310nm UVC LED

- SMD
  - low, medium & high power
- Chip on Board (COB)
- Light Bars (12x1)

Boston Electronics

www.boselec.com
uv@boselec.com
shop.boselec.com
617.566.3821
310 UVC LED

Contents

SMD
- low power - 23 mW, 130 deg.
- medium power - 48 mW, 30 deg.
- high power - 188 mW, 60 deg.

COB
- medium power
- high power
- 12 x 1 light bar
- low power also available

Driver Board
- UPS Driver

www.boselec.com | uv@boselec.com | shop.boselec.com | 617.566.3821
WS3535C48LF-310 Low Power UVB LED SMD

WS3535C48LF-310 is a UV LED Surface Mount Device (SMD) offering UV radiation at a peak wavelength of 308±5nm. The WS3535C48LF series is packaged in a single-chip structure equipped with a flat window lens for low power UV output. With its conventional pad structure and compact size, the WS3535C48LF series is suitable for applications requiring low UV output and energy consumption.

FEATURES & BENEFITS

- Optical output up to 24mW
- Dimensions: 3.5x3.5mm
- Equipped with 130° flat lens
- Ideal for low power applications
Electro-Optical Characteristics at $T=25^\circ C$ and $I_F=350mA$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Unit</th>
<th>Min</th>
<th>Typical</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Wavelength</td>
<td>$\lambda_y$</td>
<td>nm</td>
<td>303</td>
<td>308</td>
<td>313</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>$V_F$</td>
<td>V</td>
<td>-</td>
<td>5.7</td>
<td>-</td>
</tr>
<tr>
<td>Radiant Flux</td>
<td>$P_O$</td>
<td>mW</td>
<td>21.9</td>
<td>23.4</td>
<td>24.1</td>
</tr>
<tr>
<td>Full Width of Half Magnitude</td>
<td>$\Delta \lambda$</td>
<td>nm</td>
<td>-</td>
<td>13.6</td>
<td>-</td>
</tr>
<tr>
<td>Radiant Angle</td>
<td>$2\Phi_{1/2}$</td>
<td>Degree</td>
<td>-</td>
<td>130</td>
<td>-</td>
</tr>
<tr>
<td>Thermal Resistance, Junction to Solder Joint</td>
<td>$R_{th}(J-S)$</td>
<td>°C/W</td>
<td>-</td>
<td>9</td>
<td>-</td>
</tr>
</tbody>
</table>

Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Current</td>
<td>$I_F$</td>
<td>mA</td>
<td>700</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>$V_R$</td>
<td>V</td>
<td>5</td>
</tr>
<tr>
<td>Power</td>
<td>$P_O$</td>
<td>W</td>
<td>4.5</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>$T_J$</td>
<td>°C</td>
<td>90</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>$T_{OPR}$</td>
<td>°C</td>
<td>-30 ~ 85</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{STG}$</td>
<td>°C</td>
<td>-40 ~ 100</td>
</tr>
</tbody>
</table>
Mechanical Dimensions

Top View

Side View

Bottom View

Radiation Pattern
Spectral Output

Forward Current vs. Relative Radiant Flux

Forward Voltage vs. Forward Current
Handling & Usage Precautions

- Exhibit extreme care when handling LEDs. Do not touch the LED with bare hands as doing so may contaminate and affect the optical characteristics of the LED. When using tweezers, do not apply excessive force, especially to the glass lens. Do not drop the LED as doing so may cause product damage.
- Ensure that electrostatic discharge specifications are followed. Static electricity and surge voltages may cause product damage. Proper electrostatic discharge protection equipment, working machinery, and protected mounting equipment are recommended.
- Do not expose the LEDs to volatile organic compounds as well as hazardous, acidic, and corrosive substances during storage and operation to avoid product damage.
- Do not apply excess mechanical force and vibration while handling the product.
- Do not expose the product to sudden changes in temperature, high humidity levels, and condensation.
- Ensure that the PCB is suitable for the product and be wary of LED placement and possible PCB warpage.
Storage Precautions

- Perform soldering as soon as the moisture-proof packaging is opened.
- After the storage duration has exceeded the recommended time, products may need to be baked before soldering.
- Store all products in a controlled environment under 30° C free of dust. Do not expose the product to sudden changes in temperature, high humidity levels, and condensation.
- Please consult the Violumas engineering team for further information on storage precautions.

Eye Safety Precautions

- Avoid exposure to UV light during LED operation. Do not look directly into the UV light during LED operation. Do not look directly into the UV light during optical measurements even through optical instruments. Protect the body, skin, and eyes with UV protective equipment.
- Attach warning labels on all products and systems that use UV LEDs.

Cleaning Precautions

- Do not use brushes or organic solvents for cleaning the LEDs.
- Perform electrical and optical measurements before and after cleaning to ensure optimal performance.

Static Electricity Precautions

- Ensure that equipment and machinery are properly grounded.
- Anti-electrostatic attire (wristbands, gloves, footwear, etc.) is recommended.
- Damage inspection is recommended while performing characteristics inspection of LEDs.

Disclaimers

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VS5252C48L3-310 Mid Power UVB LED SMD

VS5252C48L3-310 is a UV LED Surface Mount Device (SMD) offering UV radiation at a peak wavelength of 308±5nm. Each SMD is structured based on the patented 3-PAD LED Flip Chip and unique low temperature bonding technologies to further boost lighting efficiency and decrease the thermal resistance. The VS5252C48L3 series is packaged in a single-chip structure equipped with a 30° lens for mid power UV output.

FEATURES & BENEFITS

• Optical output up to 50mW
• Dimensions: 5.2x5.2mm
• Equipped with 30° fused silica lens
• Ideal for mid power applications

THE VIOLUMAS DIFFERENCE

• 3-PAD flip chip structure
• Lowest thermal resistance at 0.9°C/W
• Minimal thermal decay with higher output
• Industry-leading reliability & lifetime
## Electro-Optical Characteristics at T=25°C and $I_F = 700mA$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Unit</th>
<th>Min</th>
<th>Typical</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Wavelength</td>
<td>$\lambda_y$</td>
<td>nm</td>
<td>303</td>
<td>308</td>
<td>313</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>$V_f$</td>
<td>V</td>
<td>-</td>
<td>6.0</td>
<td>-</td>
</tr>
<tr>
<td>Radiant Flux</td>
<td>$P_o$</td>
<td>mW</td>
<td>47</td>
<td>48</td>
<td>50</td>
</tr>
<tr>
<td>Full Width of Half Magnitude</td>
<td>$\Delta \lambda$</td>
<td>nm</td>
<td>-</td>
<td>13.0</td>
<td>-</td>
</tr>
<tr>
<td>Radiant Angle</td>
<td>$2\Phi_{1/2}$</td>
<td>Degree</td>
<td>-</td>
<td>30</td>
<td>-</td>
</tr>
<tr>
<td>Thermal Resistance, Junction to Solder Joint</td>
<td>$R_{th}(J-S)$</td>
<td>°C/W</td>
<td>-</td>
<td>0.9</td>
<td>-</td>
</tr>
</tbody>
</table>

## Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Current</td>
<td>$I_F$</td>
<td>mA</td>
<td>1000</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>$V_R$</td>
<td>V</td>
<td>5</td>
</tr>
<tr>
<td>Power</td>
<td>$P_o$</td>
<td>W</td>
<td>7</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>$T_J$</td>
<td>°C</td>
<td>100</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>$T_{OPR}$</td>
<td>°C</td>
<td>-30 ~ 80</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{STG}$</td>
<td>°C</td>
<td>-40 ~ 100</td>
</tr>
</tbody>
</table>

## Reliability

<table>
<thead>
<tr>
<th>Test</th>
<th>Condition</th>
<th>Test Duration</th>
<th>Test Failed/Tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal Shock</td>
<td>-45°C ~ 125°C</td>
<td>2000 Cycles</td>
<td>0/10</td>
</tr>
</tbody>
</table>
Spectral Output

Forward Current vs. Relative Radiant Flux

Forward Voltage vs. Forward Current
Handling & Usage Precautions

- Exhibit extreme care when handling LEDs. Do not touch the LED with bare hands as doing so may contaminate and affect the optical characteristics of the LED. When using tweezers, do not apply excessive force, especially to the glass lens. Do not drop the LED as doing so may cause product damage.
- Ensure that electrostatic discharge specifications are followed. Static electricity and surge voltages may cause product damage. Proper electrostatic discharge protection equipment, working machinery, and protected mounting equipment are recommended.
- Do not expose the LEDs to volatile organic compounds as well as hazardous, acidic, and corrosive substances during storage and operation to avoid product damage.
- Do not apply excess mechanical force and vibration while handling the product.
- Do not expose the product to sudden changes in temperature, high humidity levels, and condensation.
- Ensure that the PCB is suitable for the product and be wary of LED placement and possible PCB warpage.

Recommended MCPCB

Violumas recommends the use of the Pillar MCPCB with Violumas LEDs for maximum performance and reliability. The data presented in this document is measured from the use of exclusive Flip Chip Opto patented products - the 3-PAD LED Flip Chip and the Pillar MCPCB. Please consult the Violumas engineering team for further recommendations on MCPCB options.

Soldering Guidelines

The graph shows the recommended soldering temperature and time for optimal performance. The graph indicates that the maximum time should be 10 seconds at peak temperature, with a cooling rate of 3°C/second. The recommended soldering parameters are as follows:

- Temperature (°C): At the peak, the temperature should not exceed 200°C.
- Time (s): The recommended time is 120 seconds, with a 50-second initial temperature rise.

Violumas.com
Storage Precautions
- Perform soldering as soon as the moisture-proof packaging is opened.
- After the storage duration has exceeded the recommended time, products may need to be baked before soldering.
- Store all products in a controlled environment under 30°C free of dust. Do not expose the product to sudden changes in temperature, high humidity levels, and condensation.
- Please consult the Violumas engineering team for further information on storage precautions.

Eye Safety Precautions
- Avoid exposure to UV light during LED operation. Do not look directly into the UV light during LED operation. Do not look directly into the UV light during optical measurements even through optical instruments. Protect the body, skin, and eyes with UV protective equipment.
- Attach warning labels on all products and systems that use UV LEDs.

Cleaning Precautions
- Do not use brushes or organic solvents for cleaning the LEDs.
- Perform electrical and optical measurements before and after cleaning to ensure optimal performance.

Static Electricity Precautions
- Ensure that equipment and machinery are properly grounded.
- Anti-electrostatic attire (wristbands, gloves, footwear, etc.) is recommended.
- Damage inspection is recommended while performing characteristics inspection of LEDs.

Disclaimers
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**VS7272C48L6-310 High Power UVB LED SMD**

**VS7272C48L6-310** is a UV LED Surface Mount Device (SMD) offering UV radiation at a peak wavelength of 308±5nm. Each SMD is structured based on the patented 3-PAD LED Flip Chip and unique low temperature bonding technologies to further boost lighting efficiency and decrease the thermal resistance. The VS7272C48L6 series is packaged in a single-chip structure equipped with a 60° lens for high power UV output.

**FEATURES & BENEFITS**

- Optical output up to 195mW
- Dimensions: 7.2x7.2mm
- Equipped with 60° fused silica lens
- Ideal for high power applications

**THE VIOLUMAS DIFFERENCE**

- 3-PAD flip chip structure
- Lowest thermal resistance at 0.2°C/W
- Minimal thermal decay with higher output
- Industry-leading reliability & lifetime
Electro-Optical Characteristics at $T=25^\circ C$ and $I_F=1400\text{mA}$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Unit</th>
<th>Min</th>
<th>Typical</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Wavelength</td>
<td>$\lambda_y$</td>
<td>nm</td>
<td>303</td>
<td>308</td>
<td>313</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>$V_F$</td>
<td>V</td>
<td>-</td>
<td>12.0</td>
<td>-</td>
</tr>
<tr>
<td>Radiant Flux</td>
<td>$P_\circ$</td>
<td>mW</td>
<td>185</td>
<td>188</td>
<td>195</td>
</tr>
<tr>
<td>Full Width of Half Magnitude</td>
<td>$\Delta\lambda$</td>
<td>nm</td>
<td>-</td>
<td>13.4</td>
<td>-</td>
</tr>
<tr>
<td>Radiant Angle</td>
<td>$2\Phi_{1/2}$</td>
<td>Degree</td>
<td>-</td>
<td>60</td>
<td>-</td>
</tr>
<tr>
<td>Thermal Resistance, Junction to Solder Joint</td>
<td>$R_{th}(J-S)$</td>
<td>°C/W</td>
<td>-</td>
<td>0.2</td>
<td>-</td>
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</table>

Absolute Maximum Ratings

<table>
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<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Current</td>
<td>$I_F$</td>
<td>mA</td>
<td>2000</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>$V_R$</td>
<td>V</td>
<td>10</td>
</tr>
<tr>
<td>Power</td>
<td>$P_\circ$</td>
<td>W</td>
<td>28</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>$T_j$</td>
<td>°C</td>
<td>100</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>$T_{OPR}$</td>
<td>°C</td>
<td>-30 ~ 80</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{STG}$</td>
<td>°C</td>
<td>-40 ~ 100</td>
</tr>
</tbody>
</table>

Reliability

<table>
<thead>
<tr>
<th>Test</th>
<th>Condition</th>
<th>Test Duration</th>
<th>Test Failed/Tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal Shock</td>
<td>-45°C ~ 125°C</td>
<td>2000 Cycles</td>
<td>0/10</td>
</tr>
</tbody>
</table>
violumas

VS7272C48L6-310
High Power UVB LED SMD

Mechanical Dimensions

Top View

Side View

Bottom View

Optical Reference

R3.20

7.20

6.00

1.20

1.70

1.40

3.10

1.40

7.20

7.20

7.20

5.22

Anode

Pillar

Cathode

0.35

R3.20

7.20

1.20

1.70

1.40

3.10

1.40

7.20

7.20

7.20

5.22

Optical Reference

R3.20

7.20

6.00

1.20

1.70

1.40

3.10

1.40

7.20

7.20

7.20

5.22

Anode

Pillar

Cathode

0.35

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High Power UVB LED SMD

Spectral Output

Forward Current vs. Relative Radiant Flux

Forward Voltage vs. Forward Current
Handling & Usage Precautions

• Exhibit extreme care when handling LEDs. Do not touch the LED with bare hands as doing so may contaminate and affect the optical characteristics of the LED. When using tweezers, do not apply excessive force, especially to the glass lens. Do not drop the LED as doing so may cause product damage.
• Ensure that electrostatic discharge specifications are followed. Static electricity and surge voltages may cause product damage. Proper electrostatic discharge protection equipment, working machinery, and protected mounting equipment are recommended.
• Do not expose the LEDs to volatile organic compounds as well as hazardous, acidic, and corrosive substances during storage and operation to avoid product damage.
• Do not apply excess mechanical force and vibration while handling the product.
• Do not expose the product to sudden changes in temperature, high humidity levels, and condensation.
• Ensure that the PCB is suitable for the product and be wary of LED placement and possible PCB warpage.

Recommended MCPCB

Violumas recommends the use of the Pillar MCPCB with Violumas LEDs for maximum performance and reliability. The data presented in this document is measured from the use of exclusive Flip Chip Opto patented products - the 3-PAD LED Flip Chip and the Pillar MCPCB. Please consult the Violumas engineering team for further recommendations on MCPCB options.
Storage Precautions

- Perform soldering as soon as the moisture-proof packaging is opened.
- After the storage duration has exceeded the recommended time, products may need to be baked before soldering.
- Store all products in a controlled environment under 30° C free of dust. Do not expose the product to sudden changes in temperature, high humidity levels, and condensation.
- Please consult the Violumas engineering team for further information on storage precautions.

Eye Safety Precautions

- Avoid exposure to UV light during LED operation. Do not look directly into the UV light during LED operation. Do not look directly into the UV light during optical measurements even through optical instruments. Protect the body, skin, and eyes with UV protective equipment.
- Attach warning labels on all products and systems that use UV LEDs.

Cleaning Precautions

- Do not use brushes or organic solvents for cleaning the LEDs.
- Perform electrical and optical measurements before and after cleaning to ensure optimal performance.

Static Electricity Precautions

- Ensure that equipment and machinery are properly grounded.
- Anti-electrostatic attire (wristbands, gloves, footwear, etc.) is recommended.
- Damage inspection is recommended while performing characteristics inspection of LEDs.

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VC1X1C48L3-310 Mid Power UVB LED COB

VC1X1C48L3-310 is a UV LED Chip on Board (COB) module offering UV radiation at a peak wavelength of 308±5nm. Each COB is structured based on the patented 3-PAD LED Flip Chip mounted directly onto the Super Pillar MCPCB to further boost output efficiency and decrease the thermal resistance. The VC1X1C48L3 series is ready for plug and play with no soldering required and is equipped with a 30° lens for mid power UV output.

FEATURES & BENEFITS
- Dimensions: 15x15x4.27mm
- Ready for plug and play (solder-free)
- Equipped with 30° fused silica lens
- TVS built in for ESD protection

THE VIOLUMAS DIFFERENCE
- 3-PAD flip chip structure
- Lowest thermal resistance at 0.9°C/W
- Minimal thermal decay with higher output
- Industry-leading reliability & lifetime
## Electro-Optical Characteristics at T=25°C and I_F = 700mA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Unit</th>
<th>Min</th>
<th>Typical</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Wavelength</td>
<td>$\lambda_p$</td>
<td>nm</td>
<td>303</td>
<td>308</td>
<td>313</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>$V_F$</td>
<td>V</td>
<td>-</td>
<td>6.0</td>
<td>-</td>
</tr>
<tr>
<td>Radiant Flux</td>
<td>$P_0$</td>
<td>mW</td>
<td>47</td>
<td>48</td>
<td>50</td>
</tr>
<tr>
<td>Full Width of Half Magnitude</td>
<td>$\Delta \lambda$</td>
<td>nm</td>
<td>-</td>
<td>13.0</td>
<td>-</td>
</tr>
<tr>
<td>Radiant Angle</td>
<td>$2\Phi_{1/2}$</td>
<td>Degree</td>
<td>-</td>
<td>30</td>
<td>-</td>
</tr>
<tr>
<td>Thermal Resistance, Junction to Solder Joint</td>
<td>$R_{th}(J-S)$</td>
<td>°C/W</td>
<td>-</td>
<td>0.9</td>
<td>-</td>
</tr>
</tbody>
</table>

## Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Current</td>
<td>$I_F$</td>
<td>mA</td>
<td>1000</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>$V_R$</td>
<td>V</td>
<td>5</td>
</tr>
<tr>
<td>Power</td>
<td>$P_0$</td>
<td>W</td>
<td>7</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>$T_J$</td>
<td>°C</td>
<td>100</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>$T_{OPR}$</td>
<td>°C</td>
<td>-30 ~ 80</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{STG}$</td>
<td>°C</td>
<td>-40 ~ 100</td>
</tr>
</tbody>
</table>

## Reliability

<table>
<thead>
<tr>
<th>Test</th>
<th>Condition</th>
<th>Test Duration</th>
<th>Test Failed/Tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal Shock</td>
<td>-45°C ~ 125°C</td>
<td>2000 Cycles</td>
<td>0/10</td>
</tr>
</tbody>
</table>
Product Overview

COB modules are ready for plug and play with no soldering required. All Violumas COBs are equipped with connectors for direct wiring and TVS protection against ESD and voltage issues.
Handling & Usage Precautions

• Exhibit extreme care when handling LEDs. Do not touch the LED with bare hands as doing so may contaminate and affect the optical characteristics of the LED. When using tweezers, do not apply excessive force, especially to the glass lens. Do not drop the LED as doing so may cause product damage.
• Ensure that electrostatic discharge specifications are followed. Static electricity and surge voltages may cause product damage. Proper electrostatic discharge protection equipment, working machinery, and protected mounting equipment are recommended.
• Do not expose the LEDs to volatile organic compounds as well as hazardous, acidic, and corrosive substances during storage and operation to avoid product damage.
• Do not apply excess mechanical force and vibration while handling the product.
• Do not expose the product to sudden changes in temperature, high humidity levels, and condensation.
• Ensure that the PCB is suitable for the product and be wary of LED placement and possible PCB warpage.

Storage Precautions

• Perform soldering as soon as the moisture-proof packaging is opened.
• After the storage duration has exceeded the recommended time, products may need to be baked before soldering.
• Store all products in a controlled environment under 30° C free of dust. Do not expose the product to sudden changes in temperature, high humidity levels, and condensation.
• Please consult the Violumas engineering team for further information on storage precautions.

Eye Safety Precautions

• Avoid exposure to UV light during LED operation. Do not look directly into the UV light during LED operation. Do not look directly into the UV light during optical measurements even through optical instruments. Protect the body, skin, and eyes with UV protective equipment.
• Attach warning labels on all products and systems that use UV LEDs.

Cleaning Precautions

• Do not use brushes or organic solvents for cleaning the LEDs.
• Perform electrical and optical measurements before and after cleaning to ensure optimal performance.

Static Electricity Precautions

• Ensure that equipment and machinery are properly grounded.
• Anti-electrostatic attire (wristbands, gloves, footwear, etc.) is recommended.
• Damage inspection is recommended while performing characteristics inspection of LEDs.

Disclaimers

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VC2X2C48L6-310  High Power UVC LED COB

VC2X2C48L6-310 is a UV LED Chip on Board (COB) module offering UV radiation at a peak wavelength of 308±5nm. Each COB is structured based on the patented 3-PAD LED Flip Chip mounted directly onto the Super Pillar MCPCB to further boost output efficiency and decrease the thermal resistance. The VC2X2C48L6 series is ready for plug and play with no soldering required and is equipped with a 60° lens for high power UV output.

FEATURES & BENEFITS
• Dimensions: 20x20x6.1mm
• Ready for plug and play (solder-free)
• Equipped with 60° fused silica lens
• TVS built in for ESD protection

THE VIOLUMAS DIFFERENCE
• 3-PAD flip chip structure
• Lowest thermal resistance at 0.2°C/W
• Minimal thermal decay with higher output
• Industry-leading reliability & lifetime
### Electro-Optical Characteristics at $T=25^\circ\text{C}$ and $I_F = 1400\text{mA}$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Unit</th>
<th>Min</th>
<th>Typical</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Wavelength</td>
<td>$\lambda_y$</td>
<td>nm</td>
<td>303</td>
<td>308</td>
<td>313</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>$V_f$</td>
<td>V</td>
<td>-</td>
<td>12.0</td>
<td>-</td>
</tr>
<tr>
<td>Radiant Flux</td>
<td>$P_o$</td>
<td>mW</td>
<td>185</td>
<td>188</td>
<td>195</td>
</tr>
<tr>
<td>Full Width of Half Magnitude</td>
<td>$\Delta\lambda$</td>
<td>nm</td>
<td>-</td>
<td>13.4</td>
<td>-</td>
</tr>
<tr>
<td>Radiant Angle</td>
<td>$2\Phi_{1/2}$</td>
<td>Degree</td>
<td>-</td>
<td>60</td>
<td>-</td>
</tr>
<tr>
<td>Thermal Resistance, Junction to Solder Joint</td>
<td>$R_{th(J-S)}$</td>
<td>°C/W</td>
<td>-</td>
<td>0.2</td>
<td>-</td>
</tr>
</tbody>
</table>

### Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Current</td>
<td>$I_F$</td>
<td>mA</td>
<td>2000</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>$V_R$</td>
<td>V</td>
<td>10</td>
</tr>
<tr>
<td>Power</td>
<td>$P_o$</td>
<td>W</td>
<td>28</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>$T_j$</td>
<td>°C</td>
<td>100</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>$T_{OPR}$</td>
<td>°C</td>
<td>-30 ~ 80</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{STG}$</td>
<td>°C</td>
<td>-40 ~ 100</td>
</tr>
</tbody>
</table>

### Reliability

<table>
<thead>
<tr>
<th>Test</th>
<th>Condition</th>
<th>Test Duration</th>
<th>Test Failed/Tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal Shock</td>
<td>-45°C ~ 125°C</td>
<td>2000 Cycles</td>
<td>0/10</td>
</tr>
</tbody>
</table>
Product Overview

COB modules are ready for plug and play with no soldering required. All Violumas COBs are equipped with connectors for direct wiring and TVS protection against ESD and voltage issues.
Spectral Output

Forward Current vs. Relative Radiant Flux

Forward Voltage vs. Forward Current
Handling & Usage Precautions

- Exhibit extreme care when handling LEDs. Do not touch the LED with bare hands as doing so may contaminate and affect the optical characteristics of the LED. When using tweezers, do not apply excessive force, especially to the glass lens. Do not drop the LED as doing so may cause product damage.
- Ensure that electrostatic discharge specifications are followed. Static electricity and surge voltages may cause product damage. Proper electrostatic discharge protection equipment, working machinery, and protected mounting equipment are recommended.
- Do not expose the LEDs to volatile organic compounds as well as hazardous, acidic, and corrosive substances during storage and operation to avoid product damage.
- Do not apply excess mechanical force and vibration while handling the product.
- Do not expose the product to sudden changes in temperature, high humidity levels, and condensation.
- Ensure that the PCB is suitable for the product and be wary of LED placement and possible PCB warpage.

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