LumiBright™ UV 2910A-100 Focusable Projector

LumiBright UV Projectors combine efficient, non-imaging, homogenizing optics with a precision re-imaging lens system to achieve highly uniform illumination fields. The glass lenses are a superior solution for all high-power wavelengths. Chip-on-Board LED technology with metallic PCB substrates offers excellent thermal performance.

The Model UV 2910A-100 is a focusable unit producing a square illuminated area. There are options for 16 LED die in single or multi-wavelength (independently addressable) configurations. An onboard thermistor is included allowing real-time monitoring of temperature for closed-loop control.

Benefits:
- Uniform far field and illumination plane
- Continuous high current or pulsed operation
- RoHS compliant - Environmentally friendly

Features:
- Focusable illumination field
- Long life, high temperature glass optics
- High thermal conductivity metal core PCB
- COB array technology, 16 Die
- Independently addressable wavelengths
- Patent-pending technology

Options:
- Integrated UV filter
- Single or multi-wavelength configurations
- Heat sink and thermal pads
- Drivers and controllers

Typical Applications:

Ultraviolet:
- UV curing
- Medical fluorescence imaging
- Water and air purification
- Medical phototherapy
- Machine vision
- General fluorescence excitation
- High uniformity UV spot light
- Mercury lamp replacement

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## Specifications

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<tr>
<th>Parameter</th>
<th>Specification</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of LED die</td>
<td>16</td>
<td>Connected in parallel, chip-on-board</td>
</tr>
<tr>
<td>Drive current</td>
<td>30A Maximum</td>
<td>Continuous operation</td>
</tr>
<tr>
<td><em>Forward voltage</em></td>
<td>Turn on: 3.0V Limit: 4.8V</td>
<td>Requires constant current operation</td>
</tr>
<tr>
<td>UV optical power</td>
<td>11.5 Watts</td>
<td>At max current</td>
</tr>
<tr>
<td>UV optical power density</td>
<td>6.6 W/cm²</td>
<td>At exit aperture, max current</td>
</tr>
<tr>
<td>Clear aperture (CA₀)</td>
<td>14.0 mm</td>
<td>At exit aperture</td>
</tr>
<tr>
<td>Far field angle</td>
<td>20°</td>
<td></td>
</tr>
<tr>
<td>Numerical aperture (NA₀)</td>
<td>0.34</td>
<td></td>
</tr>
<tr>
<td>Electrical connector</td>
<td>1 row, 8 pin</td>
<td>Surface mount, high current</td>
</tr>
<tr>
<td>Overall size (mm)</td>
<td>30 x 39 x 40.5</td>
<td>W x L x H</td>
</tr>
<tr>
<td>PCB Thermal impedance</td>
<td>0.45° C/W</td>
<td></td>
</tr>
<tr>
<td>Thermistor B₂₅/₈₅</td>
<td>3574 to 3646</td>
<td>For 10 kΩ</td>
</tr>
<tr>
<td>Thermistor impedance</td>
<td>10 kΩ</td>
<td>At 25° C</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>15° C to 45° C</td>
<td>&lt;85% RH, non-condensing</td>
</tr>
<tr>
<td>Minimum working distance</td>
<td>150mm</td>
<td></td>
</tr>
<tr>
<td>Lifetime (hours)</td>
<td></td>
<td>Depending on drive conditions and temperature</td>
</tr>
</tbody>
</table>

*Note: Drive circuits must prevent exceeding the maximum recommended open circuit voltage for any LED die.*

## Notes

### Notes on Thermal Management

The 2910A-100 uses a metal core circuit board for high thermal conductivity that allows heat to dissipate in all directions. An external heat sink or heat pipe is required to dissipate the heat generated at full drive power. Adding the feature of forced air convection across the heat sink or heat pipe fins removes heat faster and more efficiently. The 2910A-100 circuit board features an attached thermal pad for heat sink contact, no thermal grease is needed. Every 2910A-100 circuit board has a built-in thermistor for temperature monitoring. Lifetime of the LEDs will be compromised if the temperature of the circuit board exceeds 60° C.
Figure 1: Optical Power vs. Drive Current

Figure 2: Optical Density vs. Drive Current at 20 cm Working Distance

Figure 3: Forward Voltage vs. Drive Current

Figure 4: Drive Power vs. Drive Current

Figure 5: UV Die Bins: Spectral Power Density (at equal current density)

Figure 6: Temperature Versus Thermistor Impedance
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