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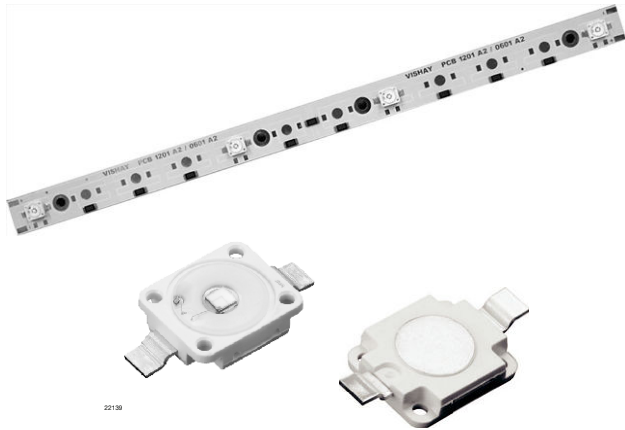
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High Brightness LED Power Module



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 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



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_{tot} | 10.8 | W |
| Junction temperature | | T_j | 120 | $^\circ\text{C}$ |
| Operating temperature range | | T_{amb} | - 40 to + 85 | $^\circ\text{C}$ |
| Storage temperature range | | T_{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 ⁽¹⁾ | $I_F = 700 \text{ mA}$ | Φ_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 Φ_V | $I_F = 350 \text{ mA}$ | TC_{Φ_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 $\pm 11 \%$.

⁽¹⁾ Calculated based on single LED unit.



COLOR RANGE AND COLOR BINNING

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

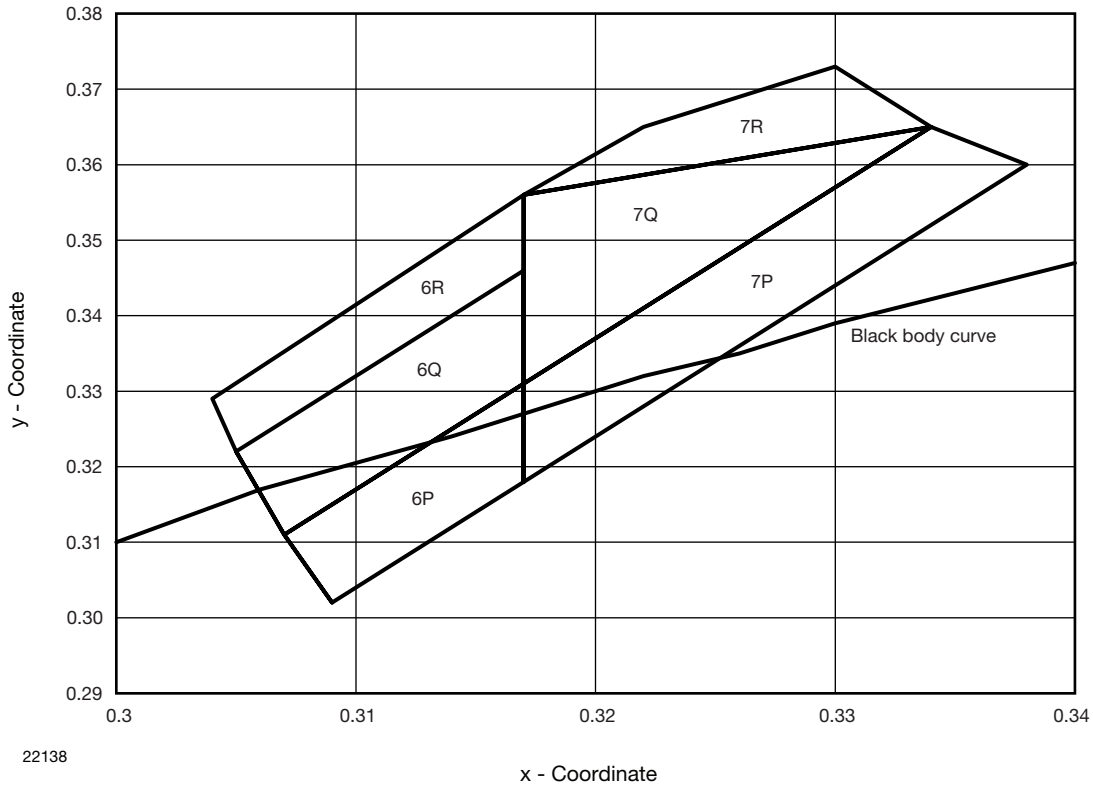
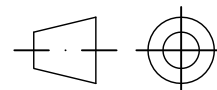
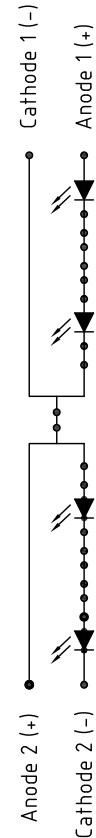
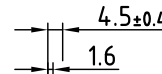
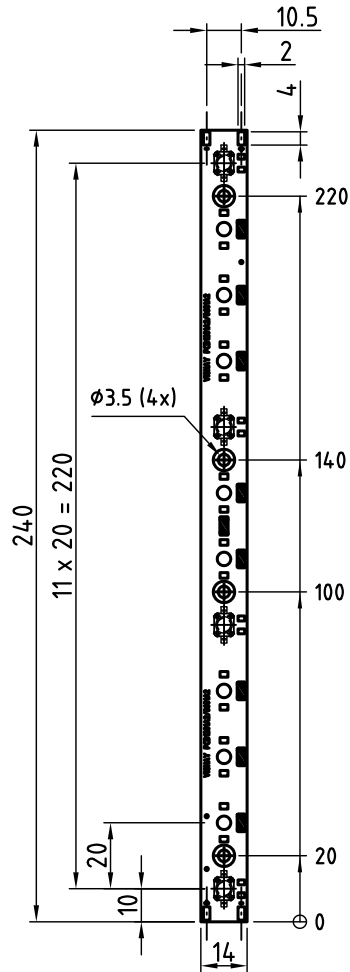


Fig. 1 - Chromaticity Coordinates of Colorgroups

| 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



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

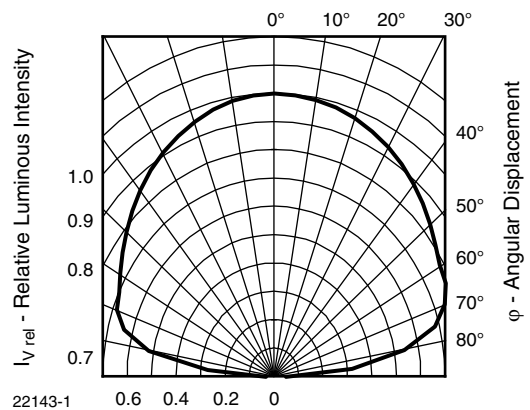
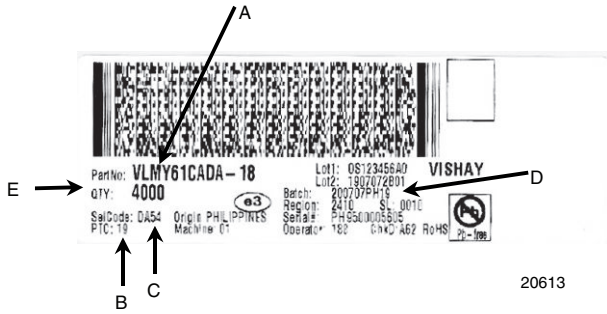


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

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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