

## High Brightness LED Power Module



### DESCRIPTION

VLPC0303C6, VLPN0303C6 and VLPW0303C6 are high brightness LED modules. Totally 9 pieces 63 W multichip power LEDs are soldered on a Cu plate. The Cu plate with a thickness of 2 mm guarantees best heat removal and distribution. VLPC0303C6 is the cool white version in a color temperature range of 5000 K to 7400 K. VLPN0303C6 is natural white with a typical color temperature of 4350 K and VLPW0303C6 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, 2 mm thickness
- Shiny white surface
- 63 W multichip LED, minimum 4200 lm for cool white, 3950 lm for natural white, and 3000 lm for warm white at 3000 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 $I_F = 3000$ mA typ.)			COLOR TEMPERATURE K	TECHNOLOGY
		MIN.	TYP.	MAX.		
VLPC0303C6	Cool white	4200	4550	-	5000 to 6650	InGaN
VLPN0303C6	Natural white	3950	4300	-	3680 to 4350	InGaN
VLPW0303C6	Warm white	3000	3430	-	2670 to 3120	InGaN

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25^\circ\text{C}$ , unless otherwise specified) VLPC0303C6, VLPN0303C6, VLPW0303C6

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Forward current	$T_{amb} < 80^\circ\text{C}$	$I_F$	3000	mA
Power dissipation	$T_{amb} < 80^\circ\text{C}$	$P_{tot}$	63	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		$R_{thJS}$	0.15	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)  
**VLPC0303C6, COOL WHITE**

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous flux	$I_F = 2100\text{ mA}$	$\Phi_V$	3250	3500	-	lm
	$I_F = 3000\text{ mA}$	$\Phi_V$	4200	4550	-	lm
Color temperature	$I_F = 3000\text{ mA}$	CCT	5000	5700	6650	K
Chromaticity coordinates	$I_F = 3000\text{ mA}$	x	-	0.3287	-	
	$I_F = 3000\text{ mA}$	y	-	0.3417	-	
Full angle of half intensity	$I_F = 3000\text{ mA}$	$2\phi_{1/2}$	-	130	-	$^{\circ}$
Forward voltage	$I_F = 3000\text{ mA}$	$V_F$	18.0	21.0	24.0	V
Temperature coefficient of $V_F$	$I_F = 3000\text{ mA}$	$TCV_F$	-	3.0	-	mV/K
Temperature coefficient of $\Phi_V$	$I_F = 3000\text{ mA}$	$TC\Phi_V$	-	0.22	-	%/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)  
**VLPN0303C6, NATURAL WHITE**

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous flux	$I_F = 2100\text{ mA}$	$\Phi_V$	3000	3300	-	lm
	$I_F = 3000\text{ mA}$	$\Phi_V$	3950	4350	-	lm
Color temperature	$I_F = 3000\text{ mA}$	CCT	3680	4000	4350	K
Chromaticity coordinates	$I_F = 3000\text{ mA}$	x	-	0.3818	-	
	$I_F = 3000\text{ mA}$	y	-	0.3797	-	
Full angle of half intensity	$I_F = 3000\text{ mA}$	$2\phi_{1/2}$	-	130	-	$^{\circ}$
Forward voltage	$I_F = 3000\text{ mA}$	$V_F$	18.0	21.0	24.0	V
Temperature coefficient of $V_F$	$I_F = 3000\text{ mA}$	$TCV_F$	-	3.0	-	mV/K
Temperature coefficient of $\Phi_V$	$I_F = 3000\text{ mA}$	$TC\Phi_V$	-	0.22	-	%/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)  
**VLPW0303C6, WARM WHITE**

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous flux	$I_F = 2100\text{ mA}$	$\Phi_V$	2340	2580	-	lm
	$I_F = 3000\text{ mA}$	$\Phi_V$	3000	3430	-	lm
Color temperature	$I_F = 3000\text{ mA}$	CCT	2670	3000	3120	K
Chromaticity coordinates	$I_F = 3000\text{ mA}$	x	-	0.4450	-	
	$I_F = 3000\text{ mA}$	y	-	0.4060	-	
Full angle of half intensity	$I_F = 3000\text{ mA}$	$2\phi_{1/2}$	-	130	-	$^{\circ}$
Forward voltage	$I_F = 3000\text{ mA}$	$V_F$	18.0	21.0	24.0	V
Temperature coefficient of $V_F$	$I_F = 3000\text{ mA}$	$TCV_F$	-	3.0	-	mV/K
Temperature coefficient of $\Phi_V$	$I_F = 3000\text{ mA}$	$TC\Phi_V$	-	0.22	-	%/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 2100 mA)		
PART	BIN CODE	CCT (K)
VLPC0303C6	A	5000 to 5450
	B	5450 to 6000
	C	6000 to 6650
	D	6650 to 7400
VLPN0303C6	N	3860 to 4000
	M	4000 to 4350
VLPW0303C6	J	2670 to 2870
	K	2870 to 3120

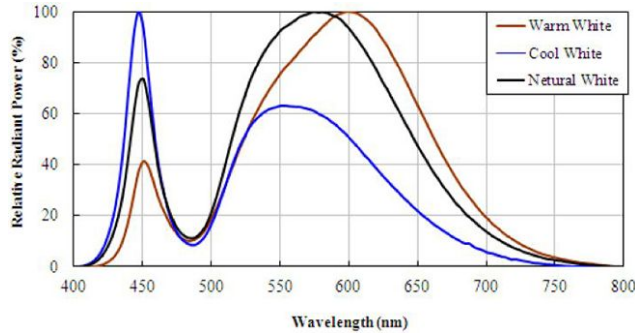


Fig. 1 - Relative Spectrale Emission

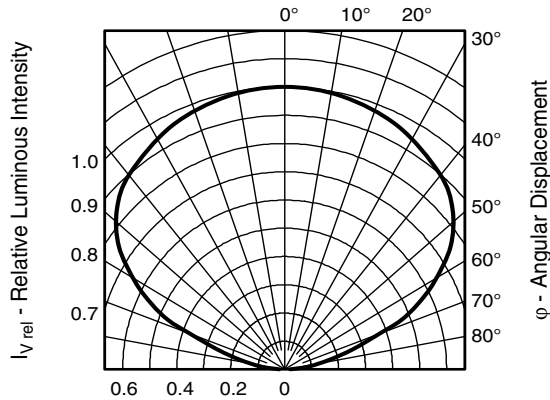


Fig. 2 - Relative Intensity vs. Angular Displacement

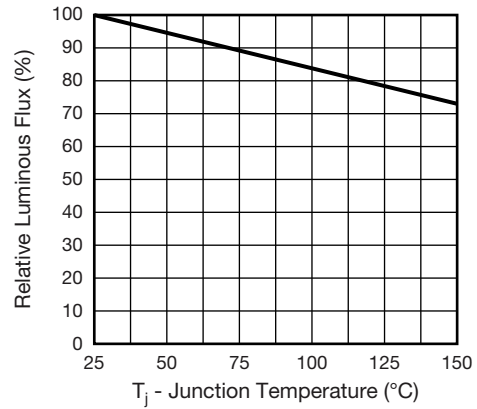


Fig. 3 - Relative Luminous Flux vs. Junction Temperature (I<sub>F</sub> = 3200 mA)

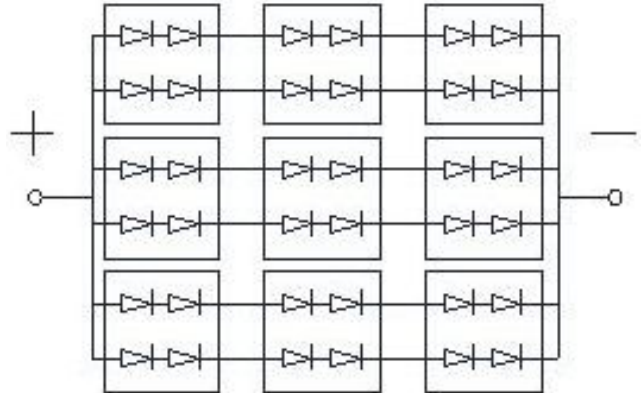


Fig. 4 - Array Circuit Type



### PACKAGE DIMENSIONS in millimeters

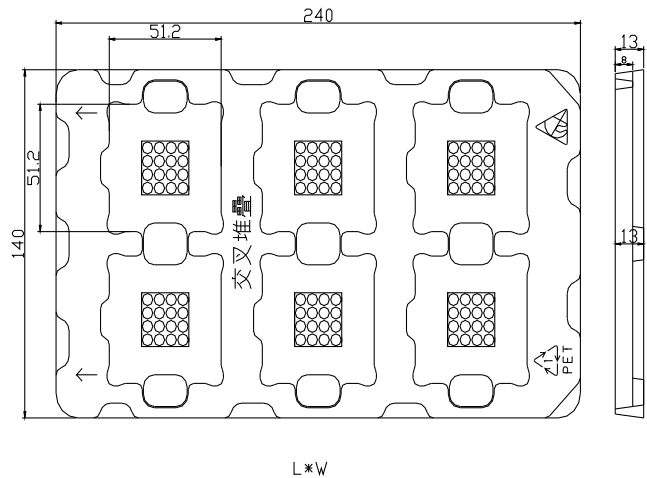
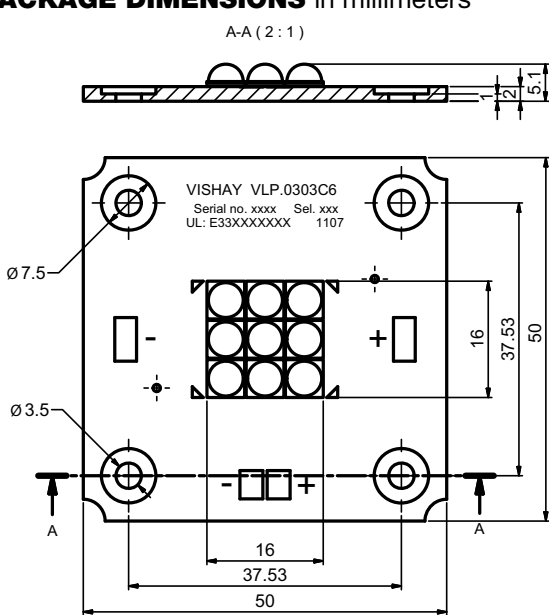
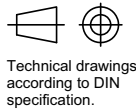
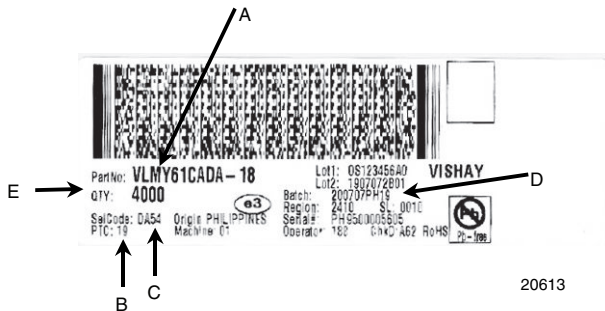


Fig. 5 - 6 Pieces LED Array in One Tray

Not indicated tolerances  $\pm 0.2$   
 All dimensions in mm  
 Drawing refers to following types: VLP.0303C6  
 Drawing-No.: 9.920-6809.02-4  
 Issue: prel; 18.07.2012



### 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

- 3 trays in one box contains 18 pieces LED array. Minimum order quantity: 18



Fig. 6 - Tray and Box  
5 Trays in One Anti-Static Bag, 2 Bags in One Carton,  
Contains 60 Pieces LED



## 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.

## Material Category Policy

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.**