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[Vishay Semiconductor/Opto Division](#)
[VLPC1201A2](#)

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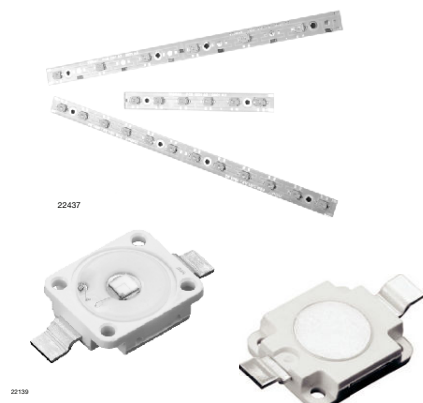


www.vishay.com

VLPC0601A2, VLPC1201A2, VLPC1201A2J

Vishay Semiconductors

High Brightness LED Power Module



FEATURES

- Metal core PCB: Al > 1 thickness
- Single side/single layer PCB
- Shiny white surface
- 6 or 12 LEDs, max. current per LED 1 A
- Prepared to divide in half strips also, by cutting
- Conductive top layer: Cu (min. 18 μm)
- Isolation layer prepreg (100 μm)
- ESD withstand voltage: Up to 2 kV according to JESD22-A114-B
- Color binning
- LM80 certified LEDs
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

DESCRIPTION

VLPC1201A2, VLPC1201A2J and VLPC0601A2 are metal core based high brightness LED power modules assembled with 6 or 12 white LED's. Color temperature range of 5000 K to 7000 K.

The VLPC1201A2J has 12 units in row, while the VLPC1201A2 can be divided in 2 strips 6 LED's each by sawing or driven as 2 x 6 LED's.

APPLICATIONS

- Automotive internal lighting
- 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: ± 80°

PARTS TABLE				
PART	COLOR	LUMINOUS FLUX (at I _F = 700 mA typ.)	COLOR TEMPERATURE K	TECHNOLOGY
VLPC0601A2	Cool white	Φ _V = 1050 lm	5000 to 7000	InGaN
VLPC1201A2	Cool white	Φ _V = 2 x 1050 lm	5000 to 7000	InGaN
VLPC1201A2J	Cool white	Φ _V = 2100 lm	5000 to 7000	InGaN

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) VLPC0601A2, VLPC1201A2, VLPC1201A2J					
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Forward current			I _F	700	mA
Power dissipation	Total	VLPC0601A2	P _{tot}	16.1	W
		VLPC1201A2	P _{tot}	32.2	W
		VLPC1201A2J	P _{tot}	32.2	W
Junction temperature			T _j	120	°C
Operating temperature range			T _{amb}	- 40 to + 85	°C
Storage temperature range			T _{stg}	- 40 to + 85	°C
Decomposition temperature of PCB (for cable assembly)	3 x 10 s		T _D	350	°C



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OPTICAL AND ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
VLPC0601A2, COOL WHITE						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous flux total ⁽¹⁾	I _F = 700 mA	Φ _V	860	1050	-	lm
Color temperature	I _F = 700 mA	TK	5000	-	7000	K
Forward voltage	I _F = 700 mA	V _F	19	21	23	V
Temperature coefficient of V _F	I _F = 350 mA	TC _{V_F}	-	- 21	-	mV/K
Temperature coefficient of Φ _V	I _F = 350 mA	TC _{Φ_V}	-	- 0.4	-	%/K

Notes

- 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 %.
- ⁽¹⁾ Calculated based on single LED unit.

OPTICAL AND ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
VLPC1201A2J, COOL WHITE						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous flux total ⁽¹⁾	I _F = 700 mA	Φ _V	1720	2100	-	lm
Color temperature	I _F = 700 mA	TK	5000	-	7000	K
Forward voltage	I _F = 700 mA	V _F	38	42	46	V
Temperature coefficient of V _F	I _F = 350 mA	TC _{V_F}	-	- 40	-	mV/K
Temperature coefficient of Φ _V	I _F = 350 mA	TC _{Φ_V}	-	- 0.4	-	%/K

Notes

- 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 %.
- ⁽¹⁾ Calculated based on single LED unit.

OPTICAL AND ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
VLPC1201A2, COOL WHITE						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous flux total ⁽¹⁾	I _F = 700 mA	Φ _V	2 x 860	2 x 1050	-	lm
Color temperature	I _F = 700 mA	TK	5000	-	7000	K
Forward voltage per 6 LEDs	I _F = 700 mA	V _F	19	21	23	V
Temperature coefficient of V _F per 6 LEDs	I _F = 350 mA	TC _{V_F}	-	- 20	-	mV/K
Temperature coefficient of Φ _V	I _F = 350 mA	TC _{Φ_V}	-	- 0.4	-	%/K

Notes

- 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 %.
- ⁽¹⁾ Calculated based on single LED unit.



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COLOR RANGE AND COLOR BINNING

VLPC0601A2; VLPC1201A2: 5000 K to 7000 K group 6P to 7R

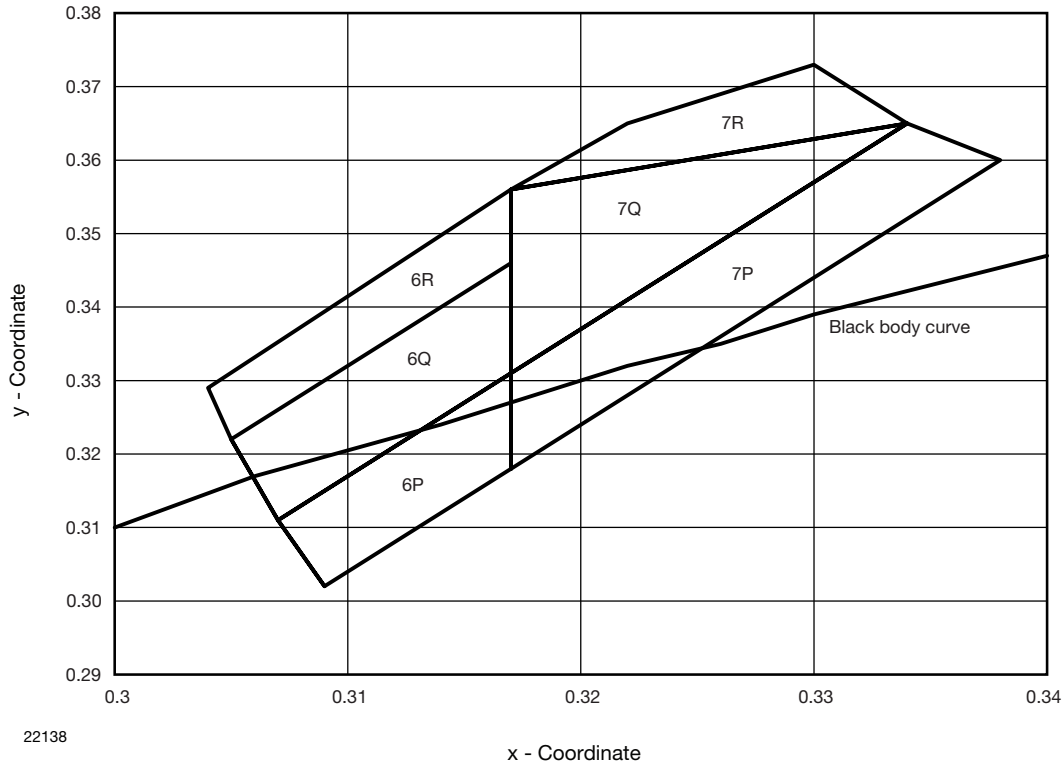


Fig. 1 - Chromaticity Coordinates of Colorgroups

CHROMATICITY COORDINATED GROUPS FOR COOL WHITE SMD LED										
GROUP	X	Y		GROUP	X	Y		GROUP	X	Y
6P	0.309	0.302		6Q	0.307	0.311		6R	0.305	0.322
	0.307	0.311			0.305	0.322			0.304	0.329
	0.317	0.331			0.317	0.346			0.317	0.356
	0.317	0.318			0.317	0.331			0.317	0.346
7P	0.317	0.318		7Q	0.317	0.331		7R	0.317	0.356
	0.317	0.331			0.317	0.356			0.322	0.365
	0.334	0.365			0.334	0.365			0.330	0.373
	0.338	0.360			0.317	0.331			0.334	0.365

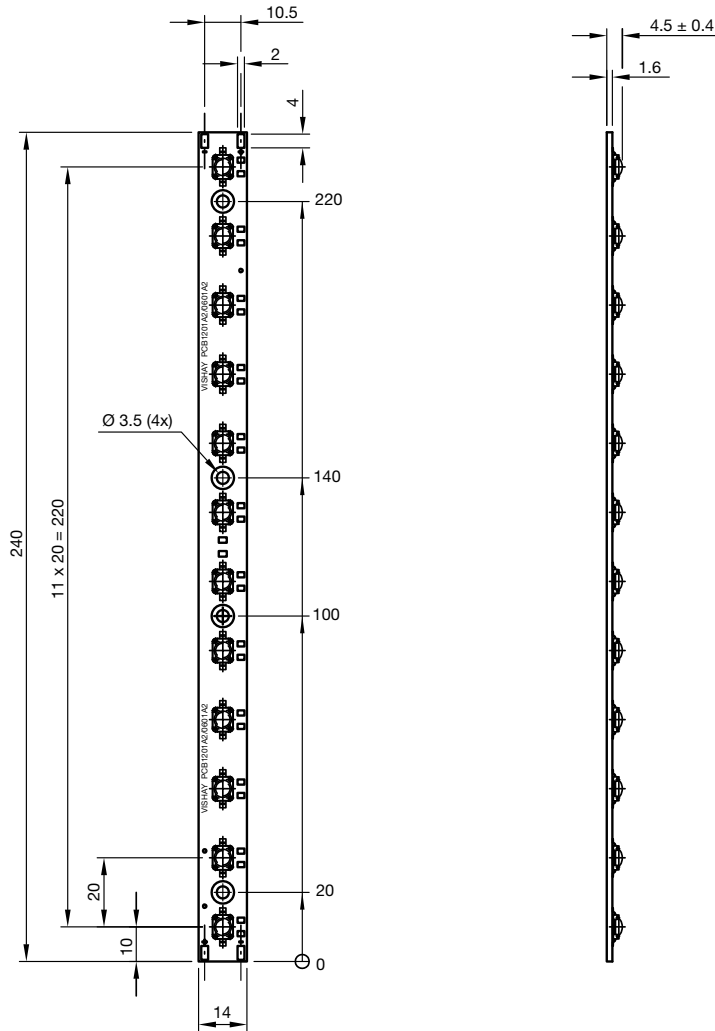


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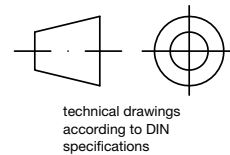
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PCB BASIC DESIGN DIMENSIONS in millimeters



Drawing-No.: 9.920-6754.01-4
 Issue: 1 ; 02.11.10
 22435

Not indicated tolerances ± 0.2



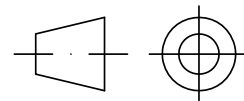
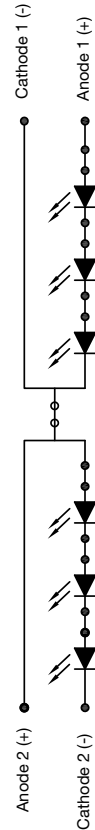
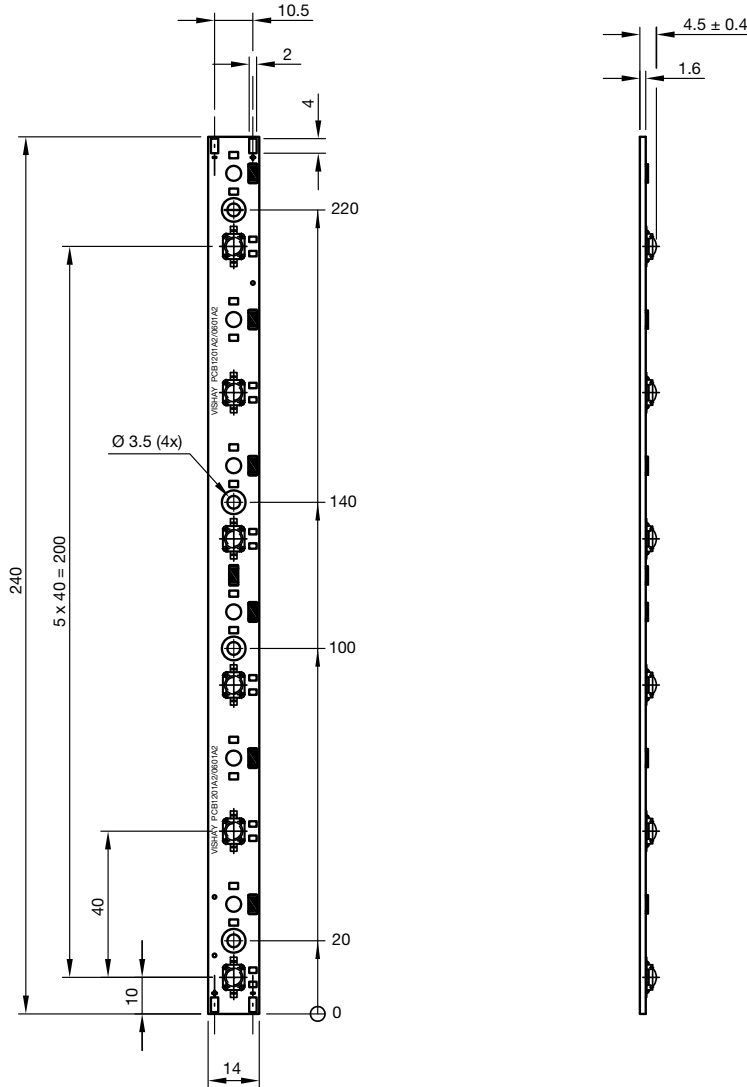


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VLPC0601A2, VLPC1201A2, VLPC1201A2J

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PCB BASIC DESIGN DIMENSIONS in millimeters



technical drawings
according to DIN
specifications

Not indicated tolerances ± 0.2

Drawing-No.: 9.920-6756.01-4
 Issue: 1 ; 02.11.10
 22436



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PCB CHARACTERISTICS

- Metal core PCB: Al (minimum 1000 μm - thickness)
- Prepreg minimum 63 μm
- Conductive pattern Cu minimum 18 μm
- Free of burrs
- Compliant to RoHS Directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition
- Solder resist on top side
- Shiny white surface (glossy-white Taiyo-PSR 2000)
- Galvanic of solder pads and backside pure matte Sn (0.8 μm to 1.2 μm)
- Assembled with 6 or 12 high brightness power LEDs. LED position accuracy ± 0.3

EMISSION CHARACTERISTIC

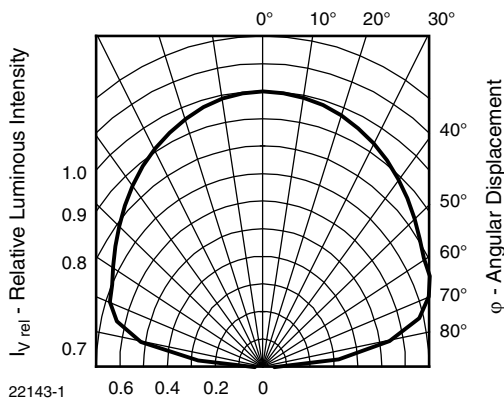
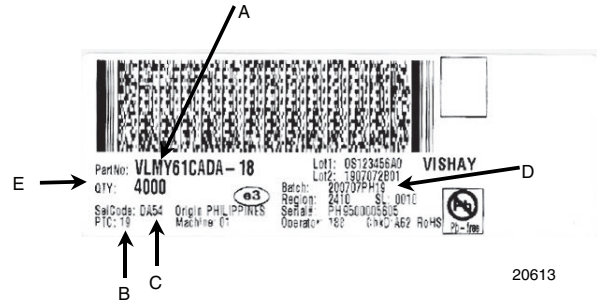


Fig. 2 - Rel. Luminous Intensity vs. Angular Displacement

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

- 32 PCB's per box, minimum order quantity 32



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