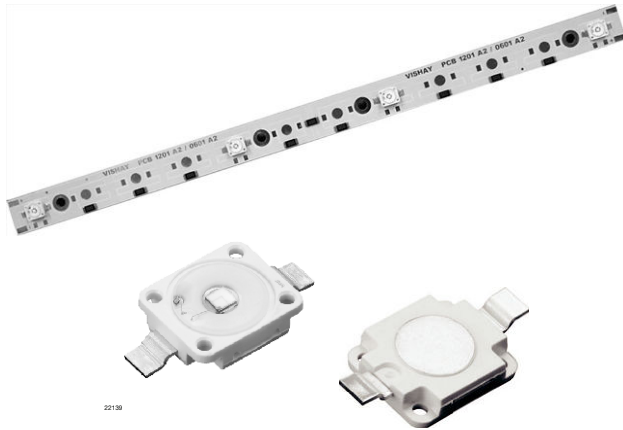


## High Brightness LED Power Module



### DESCRIPTION

VLPC0401A2J is a metal core based high brightness LED power modules assembled with 4 white LED's. Color temperature range of 5000 K to 7000 K.

### PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: LED module
- Product series: power
- Angle of half intensity:  $\pm 80^\circ$

### FEATURES

- Metal core PCB: Al > 1 mm thickness
- Single side/single layer PCB
- Shiny white surface
- 4 LED's in a row
- Conductive top layer: Cu (min. 18  $\mu\text{m}$ )
- Isolation layer prepreg (100  $\mu\text{m}$ )
- 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](http://www.vishay.com/doc?99912)



### APPLICATIONS

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

### PARTS TABLE

PART	COLOR	LUMINOUS FLUX (at $I_F = 700 \text{ mA typ.}$ )	COLOR TEMPERATURE K	TECHNOLOGY
VLPC0401A2J	Cool white	$\Phi_V = \text{typ. } 580 \text{ lm}$	5000 to 7000	InGaN

### ABSOLUTE MAXIMUM RATINGS ( $T_{\text{amb}} = 25^\circ\text{C}$ , unless otherwise specified) VLPC0401A2J

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Forward current		$I_F$	700	mA
Power dissipation	Total	$P_{\text{tot}}$	10.8	W
Junction temperature		$T_j$	120	$^\circ\text{C}$
Operating temperature range		$T_{\text{amb}}$	- 40 to + 85	$^\circ\text{C}$
Storage temperature range		$T_{\text{stg}}$	- 40 to + 85	$^\circ\text{C}$
Decomposition temperature of PCB (for cable assembly)	3 x 10 s	$T_D$	350	$^\circ\text{C}$

### OPTICAL AND ELECTRICAL CHARACTERISTICS ( $T_{\text{amb}} = 25^\circ\text{C}$ , unless otherwise specified) VLPC0401A2J, COOL WHITE

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous flux total <sup>(1)</sup>	$I_F = 700 \text{ mA}$	$\Phi_V$	500	580	-	lm
Color temperature	$I_F = 700 \text{ mA}$	TK	5000	-	7000	K
Forward voltage	$I_F = 700 \text{ mA}$	$V_F$	12.5	14	15.5	V
Temperature coefficient of $V_F$	$I_F = 350 \text{ mA}$	$TC_{V_F}$	-	- 14	-	mV/K
Temperature coefficient of $\Phi_V$	$I_F = 350 \text{ mA}$	$TC_{\Phi_V}$	-	- 0.4	-	%/K

### Notes

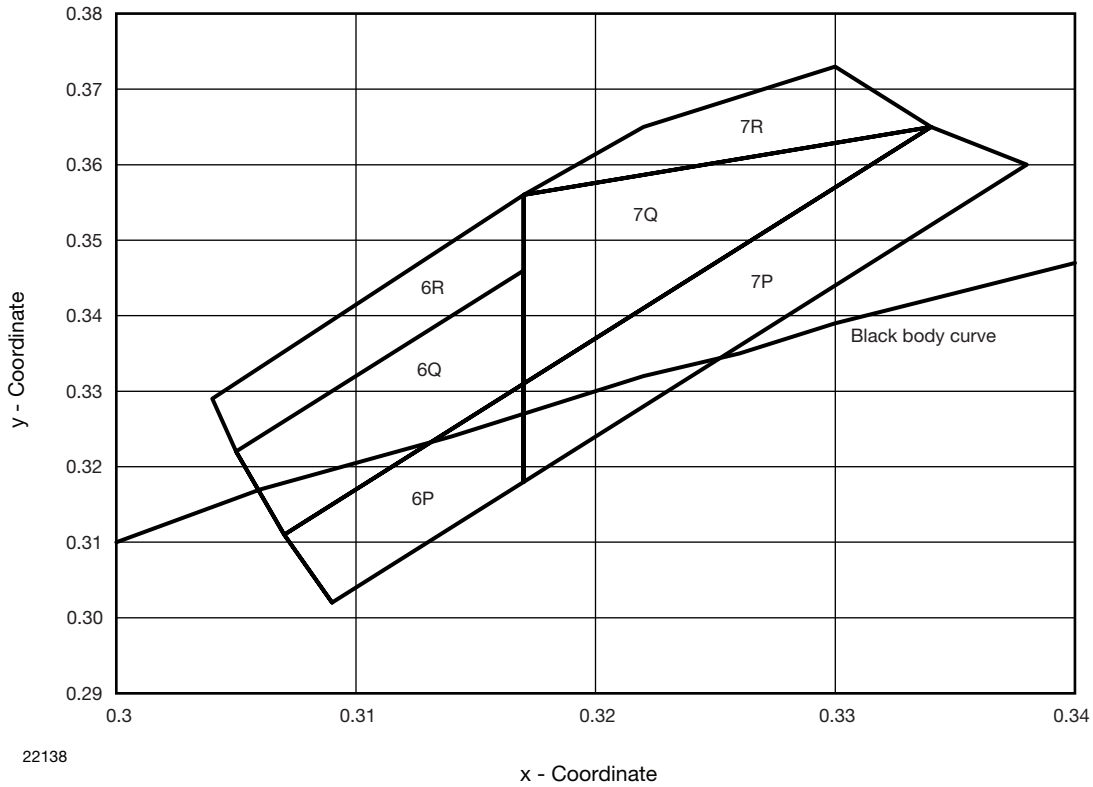
- Forward voltages are tested at a current pulse duration of 1 ms and a tolerance of  $\pm 0.1 \text{ V}$ . Luminous flux is measured at a current pulse duration of 25 ms and an accuracy of  $\pm 11 \%$ .

<sup>(1)</sup> Calculated based on single LED unit.



**COLOR RANGE AND COLOR BINNING**

VLPC0401A2J: 5000 K to 7000 K group 6P to 7R

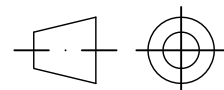
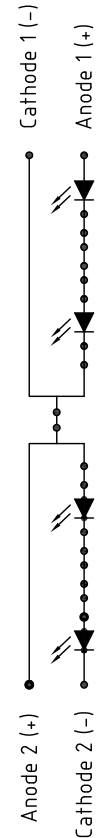
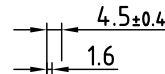
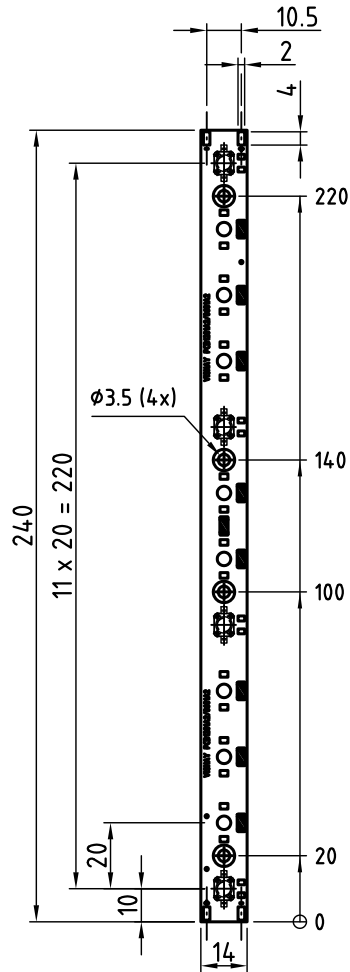


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Fig. 1 - Chromaticity Coordinates of Colorgroups

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



technical drawings according to DIN specifications

Drawing-No.: 9.920-6790.01-4  
 Issue: 1; 05.09.11  
 Not indicated tolerances ±0.2  
 Drawing refers to following types: VLP.0401A2J

**PCB CHARACTERISTICS**

- Metal core PCB: Al (minimum 1000 µm - thickness)
- Prepreg minimum 63 µm
- Conductive pattern Cu minimum 18 µm
- Free of burrs
- RoHS compliant
- Halogen-free
- 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 4 high brightness power LEDs. LED position accuracy ± 0.3

**EMISSION CHARACTERISTIC**

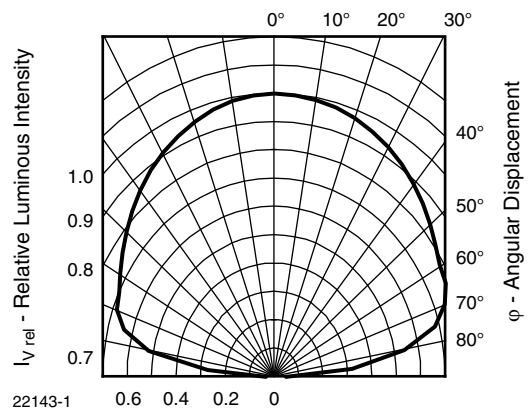
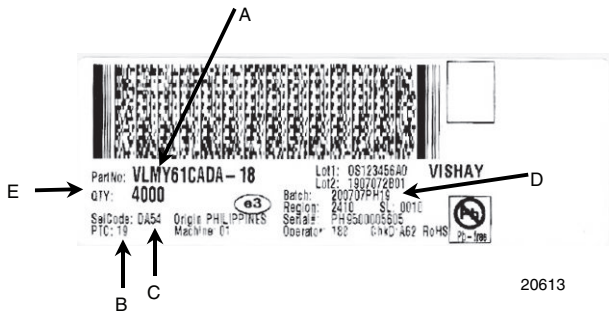


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement



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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