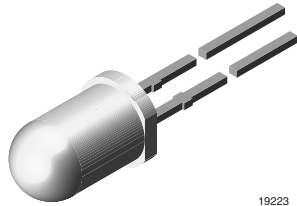


High Efficiency Blue LED, Ø 5 mm Untinted Non - Diffused Package



19223

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


RoHS
COMPLIANT

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 waterclear plastic package.

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

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: $\pm 4^\circ$

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLHB5800	Blue, $I_V > 130$ mcd	GaN on SiC

ABSOLUTE MAXIMUM RATINGS ¹⁾ TLHB5800

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

Note:

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

OPTICAL AND ELECTRICAL CHARACTERISTICS ¹⁾ TLHB5800, BLUE						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity ²⁾	$I_F = 20 \text{ mA}$	I_V	130	380		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		± 4		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	LIGHT INTENSITY (mcd)		
	STANDARD	MIN.	MAX.
X	130	260	
Y	180	360	
Z	240	480	
AA	320	640	
BB	430	860	
CC	575	1150	
DD	750	1500	
EE	1000	2000	

Note:

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

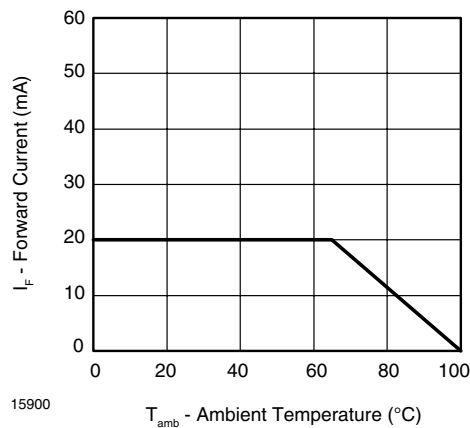
The above type numbers represent the order groups which include only a few brightness groups. Only one group will be shipped on each reel (there will be no mixing of two groups on each reel).

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.

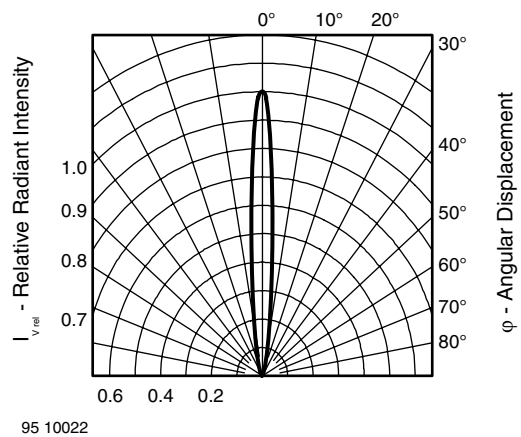
TYPICAL CHARACTERISTICS

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



15900

Figure 1. Forward Current vs. Ambient Temperature



95 10022

Figure 2. Rel. Luminous Intensity vs. Angular Displacement

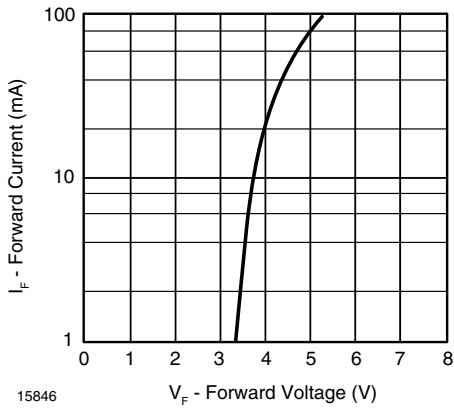


Figure 3. Forward Current vs. Forward Voltage

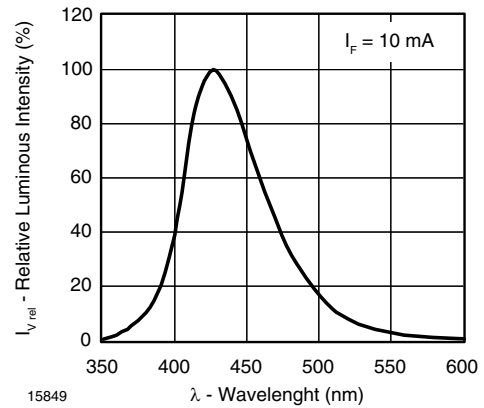


Figure 6. Relative Intensity vs. Wavelength

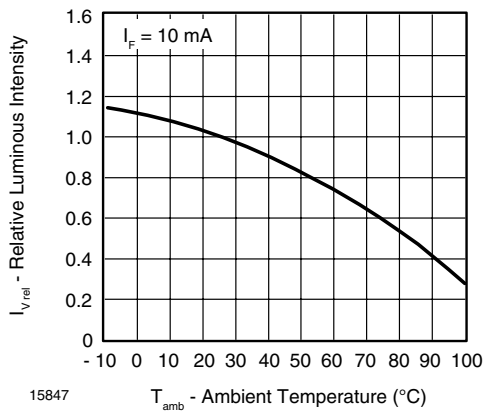


Figure 4. Rel. Luminous Flux vs. Ambient Temperature

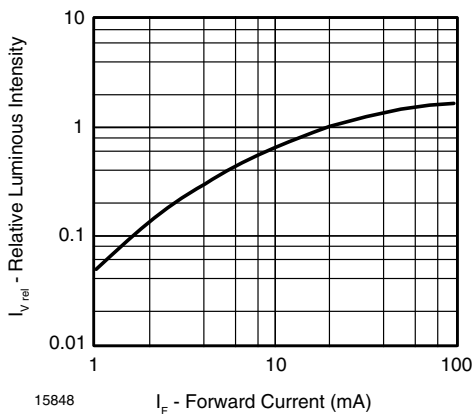
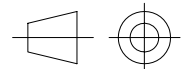
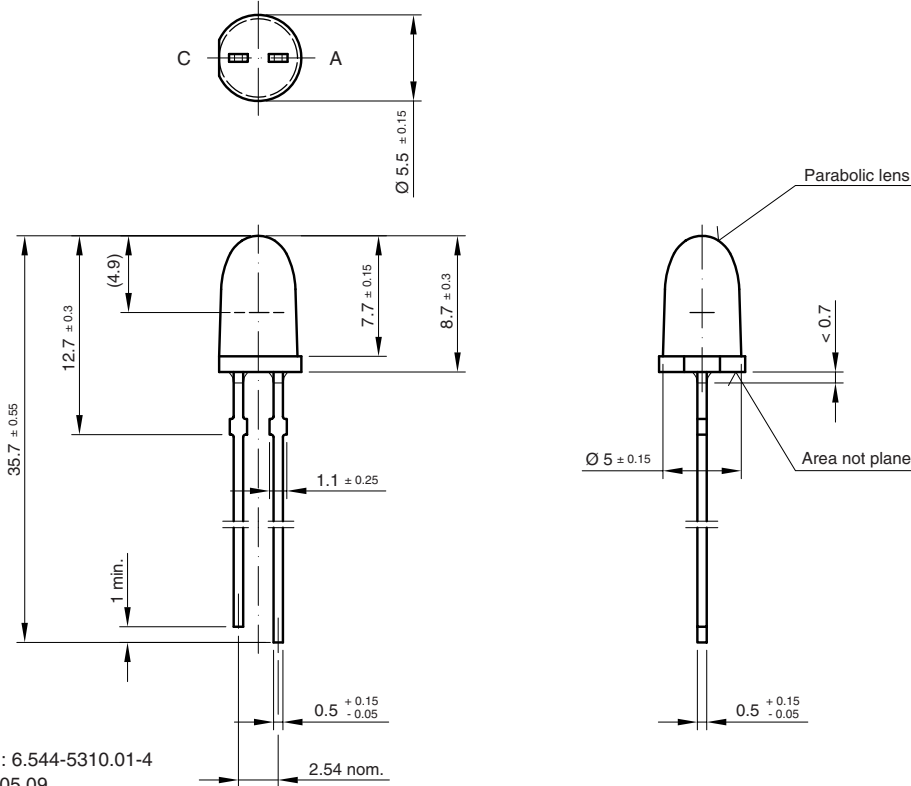


Figure 5. Relative Luminous Flux vs. Forward Current

PACKAGE DIMENSIONS in millimeters



technical drawings
according to DIN
specifications

Drawing-No.: 6.544-5310.01-4
Issue: 4; 19.05.09
95 11476



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk and agree to fully indemnify and hold Vishay and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attorneys fees, even if such claim alleges that Vishay or its distributor was negligent regarding the design or manufacture of the part. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.