



## High Brightness LED Power Module



### DESCRIPTION

VLPC0101C6, VLPN0101C6, and VLPW0101C6 are high brightness LED modules. The 4.55 W multichip power LED is soldered on a Cu plate. The Cu plate with a thickness of 1.2 mm guarantees best heat removal and distribution. VLPC0101C6 is the cool white version in a color temperature range of 5000 K to 6650 K. VLPN0101C6 is natural white with a color temperature of 3680 K to 4350 K and VLPW0101C6 is warm white in a color temperature range of 2670 K to 3120 K. Additional to the modules a suitable LED driver is available.

### PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: LED module
- Product series: power
- Angle of half intensity:  $\pm 65^\circ$
- CRI: 80

### FEATURES

- Cu based PCB, 1.2 mm thickness
- Shiny white surface
- 4.55 W multichip LED, minimum 390 lm for cool white, 330 lm for natural white, and 290 lm for warm white at 700 mA each
- ESD withstand voltage: Up to 1 kV according to JESD22-A114-B
- CRI: 80
- Color temperature binning
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

### APPLICATIONS

- Internal lighting in buildings
- Tunnel lights
- Reading lamp, table lamp
- General lighting application

PARTS TABLE						
PART	COLOR	LUMINOUS FLUX (lm) (at $I_F = 700$ mA typ.)			COLOR TEMPERATURE K	TECHNOLOGY
		MIN.	TYP.	MAX.		
VLPC0101C6	Cool white	390	430	-	5000 to 6650	InGaN
VLPN0101C6	Natural white	330	410	-	3710 to 4260	InGaN
VLPW0101C6	Warm white	290	320	-	2670 to 3120	InGaN

ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25^\circ\text{C}$ , unless otherwise specified) VLPC0101C6, VLPN0101C6, VLPW0101C6					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Forward current	$T_{amb} < 80^\circ\text{C}$	$I_F$	1400	mA	
Power dissipation	$T_{amb} < 80^\circ\text{C}$	$P_{tot}$	10	W	
Junction temperature		$T_j$	115	$^\circ\text{C}$	
Operating temperature range		$T_{amb}$	-40 to +80	$^\circ\text{C}$	
Storage temperature range		$T_{stg}$	-40 to +100	$^\circ\text{C}$	
Thermal resistance		$R_{thJS}$	3	K/W	
Pad soldering temperature	10 s	$T_{SD}$	260	$^\circ\text{C}$	

**OPTICAL AND ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)  
**VLPC0101C6, COOL WHITE**

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous flux	$I_F = 700\text{ mA}$	$\Phi_V$	390	430	-	lm
	$I_F = 1000\text{ mA}$	$\Phi_V$	-	570	-	lm
	$I_F = 1400\text{ mA}$	$\Phi_V$	-	700	-	lm
Color temperature	$I_F = 700\text{ mA}$	CCT	5000	5700	6650	K
Chromaticity coordinates	$I_F = 700\text{ mA}$	x	-	0.3287	-	
	$I_F = 700\text{ mA}$	y	-	0.3417	-	
Full angle of half intensity	$I_F = 700\text{ mA}$	$2\phi_{1/2}$	-	130	-	$^{\circ}$
Forward voltage	$I_F = 700\text{ mA}$	$V_F$	6.0	6.5	6.8	V
Temperature coefficient of $V_F$	$I_F = 700\text{ mA}$	$TCV_F$	-	2.0	-	mV/K
Temperature coefficient of $\Phi_V$	$I_F = 700\text{ mA}$	$TC\Phi_V$	-	0.21	-	%/K

**Notes**

- Forward voltages are tested at a current pulse duration of 1 ms and a tolerance of  $\pm 0.1\text{ V}$ . Luminous flux is measured at a current pulse duration of 25 ms and an accuracy of  $\pm 11\%$ .
- CRI: 80

**OPTICAL AND ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)  
**VLPN0101C6, NATURAL WHITE**

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous flux	$I_F = 700\text{ mA}$	$\Phi_V$	330	410	-	lm
	$I_F = 1000\text{ mA}$	$\Phi_V$	-	560	-	lm
	$I_F = 1400\text{ mA}$	$\Phi_V$	-	680	-	lm
Color temperature	$I_F = 700\text{ mA}$	CCT	3710	4000	4260	K
Chromaticity coordinates	$I_F = 700\text{ mA}$	x	-	0.3818	-	
	$I_F = 700\text{ mA}$	y	-	0.3797	-	
Full angle of half intensity	$I_F = 700\text{ mA}$	$2\phi_{1/2}$	-	130	-	$^{\circ}$
Forward voltage	$I_F = 700\text{ mA}$	$V_F$	6.0	6.5	6.8	V
Temperature coefficient of $V_F$	$I_F = 700\text{ mA}$	$TCV_F$	-	2.0	-	mV/K
Temperature coefficient of $\Phi_V$	$I_F = 700\text{ mA}$	$TC\Phi_V$	-	0.21	-	%/K

**Notes**

- Forward voltages are tested at a current pulse duration of 1 ms and a tolerance of  $\pm 0.1\text{ V}$ . Luminous flux is measured at a current pulse duration of 25 ms and an accuracy of  $\pm 11\%$ .
- CRI: 80

**OPTICAL AND ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)  
**VLPW0101C6, WARM WHITE**

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous flux	$I_F = 700\text{ mA}$	$\Phi_V$	290	320	-	lm
	$I_F = 1000\text{ mA}$	$\Phi_V$	-	400	-	lm
	$I_F = 1400\text{ mA}$	$\Phi_V$	-	480	-	lm
Color temperature	$I_F = 700\text{ mA}$	CCT	2670	2870	3120	K
Chromaticity coordinates	$I_F = 700\text{ mA}$	x	-	0.4450	-	
	$I_F = 700\text{ mA}$	y	-	0.4060	-	
Full angle of half intensity	$I_F = 700\text{ mA}$	$2\phi_{1/2}$	-	130	-	$^{\circ}$
Forward voltage	$I_F = 700\text{ mA}$	$V_F$	6.0	6.5	6.8	V
Temperature coefficient of $V_F$	$I_F = 700\text{ mA}$	$TCV_F$	-	2.0	-	mV/K
Temperature coefficient of $\Phi_V$	$I_F = 700\text{ mA}$	$TC\Phi_V$	-	0.21	-	%/K

**Notes**

- Forward voltages are tested at a current pulse duration of 1 ms and a tolerance of  $\pm 0.1\text{ V}$ . Luminous flux is measured at a current pulse duration of 25 ms and an accuracy of  $\pm 11\%$ .
- CRI: 80

COLOR BINNING (I <sub>F</sub> at 700 mA)		
PART	BIN CODE	CCT (K)
VLPC0101C6	1B	6020 to 6530
	2A	5665 to 6020
	2B	5310 to 5665
VLPN0101C6	3A	5028 to 5310
	5A	3985 to 4260
VLPW0101C6	5B	3710 to 3985
	7B	2870 to 3045
	8A	2725 to 2870

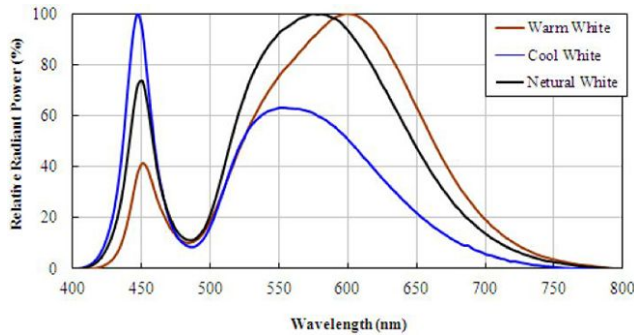


Fig. 1 - Relative Spectrale Emission

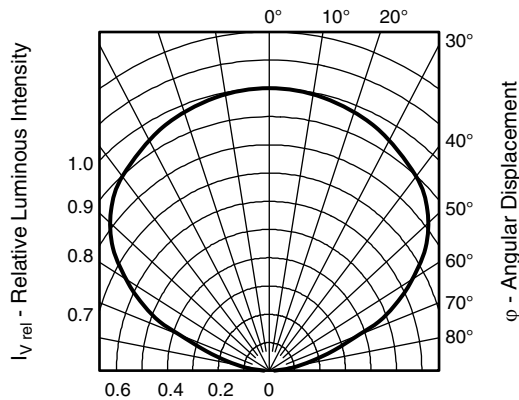


Fig. 2 - Relative Intensity vs. Angular Displacement

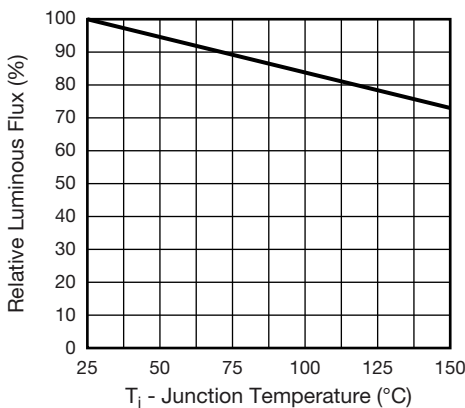
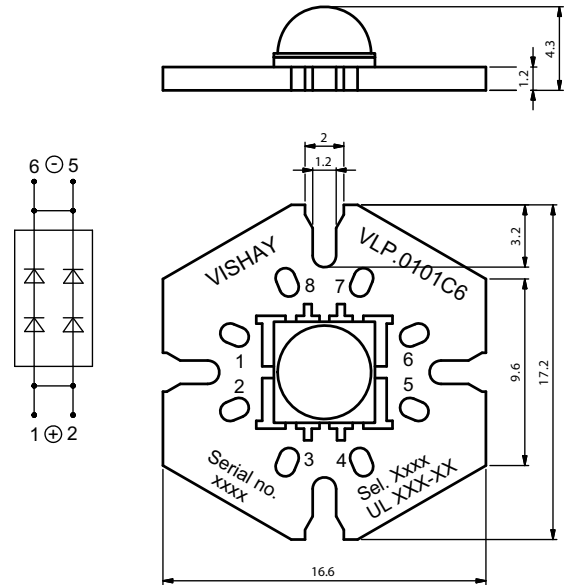


Fig. 3 - Relative Luminous Flux vs. Junction Temperature (I<sub>F</sub> = 3200 mA)

## PACKAGE DIMENSIONS in millimeters



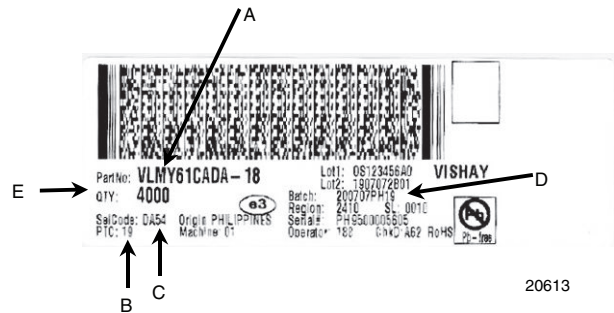
Not indicated tolerances ± 0.2

Drawing refers to following types: VLP.0101C6

Drawing-No.: 9.920-6807.02-4  
Issue: 2; 20.11.2012

Technical drawings according to DIN specification.

## BAR CODE PRODUCT LABEL

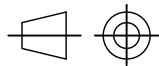
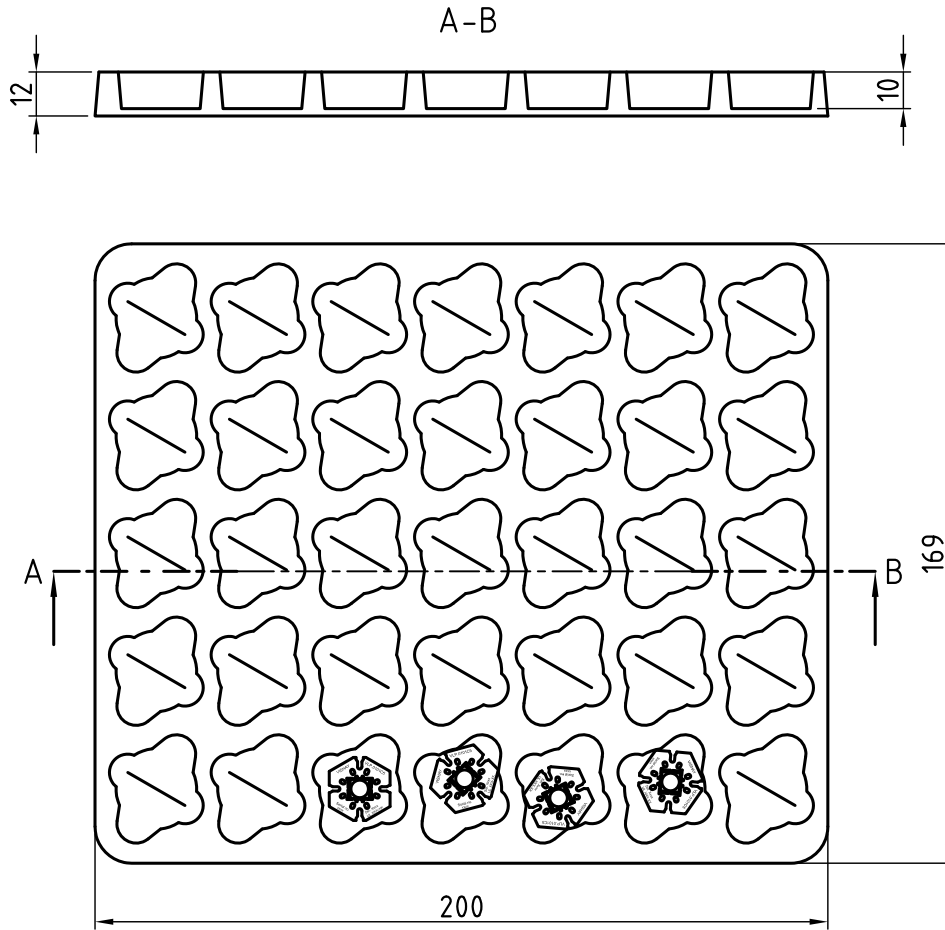


- A. Type of component
- B. Manufacturing plant
- C. SEL - selection code (bin):  
X = color group
- D. Batch:  
200707 = year 2007, week 07  
PH19 = plant code
- E. Total quantity

### Note

- Delivery on reel Ø 330 mm, 1500 pieces per reel

20613

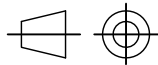
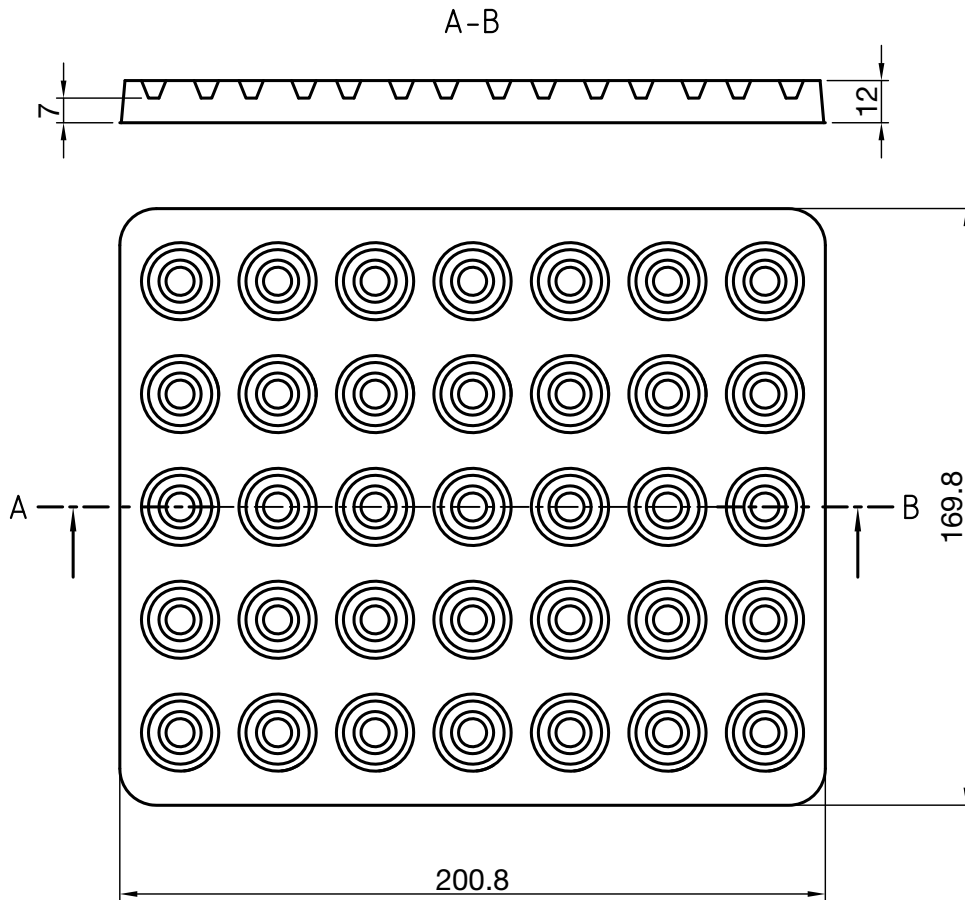


technical drawings  
according to DIN  
specifications

Drawing-No.: 9.700-5389.01-4

Issue: prel; 18.07.12

Fig. 4 - Tray with 7 x 5 Pieces



technical drawings  
according to DIN  
specifications

Drawing-No.: 9.700-5390.01-4

Issue: prel; 18.07.12

Fig. 5 - Tray Cover

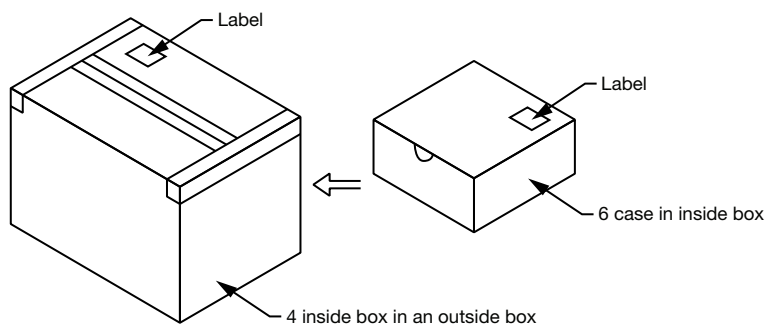


Fig. 6 - Box



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