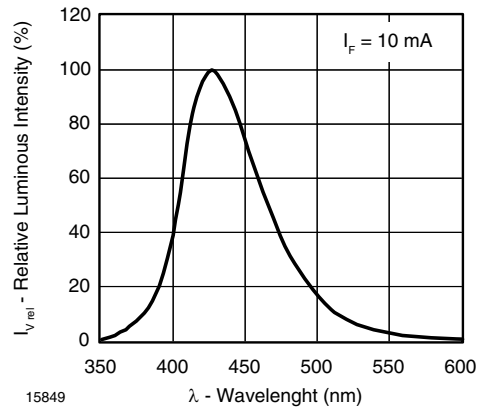


Figure 6. Relative Intensity vs. Wavelength

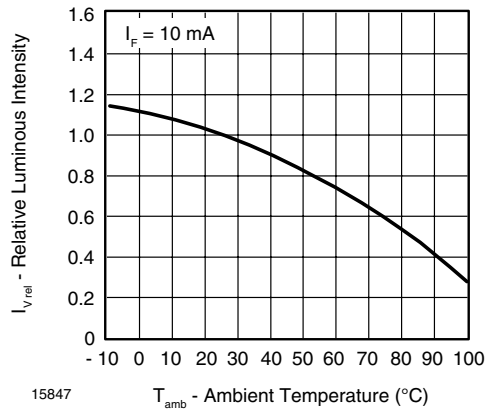


Figure 4. Rel. Luminous Flux vs. Ambient Temperature

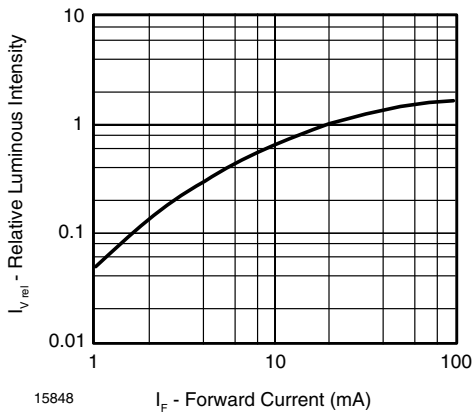


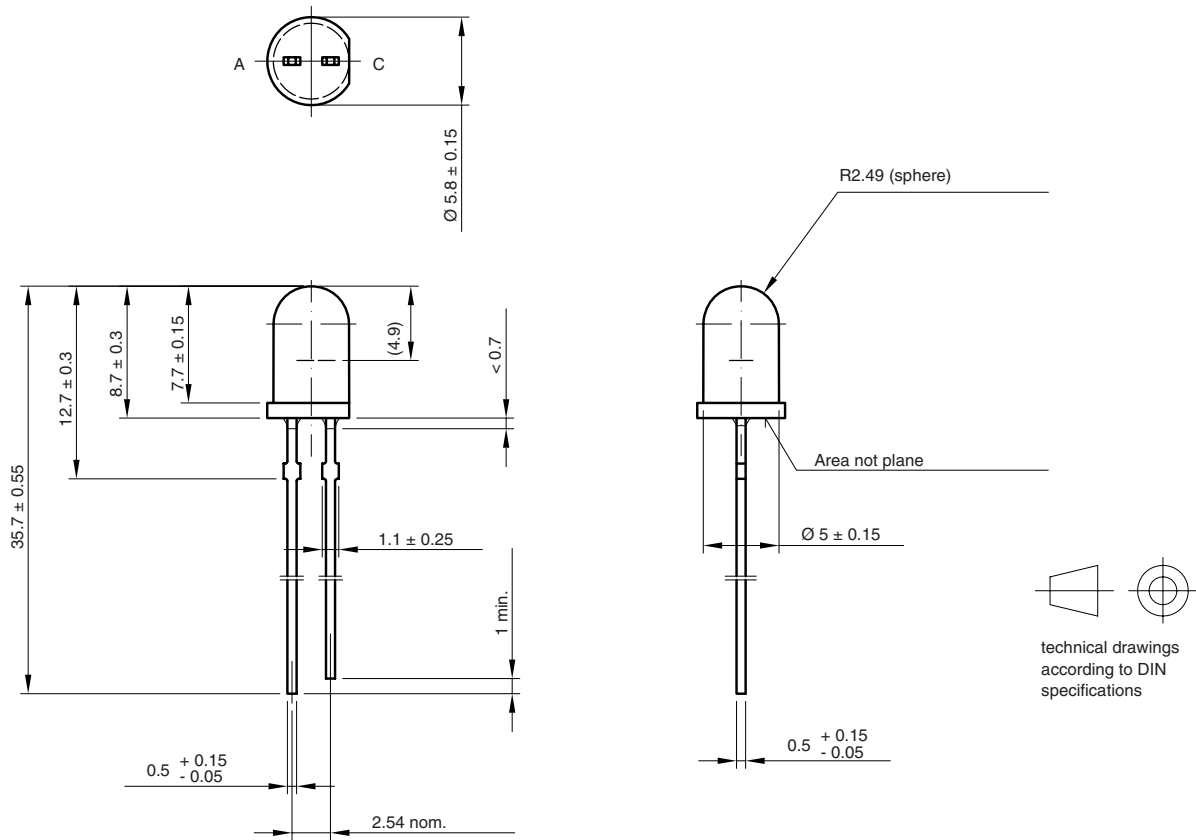
Figure 5. Relative Luminous Flux vs. Forward Current

TLHB510.

Vishay Semiconductors



PACKAGE DIMENSIONS in millimeters



6.544-5258.09-4
Issue: 4; 19.05.09
15909



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