

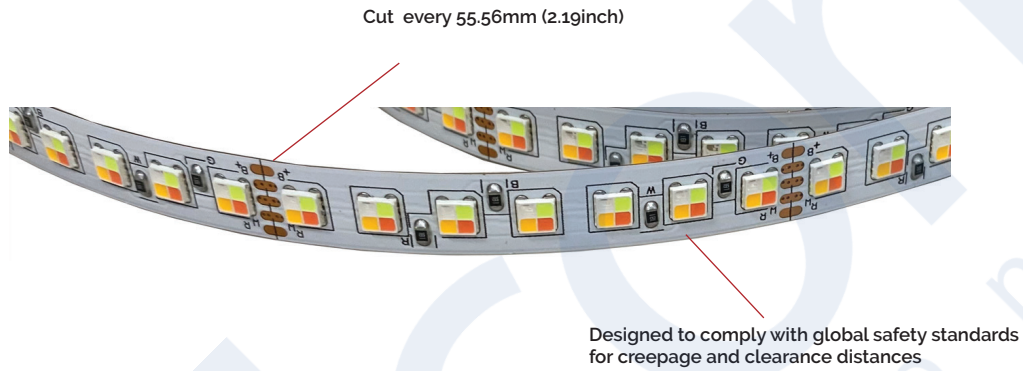
# Bridgelux® Vesta® Series RGBW Strip

Product Data Sheet DS585



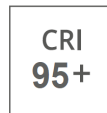
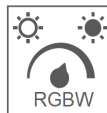
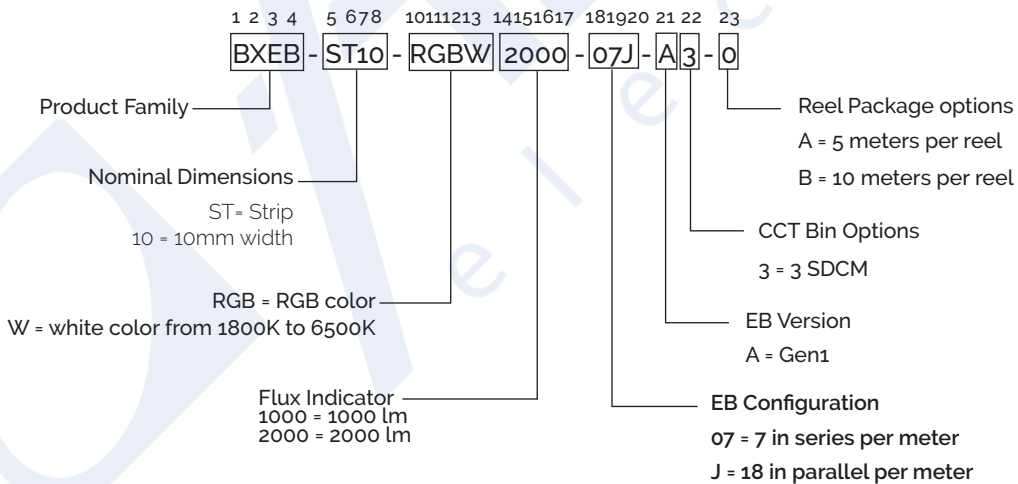
# Product Feature Map

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



## Product Nomenclature

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



# Product Selection Guide

The following product configurations are available:

Table 1: Selection Guide, White Pulsed Measurement Data at 1 meter (3.28ft) length ( $T_j=T_c=25^\circ\text{C}$ )

Part Number	Nominal CCT <sup>1</sup> (K)	CRI <sup>2</sup>	Nominal If Total (mA)	Nominal If Per Channel (mA)				Forward Voltage <sup>3</sup> (V)	Typical Power (W)	Typical Pulsed Flux <sup>3, 4, 5</sup> (lm)	Typical Efficacy (lm/W)
				White	Red	Green	Blue				
BXEB-ST10-RGBW 1000-07J-A3-0	1800	95	450	191	249	10	0	24	8.8	852	97
	2200		450	211	207	30	2	24	8.8	967	110
	2700		450	235	156	51	8	24	8.7	1089	125
	3000		450	239	133	63	15	24	8.7	1141	131
	3500		450	220	116	82	32	24	8.6	1166	135
	4000		450	203	105	99	43	24	8.6	1187	138
	5000		450	196	76	120	57	24	8.6	1253	145
	5700		450	184	70	126	69	24	8.6	1244	144
	6500		450	167	66	136	80	24	8.6	1235	144
BXEB-ST10-RGBW 2000-07J-A3-0	1800	95	900	382	497	20	0	24	18.1	1579	87
	2200		900	423	414	60	3	24	18.0	1803	100
	2700		900	470	312	102	16	24	17.9	2035	114
	3000		900	477	267	127	29	24	17.8	2122	119
	3500		900	440	233	164	63	24	17.7	2211	125
	4000		900	406	210	199	85	24	17.6	2237	127
	5000		900	392	152	241	114	24	17.7	2347	133
	5700		900	369	140	253	139	24	17.6	2325	132
	6500		900	335	132	273	160	24	17.6	2310	131

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) =  $25^\circ\text{C}$ .
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 at 1 meter (3.28ft) length ( $T_j=T_c=25^\circ\text{C}$ )

Part Number	Color	Nominal Drive Current (mA)	Forward Voltage <sup>3</sup> (V)	Typical Pulsed Flux <sup>3,4,5</sup> (lm)	Dominant Wavelength (nm)
BXEB-ST10-RGBW1000-07J-A3-0	Red	225	24	172	617
	Green	225	24	876	536
	Blue	225	24	99	463
	White	225	24	674	2500K 70CRI
BXEB-ST10-RGBW2000-07J-A3-0	Red	450	24	294	617
	Green	450	24	1477	536
	Blue	450	24	166	463
	White	450	24	1128	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) =  $25^\circ\text{C}$ .
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.

# Absolute Maximum Ratings

Table 3: Maximum Ratings at 1 meter (3.28ft) length

Parameter	Maximum Rating							
Storage Temperature	-40°C to +85°C							
Operating Case Temperature (T <sub>c</sub> )	85°C							
Soldering Temperature	350°C or lower for a maximum of 5 seconds							
	BXEB-ST10-RGBW1000-07J-A3-0				BXEB-ST10-RGBW2000-07J-A3-0			
	White	Red	Green	Blue	White	Red	Green	Blue
Maximum Drive Current Per Color (mA)	450	450	450	450	900	900	900	900

Table 4: Dimming White with CRI95 Ratio

CCT Color	1800K	2200K	2700K	3000K	3500K	4000K	5000K	5700K	6500K
W	42.48%	46.99%	52.26%	53.01%	48.87%	45.11%	43.61%	40.98%	37.22%
R	55.26%	46.05%	34.70%	29.66%	25.86%	23.31%	16.92%	15.53%	14.70%
G	2.26%	6.62%	11.28%	14.06%	18.23%	22.11%	26.77%	28.08%	30.30%
B	0.00%	0.34%	1.77%	3.27%	7.03%	9.47%	12.71%	15.41%	17.78%

# Performance Curves

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

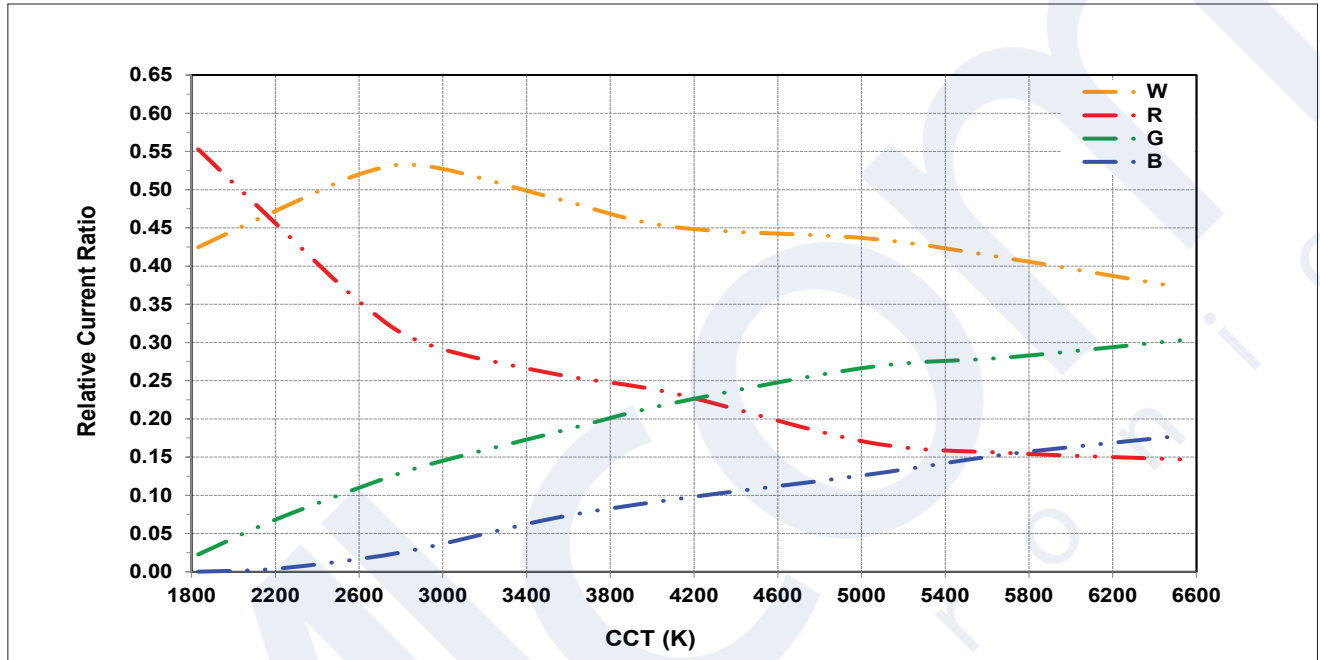
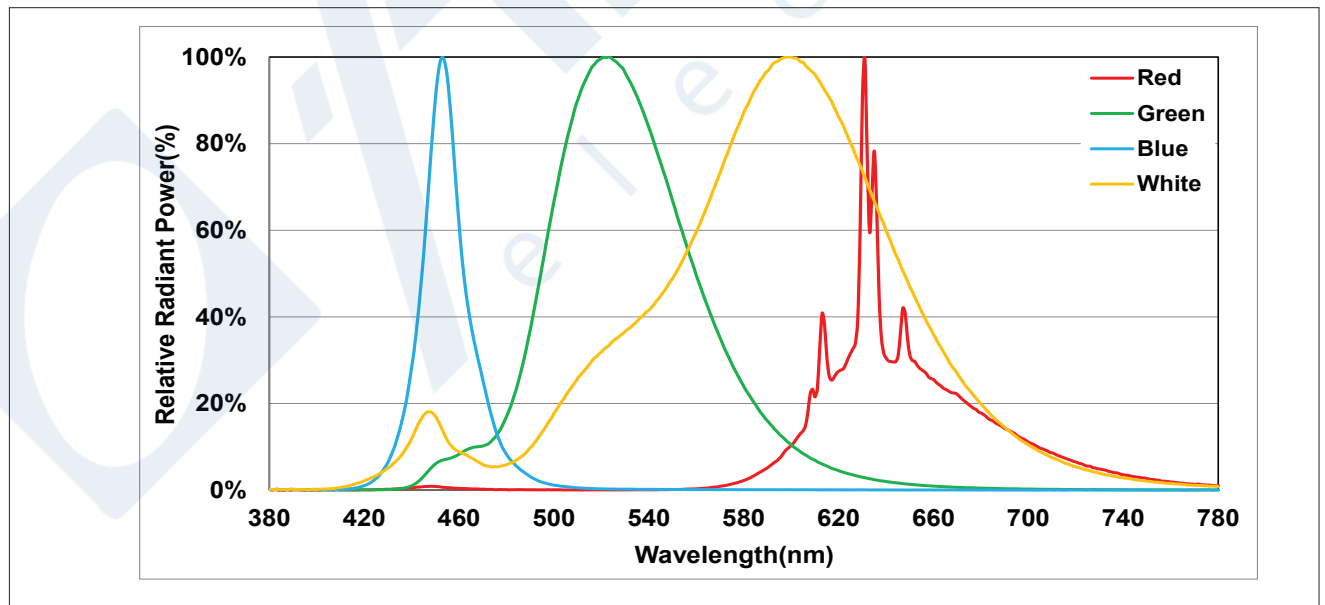


Figure 2: Typical Color Spectrum (RGBW)

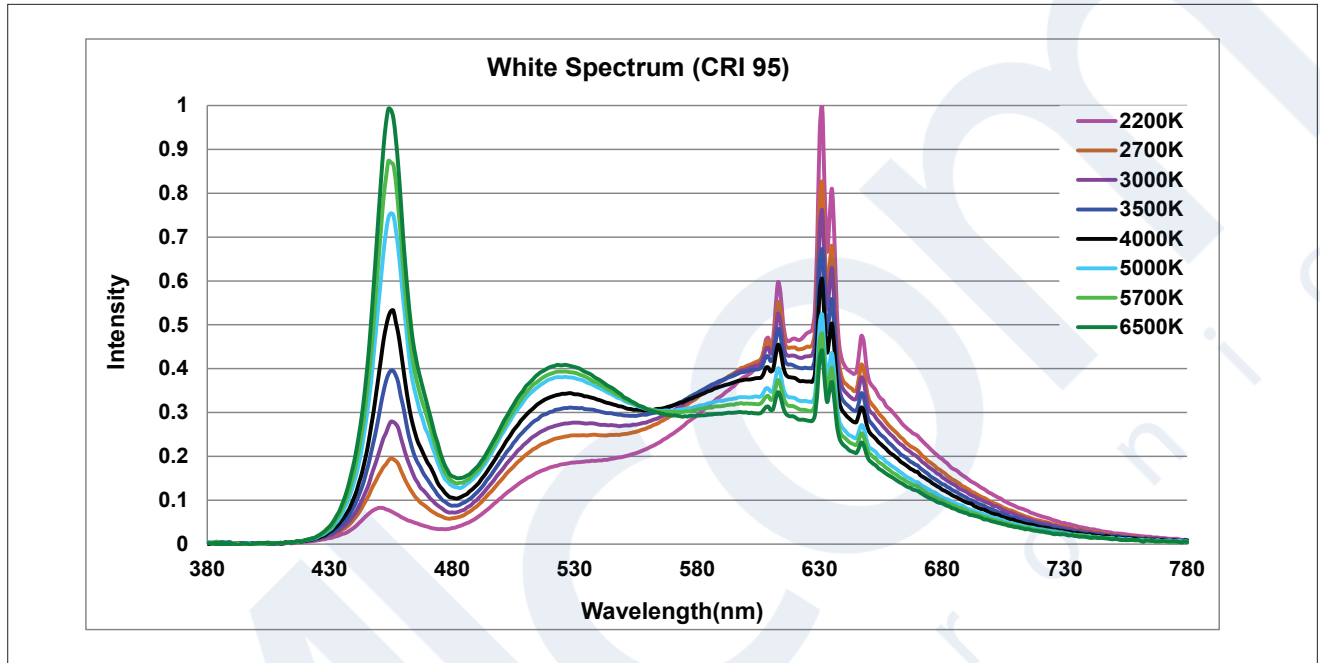


Note for Figure 2:

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

# Performance Curves

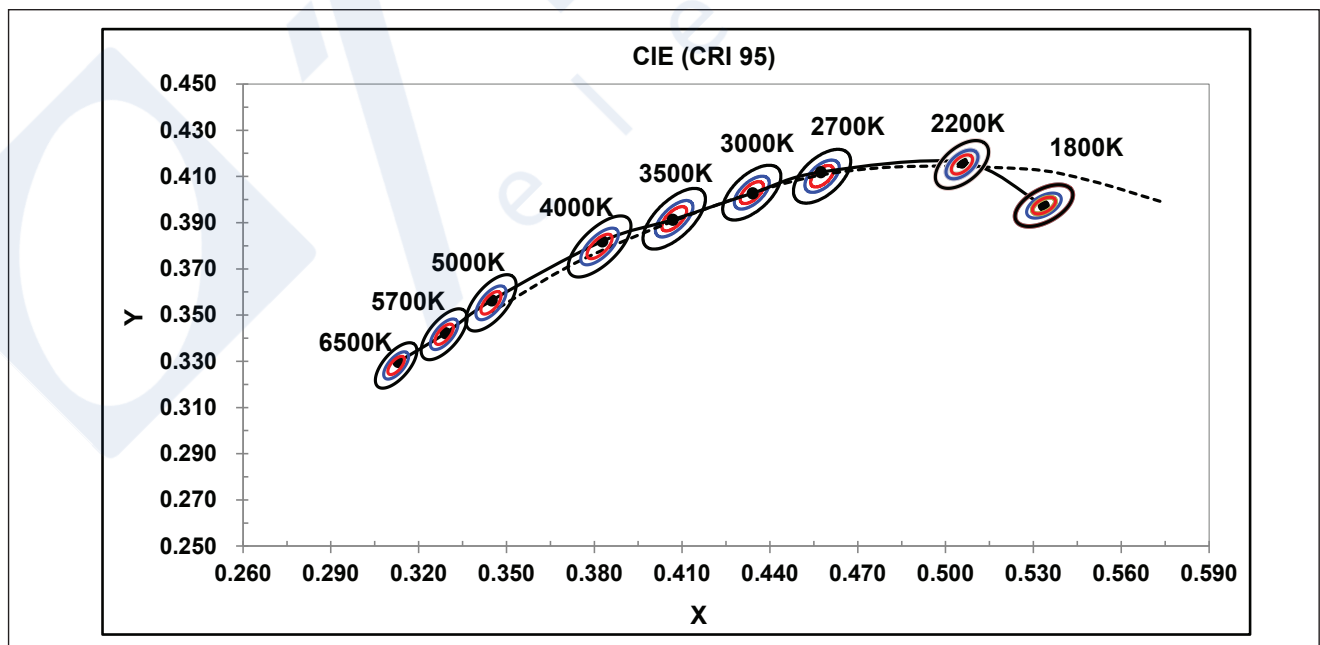
Figure 3: Typical Color Spectrum (White CCT, at  $T_c = 25^\circ\text{C}$ )



Note for Figure 3:

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

Figure 4: Chromaticity Coordinate Group (Color Targeted at  $T_c = 55^\circ\text{C}$ )



# Product Bin Definitions

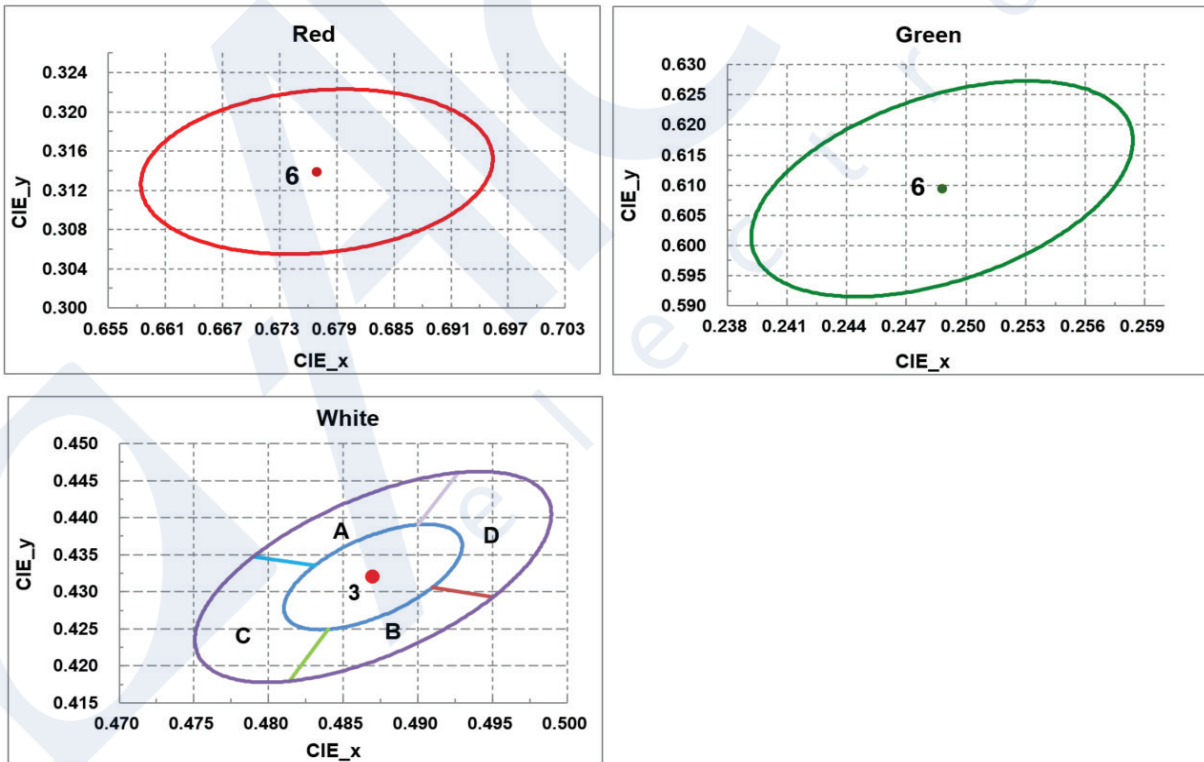
Table 5: RGW MacAdam Ellipse Color Bin Definitions

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 5

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

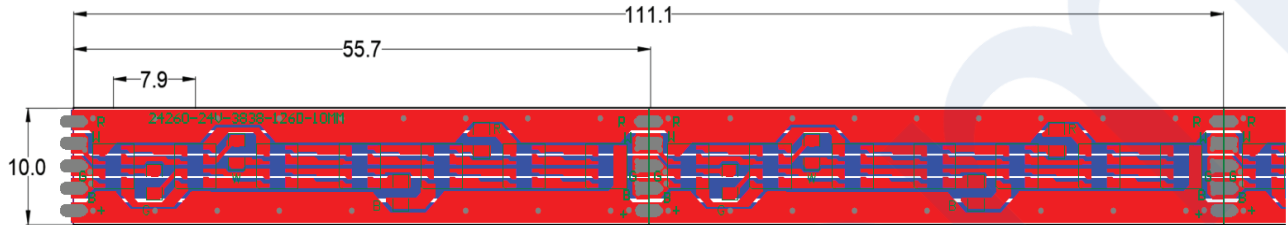
Figure 5: Chromaticity Coordinate Group (Color Targeted at  $T_c=25^\circ\text{C}$ )





# Mechanical Dimensions

Figure 6: Drawing Overview for RGBW Tape



Note for Figure 6:

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

Table 6: Strip Module Dimensions

Parameter	BXEB-ST10-RGBW1000-07J-A3-0	BXEB-ST10-RGBW2000-07J-A3-0
Linear length per reel	5,000 mm and 10,000mm options	
Linear width	10 mm	
Overall thickness	1.35 mm	
PCB thickness	0.55 mm	

Table 7: Reel Package Option

Part Number	Strip Light Length Per Reel Package
BXEB-ST10-RGBWx000-07J-A3-A	5 meters
BXEB-ST10-RGBWx000-07J-A3-B	10 meters

# Packaging and Labeling

Figure 7: EB Series Packaging and Labeling

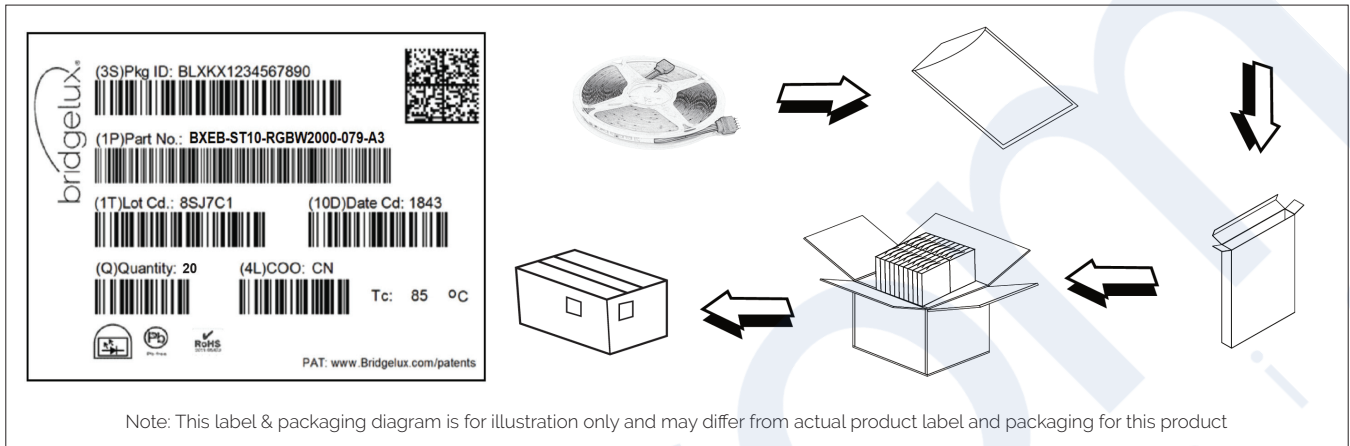


Table 8: Packaging Structure

Box Parameter	BXEB-ST10-RGBW1000-07J-A3-0	BXEB-ST10-RGBW2000-07J-A3-0
Quantity	20	
Dimension	33cm x 25cm x 18.5cm	

Figure 8: Product Labeling

Bridgelux Vesta Series RGBW Strip 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 Strip  
1 meter 2000lm 24V

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

# Design Resources

## Application Notes

Vesta Series RGBW Strip 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 Strip products. For a list of resources under development, visit [www.bridgelux.com](http://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](http://www.bridgelux.com).

## 3D CAD Models

Three dimensional CAD models depicting the product outline of all Bridgelux Vesta Series RGBW Strip 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.