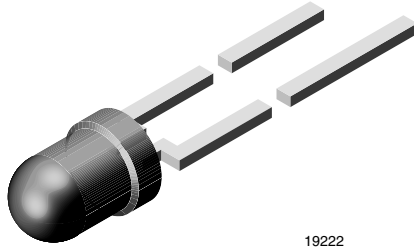


## Ultrabright White LED, Ø 3 mm



19222

### DESCRIPTION

The VLHW4100 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.

### PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 3 mm
- Product series: standard
- Angle of half intensity:  $\pm 22.5^\circ$

### 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
- Compliant to RoHS Directive 2002/95/EC


**RoHS**  
COMPLIANT

### APPLICATIONS

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

### PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
VLHW4100	White, $I_V = (4500 \text{ to } 11\,250) \text{ mcd}$	InGaN and converter

### ABSOLUTE MAXIMUM RATINGS VLHW4100 ( $T_{amb} = 25^\circ\text{C}$ , unless otherwise specified)

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	$^\circ\text{C}$
Operating temperature range		$T_{amb}$	- 40 to + 85	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	- 40 to + 85	$^\circ\text{C}$
Soldering temperature	$t \leq 5 \text{ s}$	$T_{sd}$	260	$^\circ\text{C}$
Thermal resistance junction/ambient		$R_{thJA}$	400	K/W

**OPTICAL AND ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)  
**WHITE VLHW4100**

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity	$I_F = 20\text{ mA}$	VLHW4100	$I_V$	4500	7150	11 250	mcd
Chromaticity coordinate x acc. to CIE 1931	$I_F = 20\text{ mA}$		x		0.33		
Chromaticity coordinate y acc. to CIE 1931	$I_F = 20\text{ mA}$		y		0.33		
Angle of half intensity	$I_F = 20\text{ mA}$		$\phi$		$\pm 22.5$		deg
Forward voltage	$I_F = 20\text{ mA}$		$V_F$	2.8	3.2	3.8	V
Reverse current	$V_R = 5\text{ V}$		$I_R$			50	$\mu\text{A}$
Temperature coefficient of $V_F$	$I_F = 20\text{ mA}$		$TC_{VF}$		- 4		mV/K
Temperature coefficient of $I_V$	$I_F = 20\text{ mA}$		$TC_{IV}$		- 0.5		% / K

**CHROMATICITY 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 duration of 25 ms and a tolerance of  $\pm 0.01$ .

**LUMINOUS INTENSITY CLASSIFICATION**

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

Note:

Luminous intensity is tested with an accuracy of  $\pm 15\%$ .

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.

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

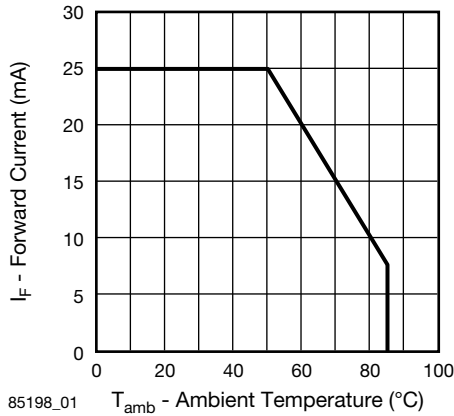


Figure 1. Forward Current vs. Ambient Temperature

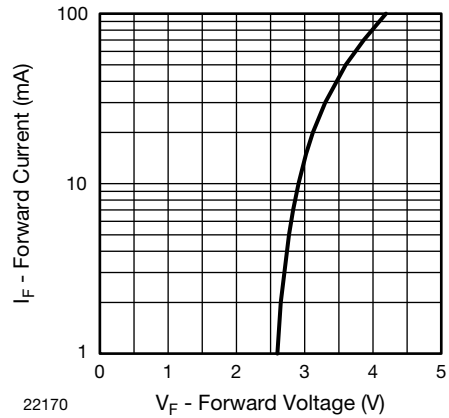


Figure 4. Forward Current vs. Forward Voltage

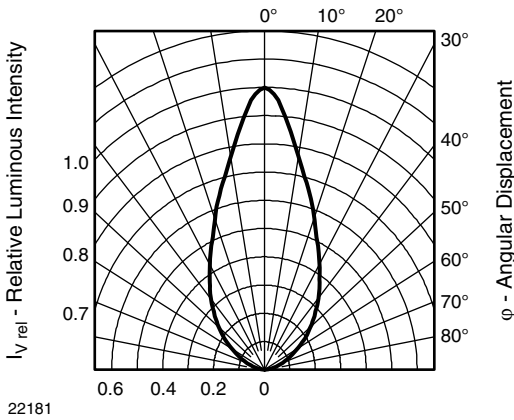


Figure 2. Relative Luminous Intensity vs. Angular Displacement

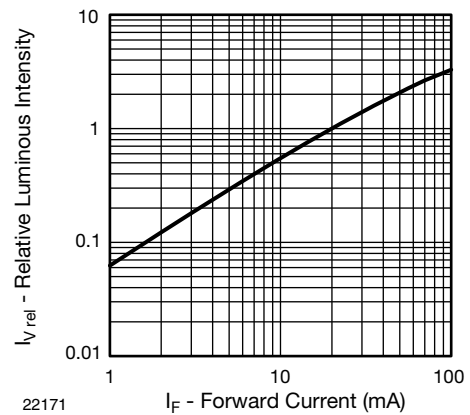


Figure 5. Relative Luminous Flux vs. Forward Current

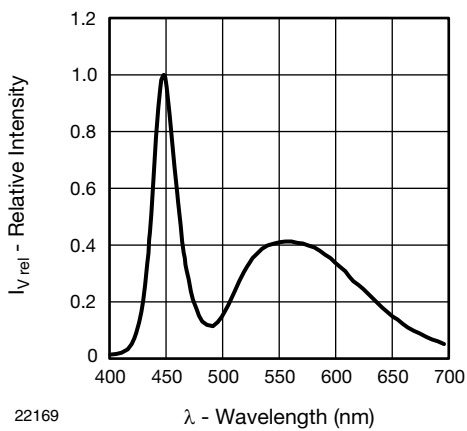


Figure 3. Relative Intensity vs. Wavelength

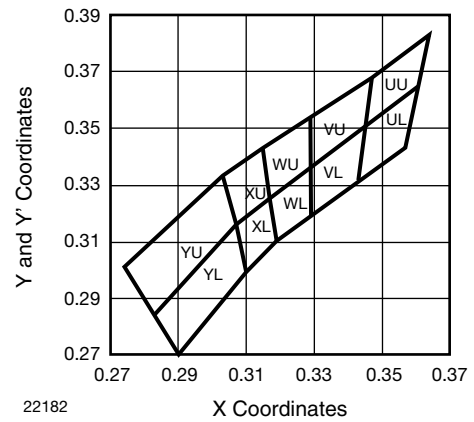
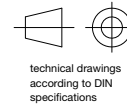
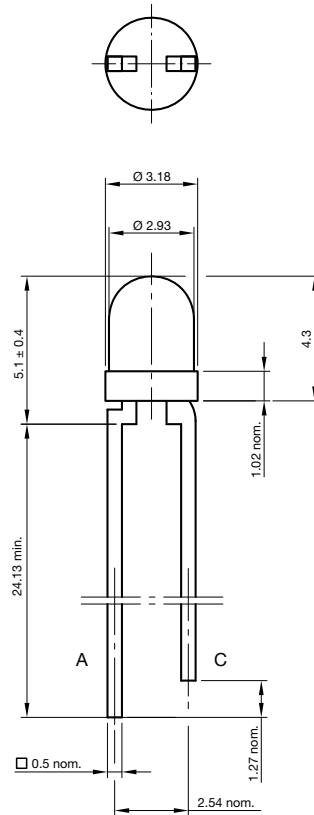


Figure 6. Coordinates of Colorgroups

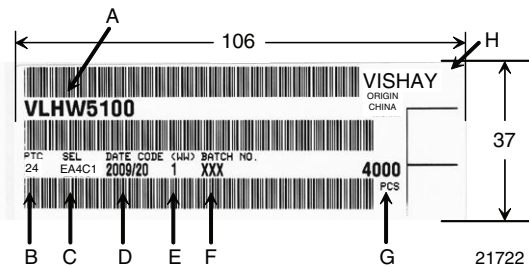
**PACKAGE DIMENSIONS** in millimeters



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



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