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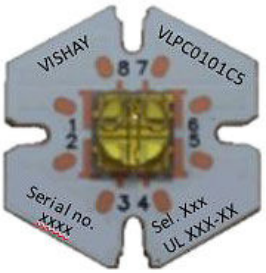
High Brightness LED Power Module



FEATURES

- Cu based PCB, 1.2 mm thickness
- Shiny white surface
- 4.4 W multichip LED, minimum 400 lm for cool white, 360 lm for natural white, and 300 lm for warm white at 700 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

VLPC0101C5, VLPN0101C5, and VLPW0101C5 are high brightness LED modules. The 4.4 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. VLPC0101C5 is the cool white version in a color temperature range of 5000 K to 7000 K. VLPN0101C5 is natural white with a color temperature of 3640 K to 4240 K and VLPW0101C5 is warm white in a color temperature range of 2580 K to 3220 K. 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 = 700 mA typ.)	COLOR TEMPERATURE K	TECHNOLOGY
VLPC0101C5	Cool white	Φ_V = 450 lm	5000 to 7000	InGaN
VLPN0101C5	Natural white	Φ_V = 410 lm	3640 to 4240	InGaN
VLPW0101C5	Warm white	Φ_V = 350 lm	2580 to 3220	InGaN

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)
VLPC0101C5, VLPN0101C5, VLPW0101C5

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Forward current	T_{amb} < 80 °C	I_F	700	mA
Power dissipation	T_{amb} < 80 °C	P_{tot}	4.6	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

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified) **VLPC0101C5, COOL WHITE**						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux	I_F = 700 mA	Φ_V	400	450	-	lm
Color temperature	I_F = 700 mA	CCT	5000	5700	7000	K
Forward voltage	I_F = 700 mA	V_F	6.0	6.3	6.6	V
Temperature coefficient of V_F	I_F = 700 mA	TCV_F	-	2.0	-	mV/K
Temperature coefficient of Φ_V	I_F = 700 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) **VLPN0101C5, NATURAL WHITE**						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux	I_F = 700 mA	Φ_V	360	410	-	lm
Color temperature	I_F = 700 mA	CCT	3640	4000	4240	K
Forward voltage	I_F = 700 mA	V_F	6.0	6.3	6.6	V
Temperature coefficient of V_F	I_F = 700 mA	TCV_F	-	2.0	-	mV/K
Temperature coefficient of Φ_V	I_F = 700 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) **VLPW0101C5, WARM WHITE**						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux	I_F = 700 mA	Φ_V	300	350	-	lm
Color temperature	I_F = 700 mA	CCT	2580	3000	3220	K
Forward voltage	I_F = 700 mA	V_F	6.0	6.3	6.6	V
Temperature coefficient of V_F	I_F = 700 mA	TCV_F	-	2.0	-	mV/K
Temperature coefficient of Φ_V	I_F = 700 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 700 mA)		
PART	**BIN CODE**	**CCT (K)**
VLPC0101C5	A	5000 to 5500
	B	5500 to 6000
	C	6000 to 6500
	D	6500 to 7000
VLPN0101C5	N	3640 to 3920
	M	3920 to 4240
VLPW0101C5	J	2580 to 2870
	K	2870 to 3220

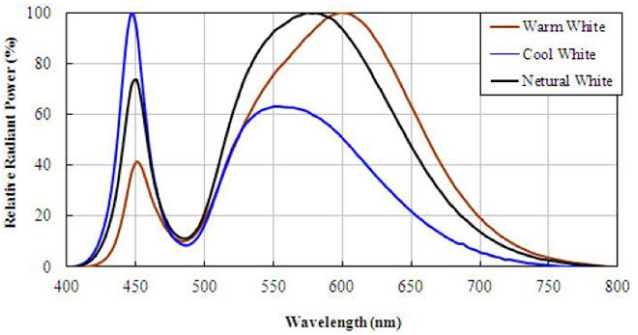


Fig. 1 - Relative Spectrale Emission

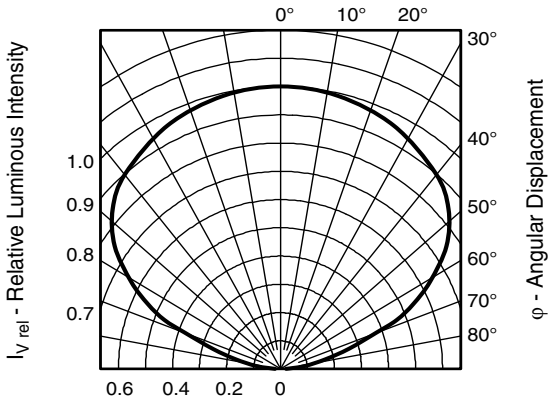


Fig. 2 - Relative Intensity vs. Angular Displacement

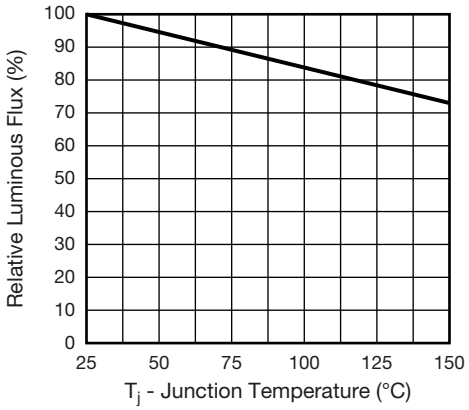


Fig. 3 - Relative Luminous Flux vs. Junction Temperature
(I_F = 3200 mA)

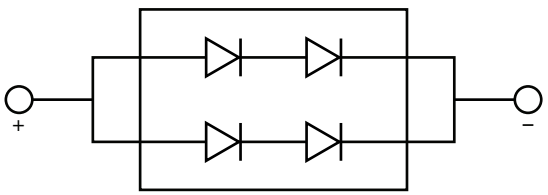
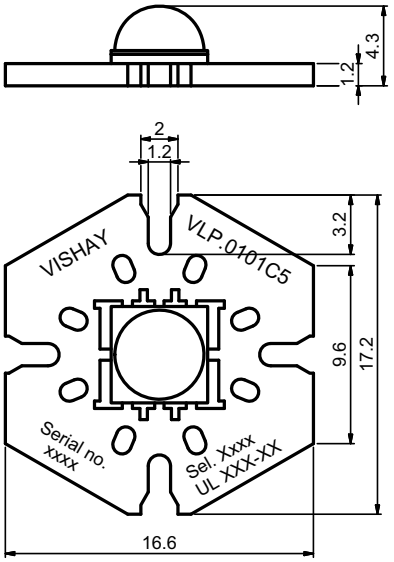


Fig. 4 - Array Circuit Type

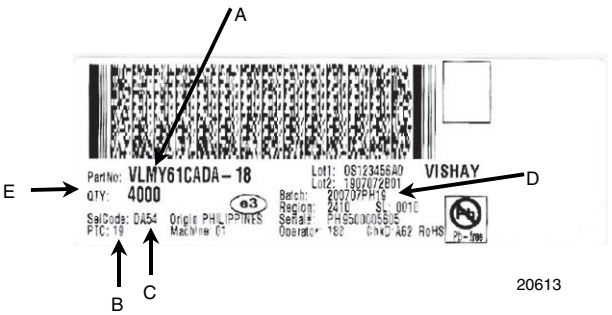
PACKAGE DIMENSIONS in millimeters



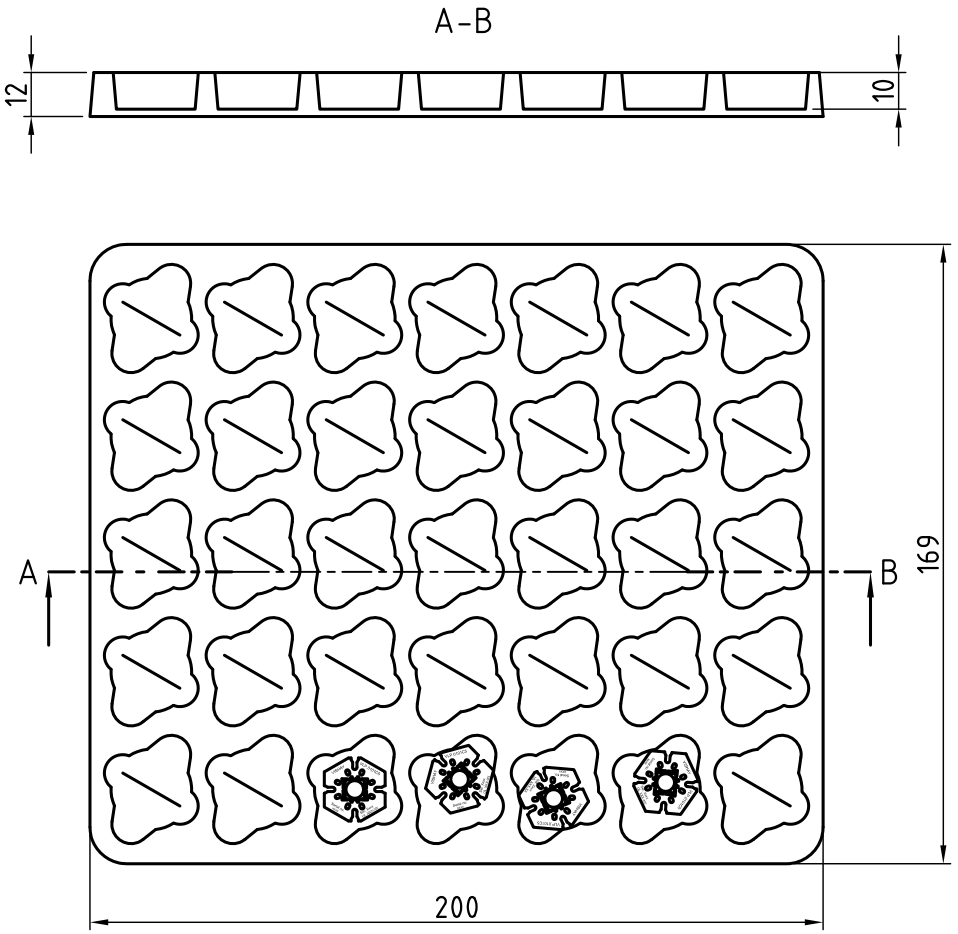
Not indicated tolerances ± 0.2
All dimensions in mm
Drawing refers to following types: VLP.0101C5
Drawing-No.: 9.920-6807.01-4
Issue: prel; 23.04.2012

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

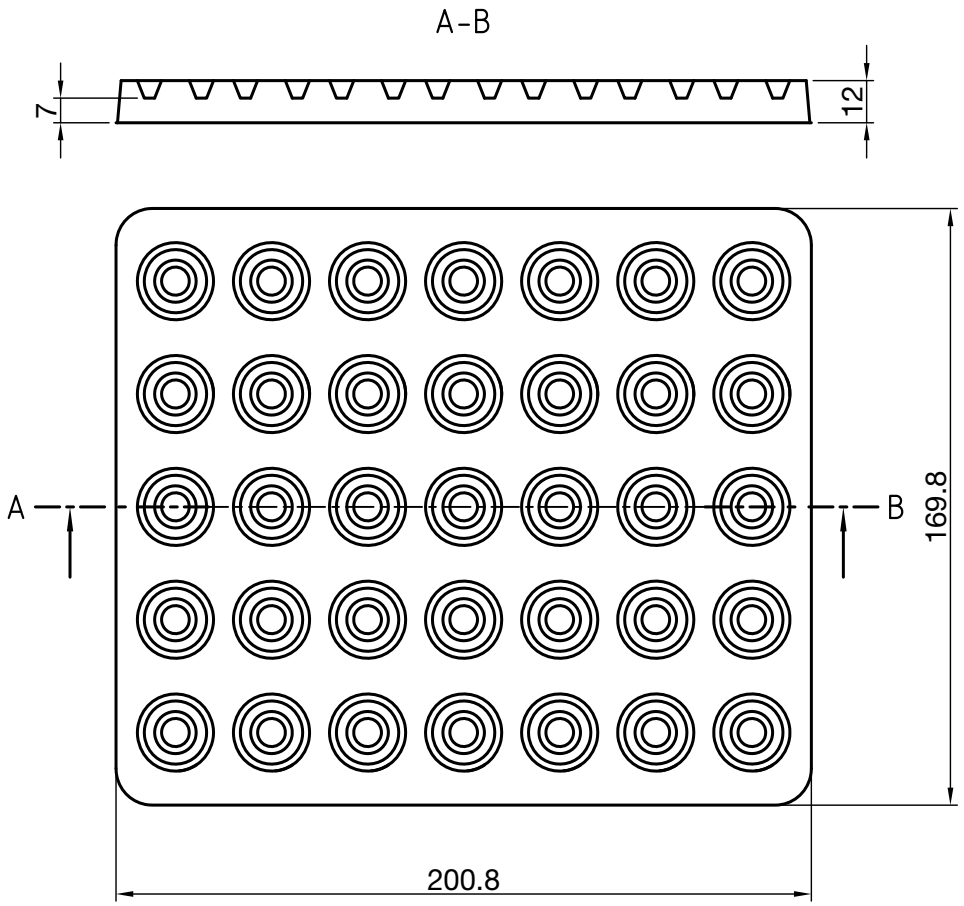


technical drawings
according to DIN
specifications

Drawing refers to following types: VLP.0101C5, VLP.0101C6

Drawing-No.: 9.700-5389.01-4
Issue: prel; 18.07.12

Fig. 5 - Tray with 7 x 5 Pieces



technical drawings
according to DIN
specifications

Drawing refers to following types: VLP.0101C5, VLP.0101C6

Drawing-No.: 9.700-5390.01-4
Issue: prel; 18.07.12

Fig. 6 - Tray Cover

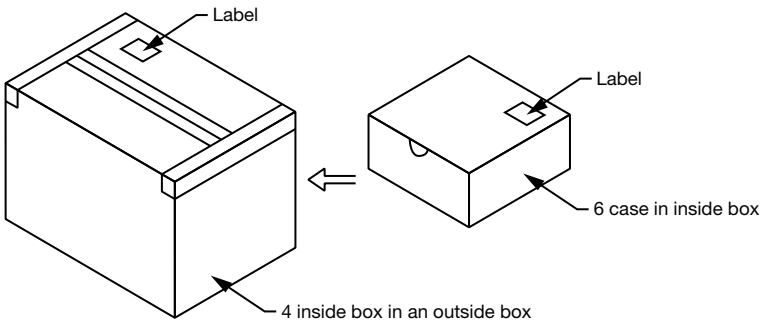


Fig. 7 - Box

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