



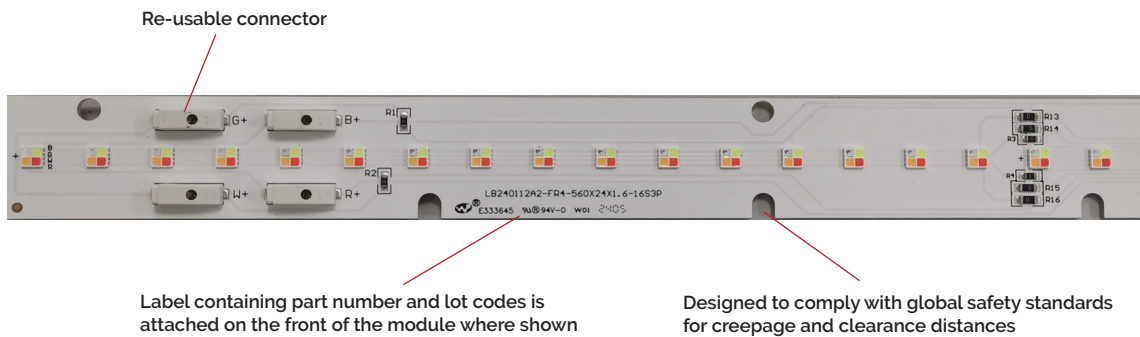
Bridgelux® Vesta® Series RGBW EB (with Mounting Holes)

Product Data Sheet DS588



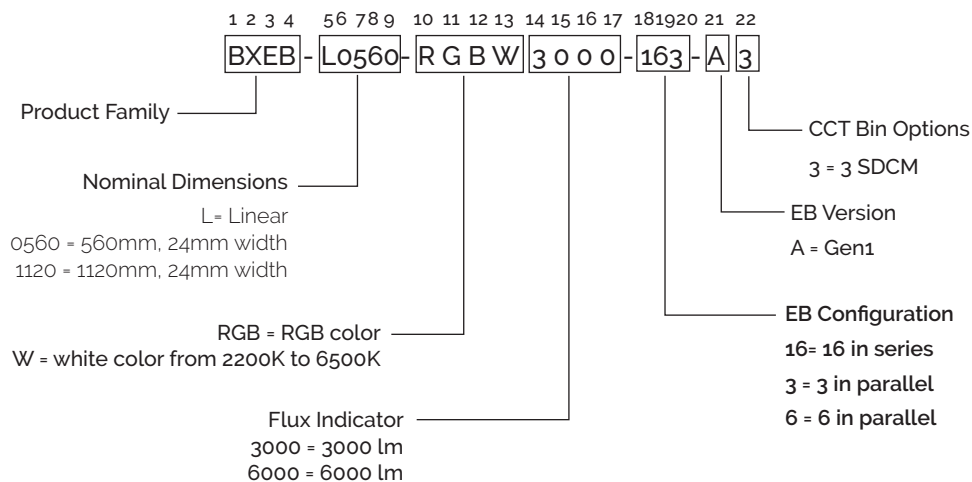
Product Feature Map

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



Product Nomenclature

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



Product Selection Guide

The following product configurations are available:

Table 1: Selection Guide, White Pulsed Measurement Data ($T_j = T_c = 25^\circ\text{C}$)

Part Number	Nominal CCT ¹ (K)	CRI ²	Nominal Drive Current Per Channel (mA)				Forward Voltage ³ (V)				Typical Pulsed Flux ^{3, 4, 5} (lm)	Typical Power (W)	Typical Efficacy (lm/W)
			White	Red	Green	Blue	White	Red	Green	Blue			
BXEB-L0560-RGBW 3000-163-A3	2200	95	206	208	35	1.4	44	44	42	39	2462	20	125
	2700		227	157	56	10	44	43	42	40	2767	20	142
	3000		227	137	70	17	44	43	42	40	2881	20	148
	3500		227	113	84	27	44	43	42	41	2999	19	154
	4000		213	99	101	37	44	43	43	41	3063	19	158
	5000		191	80	122	57	44	42	43	41	3108	19	161
	5700		173	78	131	68	44	42	42	41	3069	19	160
	6500		157	73	141	79	43	42	43	42	3063	19	159
BXEB-L1120-RGBW 6000-166-A3	2200	95	413	415	69	2.7	44	44	41	39	4923	39	126
	2700		453	314	112	21	44	43	42	40	5533	39	142
	3000		453	273	139	34	44	43	42	40	5761	39	149
	3500		453	226	167	53	44	43	42	41	5997	39	155
	4000		426	198	201	74	44	42	42	41	6126	39	159
	5000		382	159	244	115	43	42	43	41	6216	38	162
	5700		345	157	263	135	43	42	43	41	6139	38	160
	6500		315	146	281	158	43	42	43	41	6126	38	160

Notes for Table 1:

1. Nominal CCT as defined by ANSI C78.377-2011.

2. Listed CRIs are minimum values and include test tolerance.

3. Products tested under pulsed condition (10ms pulse width) at nominal drive current where T_j (junction temperature) = T_c (case temperature) = 25°C .

4. Typical performance values are provided as a reference only and are not a guarantee of performance.

5. Bridgelux maintains a $\pm 7.5\%$ tolerance on flux measurements

Product Selection Guide

The following product configurations are available:

Table 2: Selection Guide, RGBW Pulsed Measurement Data ($T_j = T_c = 25^\circ\text{C}$)

Part Number	Color	Nominal Drive Current (mA)	Forward Voltage ³ (V)			Typical Pulsed Flux ^{3,4,5} (lm)	Dominant Wavelength (nm)
			Min	Typical	Max		
BXEB-L0560-RGBW3000-163-A3	Red	360	44.8	48	51.2	686	618
	Green	360	44.8	48	51.2	3696	535.2
	Blue	360	44.8	48	51.2	389	457.5
	White	360	44.8	48	51.2	2784	2500K 70CRI
BXEB-L1120-RGBW6000-166-A3	Red	720	44.8	48	51.2	1373	618
	Green	720	44.8	48	51.2	7392	535.2
	Blue	720	44.8	48	51.2	778	457.5
	White	720	44.8	48	51.2	5568	2500K 70CRI

Notes for Table 2:

1. Nominal CCT as defined by ANSI C78.377-2011.
2. Listed CRIs are minimum values and include test tolerance.
3. Products tested under pulsed condition (10ms pulse width) at nominal drive current where T_j (junction temperature) = T_c (case temperature) = 25°C .
4. Typical performance values are provided as a reference only and are not a guarantee of performance.
5. Bridgelux maintains a $\pm 7.5\%$ tolerance on flux measurements
6. White color is targeted at CCT of 2500K, 70CRI.

Performance at Commonly Used Drive Currents

Table 3: White Performance at Commonly Used Drive Currents ($T_j = T_c = 25^\circ\text{C}$)

Part Number	Nominal CCT ¹ (K)	CRI ²	Nominal Drive Current Per Channel (mA)				Forward Voltage ³ (V)				Typical Pulsed Flux ^{3, 4, 5} (lm)	Typical Power (W)	Typical Efficacy (lm/W)
			White	Red	Green	Blue	White	Red	Green	Blue			
BXEB-L0560-RGBW 3000-163-A3	2200	95	121	121	20	0.8	43.2	43.2	41.4	39.1	1439	11	127
	2700		132	92	33	6	43.4	42.7	41.6	40.2	1611		143
	3000		132	80	41	10	43.4	42.5	41.8	40.5	1672		149
	3500		132	66	49	16	43.4	42.3	42.1	40.9	1725		153
	4000		125	58	59	22	43.2	42.1	42.1	41.1	1752		157
	5000		112	46	71	34	43.0	42.1	42.3	41.4	1725		155
	5700		101	46	77	40	43.0	41.8	42.5	41.6	1746		156
	6500		92	43	82	46	43.0	41.8	42.5	41.6	1726		155
BXEB-L0560-RGBW 3000-163-A3	2200	95	210	211	35	1.4	43.9	43.9	41.6	38.6	2484	20	124
	2700		230	159	57	10	44.1	43.2	42.1	40.0	2784		140
	3000		230	139	71	17	44.1	43.0	42.3	40.5	2873		145
	3500		230	115	85	27	44.1	42.7	42.3	40.7	2975		151
	4000		216	101	102	38	44.1	42.5	42.5	40.9	3024		153
	5000		194	81	124	58	43.7	42.3	43.0	41.4	3015		154
	5700		175	80	133	69	43.7	42.3	41.8	41.4	2984		153
	6500		160	74	143	80	43.4	42.3	43.2	41.6	2980		152
BXEB-L0560-RGBW 3000-163-A3	2200	95	270	271	45	1.8	44.3	44.3	41.6	40.0	3218	26	124
	2700		296	205	73	13	44.8	43.7	42.1	40.7	3593		139
	3000		296	179	91	22	44.8	43.4	42.3	40.7	3709		144
	3500		296	147	109	35	44.8	43.2	42.3	41.1	3830		149
	4000		279	129	132	49	44.6	43.0	42.5	41.6	3899		152
	5000		250	104	159	75	44.1	43.2	43.0	42.1	3846		151
	5700		225	103	172	88	44.1	42.3	43.0	42.3	3895		153
	6500		206	95	184	103	43.9	42.3	43.2	42.5	3821		151

Notes for Table 3:

1. Alternate drive currents in Table 3 are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a $\pm 7.5\%$ tolerance on flux measurements.

Performance at Commonly Used Drive Currents

Table 3: White Performance at Commonly Used Drive Currents ($T_j = T_c = 25^\circ\text{C}$)

Part Number	Nominal CCT ¹ (K)	CRI ²	Nominal Drive Current Per Channel (mA)				Forward Voltage ³ (V)				Typical Pulsed Flux ^{3, 4, 5} (lm)	Typical Power (W)	Typical Efficacy (lm/W)
			White	Red	Green	Blue	White	Red	Green	Blue			
BXEB-L1120-RGBW 6000-166-A3	2200	95	240	242	40	1.6	42.7	42.7	41.0	38.9	2761	22	124
	2700		264	183	65	12	42.9	42.3	41.4	40.0	3096		139
	3000		264	159	81	20	42.9	42.2	41.6	40.3	3215		145
	3500		264	131	98	31	42.9	41.9	41.7	40.6	3318		150
	4000		248	115	117	43	42.9	41.8	41.8	40.8	3371		152
	5000		223	93	142	67	42.6	41.7	42.1	41.1	3321		150
	5700		201	91	153	79	42.6	41.6	42.2	41.3	3362		152
	6500		183	85	164	92	42.5	41.6	42.2	41.4	3325		151
BXEB-L1120-RGBW 6000-166-A3	2200	95	421	423	71	2.8	43.5	43.7	41.5	38.6	4786	40	120
	2700		462	320	114	21	43.8	43.0	41.8	40.0	5360		135
	3000		462	279	142	35	43.7	42.7	41.9	40.3	5530		140
	3500		462	230	171	55	43.7	42.5	42.2	40.6	5727		145
	4000		435	202	205	76	43.5	42.3	42.4	40.8	5824		148
	5000		390	162	249	117	43.3	42.2	42.6	41.1	5809		148
	5700		352	160	268	138	43.2	42.1	42.6	41.3	5793		148
	6500		321	149	287	162	43.1	41.9	42.7	41.4	5745		147
BXEB-L1120-RGBW 6000-166-A3	2200	95	541	544	91	3.5	44.0	43.9	41.6	38.6	6197	51	120
	2700		594	412	147	27	44.2	43.3	41.9	40.1	6913		135
	3000		594	358	182	45	44.2	43.1	42.2	40.5	7137		139
	3500		594	296	220	70	44.2	42.7	42.4	40.7	7374		144
	4000		559	260	264	98	44.0	42.6	42.6	40.9	7511		148
	5000		501	208	320	150	43.8	42.4	42.9	41.3	7394		146
	5700		452	206	344	177	43.7	42.3	41.8	41.5	7451		148
	6500		413	191	369	208	43.5	42.2	43.1	41.6	7357		146

Notes for Table 3:

1. Alternate drive currents in Table 3 are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a $\pm 7.5\%$ tolerance on flux measurements.

Performance at Commonly Used Drive Currents

Table 4: RGBW Performance at Commonly Used Drive Currents for BXEB-Lo560-RGBW3000-163-A3

Color	Drive Current Per Channel (mA)	Forward Voltage (V) $T_c = 25^\circ\text{C}$	Typical Power (W) $T_c = 25^\circ\text{C}$	Typical Pulsed Flux ² (lm) $T_c = 25^\circ\text{C}$	Typical Pulsed Flux ² (lm) $T_c = 85^\circ\text{C}$	Typical Efficacy (lm/W) $T_c = 25^\circ\text{C}$
Red	90	43	4	197	183	51
	180	45	8	375	346	46
	270	46	13	537	494	43
	360	48	17	686	629	40
	450	50	22	825	752	37
Green	90	43	4	1015	888	264
	180	45	8	1965	1693	245
	270	46	13	2859	2437	228
	360	48	17	3696	3100	214
	450	50	22	4481	3722	201
Blue	90	42	4	115	121	30
	180	44	8	215	223	27
	270	46	12	305	314	25
	360	48	17	389	396	23
	450	50	22	467	473	21
White	90	43	4	764	704	198
	180	45	8	1479	1359	184
	270	46	13	2150	1966	172
	360	48	17	2784	2530	161
	450	50	22	3384	3062	152

Notes for Table 4:

1. Alternate drive currents in Table 4 are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a $\pm 7.5\%$ tolerance on flux measurements.
3. Please refer to Table 6 for maximum current ratings for each color.

Performance at Commonly Used Drive Currents

Table 5: RGBW Performance at Commonly Used Drive Currents for BXEB-L1120-RGBW6000-166-A3

Color	Drive Current Per Channel (mA)	Forward Voltage (V) $T_c = 25^\circ\text{C}$	Typical Power (W) $T_c = 25^\circ\text{C}$	Typical Pulsed Flux ² (lm) $T_c = 25^\circ\text{C}$	Typical Pulsed Flux ² (lm) $T_c = 85^\circ\text{C}$	Typical Efficacy (lm/W) $T_c = 85^\circ\text{C}$
Red	180	43	8	394	366	51
	360	45	16	749	693	46
	540	46	25	1074	988	43
	720	48	35	1372	1258	40
	900	50	45	1650	1505	37
Green	180	43	8	2030	1775	264
	360	45	16	3930	3385	245
	540	46	25	5718	4874	228
	720	48	35	7392	6200	214
	900	50	45	8961	7445	201
Blue	180	42	8	230	242	30
	360	44	16	429	446	27
	540	46	25	610	628	25
	720	48	35	778	792	23
	900	50	45	934	946	21
White	180	43	8	1527	1408	198
	360	45	16	2957	2718	184
	540	46	25	4300	3932	172
	720	48	35	5568	5060	161
	900	50	45	6768	6123	152

Notes for Table 5:

1. Alternate drive currents in Table 5 are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a $\pm 7.5\%$ tolerance on flux measurements.
3. Please refer to Table 6 for maximum current ratings for each color.

Absolute Maximum Ratings

Table 6: Maximum Ratings

Parameter	Maximum Rating							
Storage Temperature	-40°C to +85°C							
Operating Case Temperature (T _c)	85°C							
Soldering Temperature	350°C or lower for a maximum of 5 seconds							
	BXEB-L0560-RGBW3000-163-A3				BXEB-L1120-RGBW6000-166-A3			
	White	Red	Green	Blue	White	Red	Green	Blue
Maximum Drive Current Per Color	450mA	450mA	450mA	450mA	900mA	900mA	900mA	900mA

Table 7: Dimming White with CRI90 Ratio

CCT Color	2200K	2700K	3000K	3500K	4000K	5000K	5700K	6500K
W	45.86%	50.38%	50.38%	50.38%	47.37%	42.48%	38.35%	34.96%
R	46.13%	34.89%	30.38%	25.08%	21.99%	17.67%	17.44%	16.20%
G	7.71%	12.44%	15.45%	18.61%	22.37%	27.11%	29.17%	31.24%
B	0.30%	2.29%	3.80%	5.94%	8.27%	12.74%	15.04%	17.59%

Performance Curves

Figure 1: Relative Current Ratio vs. CCT at CRI 95 ($T_c = 25^\circ\text{C}$)

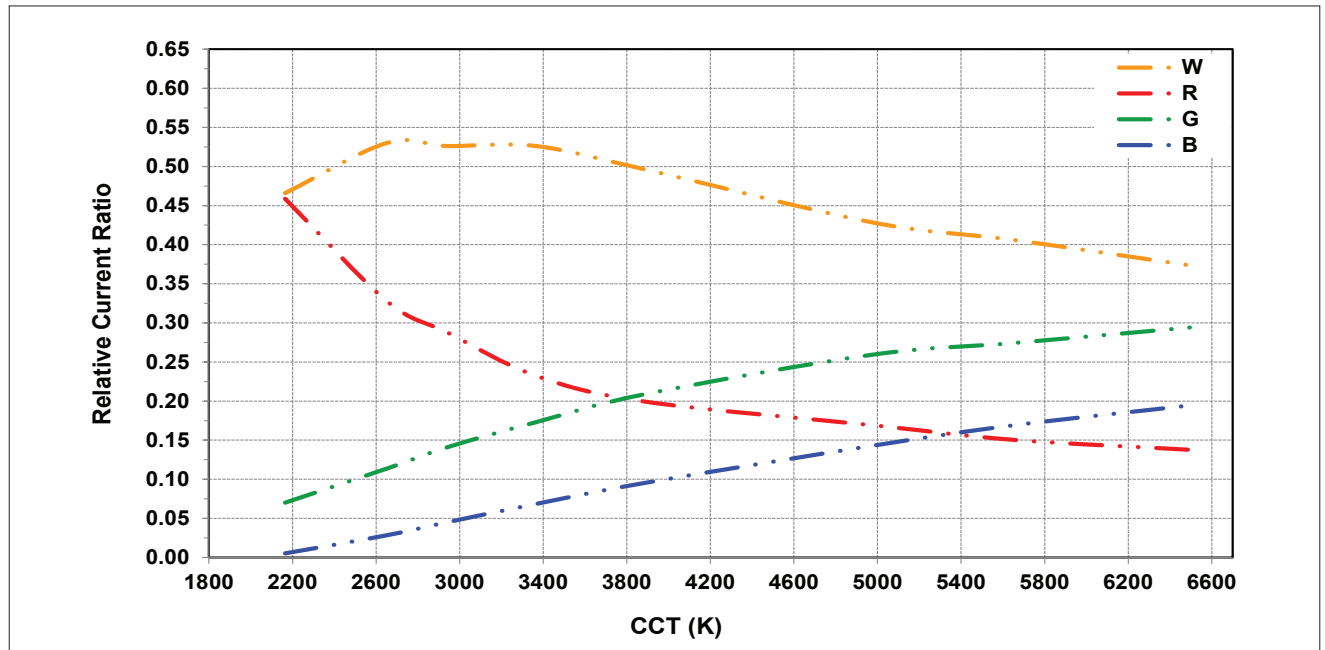
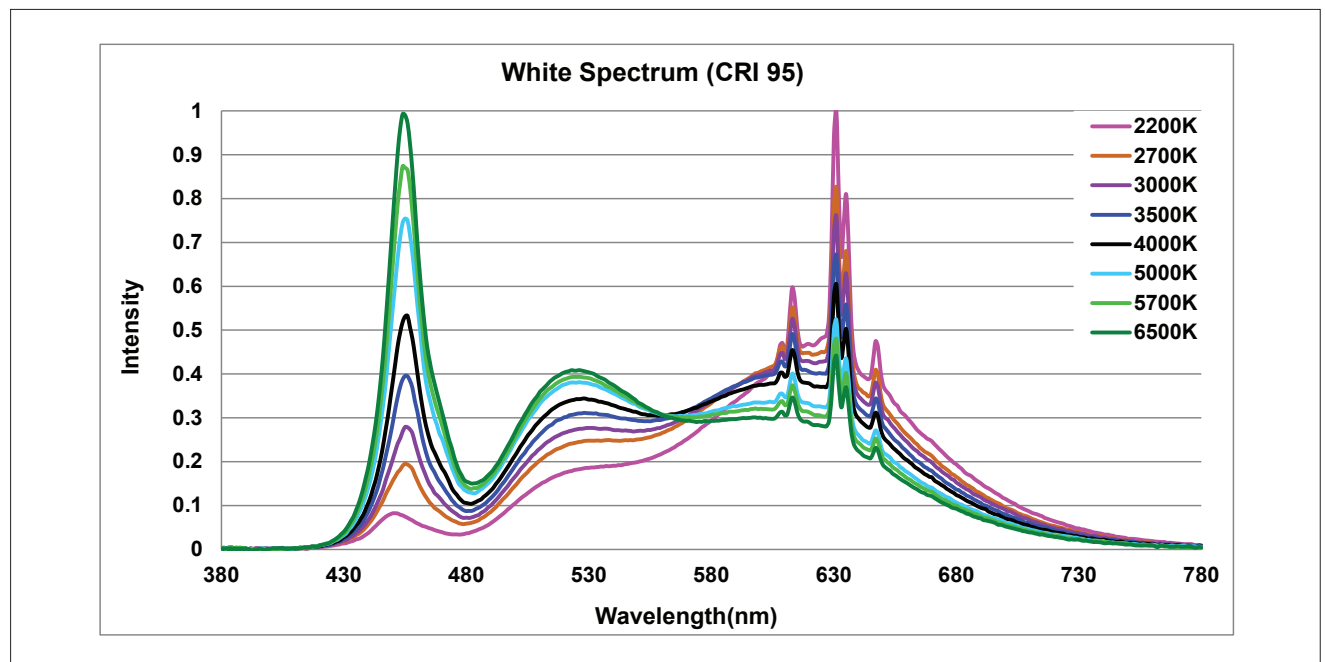


Figure 2: Typical Color Spectrum (White CCT, at $T_c = 25^\circ\text{C}$)



Note for Figure 2:

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

Typical Color Spectrum

Figure 3: Typical Relative Luminous Flux (RGBW) vs. Solder Point Temperature

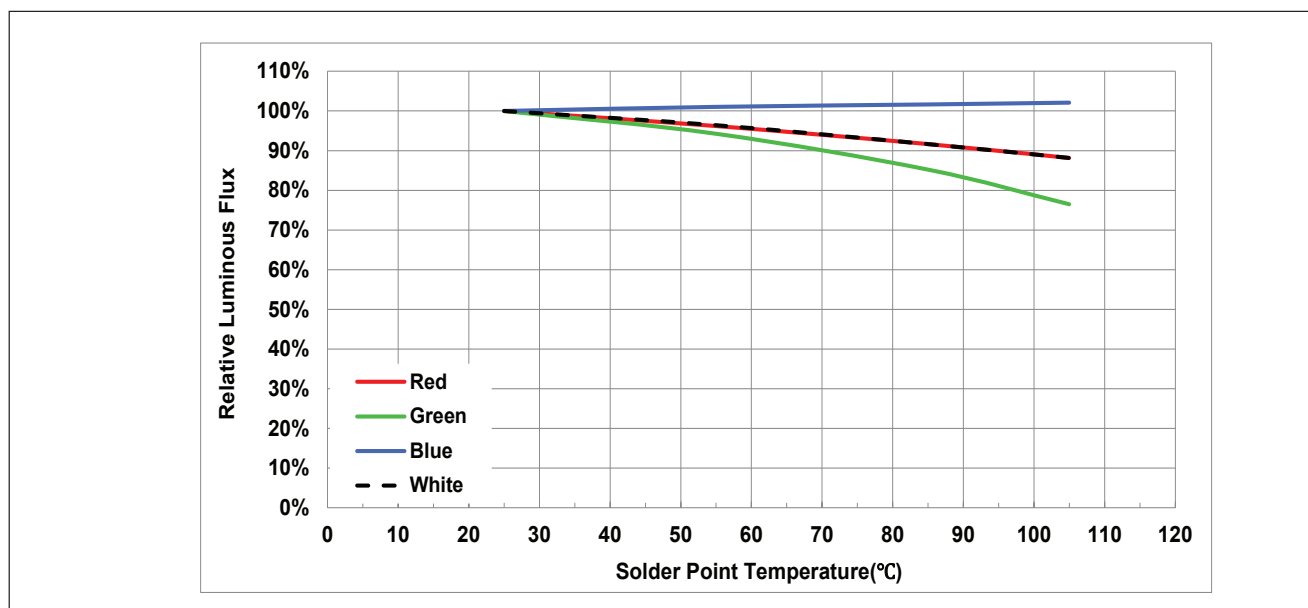
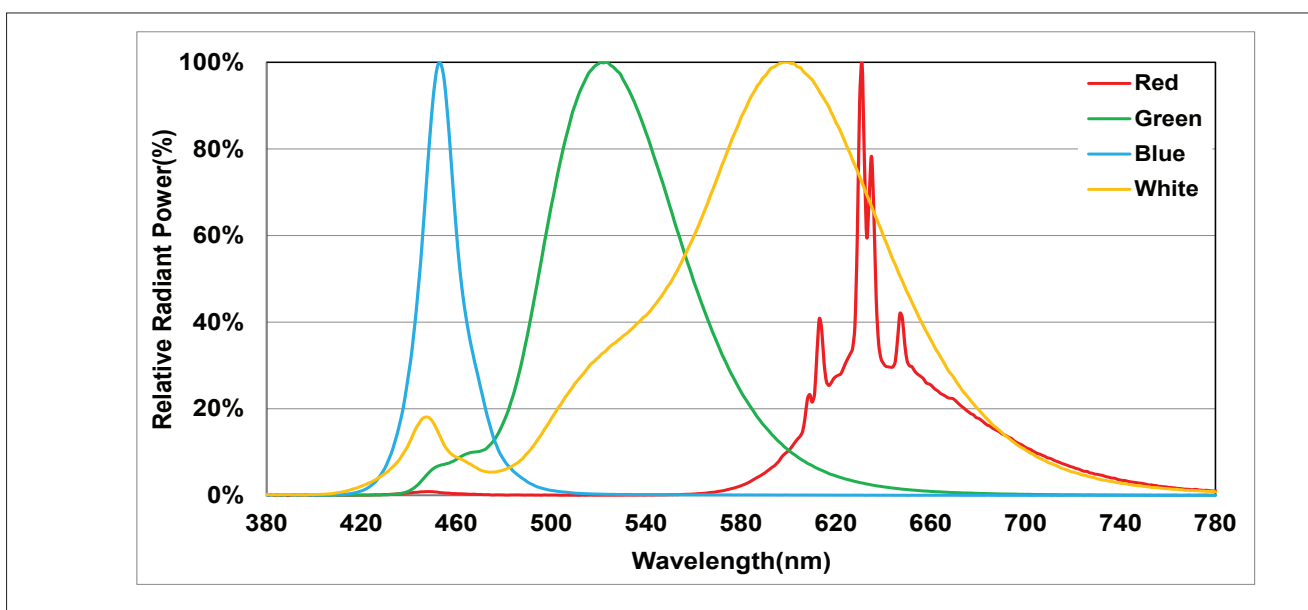


Figure 4: Typical Color Spectrum (RGBW)

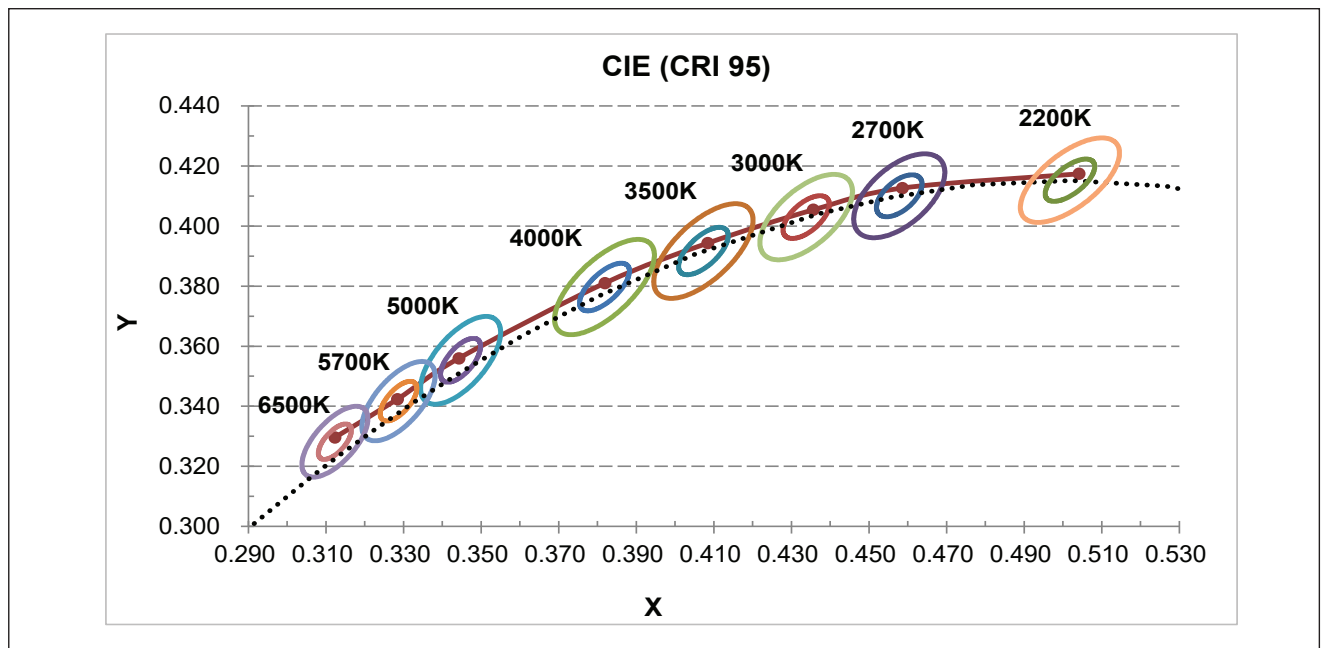


Note for Figure 4:

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

Performance Curves

Figure 5: Chromaticity Coordinate Group (Color Targeted at $T_c = 55^\circ\text{C}$)



Product Bin Definitions

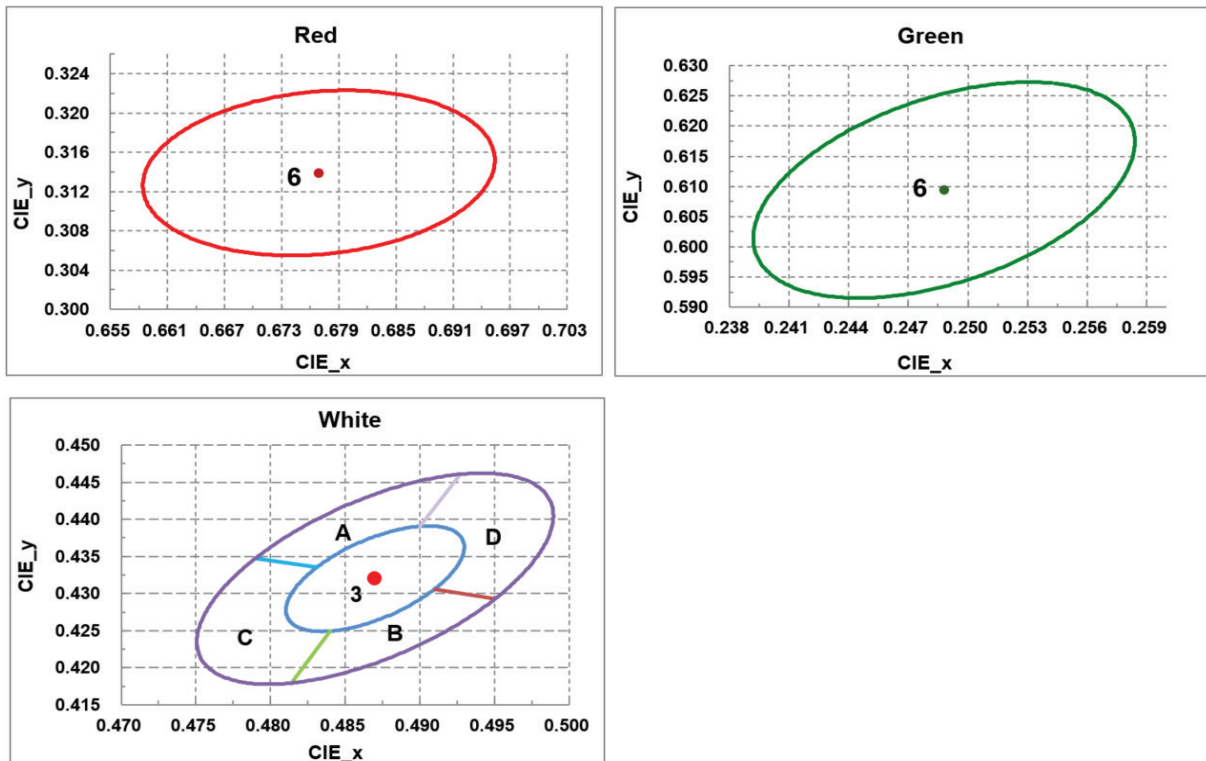
Table 8: RGW MacAdam Ellipse Color Bin Definitions

Color	Center Point		Major Axis	Minor Axis	Ellipse Rotation Angle	Color Bin
	X	Y				
R	0.6769	0.3139	0.01854	0.00828	5.0	6
G	0.2488	0.6094	0.03084	0.00960	73.0	6
W	0.4870	0.4320	0.00810	0.00420	53.7	3
			0.01620	0.00840	53.7	3/A/B/C/D

Notes for Table 8:

1. Color binning at $T_c = 85^\circ\text{C}$ unless otherwise specified
2. Bridgelux maintains a tolerance of ± 0.007 on x and y color coordinates.

Figure 6: Chromaticity Coordinate Group (Color Targeted at $T_c = 25^\circ\text{C}$)



Mechanical Dimensions

Figure 7: Drawing Overview for 560mm EB

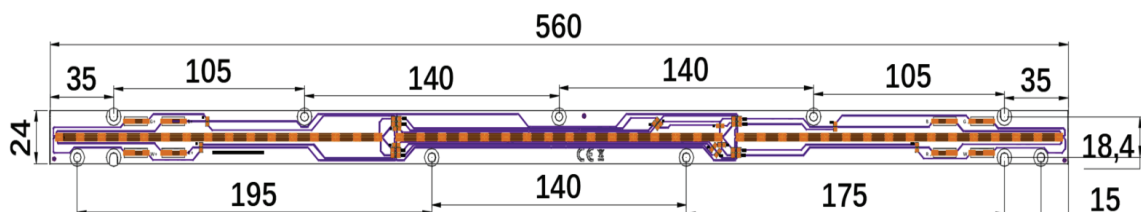
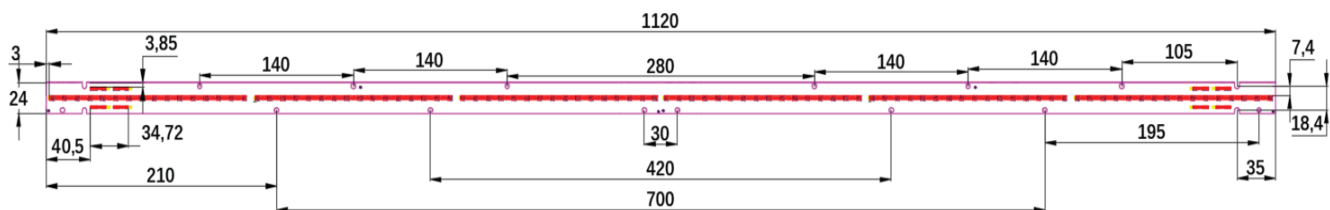


Figure 8: Drawing Overview for 1120mm EB



Notes for Figures 7 & 8:

1. Connectors are labeled "+" to denote positive polarity, and "-" to denote negative polarity.
2. Drawing dimensions are in millimeters.

Table 9: Module Dimensions & Connector Wiring

Parameter	BXEB-L0560-RGBW3000-163-A3	BXEB-L1120-RGBW6000-EJ-A3
Linear length	560 mm	1120 mm
Linear width	24 mm	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	

Packaging and Labeling

Figure 9: EB Series Packaging and Labeling

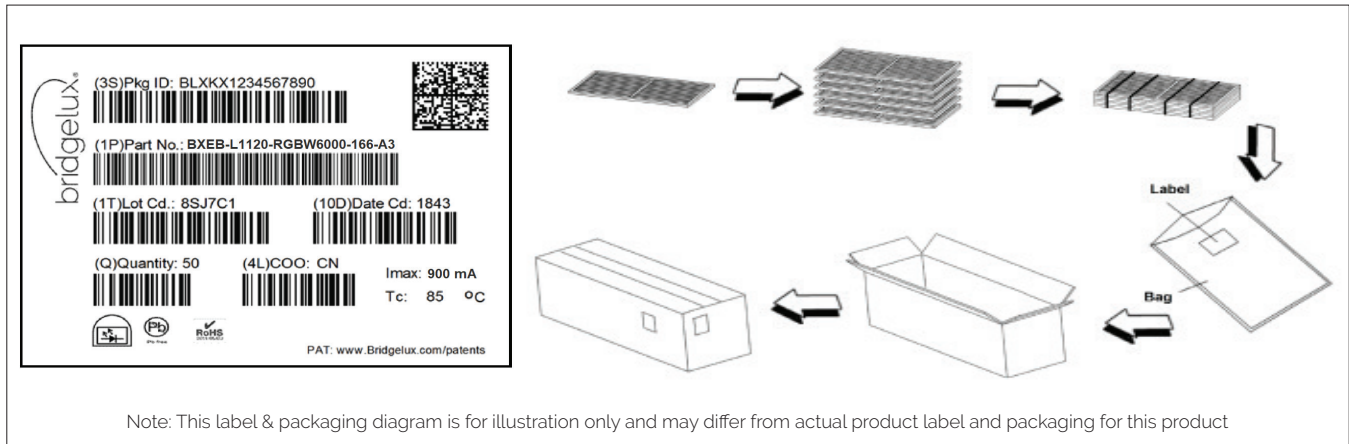


Table 10: Packaging Structure

Box Parameter	L0560 modules	L1120 modules
Quantity	100	100
Dimension	65.0 cm x 19.4 cm x 16.9 cm	120.8 cm x 19.4 cm x 16.9 cm

Figure 10: Product Labeling

Bridgelux Vesta Series RGBW EB modules contain a label on the front to help with product identification. In addition to the product identification markings, Bridgelux Vesta Series RGBW EB 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.



Vesta Series RGBW EB
4ft 6000lm 900mA

Customer Use- 2D Barcode
Scannable barcode provides
product part number and other
Bridgelux internal production
information.

Design Resources

Application Notes

Vesta Series RGBW EB are intended for use in dry, indoor applications. Bridgelux has developed a comprehensive set of application notes and design resources to assist customers in successfully designing with the Vesta Series product family of RGBW EB products. 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 Vesta Series RGBW EB are available in both IGS and STEP formats. Please contact your Bridgelux sales representative for assistance.

LM80

Please contact your Bridgelux sales representative for more information.

Precautions

CAUTION: CHEMICAL EXPOSURE HAZARD

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

CAUTION: EYE SAFETY

The Bridgelux Vesta series RGBW EB 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 Vesta Series RGBW EB during operation. Allow the RGBW EB to cool for a sufficient period of time before handling. The Vesta Series RGBW EB 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 RGBW EB or apply stress to the LES (yellow phosphor resin area). Contact may cause damage to the RGBW EB.

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 Vesta Series RGBW EB. Use the mechanical features of the RGBW EB housing, edges and/or mounting holes to locate and secure optical devices as needed.

Disclaimers

STANDARD TEST CONDITIONS

Unless otherwise stated, RGBW EB 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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