Bridgelux® EB Series™ 1" Breakable 1-Row LED

Product Data Sheet DS3121

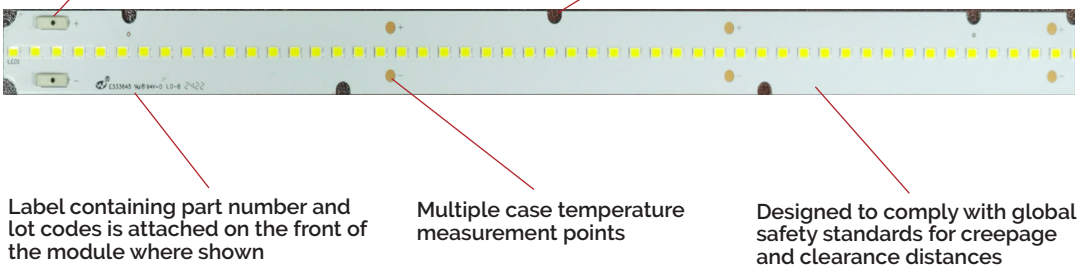
Length: 1206mm

CRI: 80, 90

CCTs: 2700K, 3000K, 3500K, 4000K, 5000K, 5700K, 6500K

Product Feature Map

Bridgelux EB Series 1" Breakable 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 1" Breakable is explained as follows:

1 2 3 4 | 5 6 7 8 9 | 10 11 12 | 13 14 15 16 | 17 18 19 20 | 21 22

BXEB – L1206 – 40 G 4000 – 0448 – D3

Product Family

Nominal Dimensions
L = Linear
1206 = 1206 mm

Nominal CCT
27 = 2700K
30 = 3000K
35 = 3500K
40 = 4000K
50 = 5000K
57 = 5700K
65 = 6500K

Minimum CRI
E = 80
G = 90

Flux Indicator
4000 = 4000 lm
5000 = 5000 lm

Module Configuration
04 = 4 in series
48 = 48 in parallel

Module Version
D = Product Version
(1-Row LED, breakable)
(with backside tape)

Pb free

RoHS

Product Selection Guide

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

Part Number	Nominal CCT[1] (K)	CRI[2]	Nominal DriveCurrent (mA)	Forward Voltage (V)	Typical Power (W)	Typical Pulsed Flux[3, 4] (lm)	Typical Efficacy (lm/W)
BXEB-L1206-27E5000-0448-D3	2700	80	716	32	23.1	4860	210
BXEB-L1206-30E5000-0448-D3	3000					4906	212
BXEB-L1206-35E5000-0448-D3	3500					4906	212
BXEB-L1206-40E5000-0448-D3	4000					5040	218
BXEB-L1206-50E5000-0448-D3	5000					5040	218
BXEB-L1206-57E5000-0448-D3	5700					4999	216
BXEB-L1206-65E5000-0448-D3	6500					4999	216
BXEB-L1206-27G4000-0448-D3	2700	90	716	33	23.6	3820	162
BXEB-L1206-30G4000-0448-D3	3000					4002	169
BXEB-L1206-35G4000-0448-D3	3500					4002	169
BXEB-L1206-40G4000-0448-D3	4000					4184	177
BXEB-L1206-50G4000-0448-D3	5000					4184	177
BXEB-L1206-57G4000-0448-D3	5700					4093	173
BXEB-L1206-65G4000-0448-D3	6500					4093	173

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 Tc (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 1" Breakable modules are tested to the specifications shown using the nominal drive currents in Table 1. EB series 1" Breakable 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 Figure 1, and the flux vs. current characteristics shown in Figure 2. The performance at commonly used drive currents is summarized in Table 2.

Table 2: Performance at Commonly Used Drive Currents (T_c = 25° 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-L1206-27E5000-0448-D3	80	146	31.5	4.6	990	215
		476	31.9	15.3	3270	213
		716	32.1	23.1	4860	210
		956	32.4	31.1	6439	207
		1500	32.9	49.4	9898	200
BXEB-L1206-30E5000-0448-D3 BXEB-L1206-35E5000-0448-D3	80	146	31.5	4.6	999	217
		476	31.9	15.3	3301	215
		716	32.1	23.1	4906	212
		956	32.4	31.1	6500	209
		1500	32.9	49.4	9996	202
BXEB-L1206-40E5000-0448-D3 BXEB-L1206-50E5000-0448-D3	80	146	31.5	4.6	1027	223
		476	31.9	15.3	3391	221
		716	32.1	23.1	5040	218
		956	32.4	31.1	6678	215
		1500	32.9	49.4	10290	208
BXEB-L1206-57E5000-0448-D3 BXEB-L1206-65E5000-0448-D3	80	146	31.5	4.6	1017	221
		476	31.9	15.3	3363	219
		716	32.1	23.1	4999	216
		956	32.4	31.1	6623	213
		1500	32.9	49.4	10192	206
BXEB-L1206-27G4000-0448-D3	90	146	31.5	4.6	856	186
		476	32.4	15.4	2574	167
		716	33	23.6	3820	162
		956	33.6	32.1	5039	157
		1500	34.7	52.1	7702	148
BXEB-L1206-30G4000-0448-D3 BXEB-L1206-35G4000-0448-D3	90	146	31.5	4.6	898	195
		476	32.4	15.4	2697	175
		716	33	23.6	4002	169
		956	33.6	32.1	5279	164
		1500	34.7	52.1	8064	155
BXEB-L1206-40G4000-0448-D3 BXEB-L1206-50G4000-0448-D3	90	146	31.5	4.6	921	200
		476	32.4	15.4	2820	183
		716	33	23.6	4184	177
		956	33.6	32.1	5519	172
		1500	34.7	52.1	8477	163
BXEB-L1206-57G4000-0448-D3 BXEB-L1206-65G4000-0448-D3	90	146	31.5	4.6	921	200
		476	32.4	15.4	2758	179
		716	33	23.6	4093	173
		956	33.6	32.1	5399	168
		1500	34.7	52.1	8271	159

Notes for Table 2:

1. Alternate drive currents are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a ± 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	
	BXEB-L1206-xxG4000-0448-D3	BXEB-L1206-xxE5000-0448-D3
Maximum Drive Current	2000 mA	2000 mA

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.
3. Max drive current values are provided as a reference only with LED module mounted onto a heat sink with thermal interface material and the case temperature maintained at 85˚C. Based on Bridgelux test setup, values may vary depending on the thermal design of the luminaire and/or the exposed environment to which the product is subjected.

Performance Curves

Figure 1: Current vs. Forward Voltage (CRI90), T_c=25°C

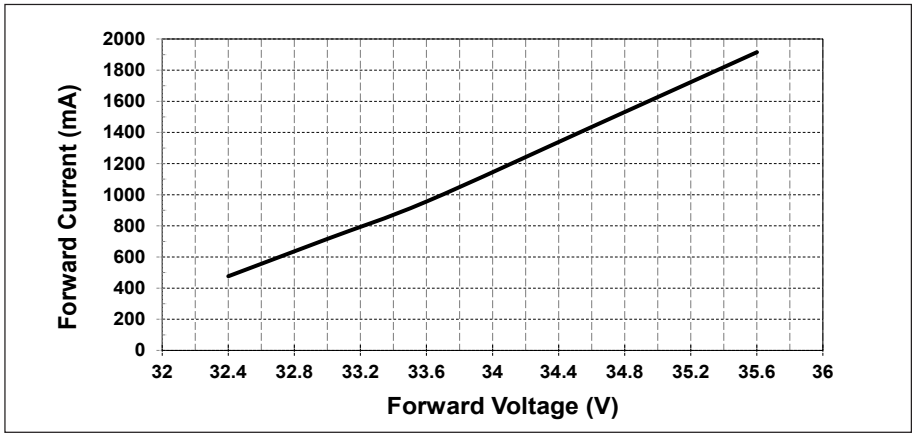


Figure 2: Relative Flux vs. Current, T_c=25°C

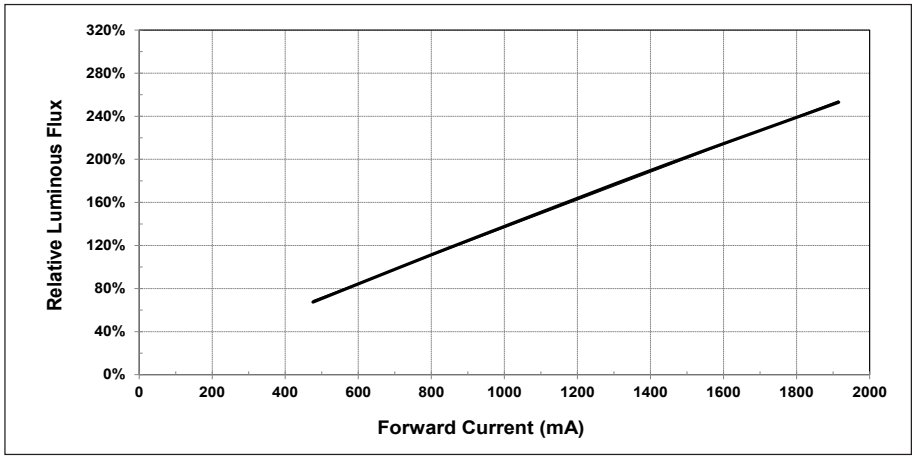
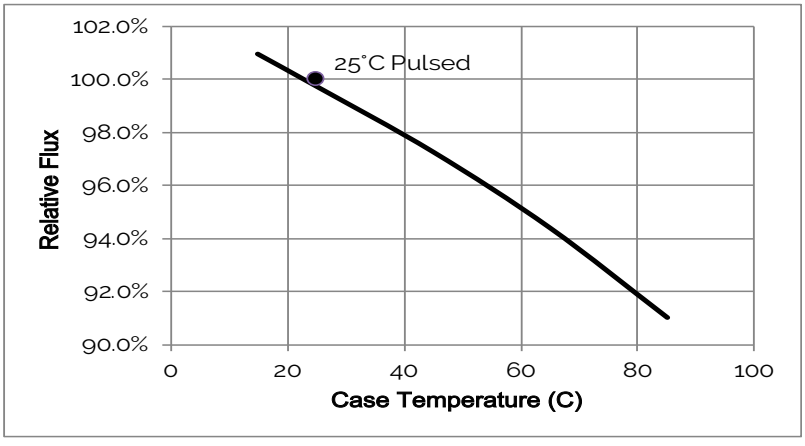
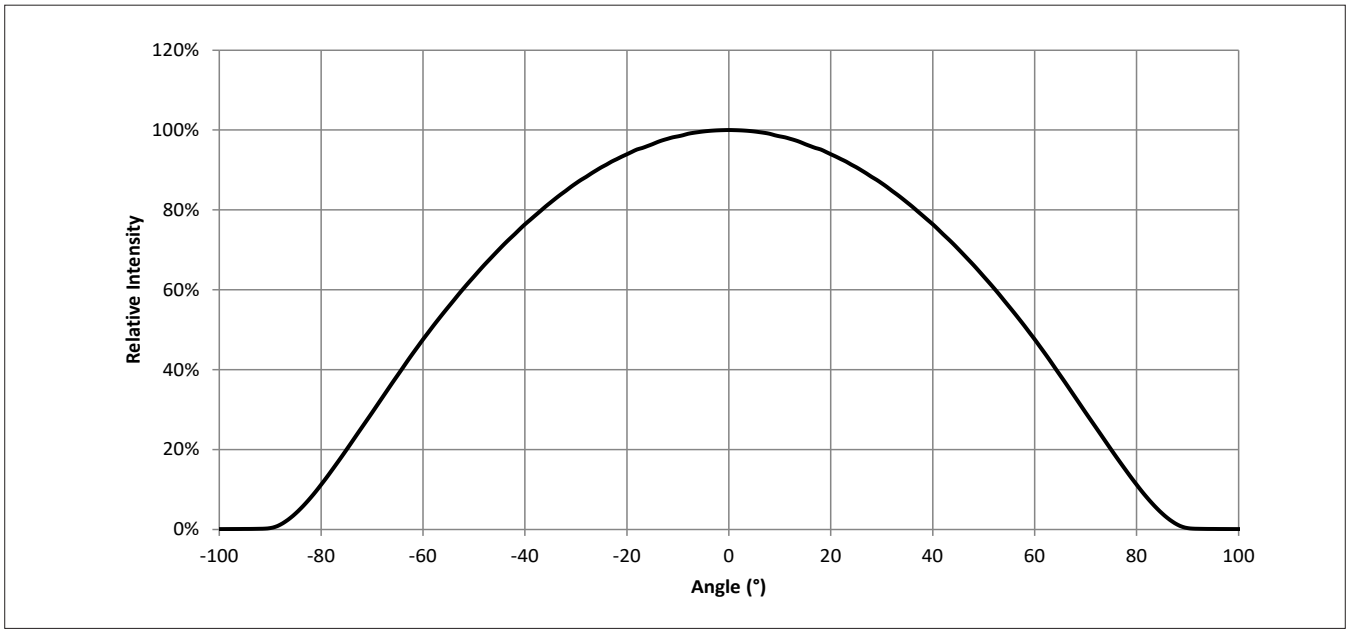


Figure 3: Relative Flux vs. Case Temperature



Typical Radiation Pattern

Figure 4: Typical Spatial Radiation Pattern



Notes for Figure 4:

1. Typical viewing angle is 120°.
2. The viewing angle is defined as the off axis angle from the centerline where Iv is ½ of the peak value.

Typical Color Spectrum

Figure 5: Typical Color Spectra, 80 CRI

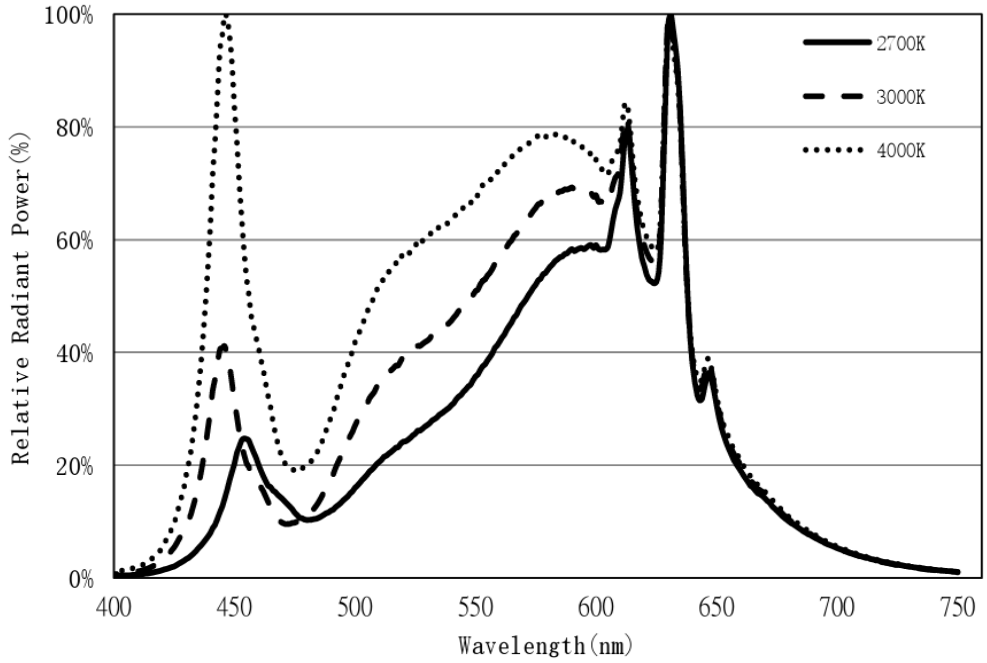
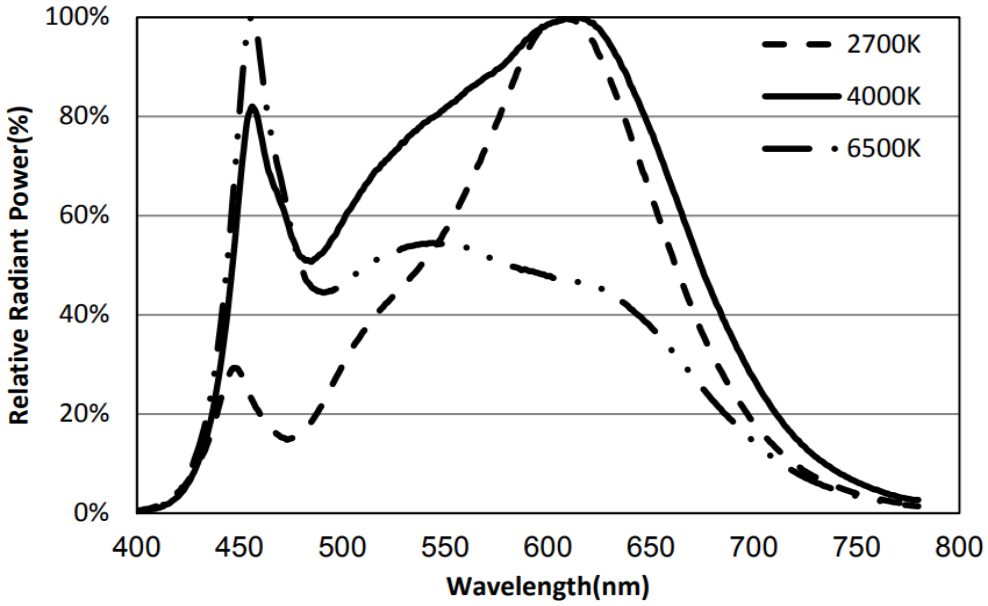


Figure 6: Typical Color Spectra, 90 CRI

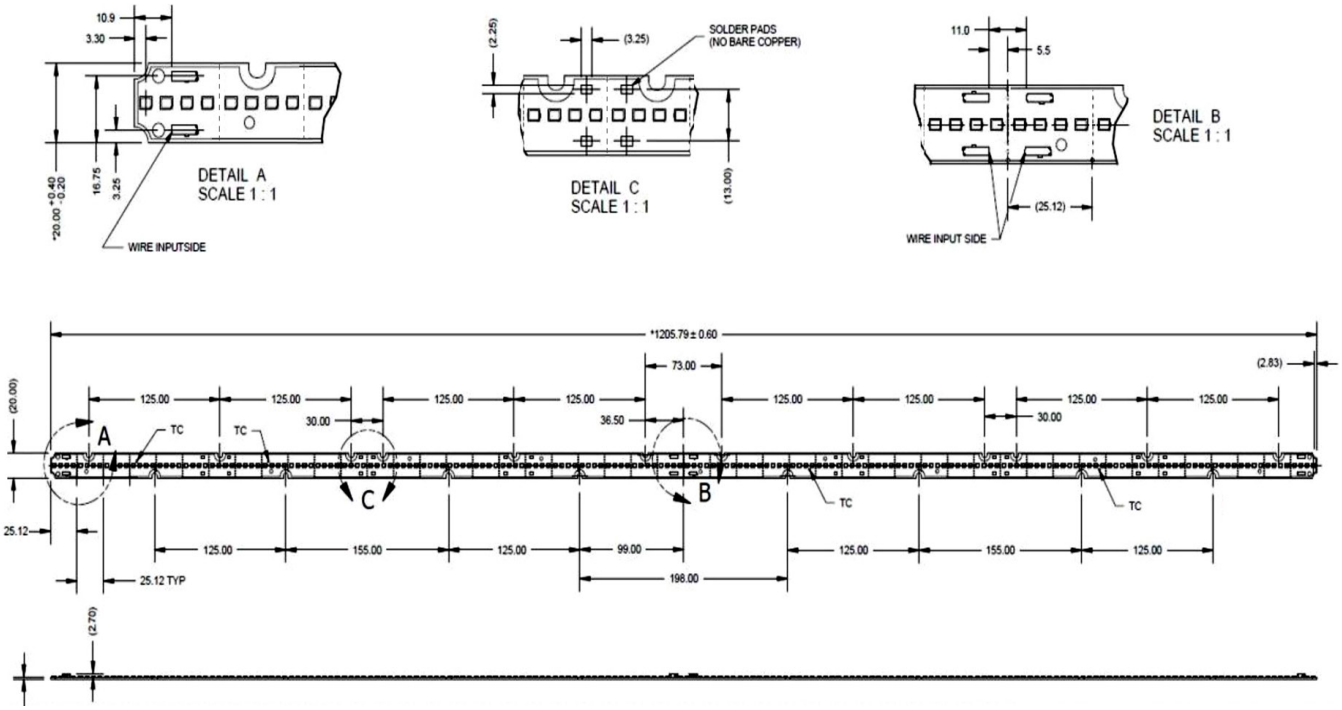


Note for Figures 5 & 6:

1. Color spectra measured at nominal current for T_c = 25°C

Mechanical Dimensions

Figure 7: Drawing Overview for 1206mm



Notes for Figure 7::

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.
4. Markings on both ends of the board, including the Bridgelux part number, CRI, and CCT as shown in the figure below:
   - CCT options: 2700 K / 3000 K / 3500 K / 4000 K
   - CRI options: 80+ / 90+

Table 4: Module Dimensions & Connector Wiring

Parameter	BXEB-L1206-xxG4000-0448-D3 BXEB-L1206-xxE5000-0448-D3
Linear length	1205.79 mm
Linear width	20.0 mm
Overall thickness	6.1 mm
PCB thickness	1.6 mm
Input wire cross-section	18-24 AWG
Wire strip length	7-9 mm

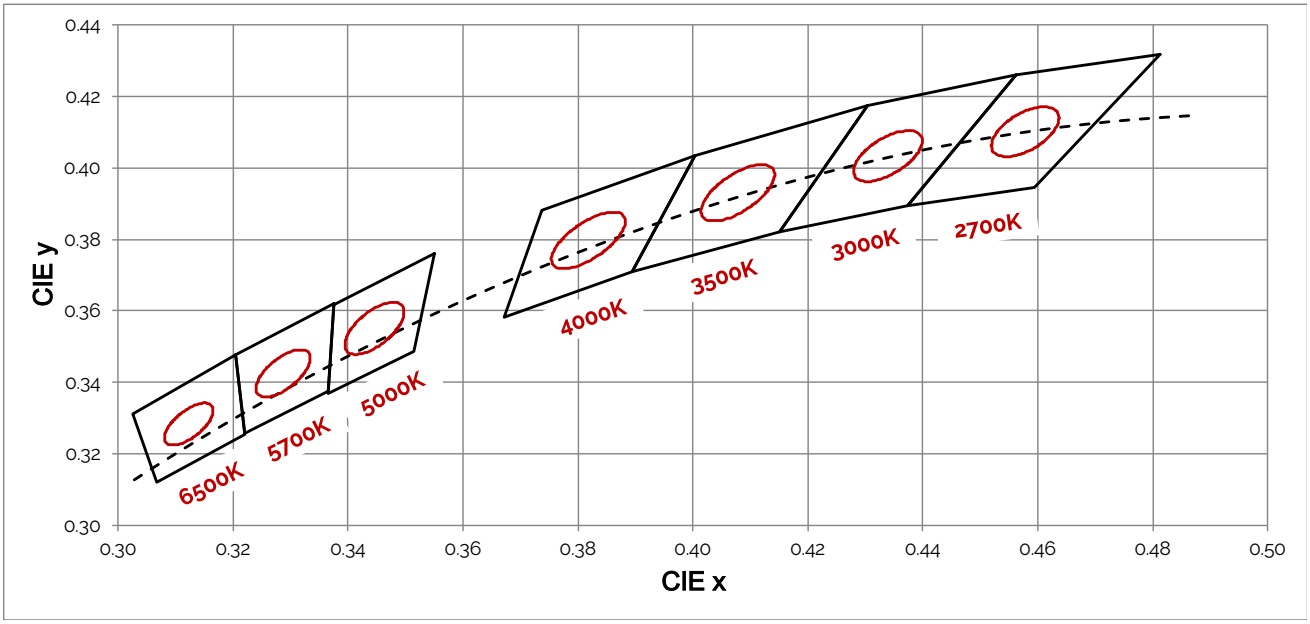
Handling Guide

Handling Guide

* Please use antistatic gloves or other ESD protection methods when handling this breakable board to prevent ESD damage or contamination of LEDs.
* Customers should use proper tools and avoid using their hands when separating this breakable board. It is not allowed to bend PCB and touch LED.
* Cutting pressure should be applied as close as possible to the separation line. Keep your fingers away from the LEDs as much as possible to avoid damage to the LEDs.
* It is very important to follow above guidelines when separating the breakable board to ensure that the product warranty is not voided.

Color Binning Information

Figure 8: 3 SDCM Color Bins in CIE 1931 xy Color Space



Note for Figure 8:

1. Quadrangular ANSI bins shown for reference only
2. Bridgelux maintains a tolerance of ± 0.007 on x and y color coordinates in the CIE 1931 color space

Table 5: Bin Coordinates and Associated Typical CCT

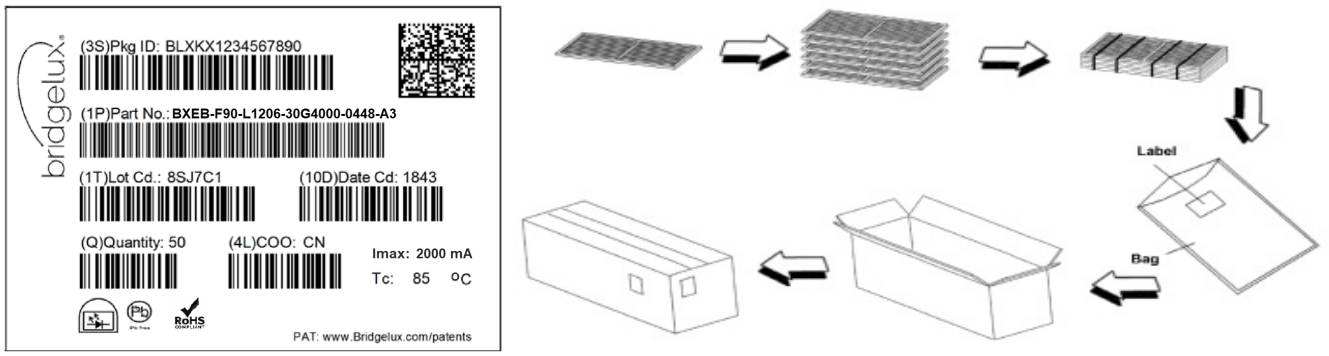
CCT	Color Consistency	CIE Center Point (x, y)	Corresponding CCT Range
2700K	3 SDCM	(0.458, 0.410)	2651K - 2794K
3000K	3 SDCM	(0.434, 0.403)	2968K - 3136K
3500K	3 SDCM	(0.407, 0.392)	3369K - 3586K
4000K	3 SDCM	(0.382, 0.380)	3851K - 4130K
5000K	3 SDCM	(0.3445, 0.355)	4835K - 5215K
5700K	3 SDCM	(0.329, 0.342)	5490K - 5820K
6500K	3 SDCM	(0.312, 0.328)	6250K - 6745K

Notes for Table 5:

1. Color binning at solder point temperature Tsp of SMDs at 60°C.
2. Bridgelux maintains a tolerance of ± 0.007 on x and y color coordinates in the CIE 1931 color space

Packaging and Labeling

Figure 9: EB Series Packaging and Labeling



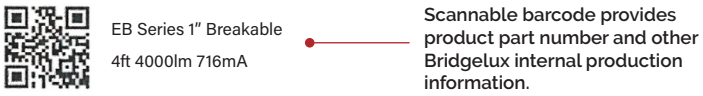
Note: This label & packaging diagram is for illustration only and may differ from actual product label and packaging for this product

Table 6: Packaging Structure

Box Parameter	Tray	Box
Quantity	20	100
Dimension	123 cm x 39 cm x 2.4 cm	134 cm x 44 cm x 18.5 cm

Figure 10: 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

The Bridgelux EB series emits visible light, that, under certain circumstances, could be harmful to the eye. Proper safeguards must be used.

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
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