

Bridgelux® SMD5050 2x6 and 2x8 EB Series™

Product Data Sheet DS533

Lengths: 146mm, 223mm

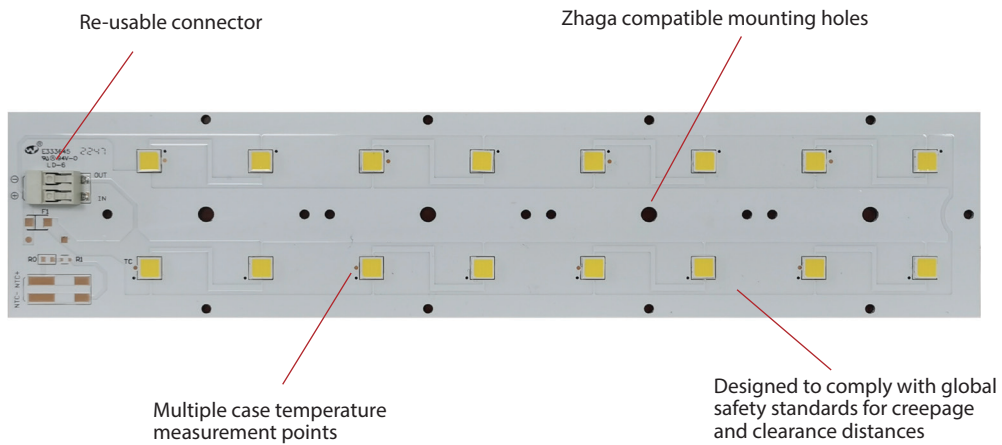
CRI: 70

CCTs: 2700K, 3000K, 4000K, 5000K, 5700K, 6500K



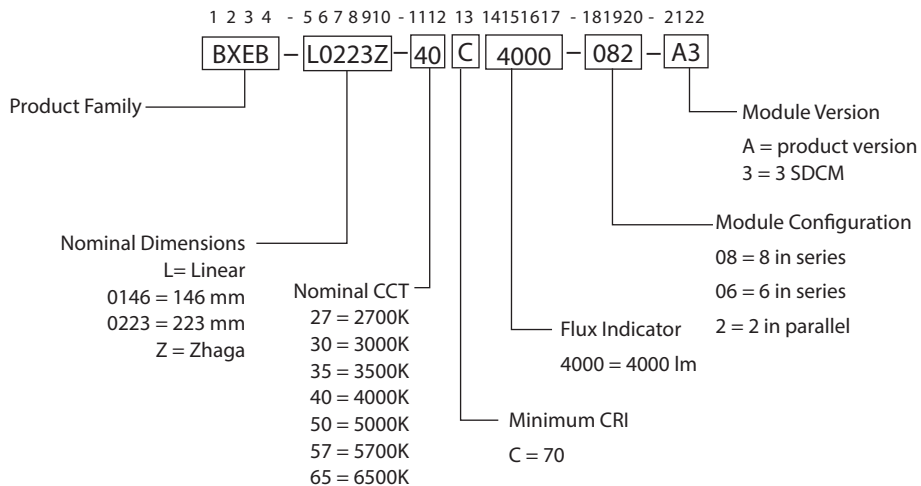
Product Feature Map

Bridgelux EB Series SMD5050 2x6 and 2x8 Zhaga modules are fully engineered devices that provide consistent thermal and optical performance on an engineered mechanical platform. The linear products incorporate several features to simplify design integration and assembly. Please visit www.bridgelux.com for more information on the EB Series family of products.



Product Nomenclature

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



Product Selection Guide

Table 1: Selection Guide, Measurement Data (T_c = 25° C)

| Part Number | Nominal CCT ¹ (K) | CRI ² | Nominal Drive Current (mA) | Forward Voltage (V) | Typical Power (W) | Typical Pulsed Flux ^{3,4} (lm) | Typical Efficacy (lm/W) |
|----------------------------|------------------------------|------------------|----------------------------|---------------------|-------------------|---|-------------------------|
| BXEB-L0146Z-27C3000-062-A3 | 2700 | 70 | 400 | 32.9 | 13.1 | 2460 | 187 |
| BXEB-L0146Z-30C3000-062-A3 | 3000 | | | | | 2535 | 193 |
| BXEB-L0146Z-40C3000-062-A3 | 4000 | | | | | 2694 | 205 |
| BXEB-L0146Z-50C3000-062-A3 | 5000 | | | | | 2694 | 205 |
| BXEB-L0146Z-57C3000-062-A3 | 5700 | | | | | 2661 | 202 |
| BXEB-L0146Z-65C3000-062-A3 | 6500 | | | | | 2661 | 202 |
| BXEB-L0223Z-27C4000-082-A3 | 2700 | 70 | 400 | 43.8 | 17.5 | 3280 | 187 |
| BXEB-L0223Z-30C4000-082-A3 | 3000 | | | | | 3381 | 193 |
| BXEB-L0223Z-40C4000-082-A3 | 4000 | | | | | 3591 | 205 |
| BXEB-L0223Z-50C4000-082-A3 | 5000 | | | | | 3591 | 205 |
| BXEB-L0223Z-57C4000-082-A3 | 5700 | | | | | 3547 | 202 |
| BXEB-L0223Z-65C4000-082-A3 | 6500 | | | | | 3547 | 202 |

Notes for Table 1:

1. Nominal CCT as defined by ANSI C78.377-2011.
2. CRI Values are minimums.
3. Drive current is referred to as nominal drive current.
4. Products tested under pulsed condition (10ms pulse width) at nominal drive current where T_c (case temperature) = 25°C. Values may vary depending on the thermal design of the luminaire and/or the exposed environment to which the product is subjected.
5. Typical performance values are provided as a reference only and are not a guarantee of performance.
6. Bridgelux maintains a ± 7% tolerance on typical flux measurements

Performance at Commonly Used Drive Currents

EB series SMD5050 2x6 and 2x8 Zhaga modules are tested to the specifications shown using the nominal drive currents in Table 1. EB series SMD5050 2x6 and 2x8 Zhaga modules may also be driven at other drive currents dependent on specific application design requirements. The performance at any drive current can be derived from the current vs. voltage characteristics shown in Figures 1 & 3, and the flux vs. current characteristics shown in Figures 2 & 4. The performance at commonly used drive currents is summarized in Table 2.

Table 2: Performance at Commonly Used Drive Currents ($T_c = 25^\circ\text{C}$)

| Part Number | CRI | Drive Current ¹ (mA) | Typical V_f (V) | Typical Power (W) | Typical Pulsed Flux ² (lm) | Typical Efficacy (lm/W) |
|--|-----|------------------------------------|----------------------|----------------------|--|----------------------------|
| BXEB-L0146Z-27C3000-062-A3 | 70 | 300 | 32.4 | 9.7 | 1867 | 192 |
| | | 400 | 32.9 | 13.1 | 2460 | 187 |
| | | 550 | 33.4 | 18.4 | 3319 | 180 |
| | | 800 | 34.4 | 27.5 | 4696 | 171 |
| | | 1100 | 35.6 | 39.1 | 6248 | 160 |
| BXEB-L0146Z-30C3000-062-A3 | 70 | 300 | 32.4 | 9.7 | 1924 | 198 |
| | | 400 | 32.9 | 13.1 | 2535 | 193 |
| | | 550 | 33.4 | 18.4 | 3421 | 186 |
| | | 800 | 34.4 | 27.5 | 4841 | 176 |
| | | 1100 | 35.6 | 39.1 | 6440 | 165 |
| BXEB-L0146Z-40C3000-062-A3 BXEB-L0146Z-50C3000-062-A3 | 70 | 300 | 32.4 | 9.7 | 2044 | 210 |
| | | 400 | 32.9 | 13.1 | 2694 | 205 |
| | | 550 | 33.4 | 18.4 | 3634 | 198 |
| | | 800 | 34.4 | 27.5 | 5142 | 187 |
| | | 1100 | 35.6 | 39.1 | 6842 | 175 |
| BXEB-L0146Z-57C3000-062-A3 BXEB-L0146Z-65C3000-062-A3 | 70 | 300 | 32.4 | 9.7 | 2019 | 207 |
| | | 400 | 32.9 | 13.1 | 2661 | 202 |
| | | 550 | 33.4 | 18.4 | 3590 | 195 |
| | | 800 | 34.4 | 27.5 | 5079 | 185 |
| | | 1100 | 35.6 | 39.1 | 6758 | 173 |

Notes for Table 2:

1. Alternate drive currents are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a $\pm 7\%$ tolerance on flux measurements.

Performance at Commonly Used Drive Currents

Table 2: Performance at Commonly Used Drive Currents ($T_c = 25^\circ\text{C}$)

| Part Number | CRI | Drive Current ¹ (mA) | Typical V_f (V) | Typical Power (W) | Typical Pulsed Flux ² (lm) | Typical Efficacy (lm/W) |
|--|-----|---------------------------------|-------------------|-------------------|---------------------------------------|-------------------------|
| BXEB-L0223Z-27C4000-082-A3 | 70 | 300 | 43.2 | 13.0 | 2489 | 192 |
| | | 400 | 43.8 | 17.5 | 3280 | 187 |
| | | 550 | 44.6 | 24.5 | 4425 | 180 |
| | | 800 | 45.9 | 36.7 | 6261 | 171 |
| | | 1100 | 47.4 | 52.2 | 8330 | 160 |
| BXEB-L0223Z-30C4000-082-A3 | 70 | 300 | 43.2 | 13.0 | 2565 | 198 |
| | | 400 | 43.8 | 17.5 | 3381 | 193 |
| | | 550 | 44.6 | 24.5 | 4561 | 186 |
| | | 800 | 45.9 | 36.7 | 6454 | 176 |
| | | 1100 | 47.4 | 52.2 | 8587 | 165 |
| BXEB-L0223Z-40C4000-082-A3 BXEB-L0223Z-50C4000-082-A3 | 70 | 300 | 43.2 | 13.0 | 2725 | 210 |
| | | 400 | 43.8 | 17.5 | 3591 | 205 |
| | | 550 | 44.6 | 24.5 | 4845 | 198 |
| | | 800 | 45.9 | 36.7 | 6856 | 187 |
| | | 1100 | 47.4 | 52.2 | 9122 | 175 |
| BXEB-L0223Z-57C4000-082-A3 BXEB-L0223Z-65C4000-082-A3 | 70 | 300 | 43.2 | 13.0 | 2692 | 207 |
| | | 400 | 43.8 | 17.5 | 3547 | 202 |
| | | 550 | 44.6 | 24.5 | 4786 | 195 |
| | | 800 | 45.9 | 36.7 | 6773 | 185 |
| | | 1100 | 47.4 | 52.2 | 9011 | 173 |

Notes for Table 2:

1. Alternate drive currents are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a $\pm 7\%$ tolerance on flux measurements.

Absolute Maximum Ratings

Table 3: Maximum Ratings

| Parameter | Maximum Rating | |
|---|---|-----------------------------|
| Storage Temperature | -40°C to +85°C | |
| Operating Case Temperature ² (T _c) | 85°C | |
| Soldering Temperature | 350°C or lower for a maximum of 5 seconds | |
| Maximum Reverse Voltage | Modules are not designed to be driven in reverse bias | |
| | BXE-B-L0146Z-xxC3000-062-A3 | BXE-B-L0223Z-xxC4000-082-A3 |
| Maximum Drive Current | 1100mA | 1100mA |

Notes for Table 3:

1. For IEC 62717 requirement, please consult your Bridgelux sales representative.
2. 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 the SMDs used in the modules. Contact your Bridgelux sales representatives for LM-80 report.

Performance Curves

Figure 1: 2x6 Version Current vs. Forward Voltage, $T_c=25^\circ\text{C}$

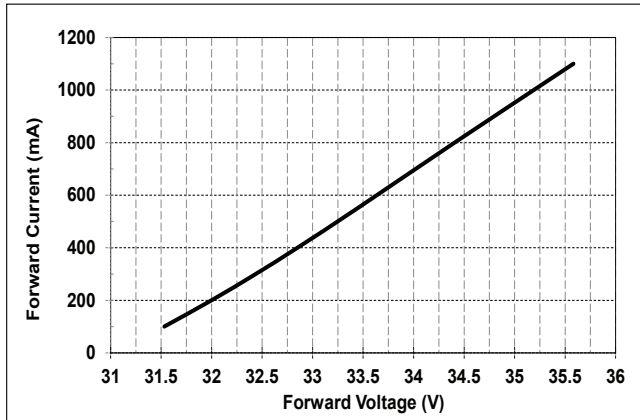


Figure 2: 2x6 Version Relative Flux vs. Current, $T_c=25^\circ\text{C}$

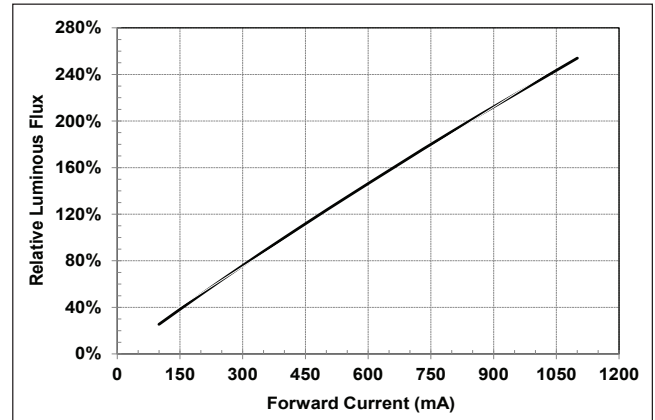


Figure 3: 2x8 Version Current vs. Forward Voltage, $T_c=25^\circ\text{C}$

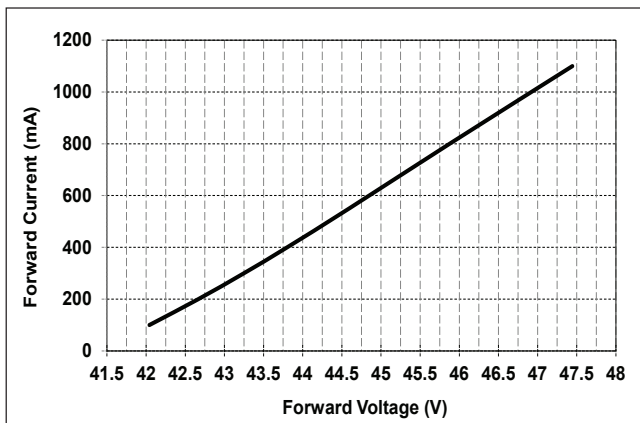


Figure 4: 2x8 Version Relative Flux vs. Current, $T_c=25^\circ\text{C}$

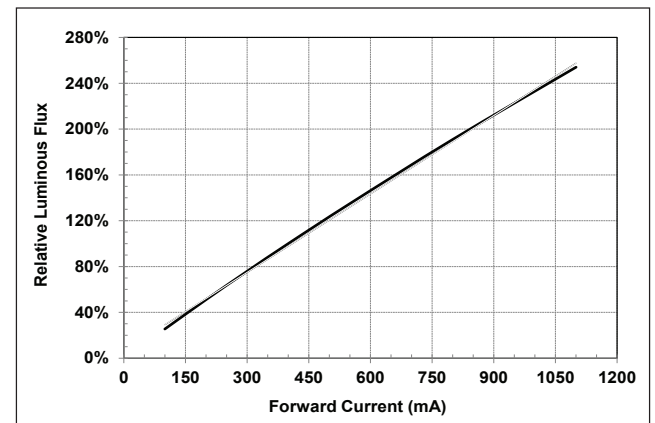


Figure 5: Relative Voltage vs. Case Temperature

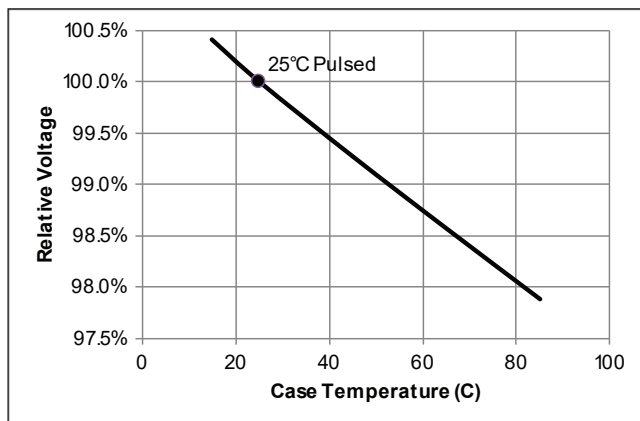
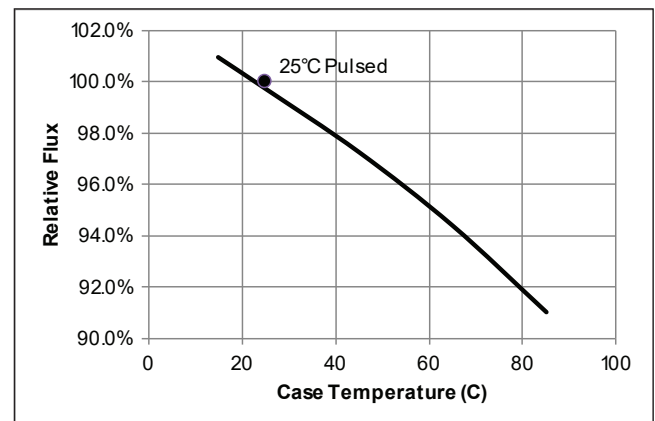
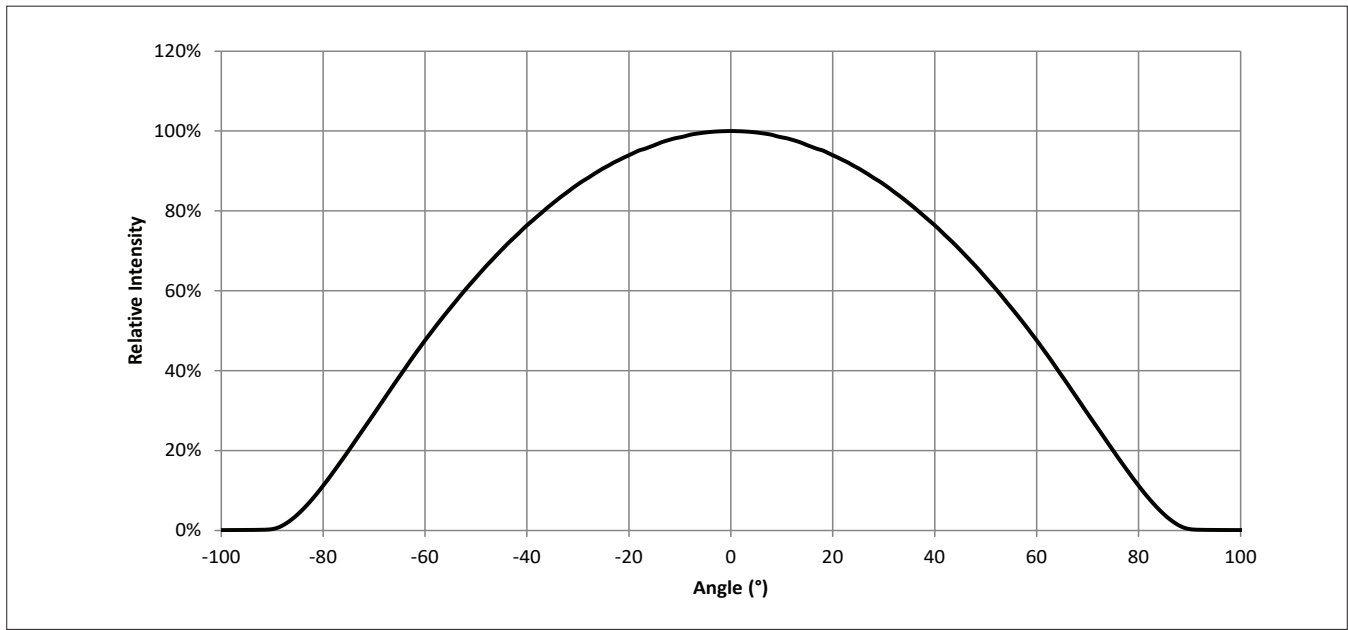


Figure 6: Relative Flux vs. Case Temperature



Typical Radiation Pattern

Figure 7: Typical Spatial Radiation Pattern

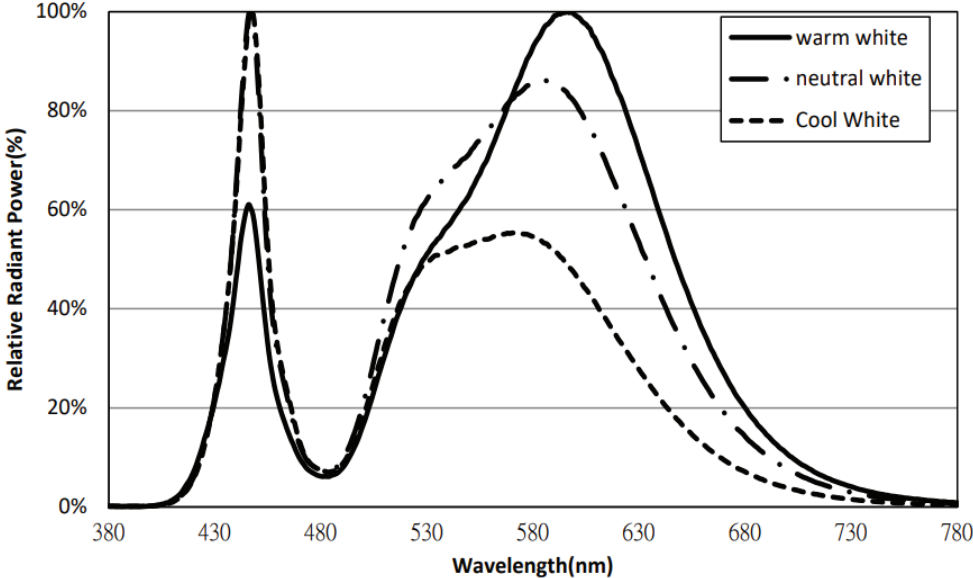


Notes for Figure 7:

1. Typical viewing angle is 120°.
2. The viewing angle is defined as the off axis angle from the centerline where I_v is $\frac{1}{2}$ of the peak value.

Typical Color Spectrum

Figure 8: Typical Color Spectra

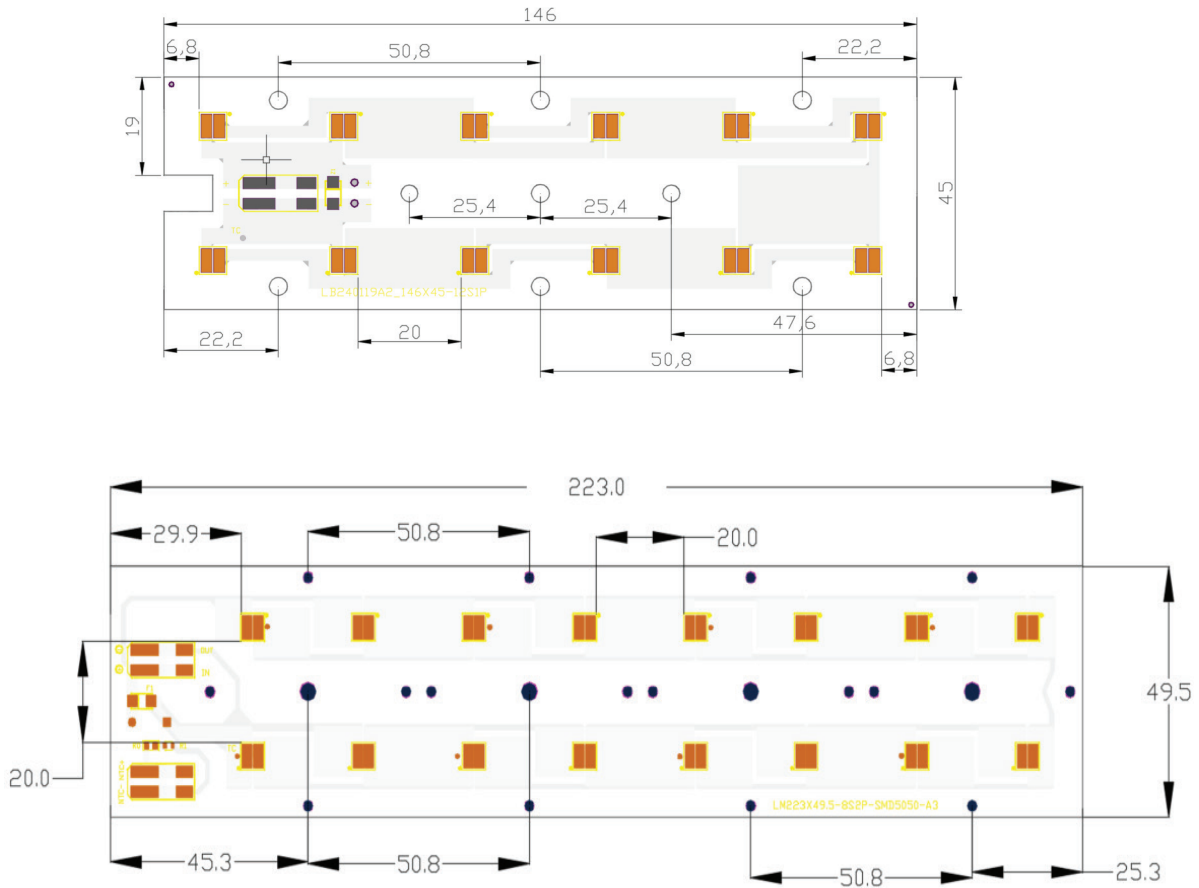


Note for Figure 8:

- 1. Color spectra measured at nominal current for $T_c = 25^\circ\text{C}$

Mechanical Dimensions and Handling Guide

Figure 9: Drawing Overview for 2x6 and 2x8 modules



- Notes for Figure 9:
1. Solder pads are labeled "+" to denote positive polarity, and "-" to denote negative polarity.
 2. Drawing dimensions are in millimeters.
 3. Unless otherwise specified, tolerances are ± 0.1 mm.

Table 4: Module Dimensions & Connector Wiring

| Parameter | 2x6 and 2x8 modules |
|--------------------------|---|
| Linear length | 146mm (2x6 module) and 223mm (2x8 module) |
| Linear width | 45mm (2x6 module) and 49.5mm (2x8 module) |
| Overall thickness | 6.1 mm |
| PCB thickness | 1.6 mm |
| Input wire cross-section | 18-24 AWG |
| Wire strip length | 7-9 mm |

Packaging and Labeling

Figure 10: EB Series Packaging and Labeling

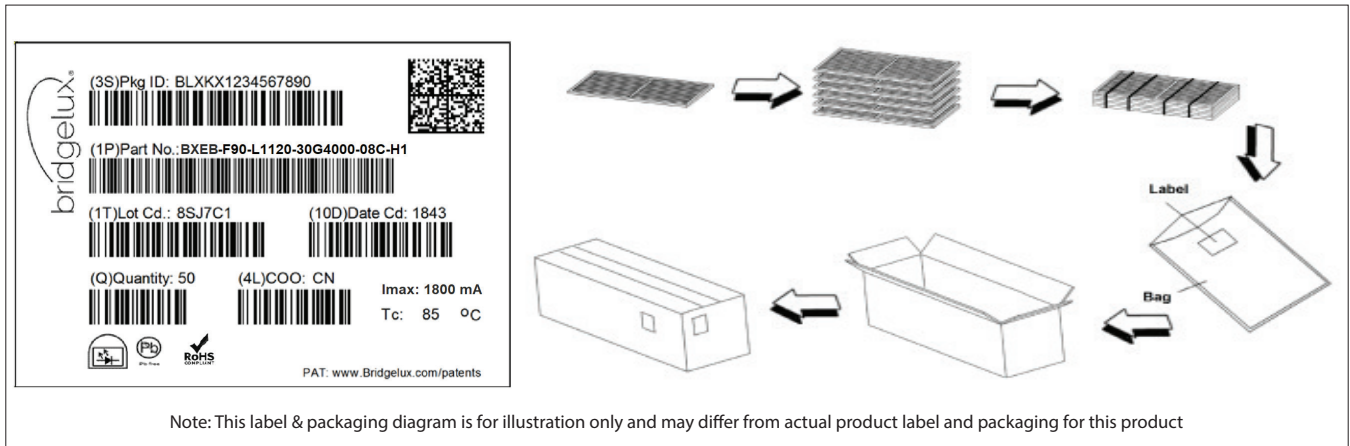


Table 5: Packaging Structure

| Box Parameter | 2x6 and 2x8 modules |
|---------------|-----------------------------|
| Quantity | 200 |
| Dimension | 60.0 cm x 19.4 cm x 16.9 cm |

Figure 11: Product Labeling

Bridgelux EB Series modules contain a label on the front to help with product identification. In addition to the product identification markings, Bridgelux EB Series modules also contain markings for internal Bridgelux manufacturing use only. The image below shows which markings are for customer use and which ones are for Bridgelux internal use only. The Bridgelux internal manufacturing markings are subject to change without notice, however these will not impact the form, function or performance of the module.



Design Resources

Application Notes

Bridgelux has developed a comprehensive set of application notes and design resources to assist customers in successfully designing with the EB Series product family. For a list of resources under development, visit www.bridgelux.com.

Optical Source Models

Optical source models and ray set files are available for all Bridgelux products. For a list of available formats, visit www.bridgelux.com.

3D CAD Models

Three dimensional CAD models depicting the product outline of all Bridgelux EB Series LED linears are available in both IGES and STEP formats. Please contact your Bridgelux sales representative for assistance.

Precautions

CAUTION: CHEMICAL EXPOSURE HAZARD

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

CAUTION: EYE SAFETY

Eye safety classification for the use of Bridgelux EB Series is in accordance with IEC/TR62778: Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires. EB Series linears are classified as Risk Group 1 (TBD) when operated at or below the maximum drive current. Please use appropriate precautions. It is important that employees working with LEDs are trained to use them safely.

CAUTION: RISK OF BURN

Do not touch the EB Series linears during operation. Allow the linear to cool for a sufficient period of time before handling. The EB Series linears may reach elevated temperatures such that could burn skin when touched.

CAUTION

CONTACT WITH LIGHT EMITTING SURFACE (LES)

Avoid any contact with the LES. Do not touch the LES of the linear or apply stress to the LES (yellow phosphor resin area). Contact may cause damage to the linear.

Optics and reflectors must not be mounted in contact with the LES (yellow phosphor resin area).

Optical devices may be mounted on the top surface of the EB Series linear. Use the mechanical features of the linear housing, edges and/or mounting holes to locate and secure optical devices as needed.

Disclaimers

STANDARD TEST CONDITIONS

Unless otherwise stated, linear testing is performed at the nominal drive current.

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: Bridging Light and Life™

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.

For more information about the company, please visit

bridgelux.com

twitter.com/Bridgelux

facebook.com/Bridgelux

youtube.com/user/Bridgelux

linkedin.com/company/bridgelux-inc-_2

WeChat ID: BridgeluxInChina



46410 Fremont Blvd

Fremont, CA 94538 USA

Tel (925) 583-8400

Fax (925) 583-8401

www.bridgelux.com

© 2024 Bridgelux, Inc. All rights reserved. Product specifications are subject to change without notice. Bridgelux and the Bridgelux stylized logo design are registered trademarks of Bridgelux, Inc. EB Series and Bridging Light and Life are trademarks of Bridgelux, Inc. All other trademarks are the property of their respective owners.

Bridgelux EB Series 2x6 and 2x8 Zhaga Module Data Sheet DS533 Rev. A (04/2024)