High Brightness LED Power Module

FEATURES

- Metal core PCB: Al > 1 thickness
- Single side/single layer PCB
- Shiny white surface
- 6 or 12 LED's minimum 82 lm at 350 mA each
- Prepared to devide 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
- Compliant to RoHS Directive 2002/95/EC

Pb-free
RoHS COMPLIANT
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 devided 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 = 870 lm	5000 to 7000	InGaN
VLPC1201A2	Cool white	Φ_V = 2 x 870 lm	5000 to 7000	InGaN
VLPC1201A2J	Cool white	Φ_V = 1740 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
		VLPC1206A2	P_{tot}	32.2	W
		VLPC1206A2J	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

** Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902

OPTICAL AND ELECTRICAL CHARACTERISTICS [1] (T_{amb} = 25 °C, unless otherwise specified) VLPC0601A2, COOL WHITE						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux total [2]	I_F = 700 mA	Φ_V	760	870	-	lm
Color temperature	I_F = 700 mA	TK	5000	-	7000	K
Forward voltage	I_F = 700 mA	V_F	19	20	23	V
Temperature coefficient of V_F	I_F = 350 mA	TC_{VF}	-	- 21	-	mV/K
Temperature coefficient of Φ_V	I_F = 350 mA	$TC\Phi_V$	-	- 0.4	-	%/K

Notes

(1) 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 %.

(2) Calculated based on single LED unit.

OPTICAL AND ELECTRICAL CHARACTERISTICS [1] (T_{amb} = 25 °C, unless otherwise specified) VLPC1201A2J, COOL WHITE						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux total [2]	I_F = 700 mA	Φ_V	1520	1740	-	lm
Color temperature	I_F = 700 mA	TK	5000	-	7000	K
Forward voltage	I_F = 700 mA	V_F	-	42	46	V
Temperature coefficient of V_F	I_F = 350 mA	TC_{VF}	-	- 40	-	mV/K
Temperature coefficient of Φ_V	I_F = 350 mA	$TC\Phi_V$	-	- 0.4	-	%/K

Notes

(1) 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 %.

(2) Calculated based on single LED unit.

OPTICAL AND ELECTRICAL CHARACTERISTICS [1] (T_{amb} = 25 °C, unless otherwise specified) VLPC1201A2, COOL WHITE						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux total [2]	I_F = 700 mA	Φ_V	2 x 760	2 x 870	-	lm
Color temperature	I_F = 700 mA	TK	5000	-	7000	K
Forward voltage per 6 LEDs	I_F = 700 mA	V_F	-	20	23	V
Temperature coefficient of V_F per 6 LEDs	I_F = 350 mA	TC_{VF}	-	- 20	-	mV/K
Temperature coefficient of Φ_V	I_F = 350 mA	$TC\Phi_V$	-	- 0.4	-	%/K

Notes

(1) 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 %.

(2) Calculated based on single LED unit.

SPECIFICATION OF SINGLE LEDs USED FOR THE MODULES

- VLPC0601A2: LED:
- VLPC1201A2: LED: VLMW911KYKZ6P7R
- VLPC1201A2J: LED:

LUMINOUS FLUX CLASSIFICATION FOR THE SINGLE LED		
GROUP	**LUMINOUS FLUX Φ_V (lm) CORRELATION TABLE**	
STANDARD	**MIN.**	**MAX.**
KY	82 000	97 000
KZ	97 000	112 000

COLOR RANGE AND COLOR BINNING

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

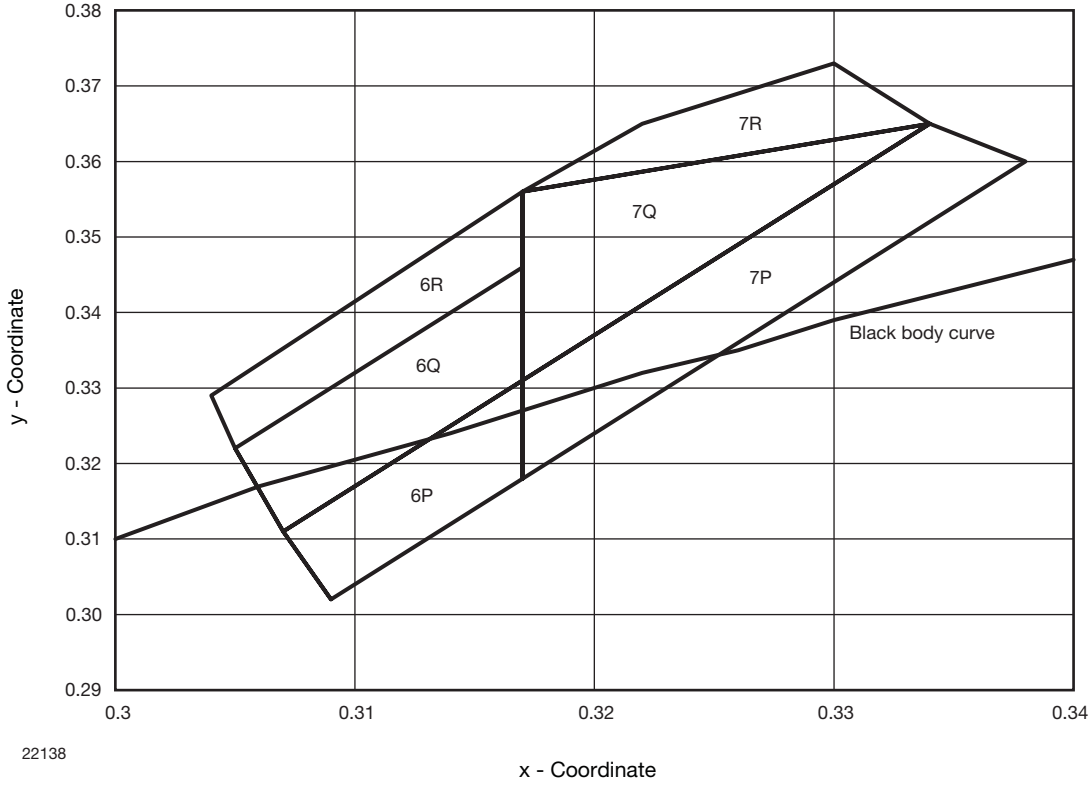
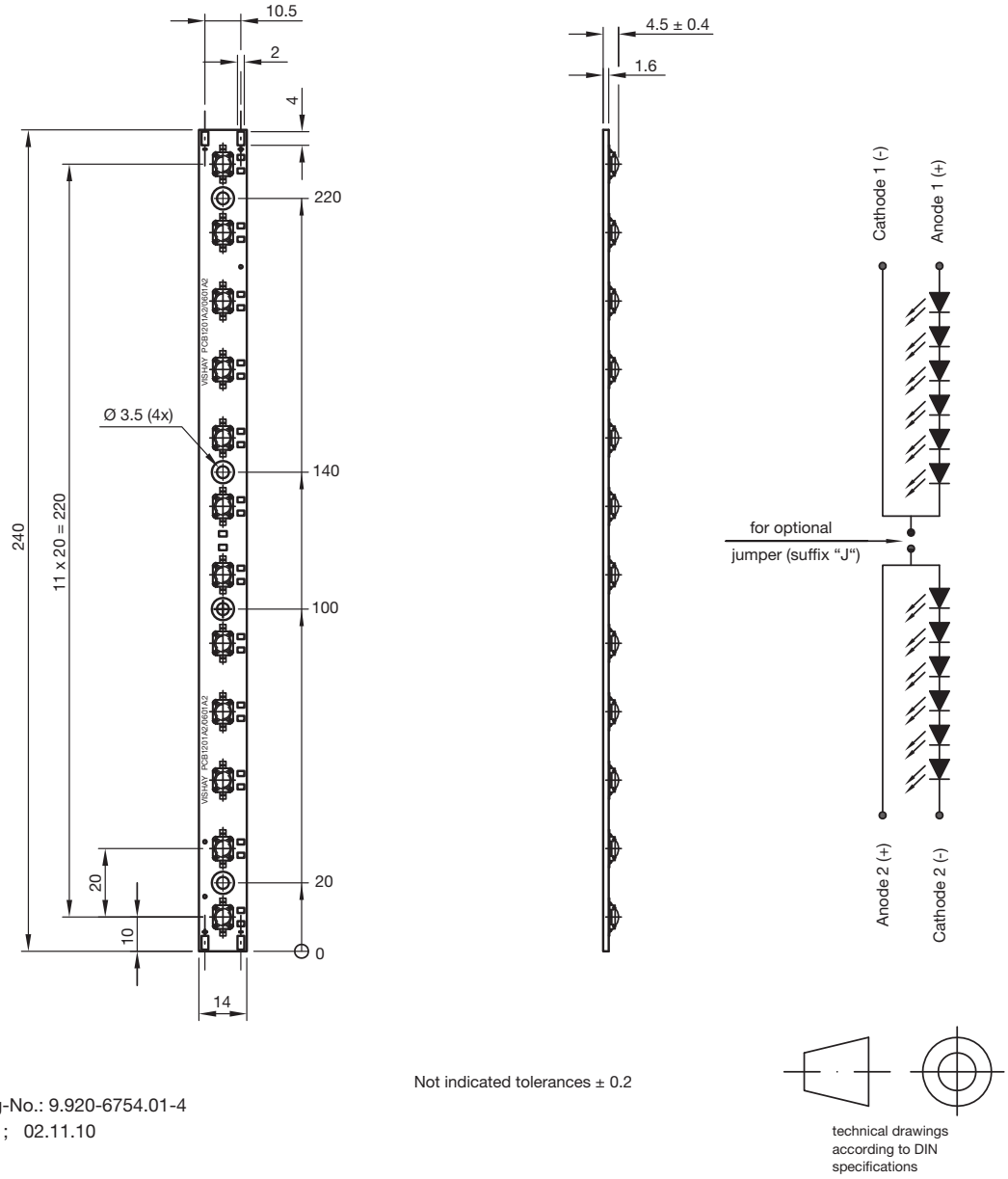


Fig. 1 - Chromaticity Coordinates of Colorgroups

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

PCB BASIC DESIGN Dimensions in millimeters

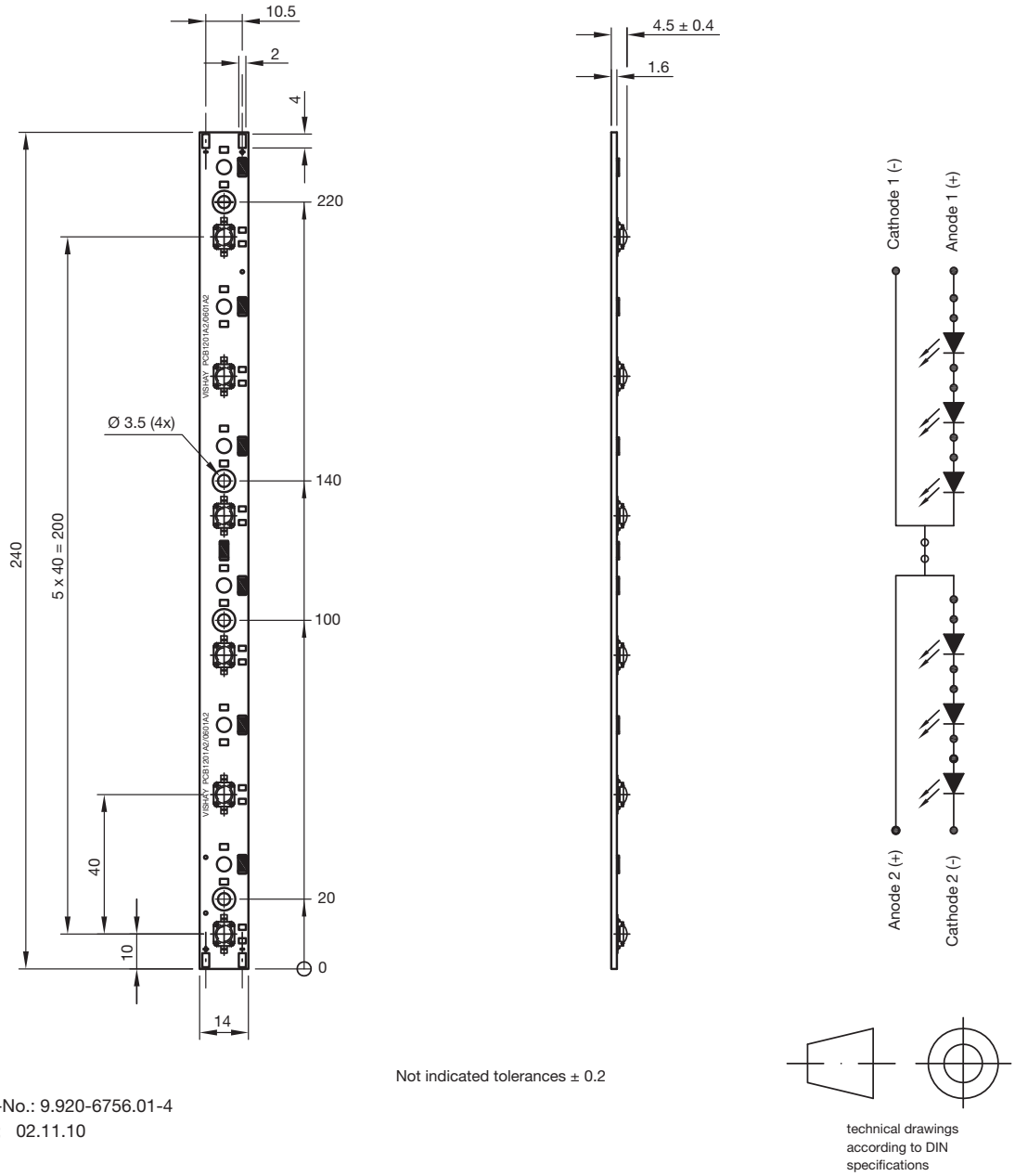


Not indicated tolerances ± 0.2

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

technical drawings
according to DIN
specifications

PCB BASIC DESIGN Dimensions in millimeters



Not indicated tolerances ± 0.2

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

technical drawings
according to DIN
specifications

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 VLMW911xxx LED's. LED position accuracy ± 0.3

EMISSION CHARACTERISTIC

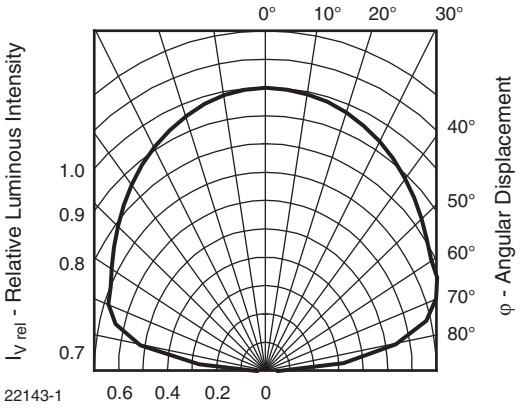
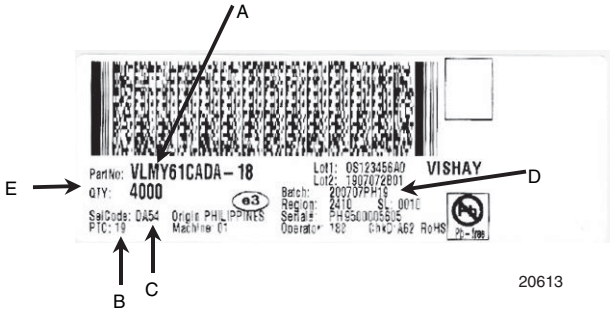


Fig. 2 - Rel. Luminous Intensity vs. Angular Displacement

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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