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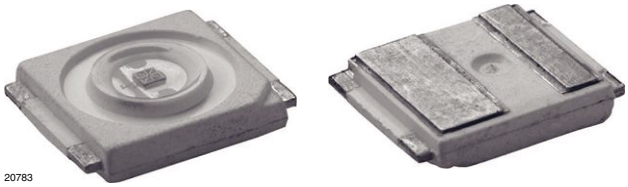
High Brightness LED Power Module



FEATURES

- Metal core PCB: Al > 1 thickness
- Single side/single layer PCB
- Shiny white surface
- 6 or 12 LEDs minimum 87.4 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
- Compliant to RoHS Directive 2011/65/EU

Pb-free
RoHS COMPLIANT
GREEN (5-2008)**

Note

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

DESCRIPTION

VLPC1201A1, VLPC1201A1J and VLPC0601A1 are metal core based high brightness LED power modules assembled with 6 or 12 white LEDs. Color temperature range of 5000 K to 7000 K.

The VLPC1201A1J has 12 units in row, while the VLPC1201A1 can be devided in 2 strips 6 LEDs each by sawing or driven as 2 x 6 LEDs.

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: ± 60°

PARTS TABLE

PART	COLOR	LUMINOUS FLUX (at I_F = 350 mA typ.)	COLOR TEMPERATURE K	TECHNOLOGY
VLPC0601A1	Cool white	Φ_V = 540 lm	5000 to 7000	InGaN
VLPC1201A1	Cool white	Φ_V = 2 x 540 lm	5000 to 7000	InGaN
VLPC1201A1J	Cool white	Φ_V = 1080 lm	5000 to 7000	InGaN

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)
VLPC0601A1, VLPC1201A1, VLPC1201A1J

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Forward current			I_F	350	mA
Power dissipation	Total	VLPC0601A1	P_{tot}	8.4	W
		VLPC1206A1	P_{tot}	16.8	W
		VLPC1206A1J	P_{tot}	16.8	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

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified) **VLPC0601A1, COOL WHITE**						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux total (1)	I_F = 350 mA	Φ_V	480	540	-	lm
Color temperature	I_F = 350 mA	TK	5000	-	7000	K
Forward voltage	I_F = 350 mA	V_F	18	20	24	V
Temperature coefficient of V_F	I_F = 350 mA	TC_{VF}	-	- 18	-	mV/K
Temperature coefficient of Φ_V	I_F = 350 mA	$TC\Phi_V$	-	- 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) **VLPC1201A1J, COOL WHITE**						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux total (1)	I_F = 350 mA	Φ_V	960	1080	-	lm
Color temperature	I_F = 350 mA	TK	5000	-	7000	K
Forward voltage	I_F = 350 mA	V_F	36	40	44	V
Temperature coefficient of V_F	I_F = 350 mA	TC_{VF}	-	- 36	-	mV/K
Temperature coefficient of Φ_V	I_F = 350 mA	$TC\Phi_V$	-	- 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.

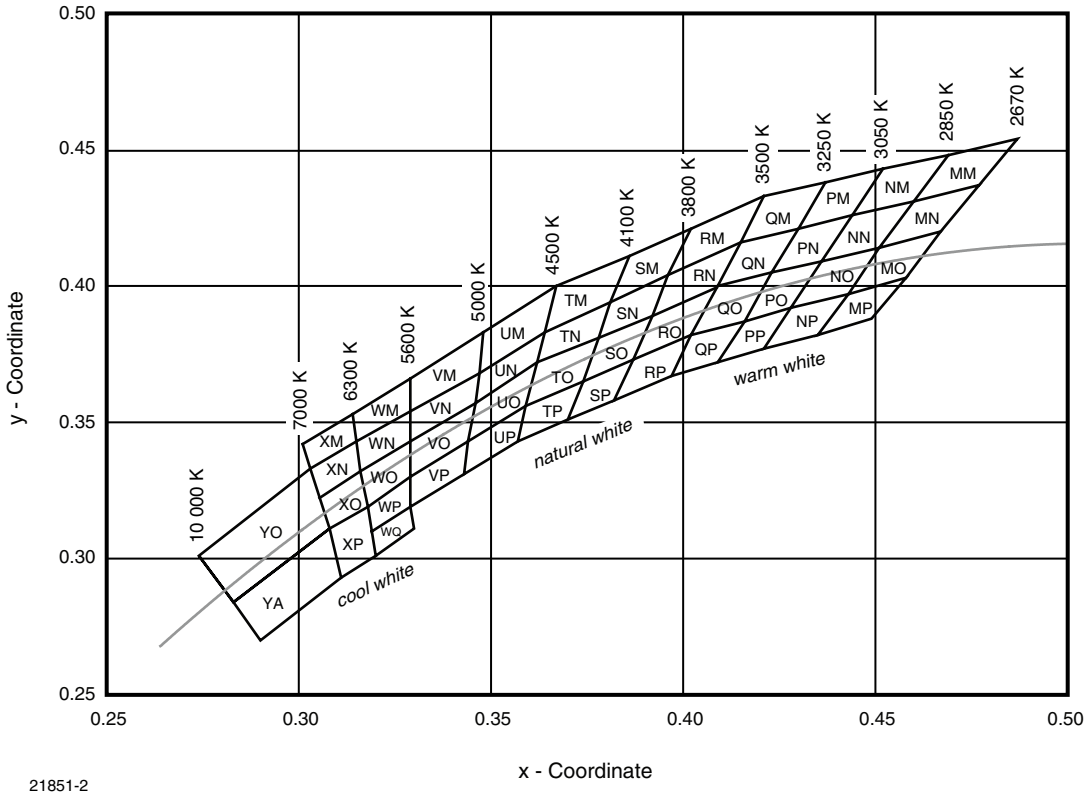
OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified) **VLPC1201A1, COOL WHITE**						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux total (1)	I_F = 350 mA	Φ_V	2 x 480	2 x 540	-	lm
Color temperature	I_F = 350 mA	TK	5000	-	7000	K
Forward voltage per 6 LEDs	I_F = 350 mA	V_F	18	20	24	V
Temperature coefficient of V_F per 6 LEDs	I_F = 350 mA	TC_{VF}	-	- 18	-	mV/K
Temperature coefficient of Φ_V	I_F = 350 mA	$TC\Phi_V$	-	- 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.

COLOR RANGE AND COLOR BINNING

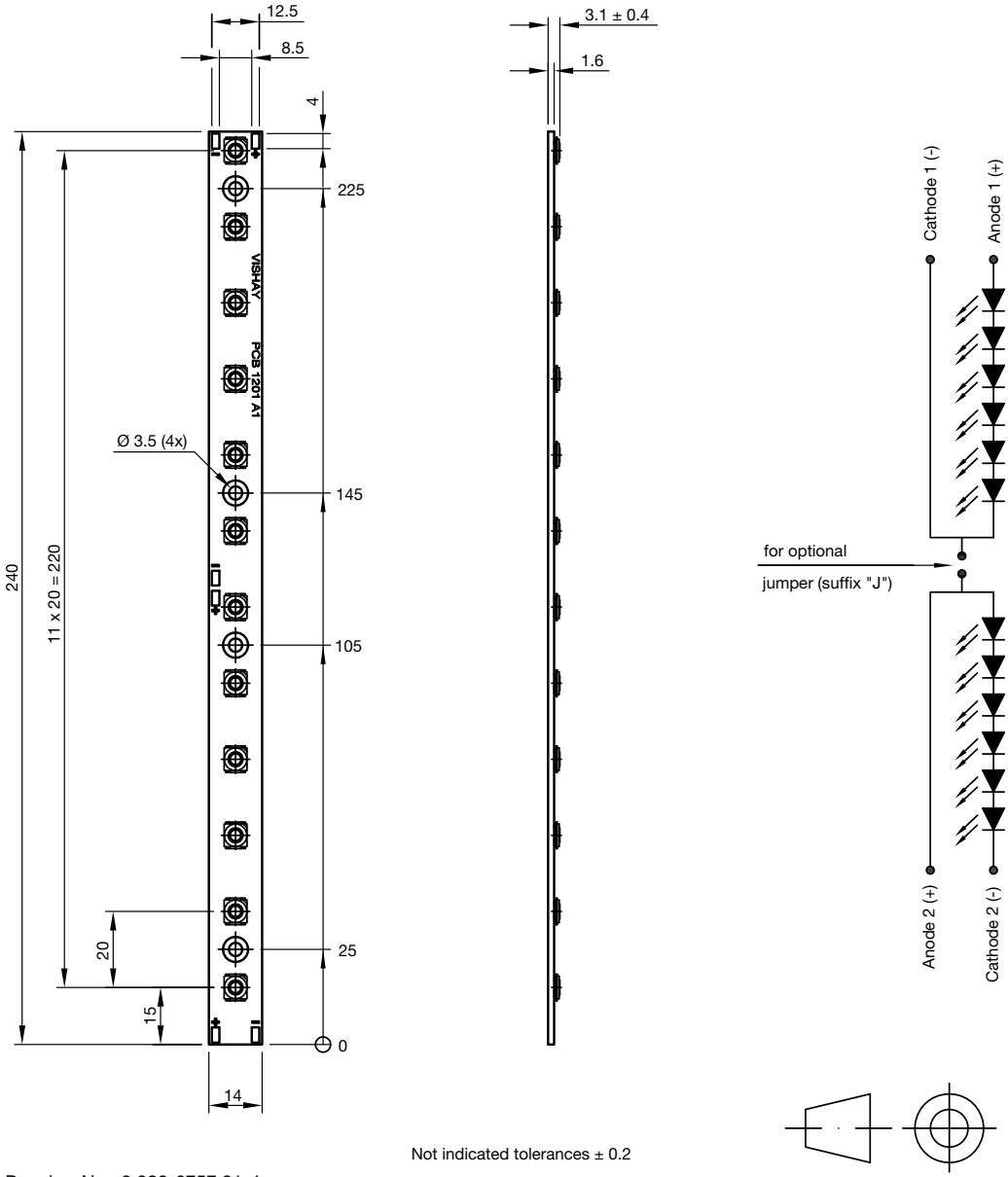


21851-2

Fig. 1 - Chromaticity Coordinates of Colorgroups

CHROMATICITY COORDINATED GROUPS FOR COOL WHITE SMD LED																		
GROUP	X	Y		GROUP	X	Y		GROUP	X	Y		GROUP	X	Y		GROUP	X	Y
XM	0.301	0.342		XN	0.303	0.333		XO	0.305	0.322		XP	0.308	0.311		-	-	-
	0.314	0.353			0.315	0.343			0.316	0.332			0.318	0.319			-	-
	0.315	0.343			0.316	0.332			0.318	0.319			0.320	0.301			-	-
	0.303	0.333			0.305	0.322			0.308	0.311			0.311	0.293			-	-
WM	0.314	0.353		WN	0.315	0.343		WO	0.316	0.332		WP	0.318	0.319		WQ	0.319	0.310
	0.329	0.366			0.329	0.354			0.329	0.343			0.329	0.330			0.329	0.319
	0.329	0.354			0.329	0.343			0.329	0.330			0.329	0.319			0.330	0.311
	0.315	0.343			0.316	0.332			0.318	0.319			0.319	0.310			0.320	0.301
VM	0.329	0.366		VN	0.329	0.354		VO	0.329	0.343		VP	0.329	0.330		-	-	-
	0.348	0.383			0.347	0.368			0.346	0.357			0.344	0.343			-	-
	0.347	0.368			0.346	0.357			0.344	0.343			0.343	0.331			-	-
	0.329	0.354			0.329	0.343			0.329	0.330			0.329	0.319			-	-

PCB BASIC DESIGN DIMENSIONS in millimeters

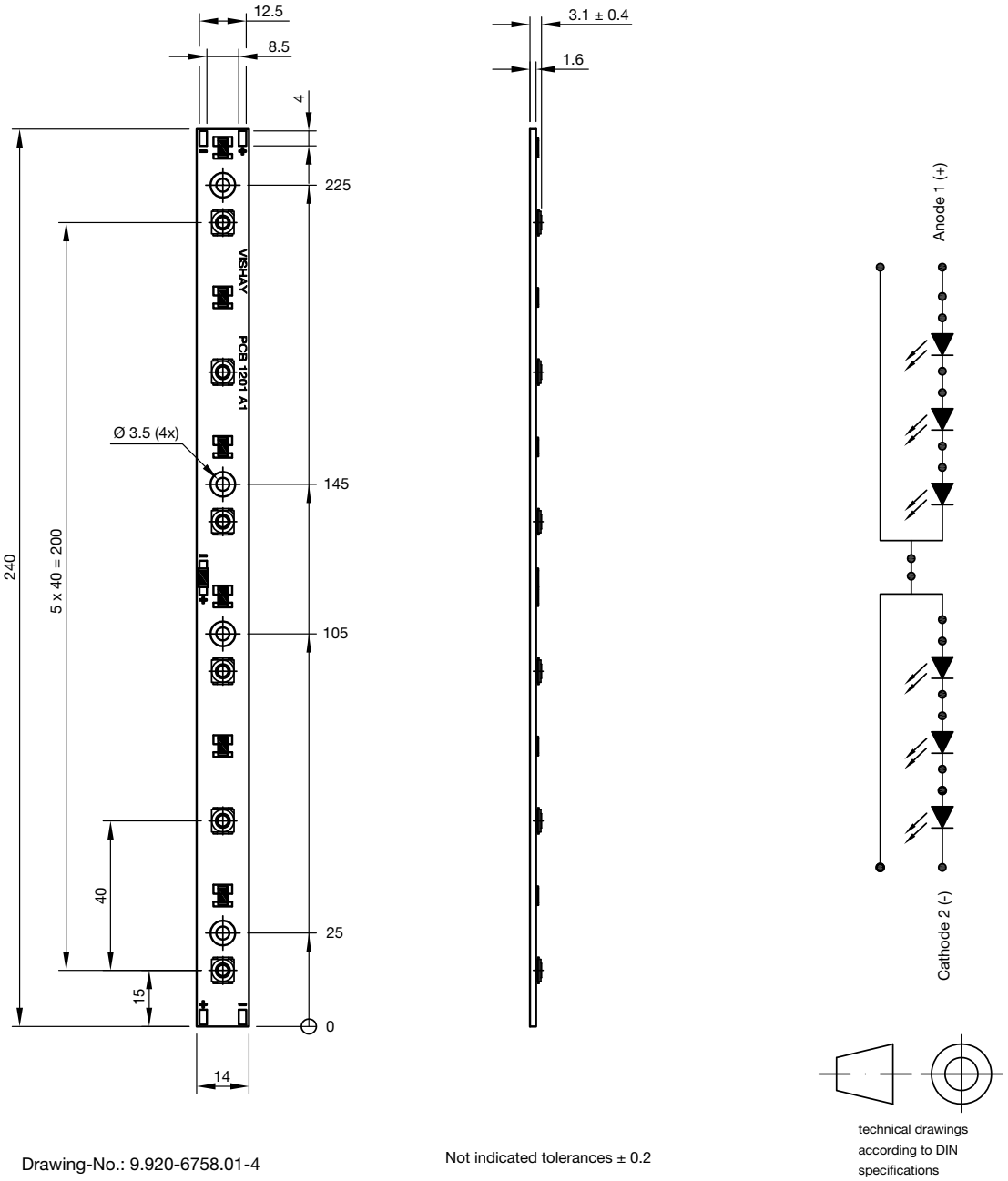


Not indicated tolerances ± 0.2

Drawing-No.: 9.920-6757.01-4
Issue: 1 ; 15.11.10
22457

technical drawings
according to DIN
specifications

PCB BASIC DESIGN DIMENSIONS in millimeters



technical drawings
according to DIN
specifications

Drawing-No.: 9.920-6758.01-4
Issue: 1 ; 15.11.10
22458

Not indicated tolerances ± 0.2

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

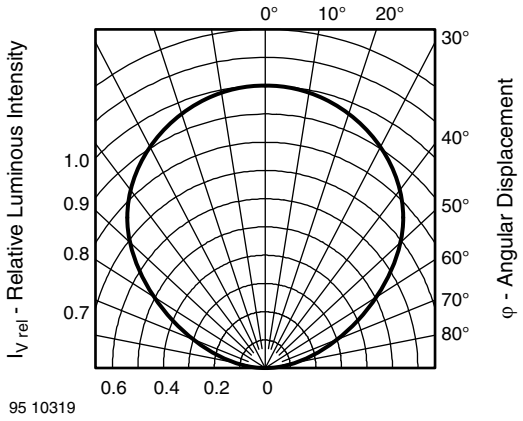
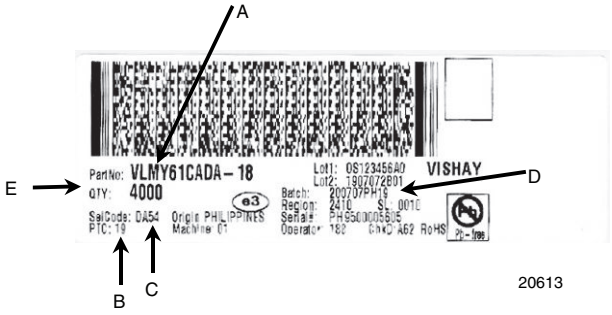


Fig. 2 - Rel. Luminous Intensity vs. Angular Displacement

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

- 24 PCB's per box, minimum order quantity 24

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