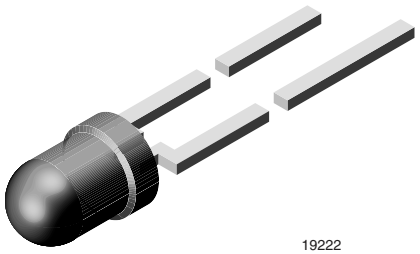
Ultrabright White LED, Ø 3 mm



19222

FEATURES

- Clear, untinted lens
- Utilizing ultrabright InGaN technology
- High luminous intensity
- Luminous intensity and color categorized for each packing unit
- ESD-withstand voltage: Up to 2 kV according to JESD22-A114-B
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

DESCRIPTION

The VLHW41 series is a clear, untinted 3 mm LED for high end applications where supreme luminous intensity is required.

These lamps utilize the highly developed ultrabright InGaN technologies.

The lens and the viewing angle is optimized to achieve best performance of light output and visibility.

APPLICATIONS

- Interior and exterior lighting
- Outdoor LED panels
- Instrumentation and front panel indicators
- Replaces incandescent lamps
- Light guide compatible

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 3 mm
- Product series: standard
- Angle of half intensity: ± 22.5°

PARTS TABLE

PART	COLOR	LUMINOUS INTENSITY (mcd)			at I_F (mA)	COORDINATE (x, y)			at I_F (mA)	FORWARD VOLTAGE (V)			at I_F (mA)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
VLHW4100	White	4500	7150	11 250	20	-	0.33, 0.33	-	20	2.8	3.2	3.8	20	InGaN and converter
VLHW4101-YLWU	White	5600	8400	11 250	20	-	0.31, 0.32	-	20	2.8	3.2	3.8	20	InGaN and converter

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)
VLHW4100, VLHW4101-YLWU

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	5	V
DC forward current		I_F	25	mA
Peak forward current	at 1 kHz, t_p/T = 0.1	I_{FSM}	0.1	A
Power dissipation		P_V	95	mW
Junction temperature		T_j	+ 120	°C
Operating temperature range		T_{amb}	- 40 to + 85	°C
Storage temperature range		T_{stg}	- 40 to + 85	°C
Soldering temperature	t ≤ 5 s	T_{sd}	260	°C
Thermal resistance junction/ambient		R_{thJA}	400	K/W

For technical questions, contact: LED@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)
VLHW4100, VLHW4101-YLWU, WHITE

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity	I_F = 20 mA	VLHW4100	I_V	4500	7150	11 250	mcd
		VLHW4101-YLWU	I_V	5600	8400	11 250	mcd
Chromatically coordinate x acc. to CIE 1931	I_F = 20 mA	VLHW4100	x	-	0.33	-	
		VLHW4101-YLWU	x	-	0.31	-	
Chromatically coordinate y acc. to CIE 1931	I_F = 20 mA	VLHW4100	y	-	0.33	-	
		VLHW4101-YLWU	y	-	0.32	-	
Angle of half intensity	I_F = 20 mA		φ	-	± 22.5	-	°
Forward voltage	I_F = 20 mA		V_F	2.8	3.2	3.8	V
Reverse current	V_R = 5 V		I_R	-	-	50	µA
Temperature coefficient of V_F	I_F = 20 mA		TC_{VF}	-	- 4	-	mV/K
Temperature coefficient of I_V	I_F = 20 mA		TC_{IV}	-	- 0.5	-	%/K

CHROMATICALLY COORDINATED CLASSIFICATION

	X	Y		X	Y
YU	0.274	0.301	WL	0.317	0.325
	0.283	0.284		0.319	0.310
	0.307	0.316		0.329	0.319
	0.303	0.333		0.329	0.336
YL	0.283	0.284	VU	0.329	0.354
	0.290	0.270		0.329	0.336
	0.310	0.299		0.345	0.350
	0.307	0.316		0.347	0.368
XU	0.303	0.333	VL	0.329	0.336
	0.307	0.316		0.329	0.319
	0.317	0.325		0.343	0.331
	0.315	0.343		0.345	0.350
XL	0.307	0.316	UU	0.347	0.368
	0.310	0.299		0.345	0.350
	0.319	0.310		0.361	0.365
	0.317	0.325		0.364	0.383
WU	0.315	0.343	UL	0.345	0.350
	0.317	0.325		0.343	0.331
	0.329	0.336		0.357	0.343
	0.329	0.354		0.361	0.365

Note

- Chromaticity coordinate groups are tested at a current pulse direction of 25 ms and a tolerance of ± 0.01.

LUMINOUS INTENSITY CLASSIFICATION

GROUP	LIGHT INTENSITY (mcd)	
STANDARD	MIN.	MAX.
Z1	4500	5600
Z2	5600	7150
AA	7150	9000
AB	9000	11 250

Note

- Luminous intensity is tested with an accuracy of ± 15 %.
  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 color groups are measured and binned, single color groups will be shipped on any one reel. In order to ensure availability, single color groups will not be orderable.

For technical questions, contact: LED@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

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

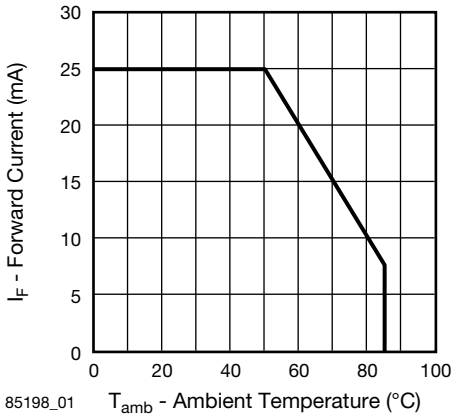


Fig. 1 - Forward Current vs. Ambient Temperature

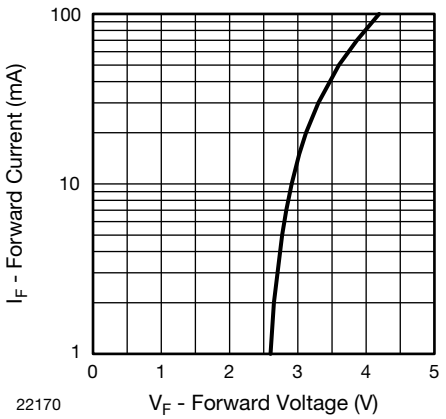


Fig. 4 - Forward Current vs. Forward Voltage

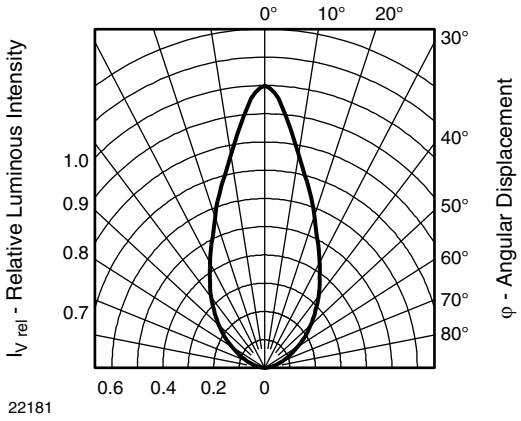


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

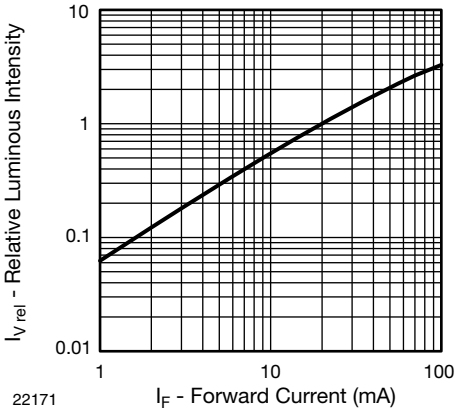


Fig. 5 - Relative Luminous Intensity vs. Forward Current

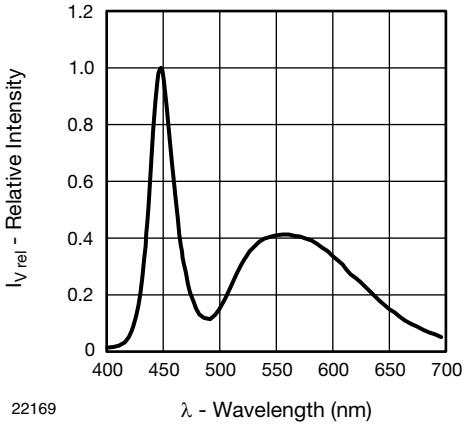


Fig. 3 - Relative Intensity vs. Wavelength

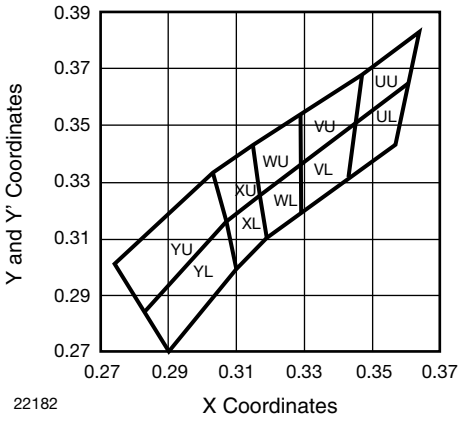
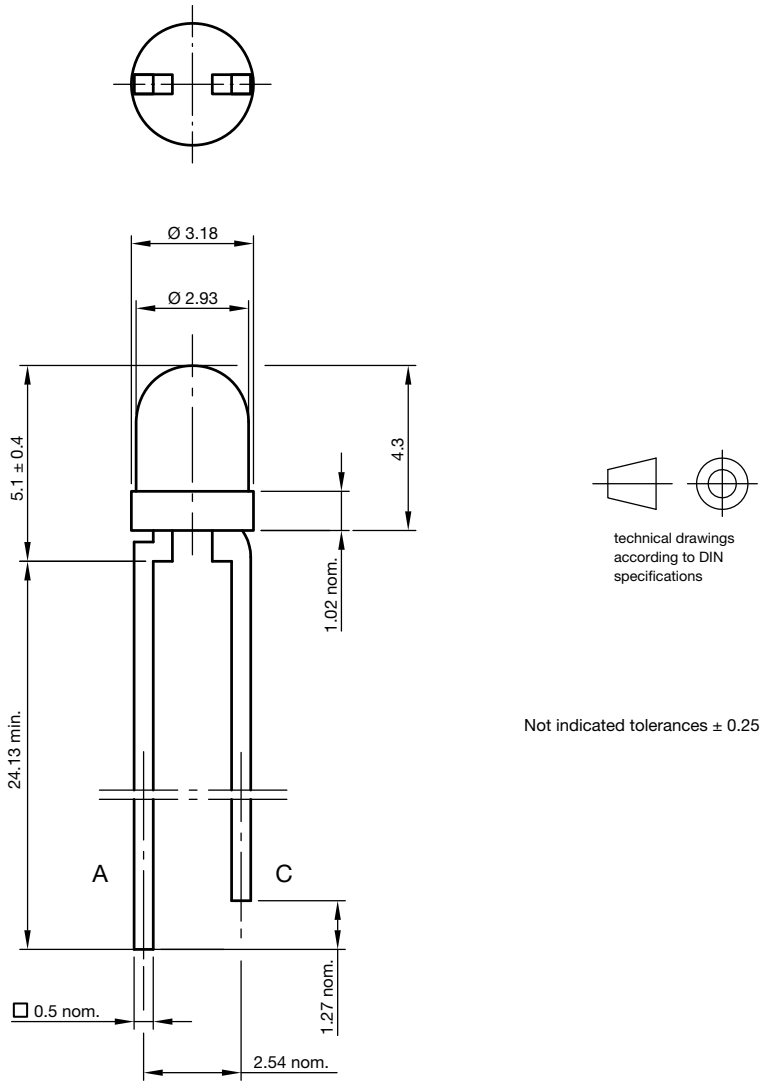


Fig. 6 - Coordinates of Colorgroups

For technical questions, contact: LED@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

PACKAGE DIMENSIONS in millimeters



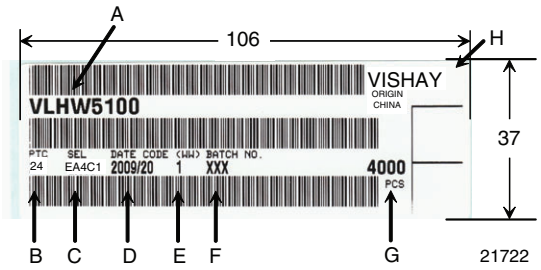
Not indicated tolerances ± 0.25

Drawing-No.: 6.544-5403.01-4

Issue: 2; 18.06.10

21948

BAR CODE PRODUCT LABEL (example)



A. Type of component

B. Manufacturing plant

C. SEL - selection code (bin):
e.g.: EA = code for luminous intensity group
4C = code for chromaticity coordinate
1 = code for forward voltage

D. Date code year/week

E. Day code (e.g. 1: Monday)

F. Batch no.

G. Total quantity

H. Company code

For technical questions, contact: LED@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

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. 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.

© 2021 VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED