

EVERSTAR

The Brightest LED



DATASHEET

ES-13-18-350-RGBWC-80

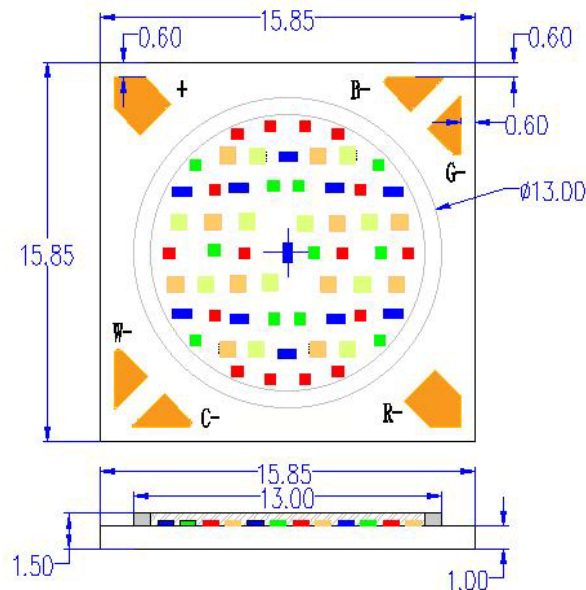
INTRODUCTION

This series of products uses an aluminum substrate and offers high brightness with long service life. It is available in a wide range of power options, features easy installation, and follows standard sizes, making it suitable for both indoor and outdoor lighting applications.

FEATURES

- High Power COB & High Ra LED
- Multi-Chip Solution
- High luminous intensity output
- RoHS compliant
- Applications: Intelligent Lighting, Indoor General Lighting, Commercial Lighting

OUTLINE DIMENSIONS & CIRCUIT STRUCTURE



NOTES:

- All dimensions are millimeter.
- Tolerance is $\pm 0.3\text{mm}$ unless otherwise noted.
- It is strongly recommended that the temperature of TS (Welding plate) is not higher than 85°C
- The distance between Ts point and the outer dam is 2mm.

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MASS PRODUCTION LIST

Tj=25°C RGB IF=160mA WC IF=350mA

Power	Product	Color	Wavelength / CCT	Min. Flux η (lm/W)	Max. Flux η (lm/W)
6W	ES-13-18-350-RGBWC-80	Red (R)	620 - 630 nm	50	60
		Green (G)	520 - 530 nm	80	90
		Blue (B)	450 - 460 nm	40	50
12W		Warm White (W)	2700K / 80RA	95	105
		Cool White (C)	6500K / 80RA	115	125

Tolerance of Ra Index: ± 2

Tolerance of Luminous flux: $\pm 8\%$

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	Cool White	Yellow
InGaN	Neutral White	
InGaN	Warm White	

PHOTOELECTRIC PARAMETERS (Ta = 25°C)

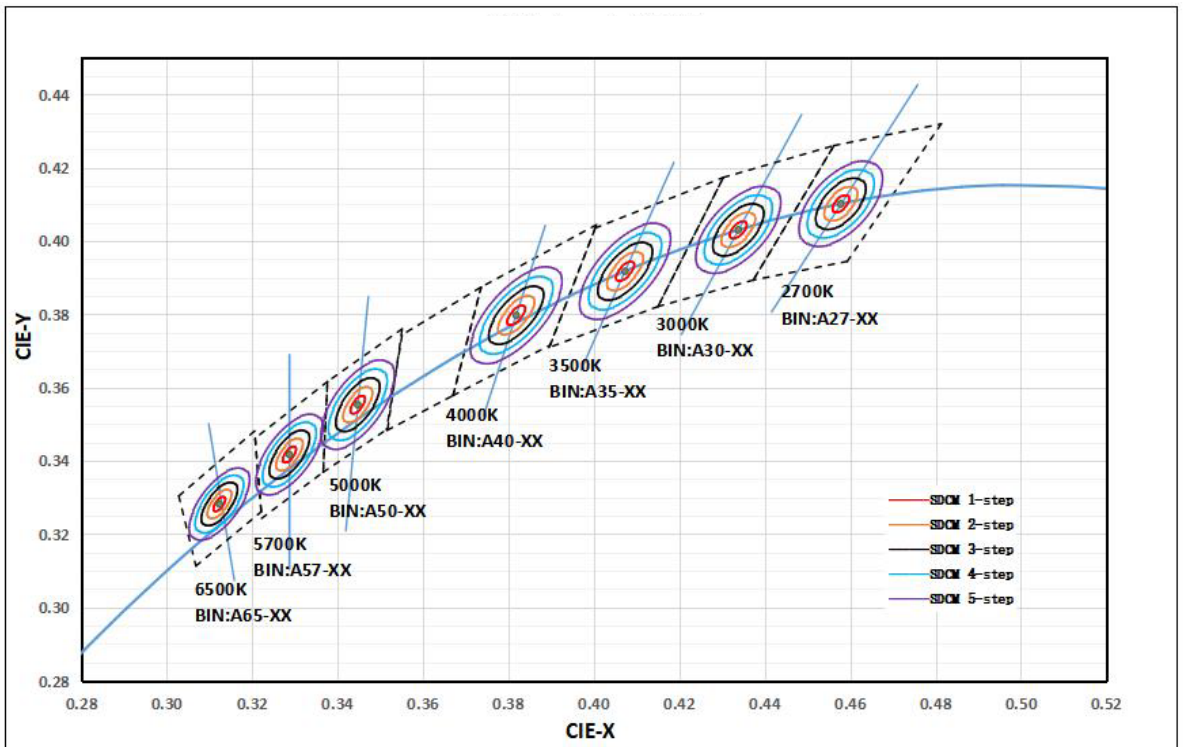
Item	Symbol	Min	Typ	Max	Unit
Power	P	-	12*2	16*2	W
Forward Voltage	VF	30-36			V
Forward Current	IF	RGB≤200mA WC≤500mA			mA
Operating Temperature	TC	-40	-	85	°C
Junction Temperature	Tj	-	-	125	°C
Storage Temperature	Tstg	-40	-	105	°C
ESD Sensitivity	ESD	-	-	2000	V
Reverse Voltage	VR	Reverse testing is not allowed			/
Reverse Current	IR	VR=5V			uA
Soldering Temperature	Tsld	350°C/3-5sec			°C/S

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BIN CODE OF MACADAM 5 STEP

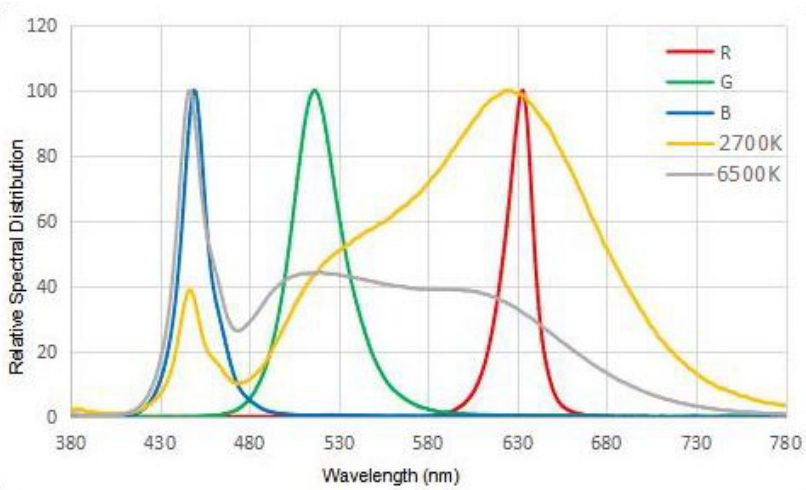
Step	CCT	Cx	Cy	a	b	Theta (θ)
5	2700K	0.4578	0.4101	0.01350	0.00700	53.70
	3000K	0.4339	0.4033	0.01390	0.00680	53.22
	3500K	0.4078	0.3930	0.01545	0.00690	54.00
	4000K	0.3818	0.3797	0.01565	0.00670	53.72
	5000K	0.3446	0.3551	0.01370	0.00590	59.62
	5700K	0.3287	0.3425	0.01245	0.00535	59.09
	6500K	0.3123	0.3283	0.01115	0.00475	58.57

CHROMATICITY DIAGRAM

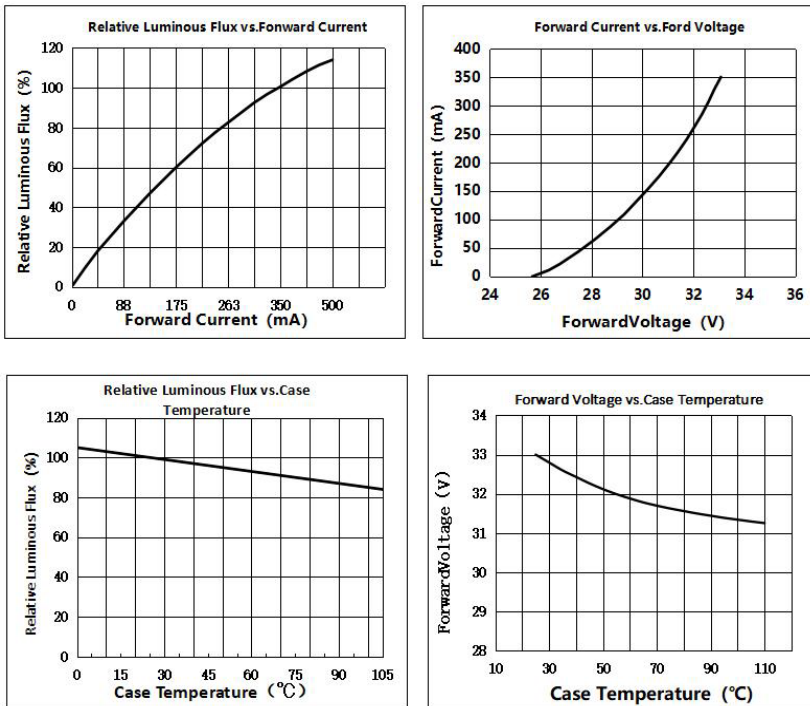


TYPICAL OPTICAL ELECTRICAL CURVES

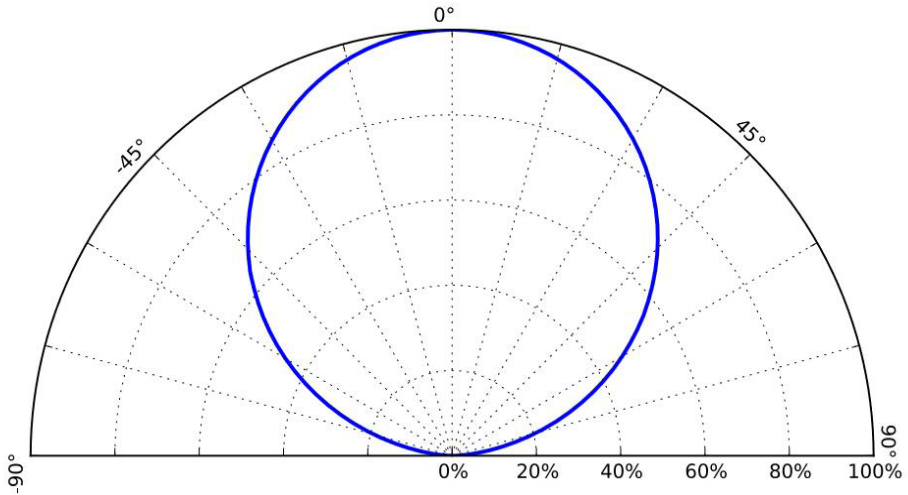
Spectrum Distribution



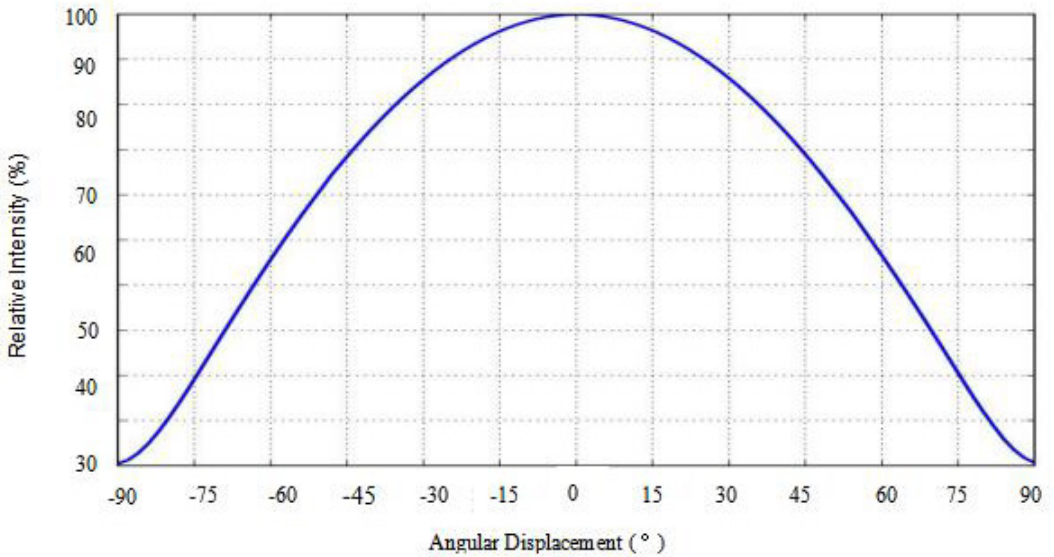
Light Output Characteristics (White Light)



Radiation Pattern Characteristics



Typical radiation pattern for T at test current, $T_j = 25^\circ\text{C}$.



RELIABILITY TESTS AND RESULTS

Test Item	Test Conditions	Duration / Cycle	Quantity	Ac / Re
Temperature Cycle	-40°C (30min) ~ 25°C (2min) ~ 100°C 30min	100 times	22 PCS	0/1
Thermal Shock	-45°C (15min) ~ 125°C (15min), 15sec transition	100 times	22 PCS	0/1
High Temperature Storage	Ta = 100°C	1000 hours	22 PCS	0/1
Humidity Heat Storage	Ta = 85°C, RH = 85%	1000 hours	22 PCS	0/1
Low Temperature Storage	Ta = -40°C	1000 hours	22 PCS	0/1
Room Temperature Test	Ta = 25°C, I _F = 350mA	1000 hours	22 PCS	0/1

Notes: Measurements are performed after allowing the LEDs to return to room temperature Failure Criteria.

ENCODING

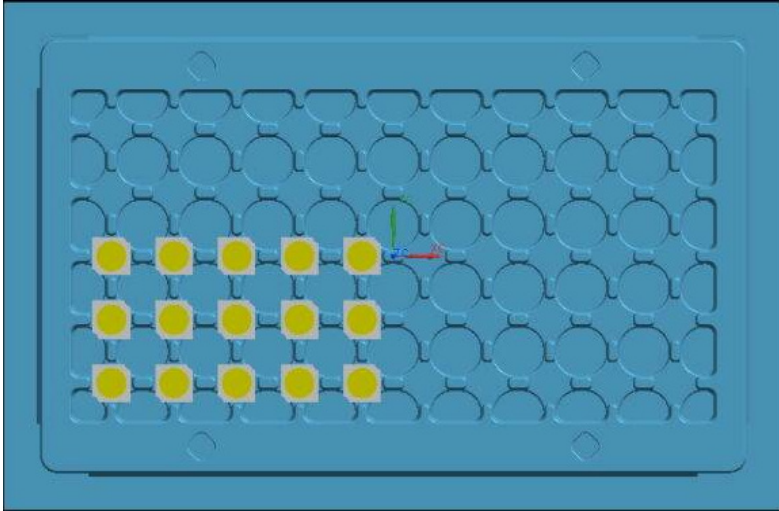
ENCODING

XX-XX-XX-XXX-XXXXX-XX

1 2 3 4 5 6

- 1.Product Code
- 2.Light Emitting Surface
- 3.Power
- 4.Typical Current
- 5.CCT
- 6.CRI

PACKAGING



120PCS

LABEL

EVERSTAR The Brightest LED		RoHS		
Model No. _____				
Lot no. _____		Qty : _____		
VF (v)	IV (lm)	IF (mA)	CCT (K)	Ra
Part Code : _____				

USING & ATTENTION

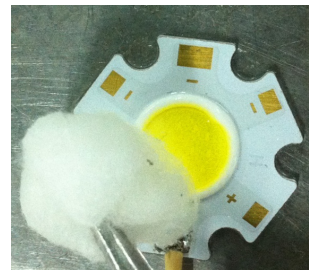
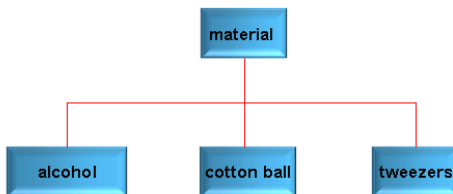
Soldering:

COB light source device is a very fragile encapsulation device. Careless in the process of soldering operation will cause the damage of the products easily and even lead to death lamp. client should be cautious. In the process of soldering iron or other welding equipment to heat up, please don't use hand or other items to put any pressure on the surface of a product, please avoid iron touch within white rubber dam. because under the white dam it is likely to be the gold thread connection with substrate.If it is extruded by any external things,it is likely cause that connections between gold wire and substrate loose or fall off leading to product stroboscopic at work or death lamp. soldering temperature shall not be higher than 350 and the time shall not be more than 3 seconds and the number less than 2 times. When the soldering operation is completed , it is necessary that the product is cooled to room temperature, then washed again, and other operations.



Cleaning:

After soldering it is recommended that client should use alcohol to clean, The specific method is that using tweezers clamping alcohol cotton ball in the source surface lightly wipe back and forth to clean, Prohibit the forceps tip injury to the source surface .Before using other similar solvent cleaning, please make sure that to use the solvent will not damage the product packaging materials such as silica gel and phosphor etc.



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Storage:

This product use sealed moisture-proof anti-static bag packaging, storage method is as follows:

1. Opened before, the product must be stored in room temperature and humidity environment is not higher than 70% RH.
2. Once opened, the product can be stored in room temperature and humidity is not higher than 70% RH of the environment in a week, please use in the period of time.

If not timely installation after opening, Should be stored in dry cabinet temperature and humidity not higher than 10%RH.

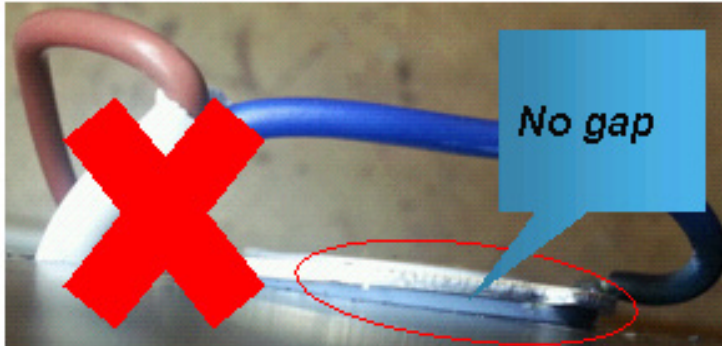
Static Electricity:

Static and surge can cause product characteristics change, such as forward voltage to reduce, if severe cases may even damage the product. So When in use effective anti-static measures must be taken. All related equipment and machines should be properly grounded, at the same time must take other measures to prevent static and surge. Use anti-static bracelet, anti-static MATS, anti-static overalls, work shoes, gloves, anti-static container, are effective measures to prevent static and surge.



Driving & Cooling Scheme:

In the design of driving, by the current cannot exceed a maximum value specified products. Over voltage, over current pulses generated at the moment of the power switch or reverse voltage pulse may cause product damage and even death light. Therefore it is recommended that choose drive power selection of high stability. Because the heat this for product is concentrated, It should be the choice of high thermal conductivity thermal grease or conductive adhesive and Evenly coated on the light back. There can be no gap between substrate and radiator.



Halogen:

Halogen will damage the product, affecting device performance. Reference standards such as IEC, IPC and JPCA - ES, customers to use material, each kind of halogen content shall not be higher than 900 PPM, halogen sum shall not be higher than 1500 PPM.

1. Halogen include: F, Cl, Br, I
2. Common containing halogen material: white oil, pouring sealant, sealant, line insulation casing, etc.

External Force:

Packaging adhesive products (including the white dam colloid) is fragile , when in use should pay attention to the following points:

1. Do not use hard, sharp objects scratch, wipe the packaging adhesive part.
2. Do not hand take products, avoid pollution package silica surface, and influence its optical properties.
3. It should be noted that when using tweezers clip excessive pressure may damage , packaging silica gel , for example, damage, scratches, peeling, serious deformation and die lamp.
4. Products dropped, the product may lead to deformation.

