

## 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**  
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(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

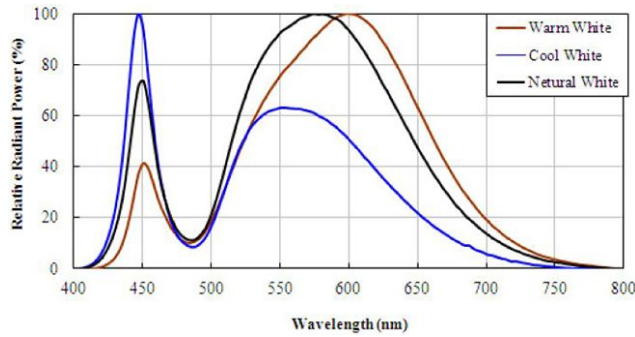


Fig. 1 - Relative Spectrale Emission

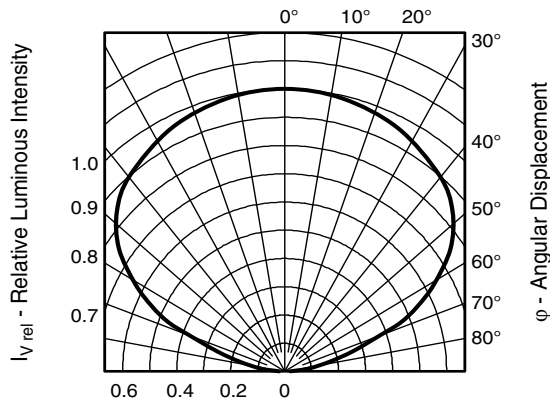


Fig. 2 - Relative Intensity vs. Angular Displacement

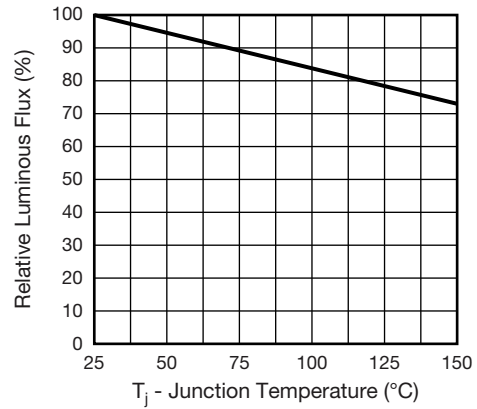


Fig. 3 - Relative Luminous Flux vs. Junction Temperature (I<sub>F</sub> = 3200 mA)

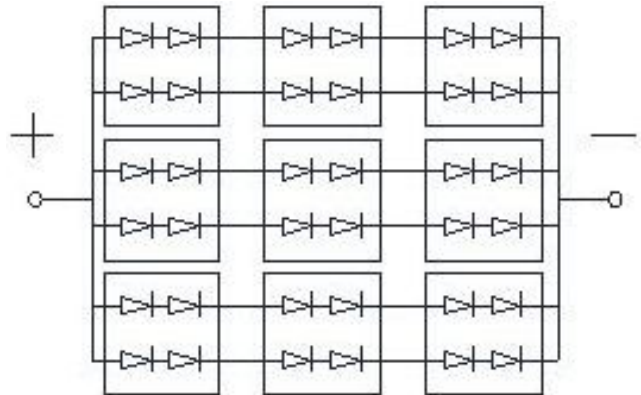


Fig. 4 - Array Circuit Type





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