High Brightness LED Power Module

FEATURES

- Cu based PCB, 2 mm thickness
- Shiny white surface
- 44 W multichip LED, minimum 2900 lm for cool white, 2600 lm for natural white, and 2100 lm for warm white at 2100 mA each
- ESD withstand voltage: up to 1 kV according to JESD22-A114-B
- Color temperature binning
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb-free
RoHS COMPLIANT
GREEN (5-2008)

DESCRIPTION

VCLPC0303C5, VLPN0303C5 and VLPW0303C5 are high brightness LED modules. Totally 9 pieces 4.4 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. VLPC0303C5 is the cool white version in a color temperature range of 5000K to 7000K. VLPN0303C5 is natural white with a color temperature of 3640K to 4240K and VLPW0303C5 is warm white in a color temperature range of 2700K to 3300K. Additional to the modules a suitable LED driver is available.

APPLICATIONS

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

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: LED module
- Product series: power
- Angle of half intensity: ± 65°

PARTS TABLE

PART	COLOR	LUMINOUS FLUX (at I_F = 2100 mA typ.)	COLOR TEMPERATURE K	TECHNOLOGY
VLPC0303C5	Cool white	Φ_V = 3200 lm	5000 to 7000	InGaN
VLPN0303C5	Natural white	Φ_V = 2950 lm	3640 to 4240	InGaN
VLPW0303C5	Warm white	Φ_V = 2500 lm	2580 to 3220	InGaN

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)
VLPC0303C5, VLPN0303C5, VLPW0303C5

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Forward current	T_{amb} < 80 °C	I_F	2100	mA
Power dissipation	T_{amb} < 80 °C	P_{tot}	44	W
Junction temperature		T_j	115	°C
Operating temperature range		T_{amb}	- 40 to + 80	°C
Storage temperature range		T_{stg}	- 40 to + 100	°C
Decomposition temperature of PCB (for cable assembly)		T_D		°C

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified) **VLPC0303C5, COOL WHITE**						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux	I_F = 2100 mA	Φ_V	2900	3200	-	lm
Color temperature	I_F = 2100 mA	CCT	5000	5700	7000	K
Forward voltage	I_F = 2100 mA	V_F	18.0	19.0	21.0	V
Temperature coefficient of V_F	I_F = 2100 mA	TCV_F	-	6.0	-	mV/K
Temperature coefficient of Φ_V	I_F = 2100 mA	$TC\Phi_V$	-	0.18	-	%/K

Note

- Forward voltages are tested at a current pulse duration of 1 ms and a tolerance of ± 0.1 V. Luminous flux is measured at a current pulse duration of 25 ms and an accuracy of ± 11 %.

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified) **VLPN0303C5, NATURAL WHITE**						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux	I_F = 2100 mA	Φ_V	2600	2950	-	lm
Color temperature	I_F = 2100 mA	CCT	3640	4000	4240	K
Forward voltage	I_F = 2100 mA	V_F	18.0	19.0	21.0	V
Temperature coefficient of V_F	I_F = 2100 mA	TCV_F	-	6.0	-	mV/K
Temperature coefficient of Φ_V	I_F = 2100 mA	$TC\Phi_V$	-	0.18	-	%/K

Note

- Forward voltages are tested at a current pulse duration of 1 ms and a tolerance of ± 0.1 V. Luminous flux is measured at a current pulse duration of 25 ms and an accuracy of ± 11 %.

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified) **VLPW0303C5, WARM WHITE**						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux	I_F = 2100 mA	Φ_V	2100	2500	-	lm
Color temperature	I_F = 2100 mA	CCT	2580	3000	3220	K
Forward voltage	I_F = 2100 mA	V_F	18.0	19.0	21.0	V
Temperature coefficient of V_F	I_F = 2100 mA	TCV_F	-	6.0	-	mV/K
Temperature coefficient of Φ_V	I_F = 2100 mA	$TC\Phi_V$	-	0.18	-	%/K

Note

- Forward voltages are tested at a current pulse duration of 1 ms and a tolerance of ± 0.1 V. Luminous flux is measured at a current pulse duration of 25 ms and an accuracy of ± 11 %.

COLOR BINNING (I_F at 2100 mA)		
PART	**BIN CODE**	**CCT (K)**
VLPC0303C5	A	5000 to 5500
	B	5500 to 6000
	C	6000 to 6500
	D	6500 to 7000
VLPN0303C5	N	3640 to 3920
	M	3920 to 4240
VLPW0303C5	J	2580 to 2870
	K	2870 to 3220

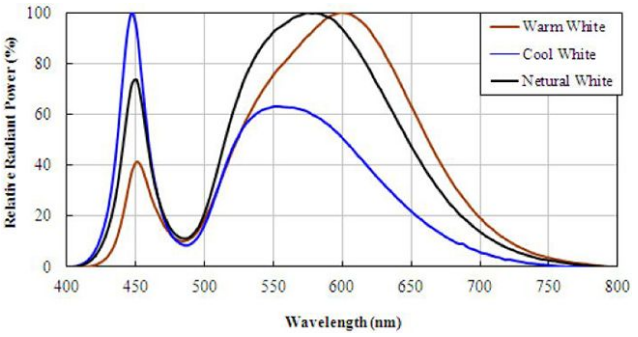


Fig. 1 - Relative Spectrale Emission

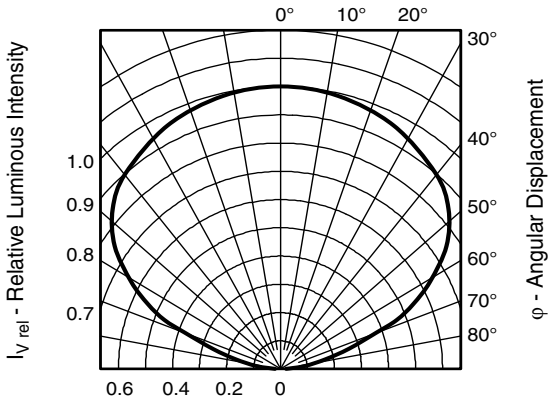


Fig. 2 - Relative Intensity vs. Angular Displacement

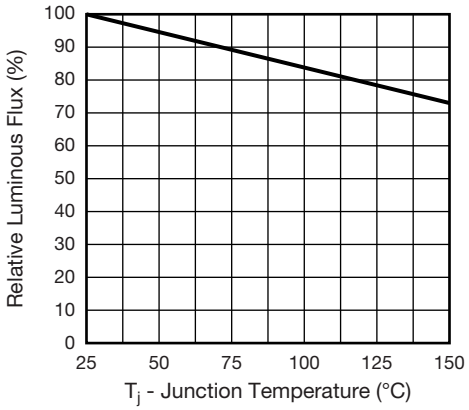


Fig. 3 - Relative Luminous Flux vs. Junction Temperature
(I_F = 3200 mA)

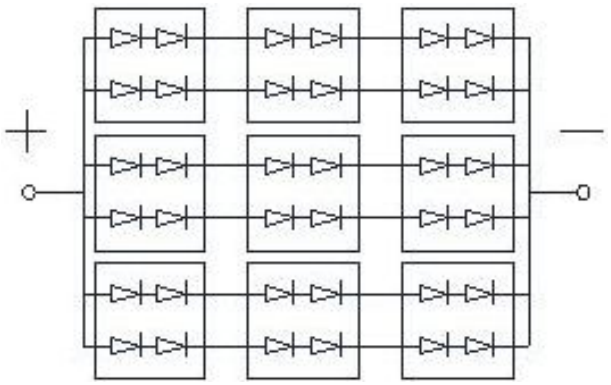
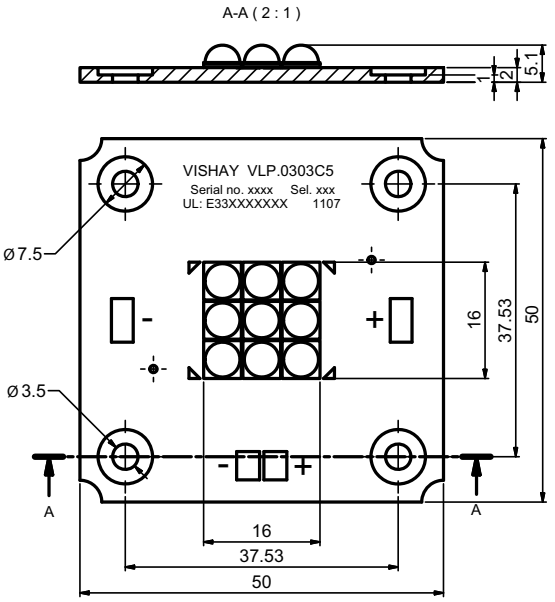


Fig. 4 - Array Circuit Type

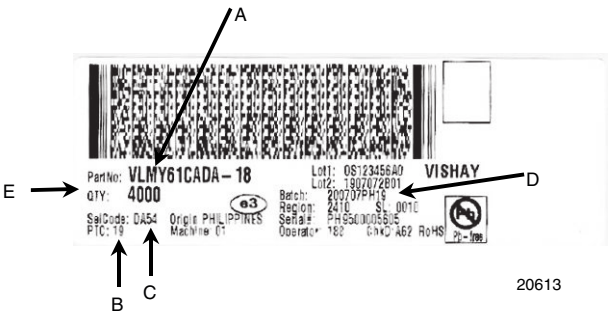
PACKAGE DIMENSIONS in millimeters



Not indicated tolerances ± 0.2
All dimensions in mm
Drawing refers to following types: VLP.0303C5
Drawing-No.: 9.920-6809.01-4
Issue: prel; 23.04.2012

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

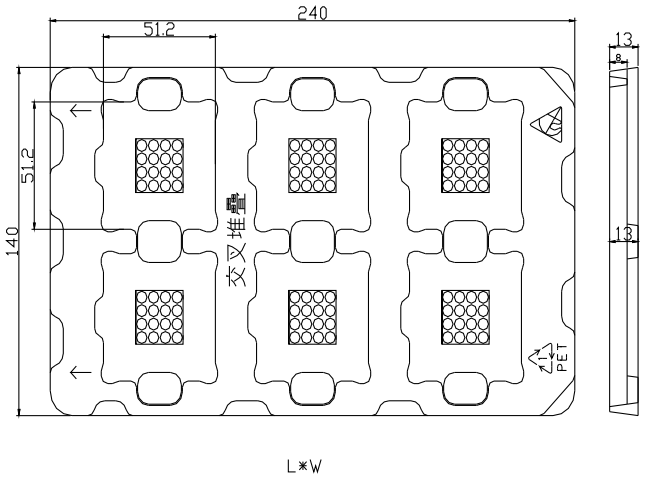


Fig. 5 - 6 Pieces LED Array in One Tray

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.