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# Bridgelux® OLM™ Series

Product Data Sheet DS60



OLMB-40X000

50X000

57X000

# Introduction

OLM Series



Bridgelux OLM™ Series modules enable a simple and easy way to develop outdoor luminaires. The modules deliver high quality, energy efficient lighting for commercial, industrial, and exterior applications. Designed for rapid product development and integration, OLM modules mechanically attach with four screws. Soldering, glues, and epoxies are removed from the assembly process and replaced with a robust electrical connection. The integration of optics and environmental protection further simplify luminaire design.

OLM modules contain IP66 rated protection and proprietary optics to enable the long life and stable performance required from luminaires used in outdoor lighting. OLM Series modules leverage the seventh generation Vero® Series product family, the latest generation of Bridgelux LED arrays, to deliver lumen output levels to replace high pressure sodium (HPS) and metal halide technologies used in outdoor luminaires.

## Features

- Typical efficacy of up to 156 lm/W at 70° C
- Typical lumen output ranges from 1600 to 4600 lumens
- Broad range of CCT options from 4000K to 5700K
- Minimum 70, 80 CRI options available
- Asymmetric and symmetric lighting patterns
- IP66 rated for reliable outdoor use
- High level of component integration

## Benefits

- Designed to replace HPS bulbs in outdoor luminaires
- Optimized for color and efficacy
- Long lifetime with a strong return on investment
- Uniform lighting patterns designed for targeted applications
- Improved thermal management
- Simplified robust luminaire design and assembly
- Improved inventory management and quality control



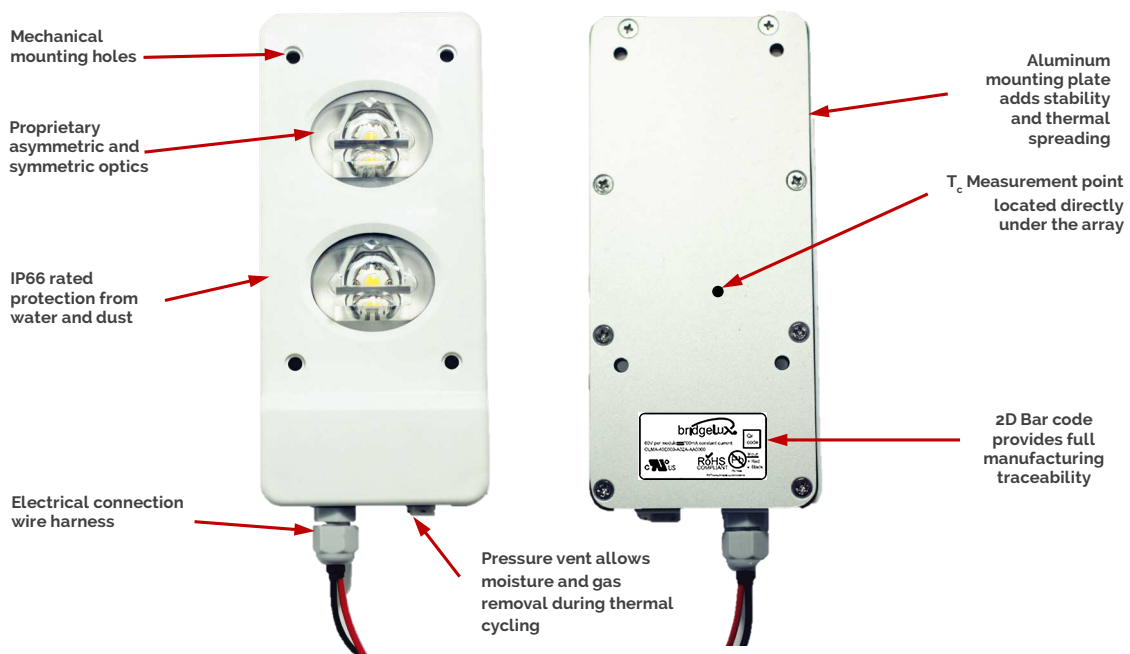
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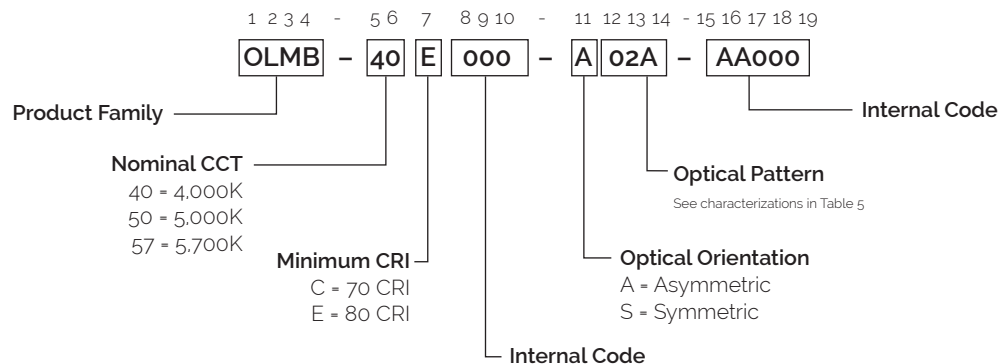
# Product Feature Map

OLM incorporates several features to simplify the design integration and manufacturing process, accelerate time to market and reduce system costs. Please consult the Bridgelux OLM Series webpage at [www.bridgelux.com](http://www.bridgelux.com) for more information.



## Product Nomenclature

The part number designation for Bridgelux OLM Series is explained as follows:



# Product Selection Guide

The following product configurations are available:

**Table 1:** Selection Guide

| Part Number            | Nominal CCT(K) | CRI | Drive Current (mA) | Typical $V_f^1$<br>$T_c = 25^\circ\text{C}$ (V) | Typical Power<br>$T_c = 25^\circ\text{C}$ (W) | Typical Pulsed Flux <sup>2,3</sup><br>$T_c = 25^\circ\text{C}$ (lm) | Typical Efficacy<br>$T_c = 25^\circ\text{C}$ (lm/W) | Typical DC Flux <sup>4,5</sup><br>$T_c = 70^\circ\text{C}$ (lm) | Typical Efficacy<br>$T_c = 70^\circ\text{C}$ (lm/W) |
|------------------------|----------------|-----|--------------------|---|---|---|---|---|---|
| OLMB-40C000-xxxx-xx000 | 4000           | 70  | 500                | 21.9  | 11.0  | 1802  | 164   | 1676  | 154   |
|                        |                |     | 750                | 22.7  | 17.0  | 2649  | 156   | 2463  | 146   |
|                        |                |     | <b>900</b>         | <b>23.1</b>                                     | <b>20.8</b>                                   | <b>3139</b>   | <b>151</b>  | <b>2918</b>   | <b>142</b>  |
|                        |                |     | 1500               | 24.4  | 36.6  | 4968  | 136   | 4619  | 127   |
|                        |                |     | 1800               | 24.8  | 44.7  | 5803  | 130   | 5395  | 122   |
| OLMB-40E000-xxxx-xx000 | 4000           | 80  | 500                | 21.9  | 11.0  | 1659  | 151   | 1542  | 142   |
|                        |                |     | 750                | 22.7  | 17.0  | 2438  | 143   | 2266  | 135   |
|                        |                |     | <b>900</b>         | <b>23.1</b>                                     | <b>20.8</b>                                   | <b>2889</b>   | <b>139</b>  | <b>2686</b>   | <b>131</b>  |
|                        |                |     | 1500               | 24.4  | 36.6  | 4572  | 125   | 4251  | 117   |
|                        |                |     | 1800               | 24.8  | 44.7  | 5341  | 119   | 4966  | 112   |
| OLMB-50C000-xxxx-xx000 | 5000           | 70  | 500                | 21.9  | 11.0  | 1818  | 166   | 1691  | 156   |
|                        |                |     | 750                | 22.7  | 17.0  | 2672  | 157   | 2484  | 148   |
|                        |                |     | <b>900</b>         | <b>23.1</b>                                     | <b>20.8</b>                                   | <b>3167</b>   | <b>152</b>  | <b>2944</b>   | <b>143</b>  |
|                        |                |     | 1500               | 24.4  | 36.6  | 5012  | 137   | 4660  | 129   |
|                        |                |     | 1800               | 24.8  | 44.7  | 5855  | 131   | 5443  | 123   |
| OLMB-57C000-xxxx-xx000 | 5700           | 70  | 500                | 21.9  | 11.0  | 1755  | 160   | 1631  | 150   |
|                        |                |     | 750                | 22.7  | 17.0  | 2578  | 152   | 2397  | 142   |
|                        |                |     | <b>900</b>         | <b>23.1</b>                                     | <b>20.8</b>                                   | <b>3056</b>   | <b>147</b>  | <b>2841</b>   | <b>138</b>  |
|                        |                |     | 1500               | 24.4  | 36.6  | 4836  | 132   | 4496  | 124   |
|                        |                |     | 1800               | 24.8  | 44.7  | 5649  | 126   | 5252  | 119   |

Notes for Table 1:

1. Bridgelux maintains a tolerance of  $\pm 0.20$  V on forward voltage for OLM modules.
2. Tested in pulsed conditions at  $T_c = 25^\circ\text{C}$ . Pulse width is 10 ms.
3. Bridgelux maintains a  $\pm 10\%$  tolerance on flux values for OLM modules.
4. Typical performance when driven under DC (direct current) with OLM module case temperature ( $T_c$ ) maintained at  $70^\circ\text{C}$ . OLM module is mounted to a heat sink with thermal interface material. Values may vary depending on the thermal design of the luminaire and/or the exposed environment to which the product is subjected.
5. Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.

# Electrical Characteristics

**Table 2:** Electrical Characteristics and Driver Selection Voltages

| Part Number                | Drive Current (mA) | Forward Voltage Pulsed, $T_c = 25^\circ\text{C}$ (V) <sup>1, 2, 3</sup> |         |         | Typical Coefficient of Forward Voltage <sup>4</sup><br>$\Delta V_f / \Delta T$ (mV/ $^\circ\text{C}$ ) | Typical Thermal Resistance Array case to Module case ( $^\circ\text{C}/\text{W}$ ) | Driver Selection Voltages <sup>5</sup> (V)      |  |
|----------------------------|--------------------|---|---------|---------|--|--|---|--|
|                            |                    | Minimum   | Typical | Maximum |  |  | $V_f$ Min. Hot<br>$T_c = 105^\circ\text{C}$ (V) | $V_f$ Max. Cold<br>$T_c = -40^\circ\text{C}$ (V) |
| OLMB-xxx000-<br>xxxx-xx000 | 900                | 21.4  | 23.1    | 24.9    | -5.4   | 0.42   | 21.0  | 25.2   |
|                            | 1800               | 23.0  | 24.9    | 26.7    | -5.4   | 0.48   | 22.6  | 27.1   |

Notes for Table 2:

- Parts are tested in pulsed conditions,  $T_c = 25^\circ\text{C}$ . Pulse width is 10 ms.
- Voltage minimum and maximum are provided for reference only and are not a guarantee of performance.
- Bridgelux maintains a tolerance of  $\pm 0.20$  V on forward voltage for OLM modules.
- Typical coefficient of forward voltage tolerance is  $\pm 0.1$  mV.
- $V_f$  min hot and max cold values are provided as reference only and are not guaranteed. These values are provided to aid in driver design and selection over the operating range of the product.

# Absolute Maximum Ratings

**Table 3:** Maximum Drive Current and Reverse Voltage Ratings

| Parameter                                      | Maximum Rating |
|--|----------------|
| Storage Temperature                            | -40°C to +55°C |
| Ambient Temperature ( $T_a$ )                  | 55°C           |
| Operating Module Case Temperature ( $T_c$ )    | 70°C           |
| Maximum Drive Current <sup>1,2</sup>           | 1800 mA        |
| Maximum Peak Pulsed Drive Current <sup>3</sup> | 2580 mA        |
| Maximum Reverse Voltage <sup>4</sup>           | -20 V          |

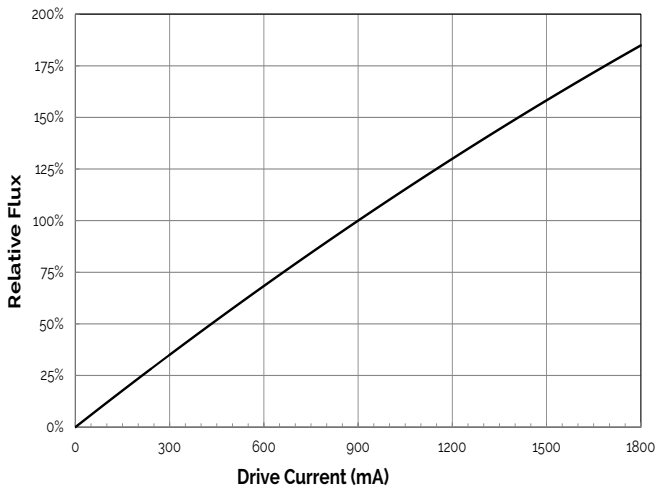
Notes for Table 3:

1. Lumen maintenance (L70) and lifetime predictions are valid for drive current and case temperature conditions used for LM-80 testing as included in the applicable LM-80 test report for these arrays. Contact your Bridgelux sales representatives for LM-80 report.
2. OLM modules may be driven at higher currents. However, lumen maintenance may be reduced.
3. Bridgelux recommends a maximum duty cycle of 10% and pulse width of 20 ms when operating OLM modules at maximum peak pulsed current specified. Maximum peak pulsed currents indicate values where LED Arrays can be driven without catastrophic failures.
4. OLM modules are not designed to be driven in reverse voltage and will not produce light under this condition. Maximum rating provided for reference only.



# Performance Curves

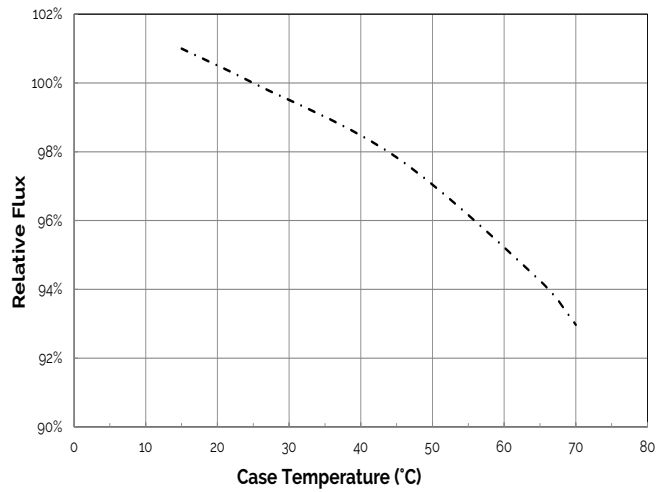
**Figure 1: Typical Relative Luminous Flux vs. Drive Current ( $T_c = 25^\circ\text{C}$ )**



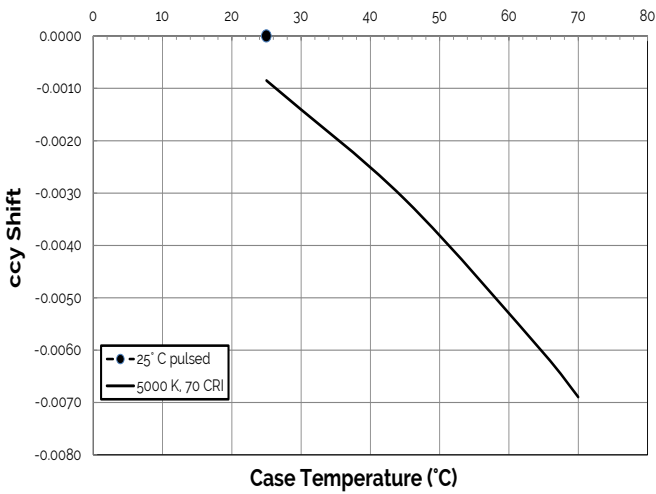
Notes for Figure 1.

1. Tested in pulsed conditions at  $T_c = 25^\circ\text{C}$ . Pulse width is 10 ms.

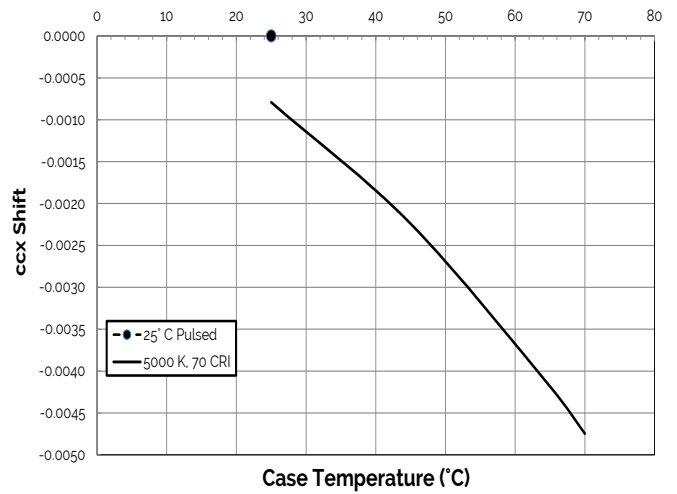
**Figure 2: Typical DC Flux vs. Case Temperature**



**Figure 3: Typical DC ccy Shift vs. Case Temperature**



**Figure 4: Typical DC ccx Shift vs. Case Temperature**

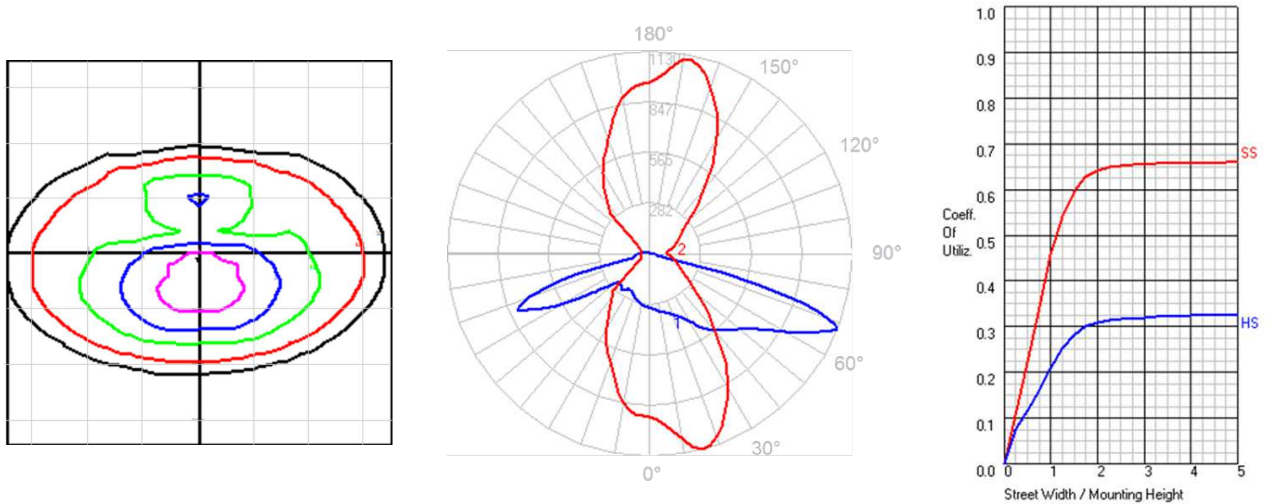


# Optical Characteristics

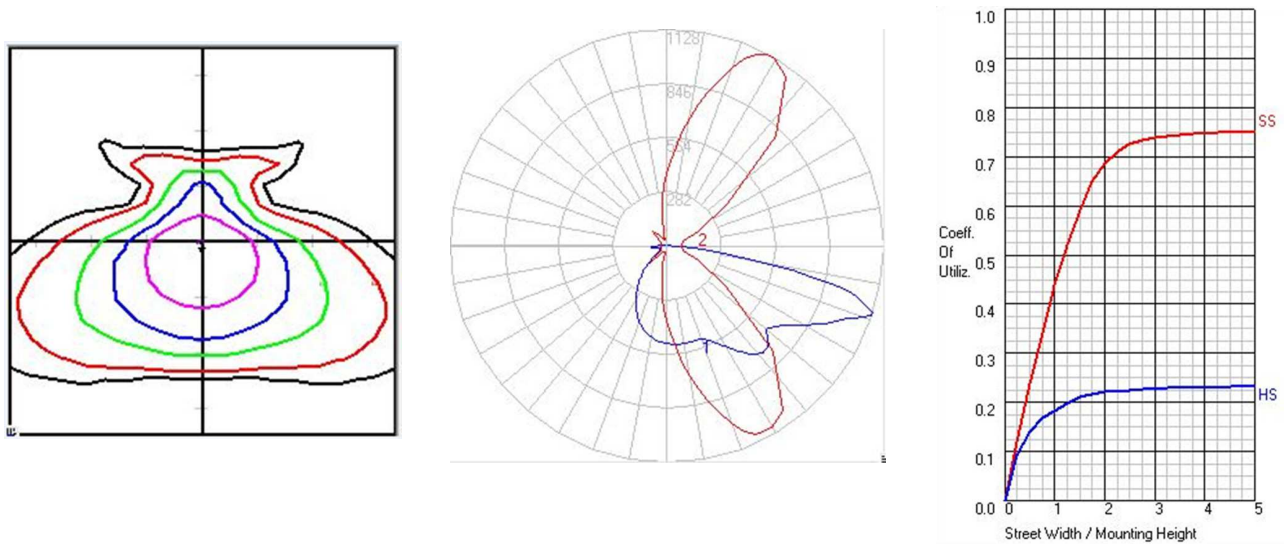
**Table 4:** Optical Pattern Descriptions

| Optical Code | Description                     | IES Classification | NEMA Classification | EN 13-201 Guidance |
|--------------|---------------------------------|--------------------|---------------------|--------------------|
| A01A         | Asymmetric; Narrow, Short Width | Type II, Med       | 7H x 7V             | ME2 - ME4          |
| A06A         | Asymmetric; Medium, Short Width | Type III, Short    | 7H x 7V             | ME2 - ME4          |

**Figure 5: Photometric Performance (Optical Code: A01A)**

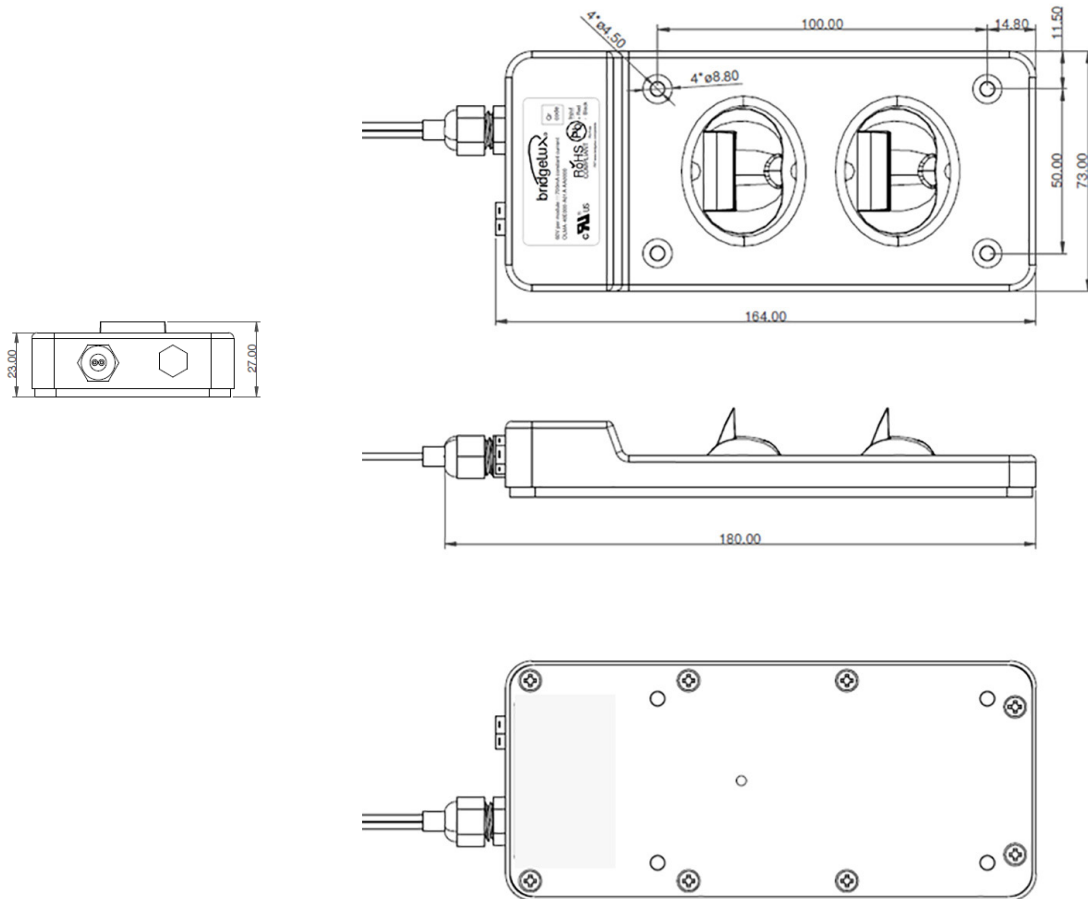


**Figure 6: Photometric Performance (Optical Code: A06A)**



# Mechanical Dimensions

Figure 7: Mechanical Dimensions



Notes for Figure 7:

1. Mounting holes (4x) accommodate M4 or #8 screws.
2. Screws with flat shoulders (pan, dome, button, round, truss, mushroom) provide optimal torque control. Do NOT use flat, countersink, or raised head screws.
3. Drawing dimensions are in millimeters.
4. Unless otherwise specified, tolerances are  $\pm 1.00\text{mm}$ .
5. Refer to Application Note AN61 for product handling, mounting and heat sink recommendations.

# Design Resources

## Application Notes

Bridgelux has developed a comprehensive set of application notes and design resources to assist customers in successfully designing with the OLM modules. For a list of resources under development, visit [www.bridgelux.com](http://www.bridgelux.com).

## Optical Files

Far field optical files are available in .IES and .LDT format. Contact your Bridgelux sales representative for details. Please use appropriate precautions. It is important that users working with LEDs are trained to use them safely.

# Precautions

### CAUTION: CHEMICAL EXPOSURE HAZARD

Exposure to some chemicals commonly used in luminaire manufacturing and assembly can cause damage to the LED array. Please consult Bridgelux Application Note AN61 for additional information.

### CAUTION: EYE SAFETY

Please contact your Bridgelux sales representative for Eye safety classification and IEC specifications.

## 3D CAD Models

Three dimensional CAD models depicting the product outline are available in both IGS and STP formats. Please contact your Bridgelux sales representative for assistance.

### CAUTION: RISK OF BURN

Do not touch the module lens during operation. Allow the module to cool for a sufficient period of time before handling.

## CAUTION

### CONTACT WITH OPTICAL AREA

The OLM is manufactured with molded polycarbonate lenses. The lens is extremely durable, but not indestructible. Excessive force on the lens may cause damage to the module.

# Disclaimers

### MINOR PRODUCT CHANGE POLICY

The rigorous qualification testing on products offered by Bridgelux provides performance assurance. Slight cosmetic changes that do not affect form, fit, or function may occur as Bridgelux continues product optimization.

# About Bridgelux: We Build Light That Transforms

At Bridgelux, we help companies, industries and people experience the power and possibility of light. Since 2002, we've designed LED solutions that are high performing, energy efficient, cost effective and easy to integrate. Our focus is on light's impact on human behavior, delivering products that create better environments, experiences and returns—both experiential and financial. And our patented technology drives new platforms for commercial and industrial luminaires.

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