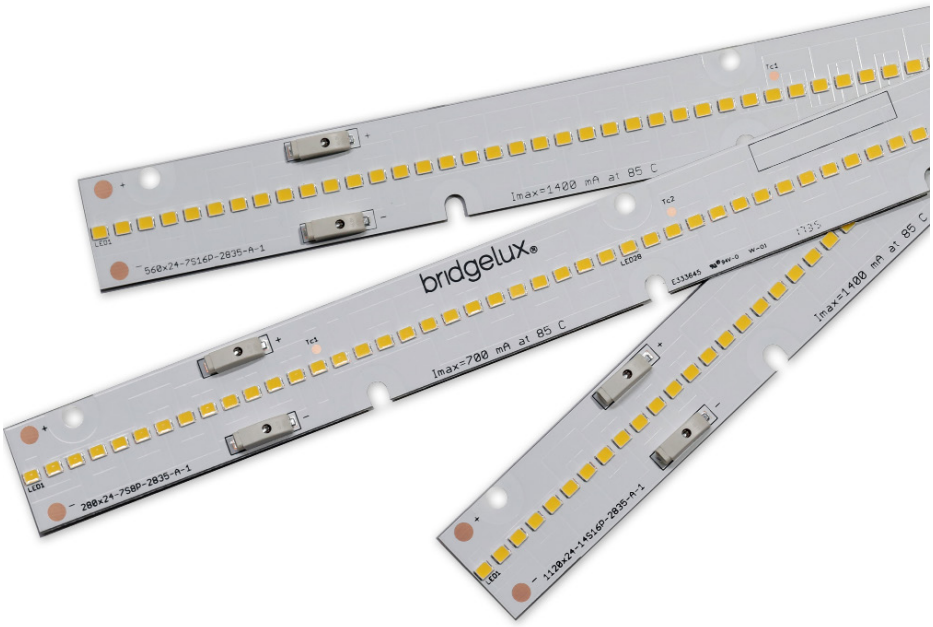


Bridgelux® EB Series™ Gen 3 High Output

Product Data Sheet DS134

Lengths: 280mm, 560mm, 1120mm

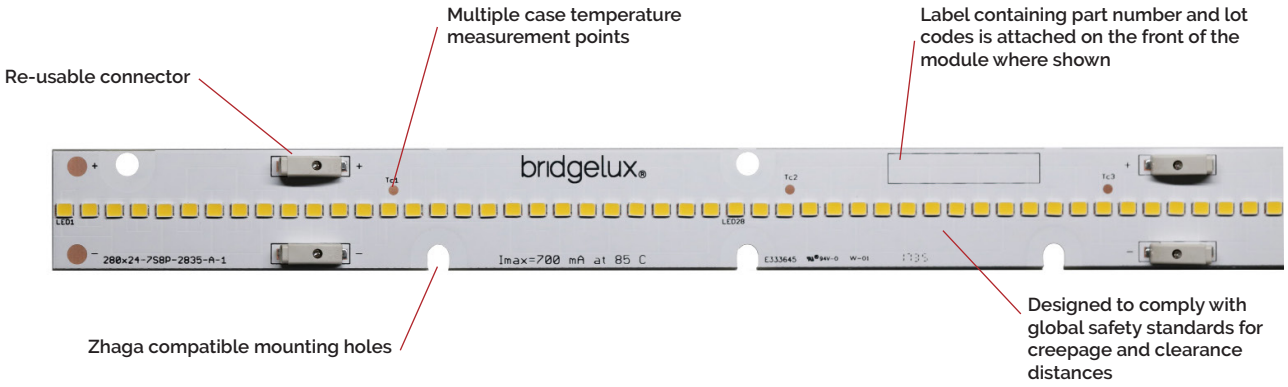
CRIs: 80, 90

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

FIVE YEAR Warranty™

Product Feature Map

Bridgelux EB Series Gen 3 High Output 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 Gen 3 Hight Output is explained as follows:

1 2 3 4 - 5 6 78 9 10 - 11 12 13 14 15 16 - 17 – 18

BXEB – L0280Z – 30 E 2000 – C – D3

Product Family

Nominal Dimensions
L= Linear
0280 = 280 mm
0560 = 560 mm
1120 = 1120 mm
Z= Zhaga compatible width (24 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
2000 = 2000 lm
4000 = 4000 lm
8000 = 8000 lm

Module Configuration

Module Version
D = Gen 3 High Output
3 = 3 SDCM

Product Selection Guide

Table 1: Product Performance (T_c = 25° C)

Part Number	Nominal CCT[1] (K)	Minimum CRI	Typical Flux[2,3] (lm)	Nominal Drive Current (mA)	Typical V_f (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXEB-L0280Z-27E2000-C-D3	2700	80	2350	700	19.2	13.4	175
BXEB-L0280Z-27G2000-C-D3		90	2000				149
BXEB-L0280Z-30E2000-C-D3	3000	80	2480				185
BXEB-L0280Z-30G2000-C-D3		90	2095				156
BXEB-L0280Z-35E2000-C-D3	3500	80	2480				185
BXEB-L0280Z-35G2000-C-D3		90	2095				156
BXEB-L0280Z-40E2000-C-D3	4000	80	2610				194
BXEB-L0280Z-40G2000-C-D3		90	2225				166
BXEB-L0280Z-50E2000-C-D3	5000	80	2610				194
BXEB-L0280Z-50G2000-C-D3		90	2225				166
BXEB-L0280Z-57E2000-C-D3	5700	80	2610				194
BXEB-L0280Z-57G2000-C-D3		90	2225				166
BXEB-L0280Z-65E2000-C-D3	6500	80	2610				194
BXEB-L0280Z-65G2000-C-D3		90	2225				166
BXEB-L0560Z-27E4000-C-D3	2700	80	4700	1400	19.2	26.9	175
BXEB-L0560Z-27G4000-C-D3		90	4000				149
BXEB-L0560Z-30E4000-C-D3	3000	80	4960				185
BXEB-L0560Z-30G4000-C-D3		90	4190				156
BXEB-L0560Z-35E4000-C-D3	3500	80	4960				185
BXEB-L0560Z-35G4000-C-D3		90	4190				156
BXEB-L0560Z-40E4000-C-D3	4000	80	5220				194
BXEB-L0560Z-40G4000-C-D3		90	4450				166
BXEB-L0560Z-50E4000-C-D3	5000	80	5220				194
BXEB-L0560Z-50G4000-C-D3		90	4450				166
BXEB-L0560Z-57E4000-C-D3	5700	80	5220				194
BXEB-L0560Z-57G4000-C-D3		90	4450				166
BXEB-L0560Z-65E4000-C-D3	6500	80	5220				194
BXEB-L0560Z-65G4000-C-D3		90	4450				166

Notes for Table 1:

1. Nominal CCT as defined by ANSI C78.377-2011.
2. Data is at nominal test current where temperature of center case temperature point T_c = 25° C.
3. Bridgelux maintains a ± 7% tolerance on typical flux data (typical SMD flux bins)

Product Selection Guide

Table 2: Product Performance (T_c = 25° C)

Part Number	Nominal CCT[1] (K)	Minimum CRI	Typical Flux[2,3] (lm)	Nominal Drive Current (mA)	Typical V_f (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXEB-L1120Z-27E8000-C-D3	2700	80	9400	1400	38.4	53.8	175
BXEB-L1120Z-27G8000-C-D3		90	8000				149
BXEB-L1120Z-30E8000-C-D3	3000	80	9920				185
BXEB-L1120Z-30G8000-C-D3		90	8380				156
BXEB-L1120Z-35E8000-C-D3	3500	80	9920				185
BXEB-L1120Z-35G8000-C-D3		90	8380				156
BXEB-L1120Z-40E8000-C-D3	4000	80	10440				194
BXEB-L1120Z-40G8000-C-D3		90	8900				166
BXEB-L1120Z-50E8000-C-D3	5000	80	10440				194
BXEB-L1120Z-50G8000-C-D3		90	8900				166
BXEB-L1120Z-57E8000-C-D3	5700	80	10440				194
BXEB-L1120Z-57G8000-C-D3		90	8900				166
BXEB-L1120Z-65E8000-C-D3	6500	80	10440				194
BXEB-L1120Z-65G8000-C-D3		90	8900				166

Notes for Table 2:

1. Nominal CCT as defined by ANSI C78.377-2011
2. Data is at nominal test current where temperature of center case temperature point T_c = 25° C
3. Bridgelux maintains a ± 7% tolerance on typical flux data (typical SMD flux bins)

Electrical Characteristics

Table 3: Electrical Characteristics

Part Number	Drive Current (mA)	Forward Voltage T_{c2} = 25° C (V) [1, 2, 3]			Typical Coefficient of Forward Voltage[4] $\Delta V_f/\Delta T$ (mV/° C)	Driver Selection Voltages[5] (V)	
		Minimum	Typical	Maximum		V_f Min, Hot T_{c2} = 85° C (V)	V_f Max, Cold T_{c2} = -40° C (V)
BXEB-L0280Z-xxy2000-C-D3	700	17.9	19.2	20.5	-7	17.4	21.0
	1400	18.7	20.1	21.5	-7	18.3	22.0
BXEB-L0560Z-xxy4000-C-D3	1400	17.9	19.2	20.5	-7	17.4	21.0
	2800	18.7	20.1	21.5	-7	18.3	22.0
BXEB-L1120Z-xxy8000-C-D3	1400	35.7	38.4	41.1	-14	34.9	42.0
	2800	37.4	40.2	43.0	-14	36.5	43.9

Notes for Table 3:

1. Voltage minimum and maximum are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a tolerance of ± 0.1 V on forward voltage data.
3. This product has been designed and manufactured per IEC 62031:2014. The working voltage designated for the insulation is 60 V d.c. The maximum allowable voltage across the module must be determined in the end product application.
4. Typical coefficient of forward voltage tolerance is ± 0.1 mV for nominal current.
5. 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 4: 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-L0280Z-xxx2000-C-D3	BXEB-L0560Z-xxx4000-C-D3	BXEB-L1120Z-xxx8000-C-D3
Maximum Drive Current	1400mA	2800mA	2800mA

Notes for Table 4:

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: 280mm Current vs. Forward Voltage, T_c=25°C

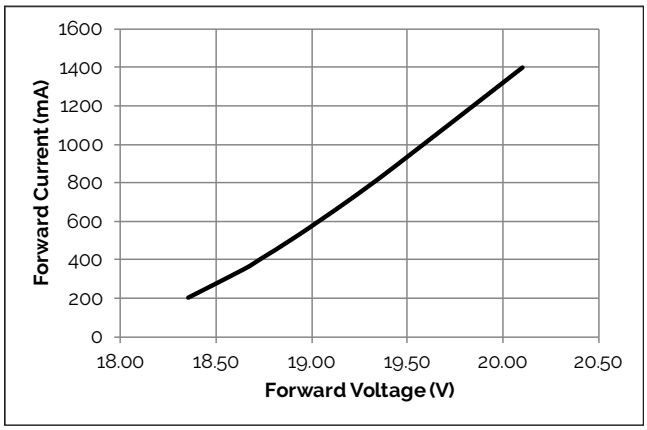


Figure 2: 280mm Relative Flux vs. Current, T_c=25°C

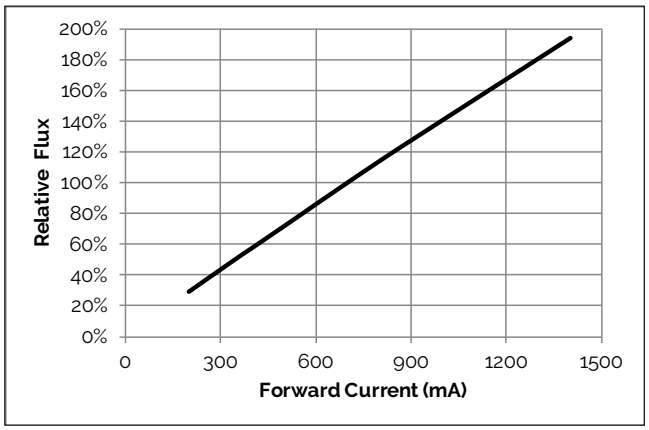


Figure 3: 560mm Current vs. Forward Voltage, T_c=25°C

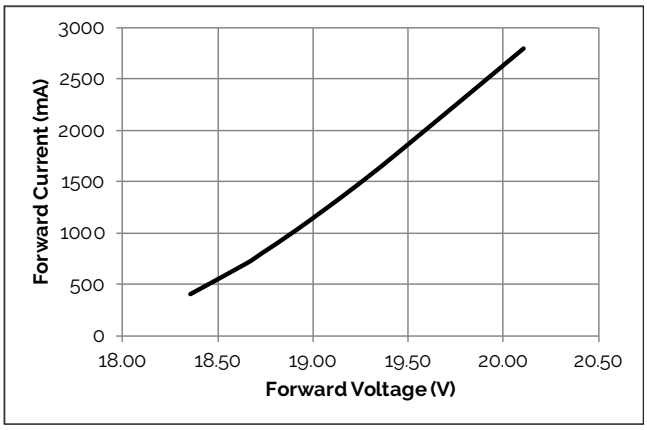


Figure 4: 560mm Relative Flux vs. Current, T_c=25°C

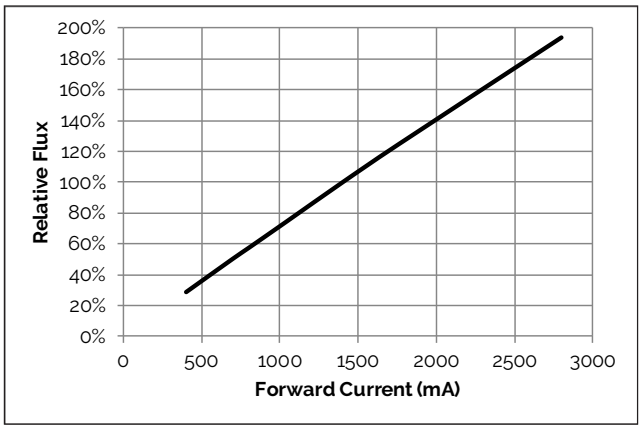


Figure 5: 1120mm Current vs. Forward Voltage, T_c=25°C

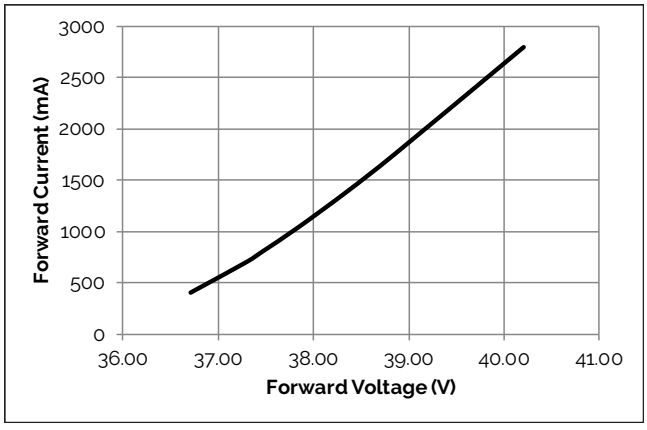
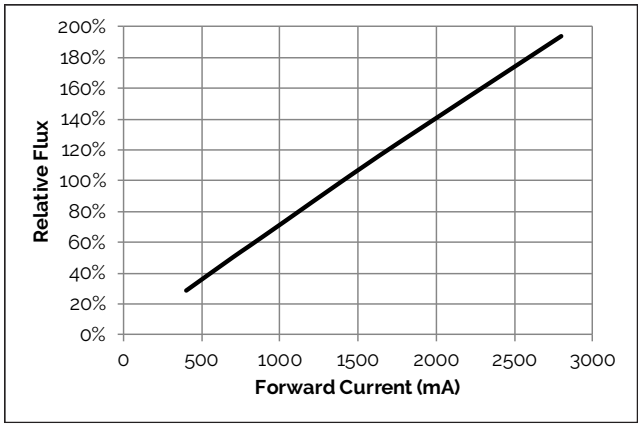


Figure 6: 1120mm Relative Flux vs. Current, T_c=25°C



Performance Curves

Figure 7: Relative Voltage vs. Case Temperature

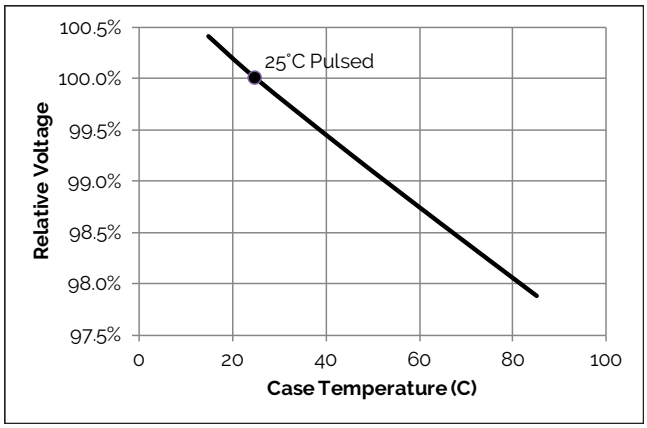
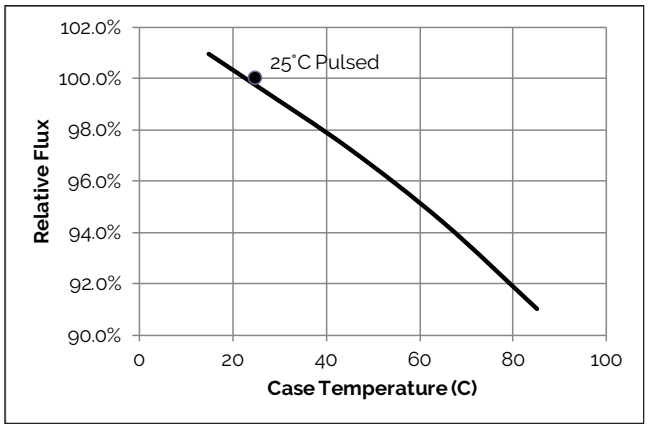
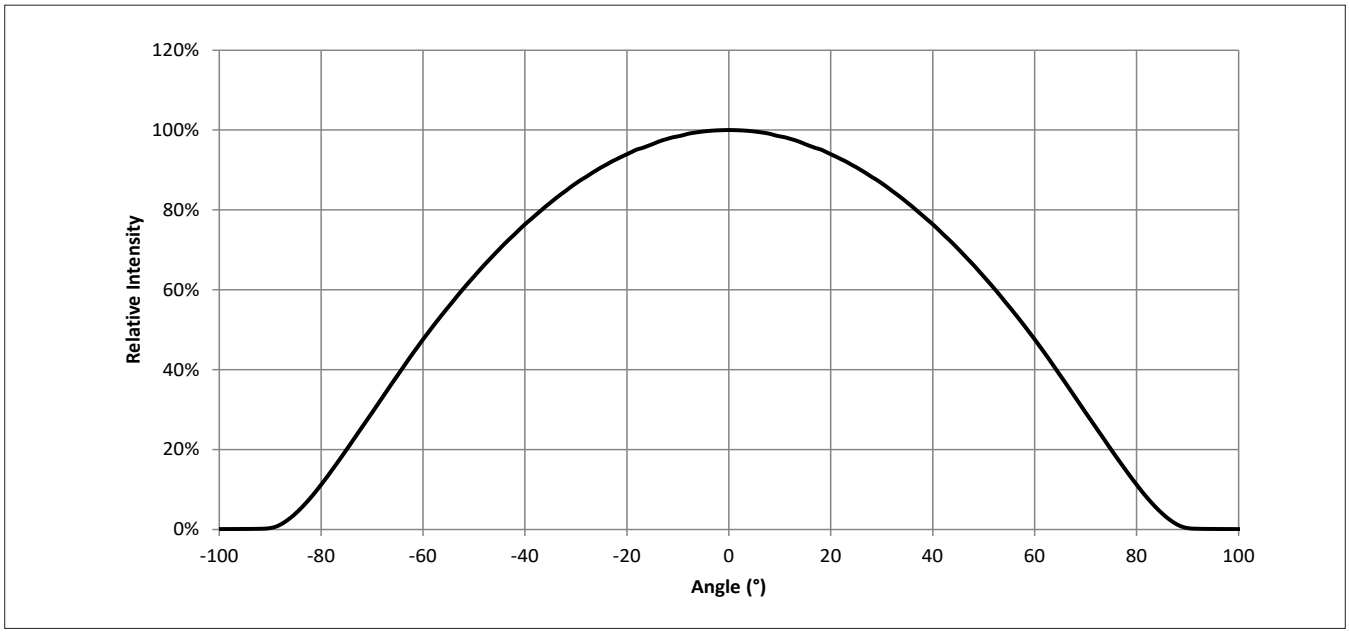


Figure 8: Relative Flux vs. Case Temperature



Typical Radiation Pattern

Figure 9: Typical Spatial Radiation Pattern



Notes for Figure 9:

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 10: Typical Color Spectra, 80 CRI

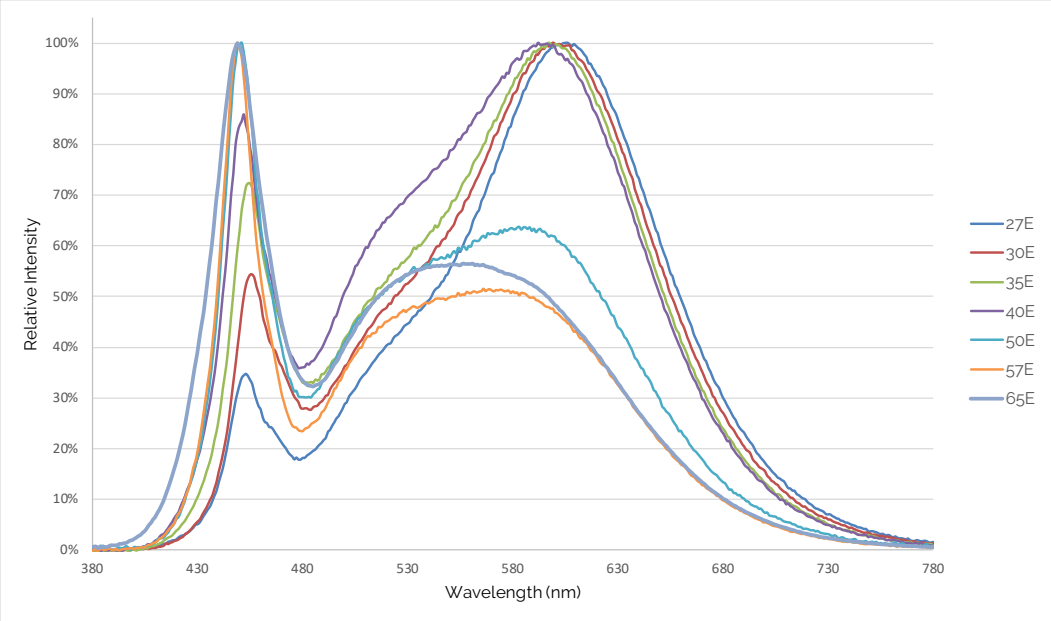
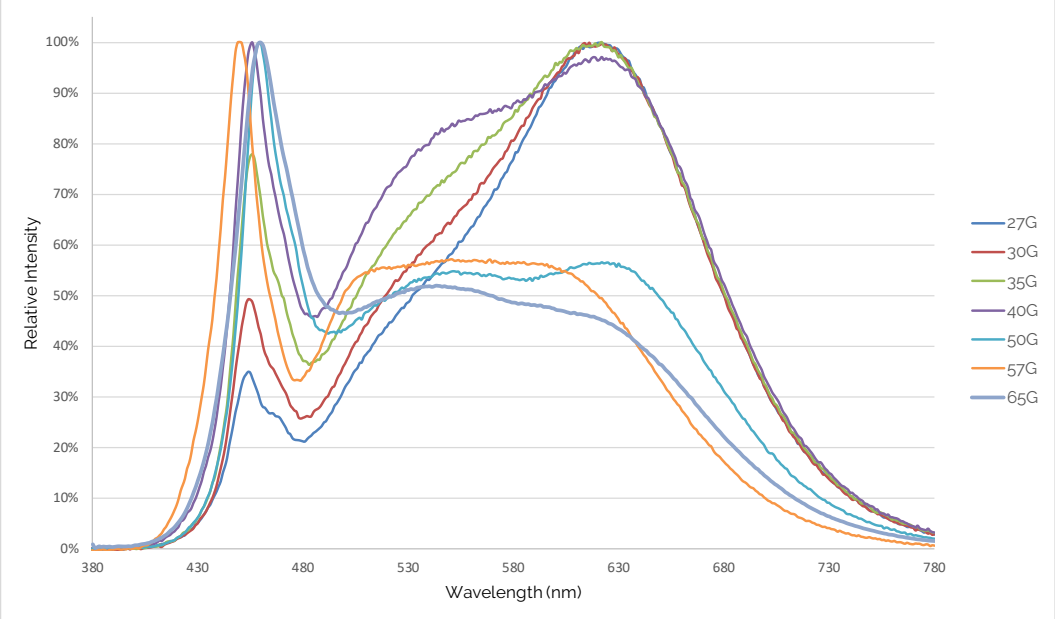


Figure 11: Typical Color Spectra, 90 CRI



Note for Figures 10 & 11:

1. Color spectra measured at nominal current for T_c = 65˚C

Mechanical Dimensions

Figure 12: Drawing Overview for 280mm

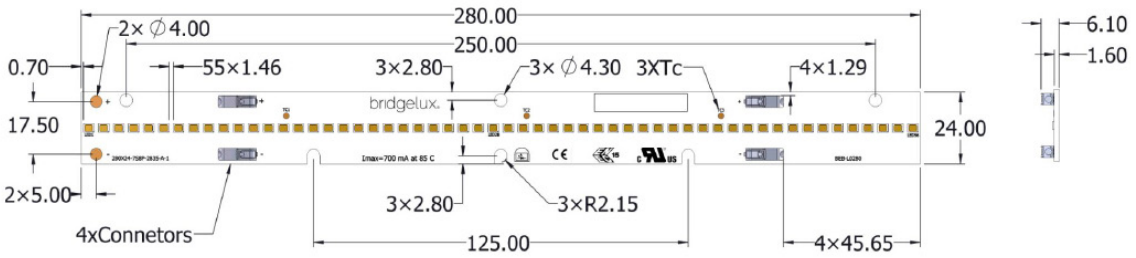


Figure 13: Drawing Overview for 560mm

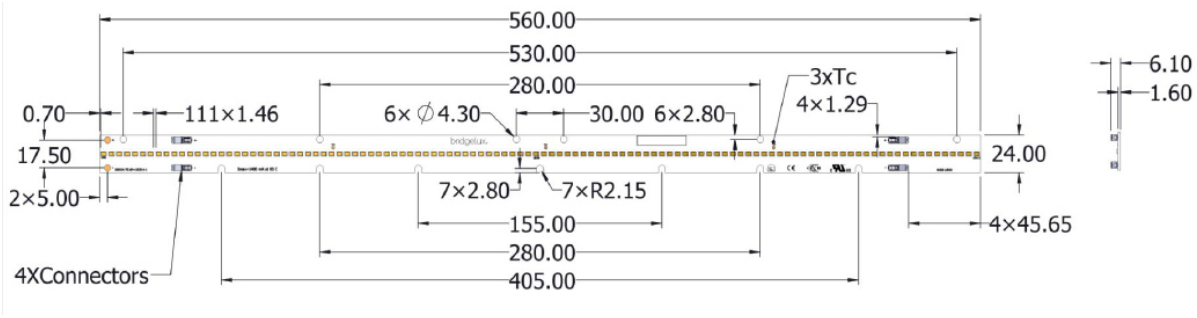
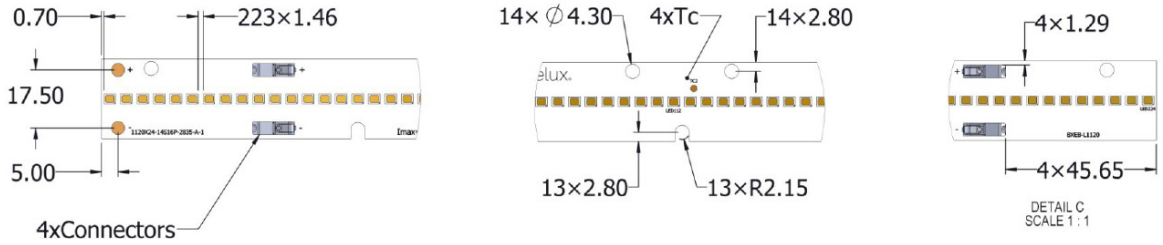


Figure 14: Drawing Overview for 1120mm



Notes for Figures 12, 13 & 14:

1. Solder pads are labeled "+" to denote positive polarity, and "-" to denote negative polarity.
2. Drawing dimensions are in millimeters.
3. Refer to Bridgelux assembly drawing 15-000682, 15-000683, and 15-000684 for complete product configuration

Table 5: Module Dimensions & Connector Wiring

Parameter	BXEB-L0280Z-xxx2000-C-D3	BXEB-L0560Z-xxx4000-C-D3	BXEB-L1120Z-xxx8000-C-D3
Linear length	280.0 mm	560.0 mm	1120.0 mm
Linear width	24 mm		
Overall thickness	6.1 mm		
PCB thickness	1.6 mm		
Input wire cross-section	18-24 AWG		
Wire strip length	7-9 mm		

Color Binning Information

Figure 15: 3 SDCM Color Bins in CIE 1931 xy Color Space

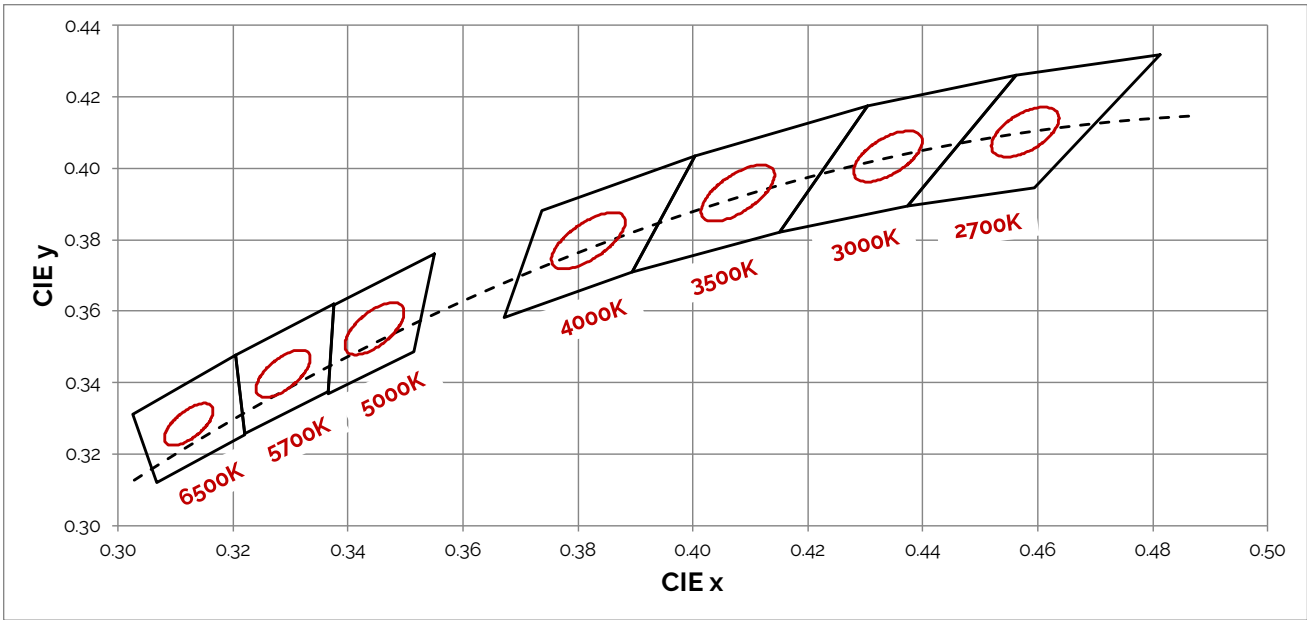


Table 6: Bin Coordinates and Associated Typical CCT

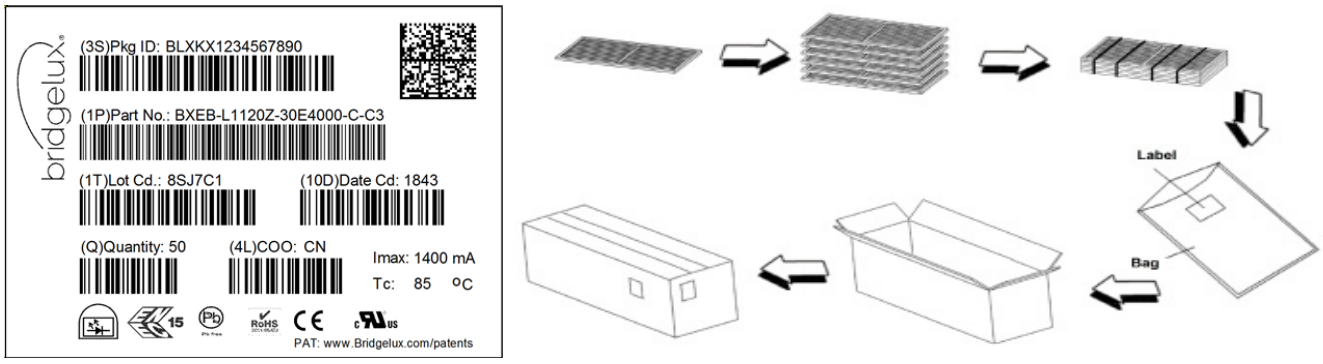
CCT	Color Consistency	CIE Center Point (x, y)	Corresponding CCT Range
2700K	3 SDCM	(0.458, 0.410)	2651K - 2794K
3000K	3 SDCM	(0.434, 0.403)	2968K - 3136K
3500K	3 SDCM	(0.407, 0.392)	3369K - 3586K
4000K	3 SDCM	(0.382, 0.380)	3851K - 4130K
5000K	3 SDCM	(0.3445, 0.355)	4835K - 5215K
5700K	3 SDCM	(0.329,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

Notes for Table 6

1. Color binning at solder point temperature Tsp of SMDs at 25°C for 80 CRI and 85°C for 90 CRI.
2. Bridgelux maintains a tolerance of ± 0.007 on x and y color coordinates in the CIE 1931 color space.
3. Quadrangular ANSI bins shown for reference only

Packaging and Labeling

Figure 16: 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 7: Packaging Structure

Box Parameter	L0280 modules	L0560 modules	L1120 modules
Quantity	200	100	100
Dimension	34.6 cm x 29.6 cm x 16.9 cm	60.0 cm x 19.4 cm x 16.9 cm	115.9 cm x 19.4 cm x 16.9 cm

Figure 17: 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
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