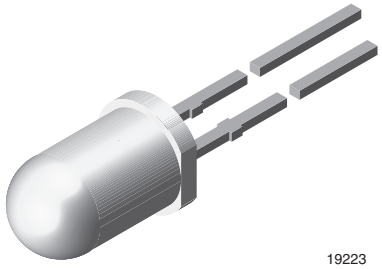
Ultrabright White LED, Ø 5 mm Untinted Non-Diffused Package



FEATURES

- Untinted non-diffused lens
- Utilizing ultrabright InGaN technology
- High luminous intensity
- Luminous intensity and color categorized for each packing unit
- ESD-withstand voltage: Up to 4 kV according to JESD22-A114-B
- Circuit protection by Zener diode
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE

GREEN (5-2008)

DESCRIPTION

The VLHW5100 is a clear, non-diffused 5 mm LED for high end applications where supreme luminous intensity required.

These lamps with clear untinted plastic case 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: 5 mm
- Product series: standard
- Angle of half intensity: ± 10°

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.		
VLHW5100	White	5600	-	11 200	20	-	0.33, 0.33	-	20	2.8	-	3.6	20	InGaN and converter
VLHW5100-CS12	White	5600	-	11 200	20	-	0.33, 0.33	-	20	2.8	-	3.6	20	InGaN and converter

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)
VLHW5100

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	5	V
DC forward current		I_F	30	mA
Peak forward current	at 1 kHz, t_p/T = 0.1	I_{FSM}	0.1	A
Power dissipation		P_V	100	mW
Zener reverse current		I_Z	100	mA
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 ≤ 5 s	T_{sd}	260	°C
Thermal resistance junction/ambient		R_{thJA}	400	K/W

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OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)
WHITE VLHW5100

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity	I_F = 20 mA	VLHW5100	I_V	5600	-	11 200	mcd
Chromaticity coordinate x acc. to CIE 1931	I_F = 20 mA		x	-	0.33	-	
Chromaticity coordinate y acc. to CIE 1931	I_F = 20 mA		y	-	0.33	-	
Angle of half intensity	I_F = 20 mA		φ	-	± 10	-	deg
Forward voltage	I_F = 20 mA		V_F	2.8	-	3.6	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

CHROMATICITY COORDINATED CLASSIFICATION

GROUP	X		Y	
	MIN.	MAX.	MIN.	MAX.
3A	0.2900	0.3025	y = 1.4x - 0.121	y = 1.4x - 0.071
3B	0.3025	0.3150	y = 1.4x - 0.121	y = 1.4x - 0.071
3C	0.2900	0.3025	y = 1.4x - 0.171	y = 1.4x - 0.121
3D	0.3025	0.3150	y = 1.4x - 0.171	y = 1.4x - 0.121
4A	0.3150	0.3275	y = 1.4x - 0.121	y = 1.4x - 0.071
4B	0.3275	0.3400	y = 1.4x - 0.121	y = 1.4x - 0.071
4C	0.3150	0.3275	y = 1.4x - 0.171	y = 1.4x - 0.121
4D	0.3275	0.3400	y = 1.4x - 0.171	y = 1.4x - 0.121
5A	0.3400	0.3525	y = 1.4x - 0.121	y = 1.4x - 0.071
5B	0.3525	0.3650	y = 1.4x - 0.121	y = 1.4x - 0.071
5C	0.3400	0.3525	y = 1.4x - 0.171	y = 1.4x - 0.121
5D	0.3525	0.3650	y = 1.4x - 0.171	y = 1.4x - 0.121

Note

- Chromaticity coordinate groups are tested with a tolerance of ± 0.01.

LUMINOUS INTENSITY CLASSIFICATION

GROUP	LIGHT INTENSITY (mcd)	
STANDARD	MIN.	MAX.
DB	5600	7100
EA	7100	9000
EB	9000	11 200

Note

- Luminous intensity is tested with an accuracy of ± 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 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.

FORWARD VOLTAGE CLASSIFICATION

GROUP	FORWARD VOLTAGE (V)	
	MIN.	MAX.
0	2.8	3.0
1	3.0	3.2
2	3.2	3.4
3	3.4	3.6

Note

- Forward voltage is tested with an accuracy of ± 0.1 V.

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

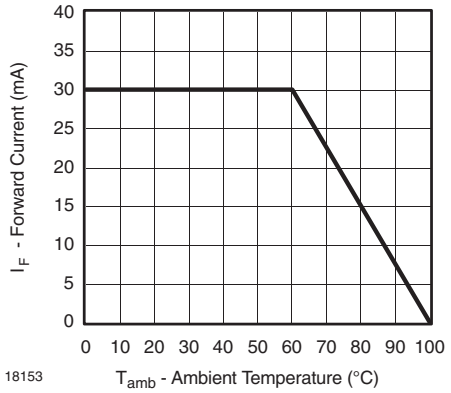


Fig. 1 - Forward Current vs. Ambient Temperature

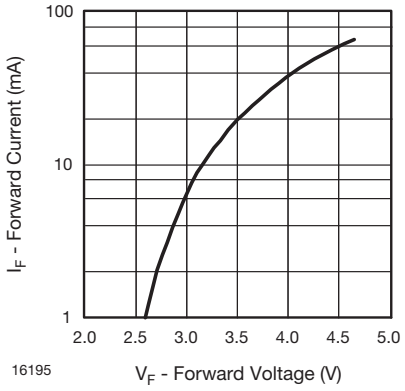


Fig. 4 - Forward Current vs. Forward Voltage

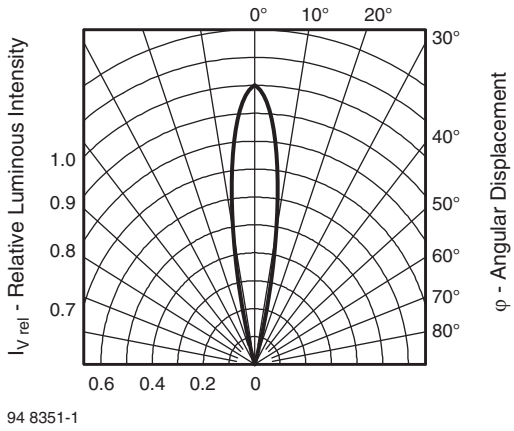


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

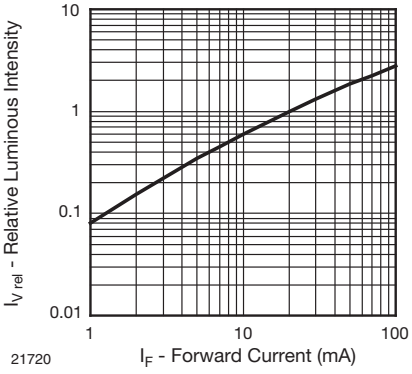


Fig. 5 - Relative Luminous Flux vs. Forward Current

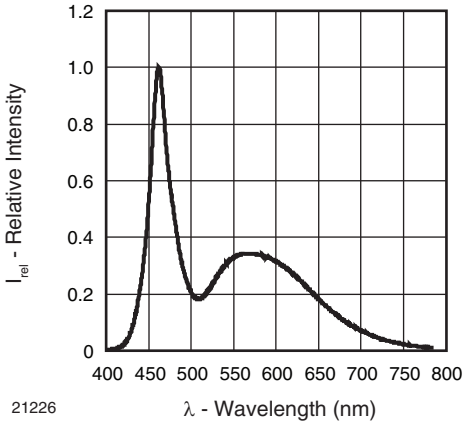


Fig. 3 - Relative Intensity vs. Wavelength

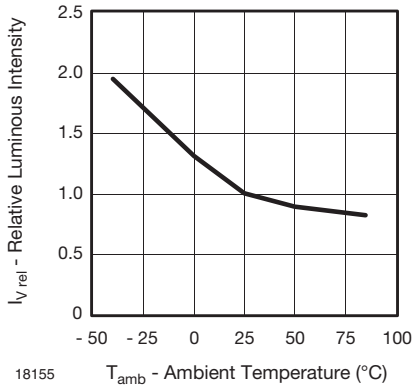


Fig. 6 - Relative Luminous Intensity vs. Ambient Temperature

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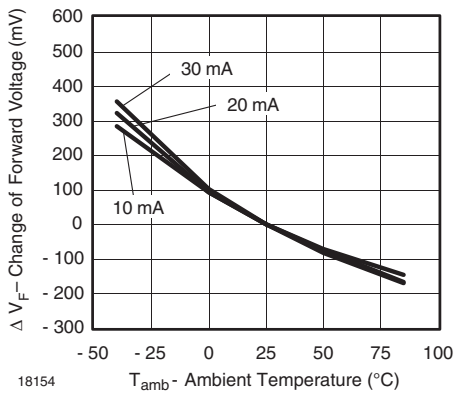


Fig. 7 - Change of Forward Voltage vs. Ambient Temperature

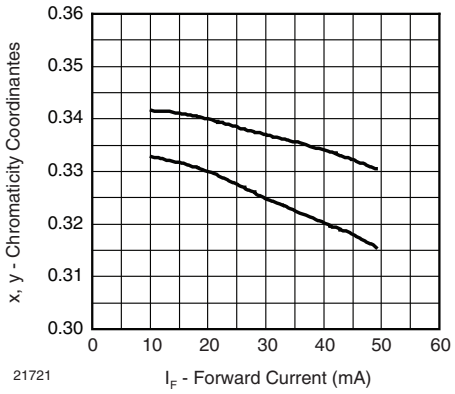


Fig. 9 - Chromaticity Coordinate Shift vs. Forward Current

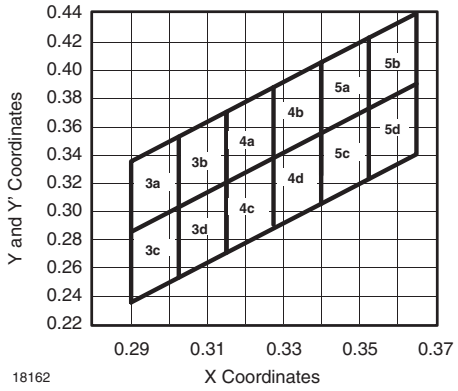
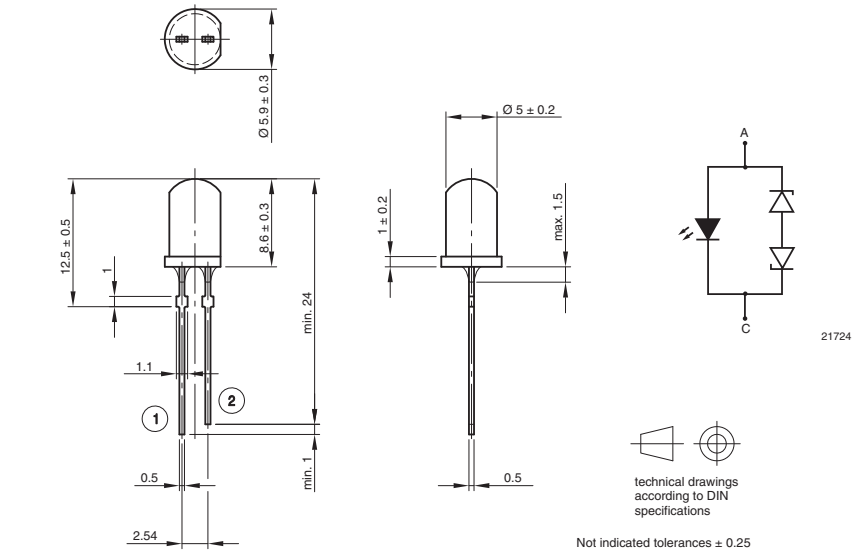


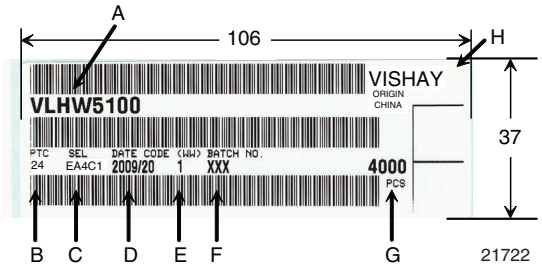
Fig. 8 - Coordinates of Colorgroups

PACKAGE DIMENSIONS in millimeters



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BAR CODE PRODUCT LABEL



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

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