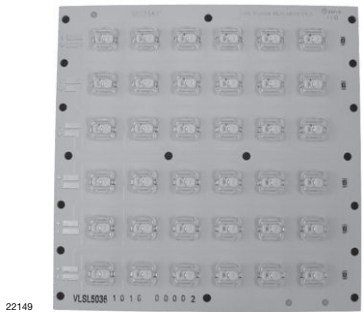
High Brightness LED Power Module





FEATURES

- Metal core PCB: Al > 0.75 thickness
- Single side/single layer PCB
- Shiny white surface
- 12, 24 or 36 LED's minimum 82 lm at 350 mA per LED. Max. current per LED 1 A
- Conductive top layer: Cu (min. 18 µm)
- Isolation layer prepreg > 63 µm
- Compliant to RoHS directive 2002/95/EC
- ESD withstand voltage: up to 2 kV according to JESD22-A114-B
- Luminous flux and colour binning

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

APPLICATIONS

- Streetlight
- Internal lighting in buildings
- Tunnel lights
- General lighting application

DESCRIPTION

The VLSL50xxA are metal core based high brightness LED power modules, assembled with 12, 24 or 36 HB white LEDs. The colour temperature is cold white in the typical range of 5000 K to 7000 K. The LED's are designed with a clear silicone lens for a butterfly shaped radiation characteristic.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: LED module
- Product series: power
- Angle of half intensity: vertical: ± 35°, horizontal: ± 60°

PARTS TABLE

PART	COLOR	LUMINOUS FLUX (at I_F = 700 mA typ.)	COLOR TEMPERATURE K	TECHNOLOGY
VLSL5012A	Cold white	Φ_V = 1740 lm	5000 to 7000	InGaN
VLSL5024A	Cold white	Φ_V = 3480 lm	5000 to 7000	InGaN
VLSL5036A	Cold white	Φ_V = 5220 lm	5000 to 7000	InGaN

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)
VLSL5012A, VLSL5024A, VLSL5036A

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Forward current	Per row	I_F	750	mA
Power dissipation VLSL5012A	Total (max.)	P_{tot}	35	W
Power dissipation VLSL5024A		P_{tot}	69	W
Power dissipation VLSL5036A		P_{tot}	104	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

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

OPTICAL AND ELECTRICAL CHARACTERISTICS (1) (T_{amb} = 25 °C, unless otherwise specified) VLSL5012A, COLD WHITE						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux per row (2)	I_F = 700 mA	Φ_V	760	870	-	lm
Luminous flux total (2)	I_{board} = 2 x 700 mA	Φ_V	1520	1740	-	lm
Color temperature	I_F = 700 mA	TK	5000	-	7000	K
Forward voltage per row	I_F = 700 mA	V_F	19	20	23	V
Class A ($V_{Fmax.}$ - $V_{Fmin.}$) all rows (3)	I_F = 700 mA	ΔV_F	-	-	0.9	V
Temperature coefficient of V_F per row	I_F = 350 mA	TC_{VF}	-	- 20	-	mV/K
Temperature coefficient of Φ_V	I_F = 350 mA (per row)	$TC\Phi_V$	-	- 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.

(3) V_F classes are marked at the LED cluster and represent the technical classification only. The single groups cannot be specifically ordered.

OPTICAL AND ELECTRICAL CHARACTERISTICS (1) (T_{amb} = 25 °C, unless otherwise specified) VLSL5024A, COLD WHITE						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux per row (2)	I_F = 700 mA	Φ_V	760	870	-	lm
Luminous flux total (2)	I_{board} = 4 x 700 mA	Φ_V	3040	3480	-	lm
Color temperature	I_F = 700 mA	TK	5000	-	7000	K
Forward voltage per row	I_F = 700 mA	V_F	19	20	23	V
Class A ($V_{Fmax.}$ - $V_{Fmin.}$) all rows (3)	I_F = 700 mA	ΔV_F	-	-	0.9	V
Temperature coefficient of V_F per row	I_F = 350 mA	TC_{VF}	-	- 20	-	mV/K
Temperature coefficient of Φ_V	I_F = 350 mA (per row)	$TC\Phi_V$	-	- 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.

(3) V_F classes are marked at the LED cluster and represent the technical classification only. The single groups cannot be specifically ordered.

OPTICAL AND ELECTRICAL CHARACTERISTICS (1) (T_{amb} = 25 °C, unless otherwise specified) VLSL5036A, COLD WHITE						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux per row (2)	I_F = 700 mA	Φ_V	760	870	-	lm
Luminous flux total (2)	I_{board} = 6 x 700 mA	Φ_V	4560	5220	-	lm
Color temperature	I_F = 700 mA	TK	5000	-	7000	K
Forward voltage per row	I_F = 700 mA	V_F	19	20	23	V
Class A ($V_{Fmax.}$ - $V_{Fmin.}$) all rows (3)	I_F = 700 mA	ΔV_F	-	-	0.9	V
Temperature coefficient of V_F per row	I_F = 350 mA	TC_{VF}	-	- 20	-	mV/K
Temperature coefficient of Φ_V	I_F = 350 mA (per row)	$TC\Phi_V$	-	- 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.

(3) V_F classes are marked at the LED cluster and represent the technical classification only. The single groups cannot be specifically ordered.

SPECIFICATION OF SINGLE LEDs USED FOR THE MODULES

- VLSL5012A, VLSL5024A, VLSL5036A: LED: VLMW92KYKZ6P7R

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

COLOR RANGE AND COLOR BINNING

VLSL5012A, VLSL5024A, VLSL5036A: 5000 K to 7000 K group 6P to7R

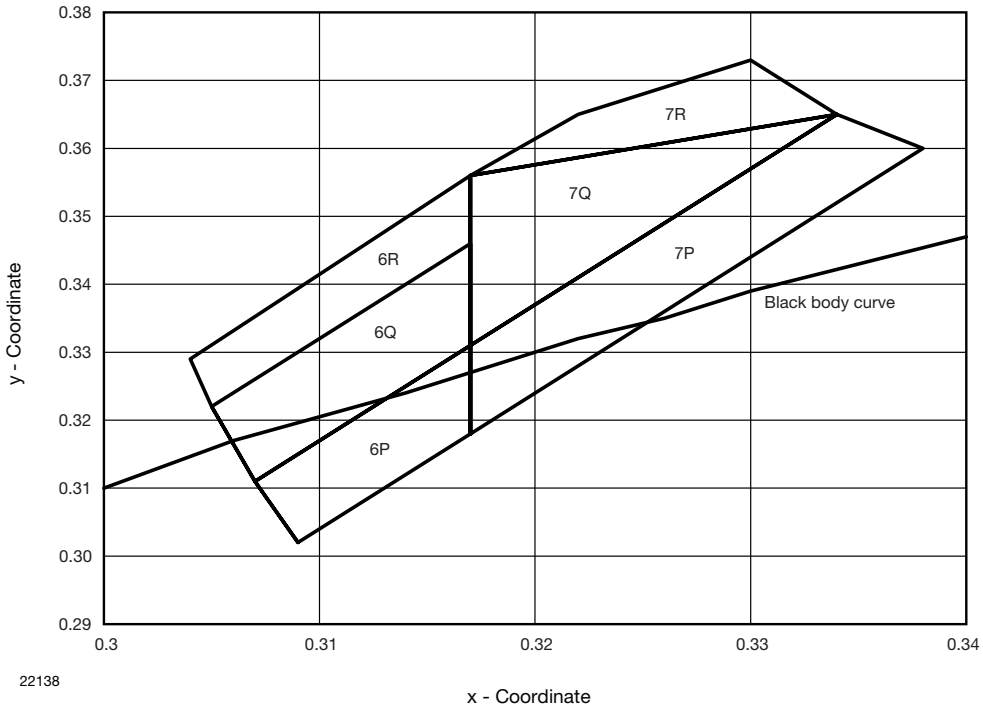
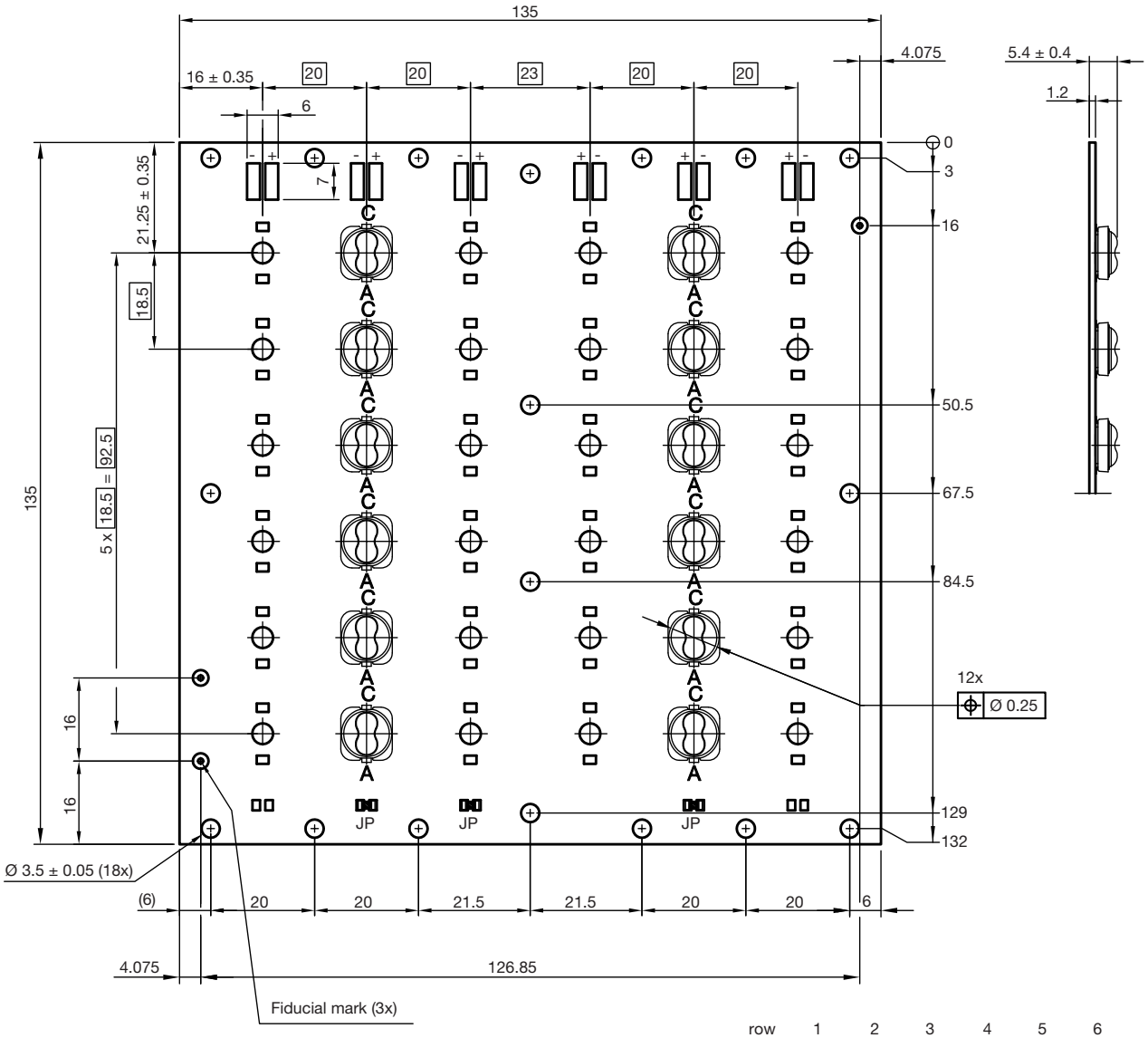
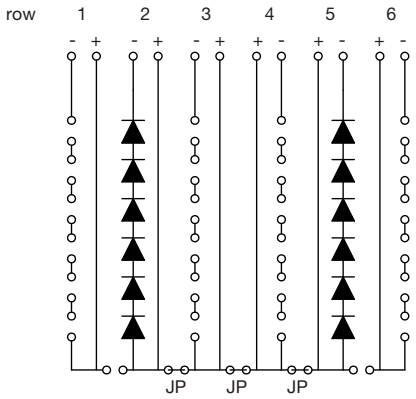


Fig. 1 - Chromaticity Coordinates of Colorgroups

PCB BASIC DESIGN VLSL5012A Dimensions in millimeters





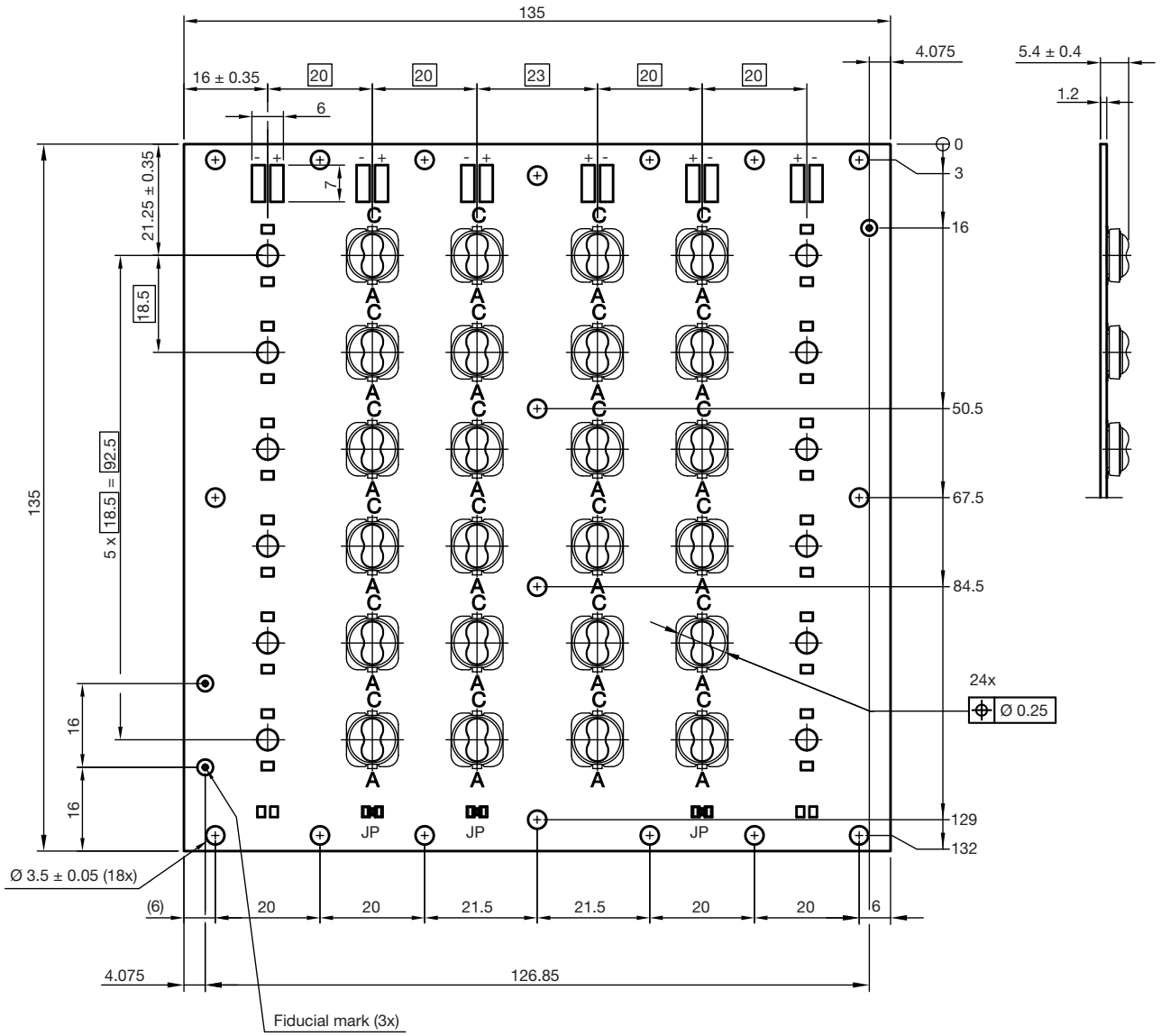
Not indicated tolerances ± 0.15

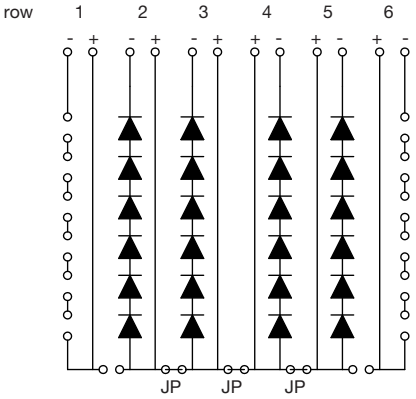
technical drawings according to DIN specifications

Drawing-No.: 9.920-6727.03-4
Issue:1; 11.05.10
22150

Assembled with all jumbers. Jumbers can be removed according driver design

PCB BASIC DESIGN VLSL5024A Dimensions in millimeters





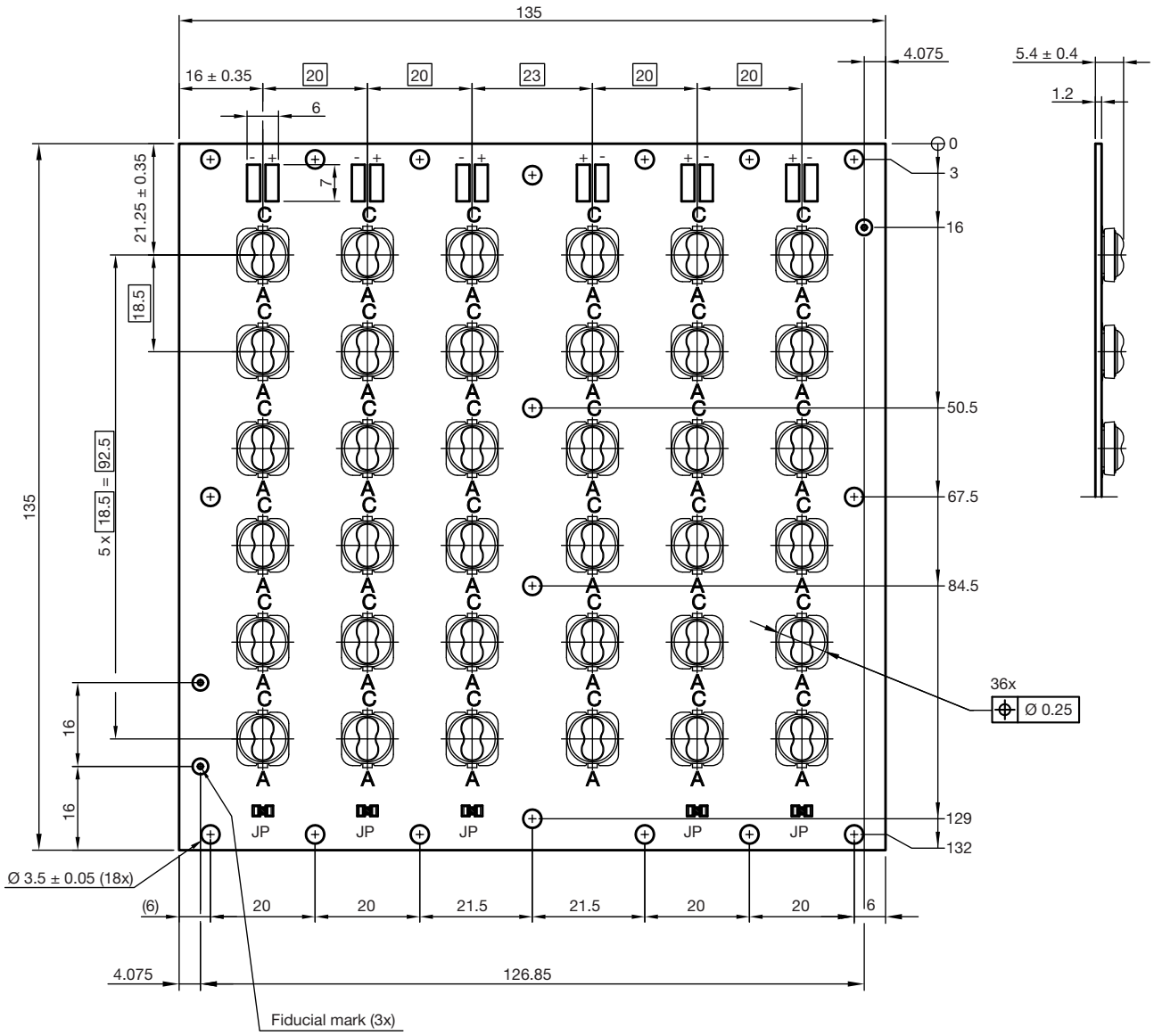
Not indicated tolerances ± 0.15

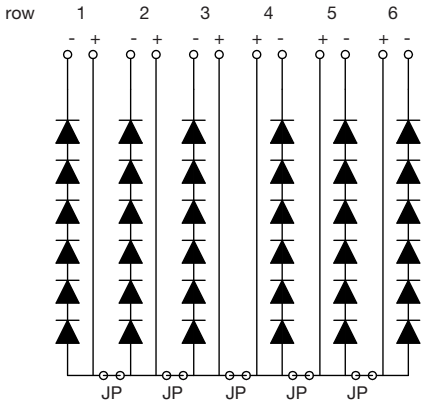
technical drawings according to DIN specifications

Drawing-No.: 9.920-6727.02-4
Issue:1; 11.05.10
22151

Assembled with all jumbers. Jumbers can be removed according driver design

PCB BASIC DESIGN VLSL5036A Dimensions in millimeters





Not indicated tolerances ±0.15

technical drawings according to DIN specifications

Drawing-No.: 9.920-6727.01-4
Issue: 1; 11.05.10
22152

Assembled with all jumbers. Jumbers can be removed according driver design

PCB CHARACTERISTICS

- Metal core PCB with typical Al thickness of 800 µm
- Prepreg thickness typical 127 µm
- Conductive pattern Cu typical 25 µm
- Total board thickness: 1 mm ± 15 %
- Warpage max. 0.75 % of board dimension
- Solder resist on top side
- Shiny white surface
- Galvanic of solder pads pure matte Sn (≥ 0.8 µm), immersion plated
- Assembled with 12, 24 or 36 VLMW92xxx LED's. LED position accuracy ± 0.125 mm from middle axis, horizontal tilt max. 2°

EMISSION CHARACTERISTIC

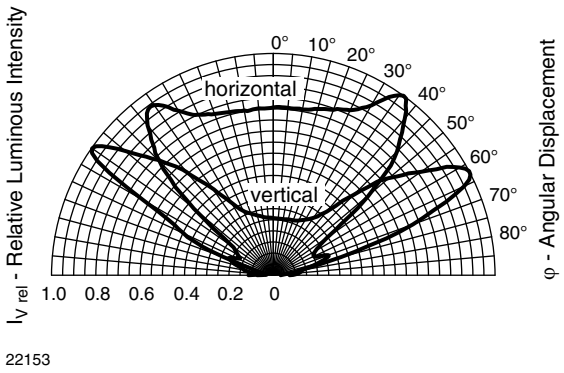
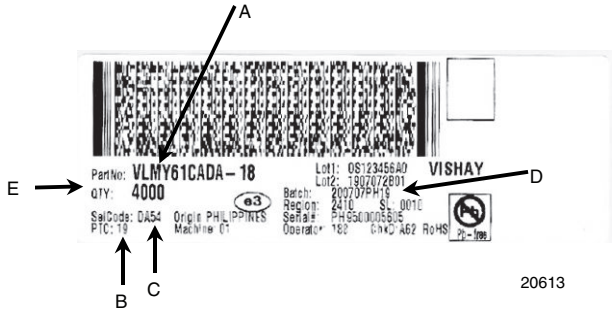


Fig. 2 - Rel. Luminous Intensity vs. Angular Displacement

BAR CODE PRODUCT LABEL



A. Type of component

B. Manufacturing plant

C. SEL - selection code (bin):
e.g.: code for V_F class (A, B, C)

D. Batch:
200707 = year 2007, week 07
PH19 = plant code

E. Total quantity

Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.

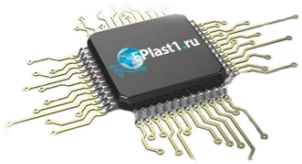
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)
Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.