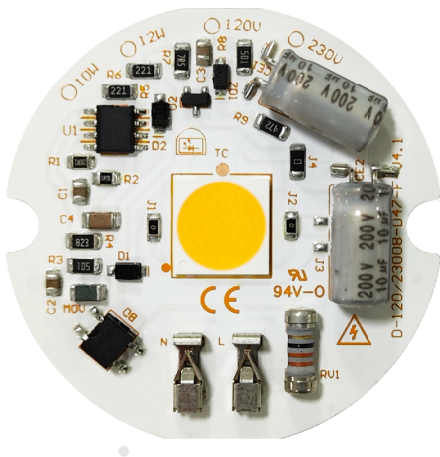


# DOB III AC Module

## D47 120V Series



### Application



Down Light



Spot Light



PAR Lamp

### Product Description

6W/8W/10W Power Consumption  
AC 120V Voltage input  
Module Diameter 47mm  
LES Diameter 6.3/9.6mm

### Features

High color rendering index CRI(Ra)>80/90  
Small color tolerance MacAdam < 3  
TRIAC dimming compatible  
Uniform Full dimming  
High Power Factor > 0.9  
Low EMI  
RoHS compliant  
No photo-biological hazard: RG1  
Percent Flicker <10%  
Pass Title24 requirement

### Benefits

Module with integrated electronic  
Enables thin designs of luminaries

## Table of Contents

---

General Information.....	3
Absolute Maximum Ratings .....	4
Optical and Electrical Characteristic (TC=25°C) .....	5
Chromaticity coordinates(T <sub>c</sub> =25°C).....	7
Mechanical Dimensions.....	8
Holder Dimensions (Version A) .....	9
Holder Dimensions (Version B).....	10
Characteristic curve.....	11
Reliability.....	15
Product Packaging Information.....	16
Handling with a DOB Series.....	17
Revision History .....	20

## General Information

### Ordering Code Format

5      ELA      C      N      3T      12      XX      XX      XX  
 X1      X2-X4      X5      X6      X7-X8      X9-X10      X11-X12      X13-X14      X15-X16

X1	X2-X4		X5		X6		X7-X8	
Type	Component		Dimensions		Internal code		Type	
5	Module	ELA	Edilex AC	C	Circle	-	-	3T      EMC

X9-X10		X11-X12		X13-X14		X15-X16	
Voltage		Emitter Power		Emitting color		Serial Number	
12	120V	06	6W	27	2700K	-	-
		08	8W	30	3000K		
		10	10W	40	4000K		

## Absolute Maximum Ratings

Parameter	Symbol	Value	Units	Condition
Maximum operation voltage	$V_{op}$	132	V	-
Power Dissipation	$P_d$	6.6/8.8/11	W	$V_{op}=120V$
Operation ambient temperature	$T_{op}$	-40~+85	°C	$V_{op}=120V$
Storage temperature	$T_{st}$	-40~+100	°C	-
Case Temperature	$T_C$	85	°C	$V_{op}=120V$
Insulation voltage	Viso[RMS]	1.5	KV	-
Tolerance of Surge	$V_s$	1.5	KV	$V_{op}=120V$

## Optical and Electrical Characteristic (TC=25°C)

Order Code	CCT (K)	Luminous Flux(lm) T <sub>c</sub> =25°C		Efficacy (lm/W)	CRI Ra	LES (mm)	Vac	Watt
		Min.	Typ.	Typ.	Min.	Min.	Typ.	
5ELACN3T12062704	2700	500	550	92	80	6.3	120	6
5ELACN3T12063004	3000	510	570	95				
5ELACN3T12064004	4000	540	600	100				
5ELACN3T12062705	2700	440	490	82	90			
5ELACN3T12063005	3000	460	510	85				
5ELACN3T12064005	4000	485	540	90				

Order Code	CCT (K)	Luminous Flux(lm) T <sub>c</sub> =25°C		Efficacy (lm/W)	CRI Ra	LES (mm)	Vac	Watt
		Min.	Typ.	Typ.	Min.	Min.	Typ.	
5ELACN3T12082704	2700	660	740	92	80	6.3	120	8
5ELACN3T12083004	3000	680	760	95				
5ELACN3T12084004	4000	720	800	100				
5ELACN3T12082705	2700	590	660	82	90			
5ELACN3T12083005	3000	610	680	85				
5ELACN3T12084005	4000	650	720	90				

Order Code	CCT (K)	Luminous Flux(lm) T <sub>c</sub> =25°C		Efficacy (lm/W)	CRI Ra	LES (mm)	Vac	Watt
		Min.	Typ.	Typ.	Min.	Min.	Typ.	
5ELACN3T12102704	2700	1015	1130	113	80	9.6	120	10
5ELACN3T12103004	3000	1040	1160	116				
5ELACN3T12104004	4000	1090	1215	122				
5ELACN3T12102705	2700	910	1010	101	90			
5ELACN3T12103005	3000	930	1035	104				
5ELACN3T12104005	4000	980	1090	109				

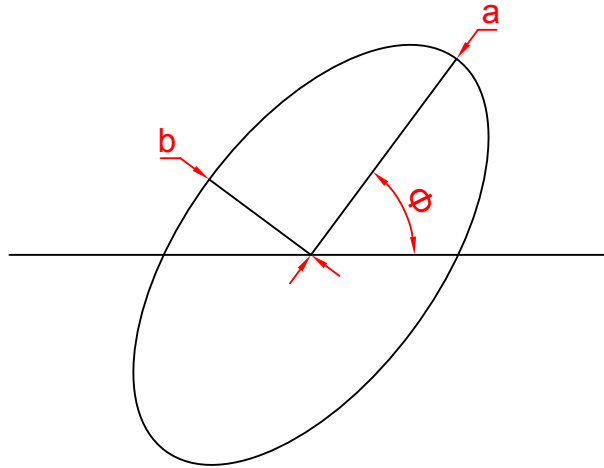
Parameter	Symbol	Min.	Typ.	Max.	Units	Condition
Viewing Angle FWHM	2 $\theta$ 1/2		120		deg	Vop=120V
Operation Voltage	V <sub>op</sub>	108	120	132	V	-
		5.4	6	6.6		Vop=120V
Power Dissipation	P <sub>d</sub>	7.2	8	8.8	W	Vop=120V
		9	10	11		Vop=120V
Operation Frequency	F <sub>op</sub>		50/60		H <sub>z</sub>	Vop=120V
Power Factor	PF	0.9	-	-	-	Vop=120V
Current THD	ATHD	-	40	-	%	Vop=120V
Flicker		-	5	10	%	Vop=120V

Notes:

1. At 120Vac, Ta=25°C.
2. Edison Opto Corp. maintains luminous flux  $\pm 10\%$ , Ra  $\pm 2$  tolerance.

## Chromaticity coordinates( $T_c=25^\circ\text{C}$ )

CIE Chromaticity Diagram



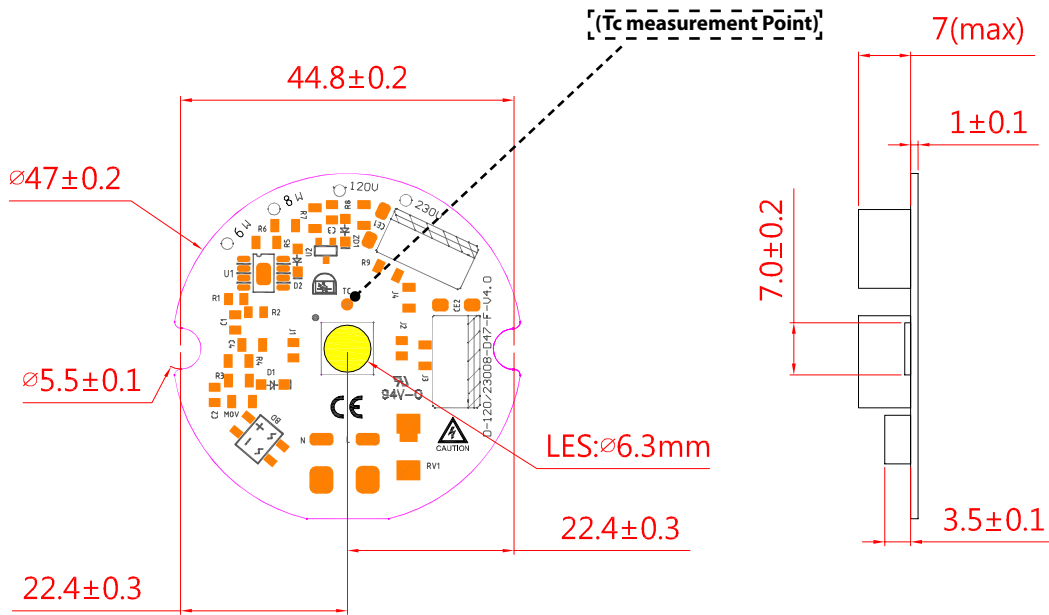
The color ranks have chromaticity ranges within 3-step MacAdam ellipse

CCT	Steps	C <sub>x</sub>	C <sub>y</sub>	a	b	theta
2700K	3	0.4620	0.4145	0.00810	0.00420	53.42
3000K	3	0.4383	0.4081	0.00834	0.00408	53.13
4000K	3	0.3875	0.3868	0.00939	0.00402	53.43

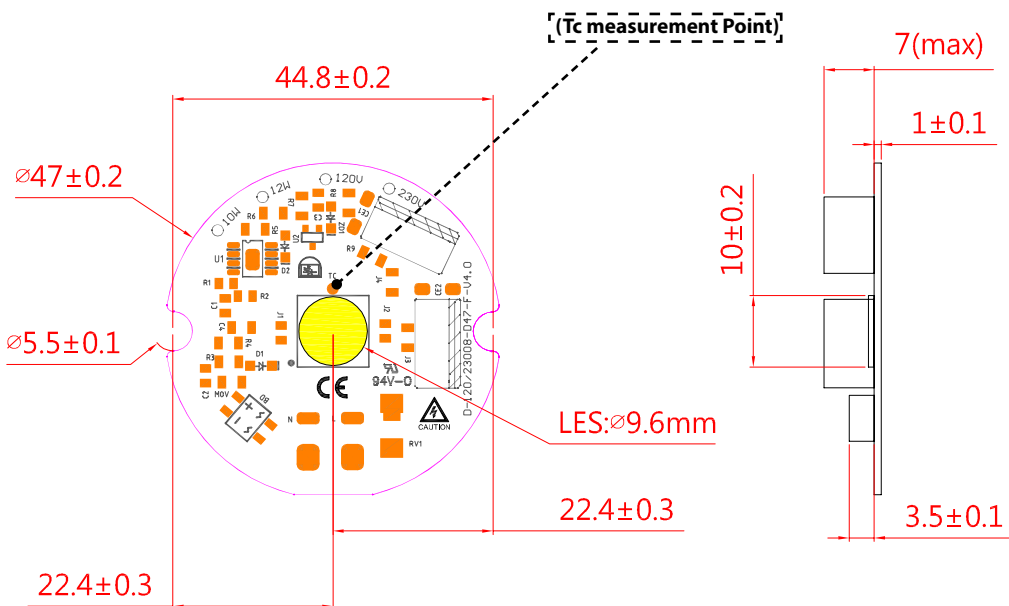
\*Tolerance of measurements of the chromaticity Coordinate is  $\pm 0.005$

## Mechanical Dimensions

### 5ELACN3T1206xx0x/5ELACN3T1208xx0x



### 5ELACN3T1210xx0x



Note :  
Unit : mm



## Holder Dimensions (Version A)

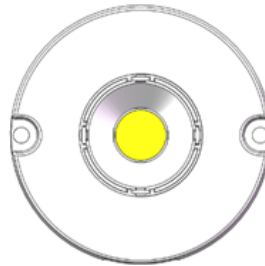
### Product description

1. Material : PC
2. Color : White/Black
3. Flame retardant rating : V0

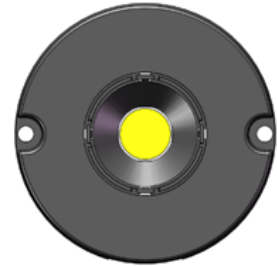
### Application Note

1. Operating temperature :  $-40^{\circ}\text{C} \sim 120^{\circ}\text{C}$
2. Apply on DOB D47 Series
3. M3 screws with flat head , max. head diameter should be no more than 6mm

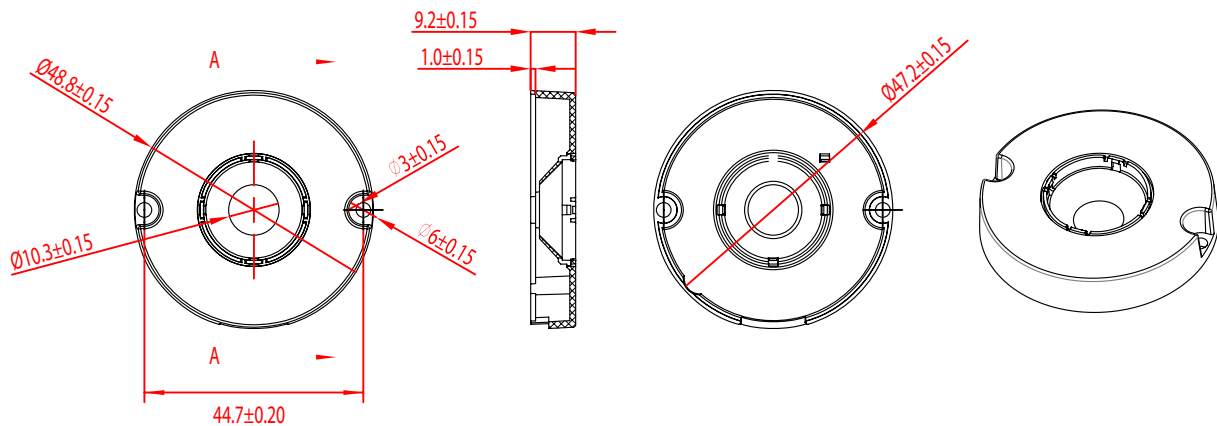
D47-White



D47-Black



### Product Dimension



### Ordering Data

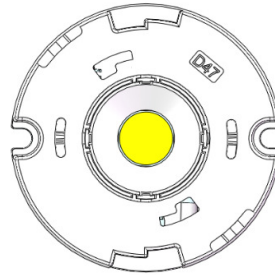
Part No	Color	Packaging Bag	Weight per pc.
13CRDAA00115	white	1,500 pcs	0.004kg
13CRDAA00118	black	1,500 pcs	0.004kg

## Holder Dimensions (Version B)

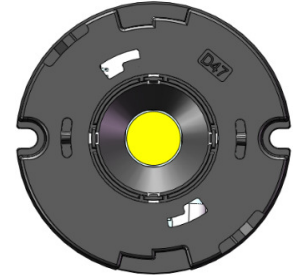
### Product description

1. Material : PC
2. Color : White/Black
3. Flame retardant rating : V2

D47-White



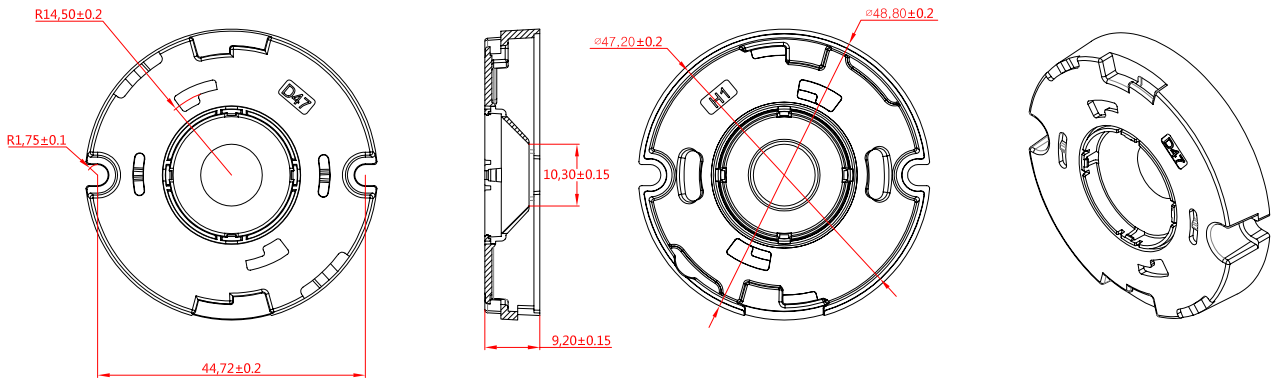
D47-Black



### Application Note

1. Operating temperature :  $-40^{\circ}\text{C} \sim 120^{\circ}\text{C}$
2. Apply on DOB D47 Series
3. M3 screws with flat head , max. head diameter should be no more than 6mm

### Product Dimension

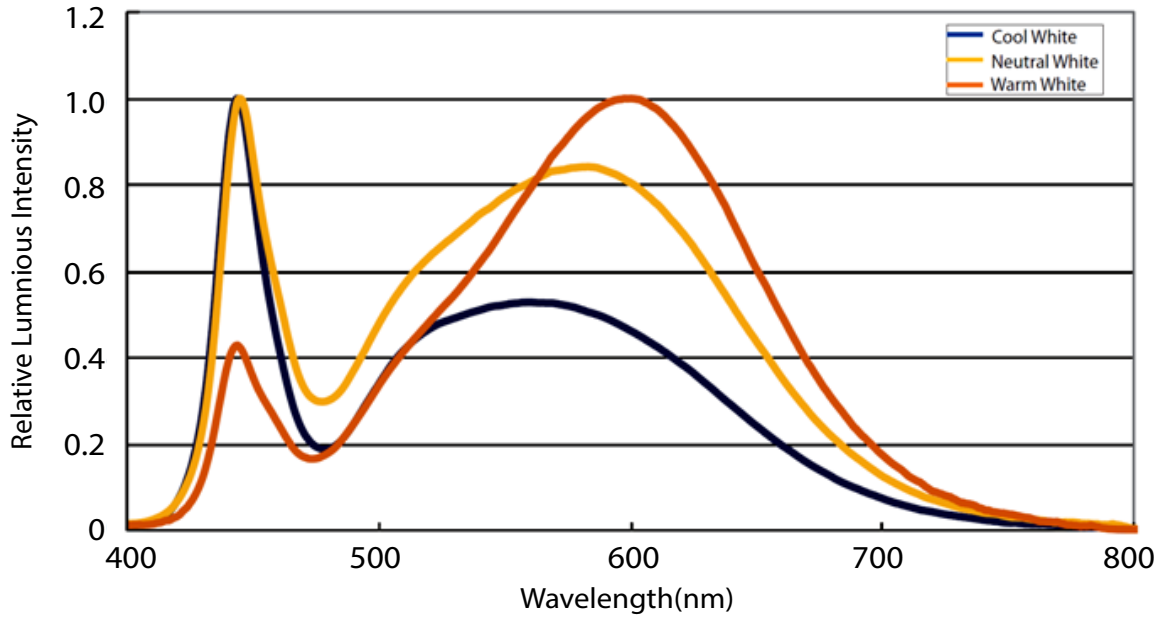


### Ordering Data

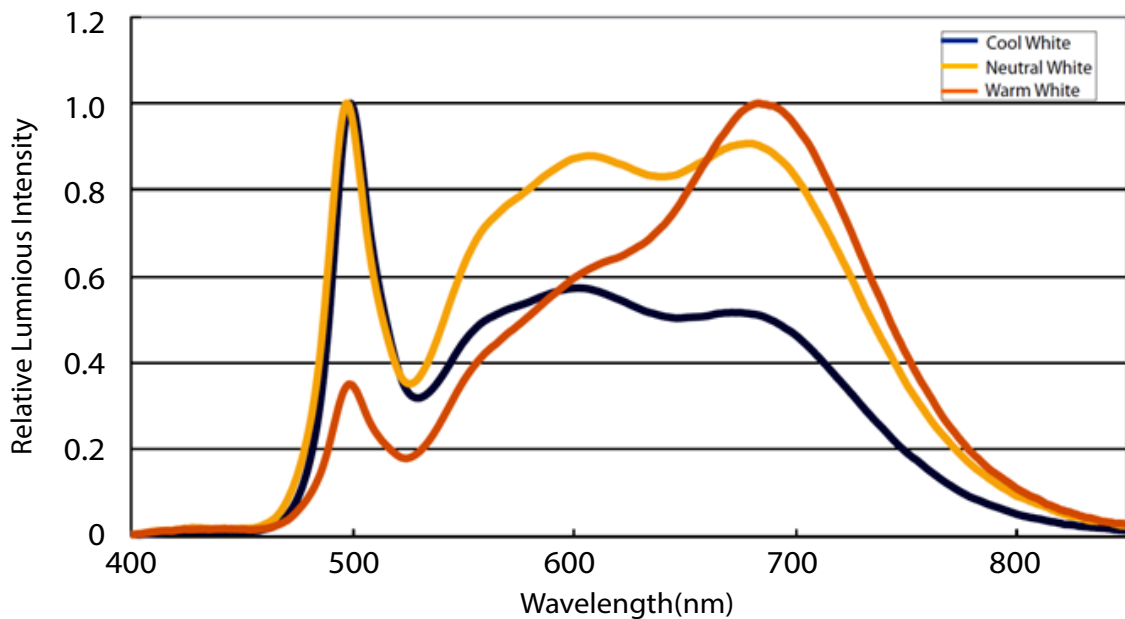
Part No	Color	Packaging Bag	Weight per pc.
13CRDAA00122	white	1,000 pcs	0.004kg
13CRDAA00123	black	1,000 pcs	0.004kg

## Characteristic curve

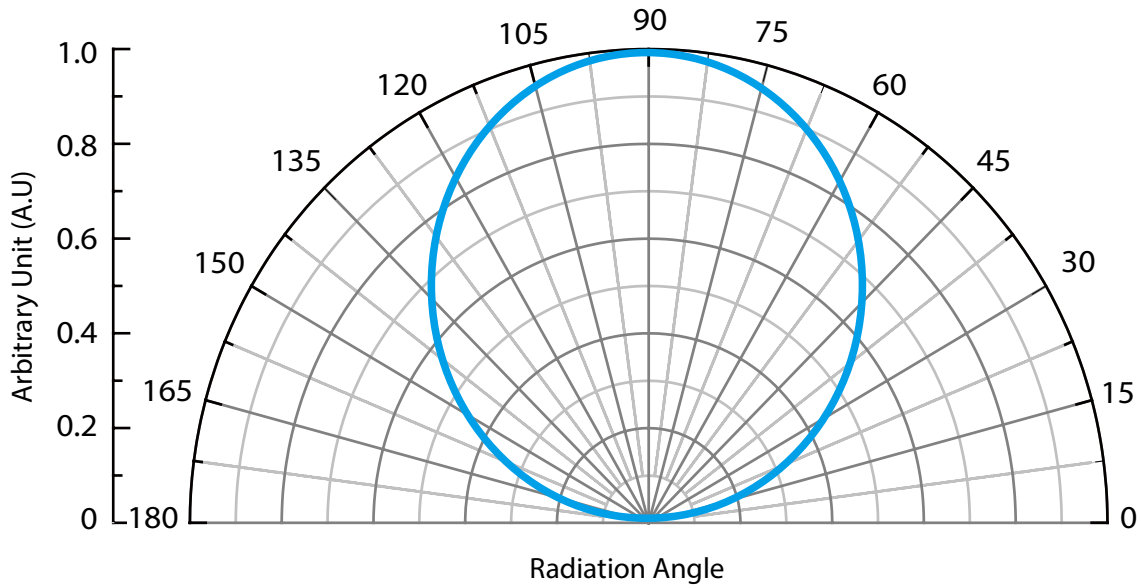
**Color Spectrum (Tc=25°C,VAC=120V)\_Ra 80**



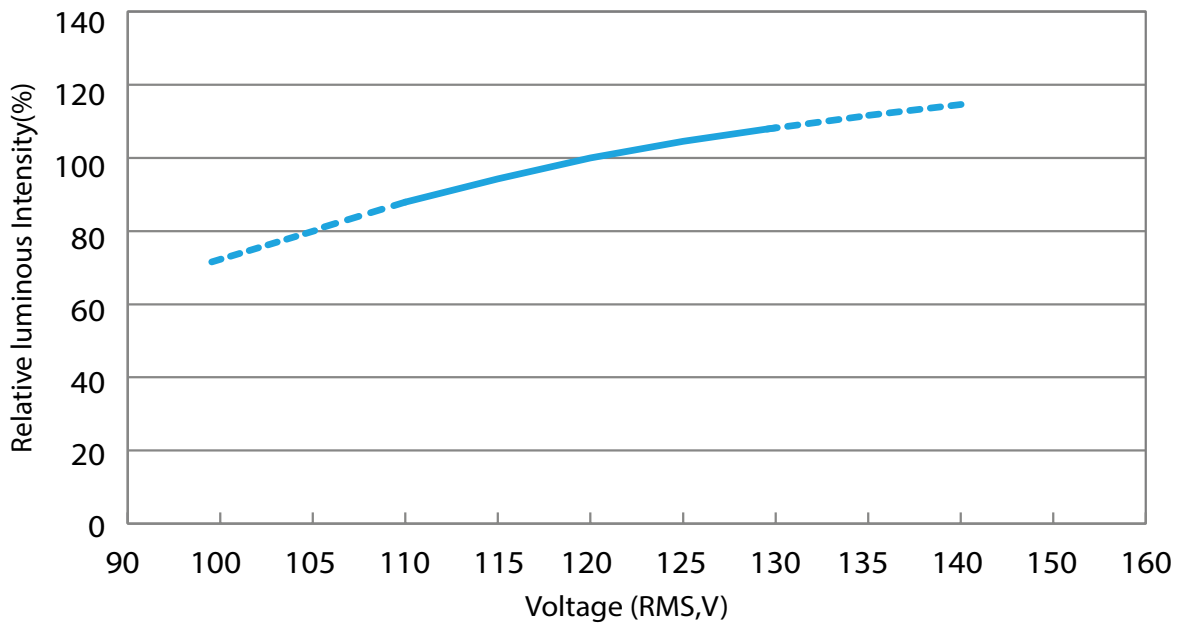
**Color Spectrum (Tc=25°C,VAC=120V)\_Ra 90**



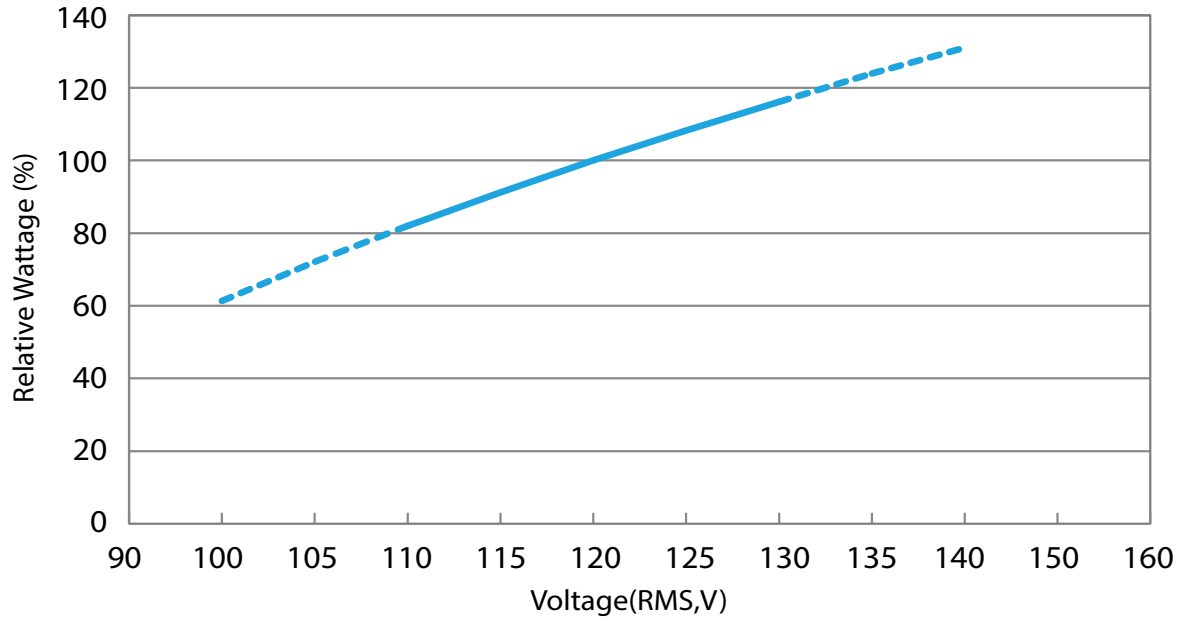
**Beam Pattern**



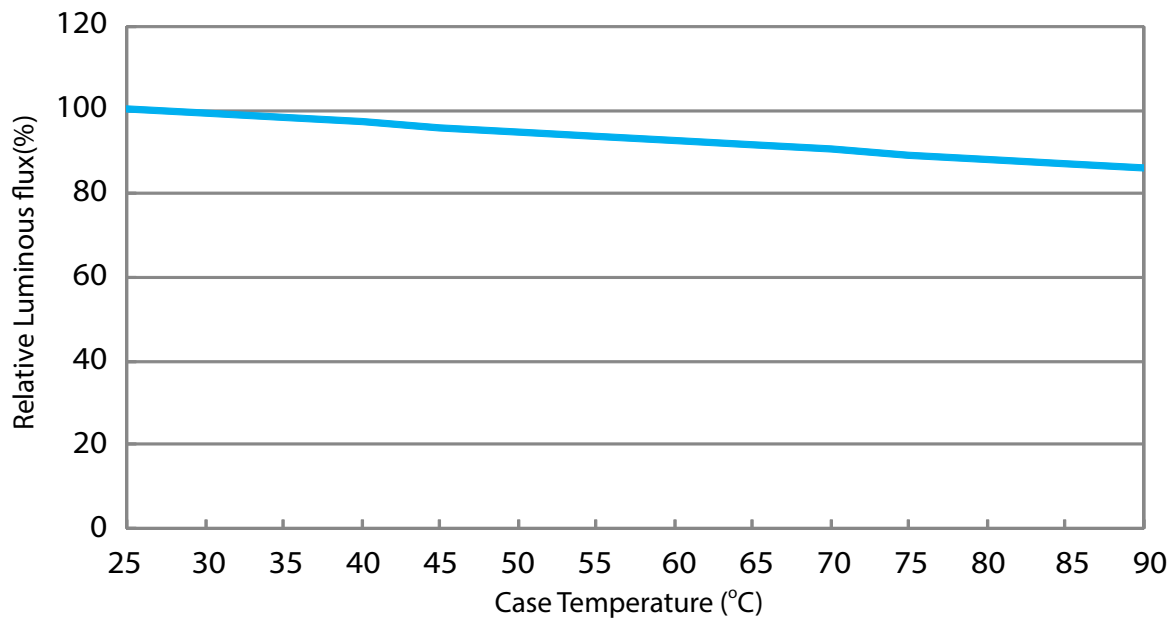
**Relative luminous Intensity vs. Voltage (Tc=25°C)**



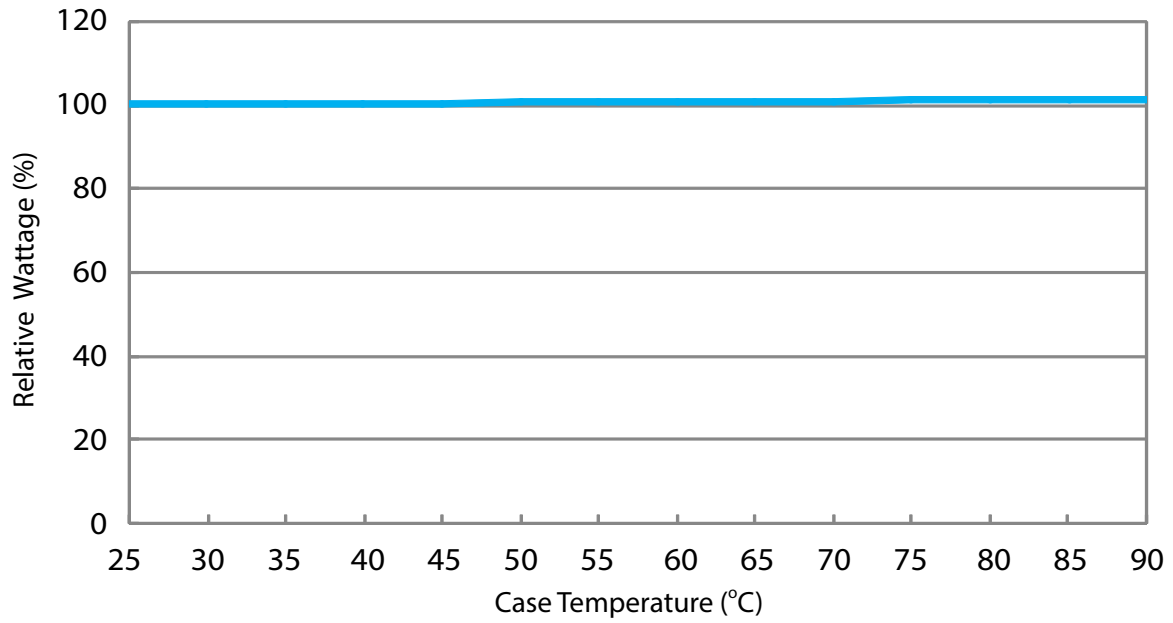
**Relative Wattage vs. Voltage (Tc=25°C)**



**Relative Luminous Flux vs. Case Temperature (VAC=120V)**



**Relative Wattage vs. Case Temperature (VAC=120V)**



## Reliability

NO .	Test Item	Test Condition	Remark
1	Temperature Cycle	-40°C~100°C ( 30 mins / 30 mins )	100 Cycle
2	Operation Life test	Ta = 25°C	1000 hrs
3	ON/OFF Test	3 sec ON, 3 sec OFF	15K times

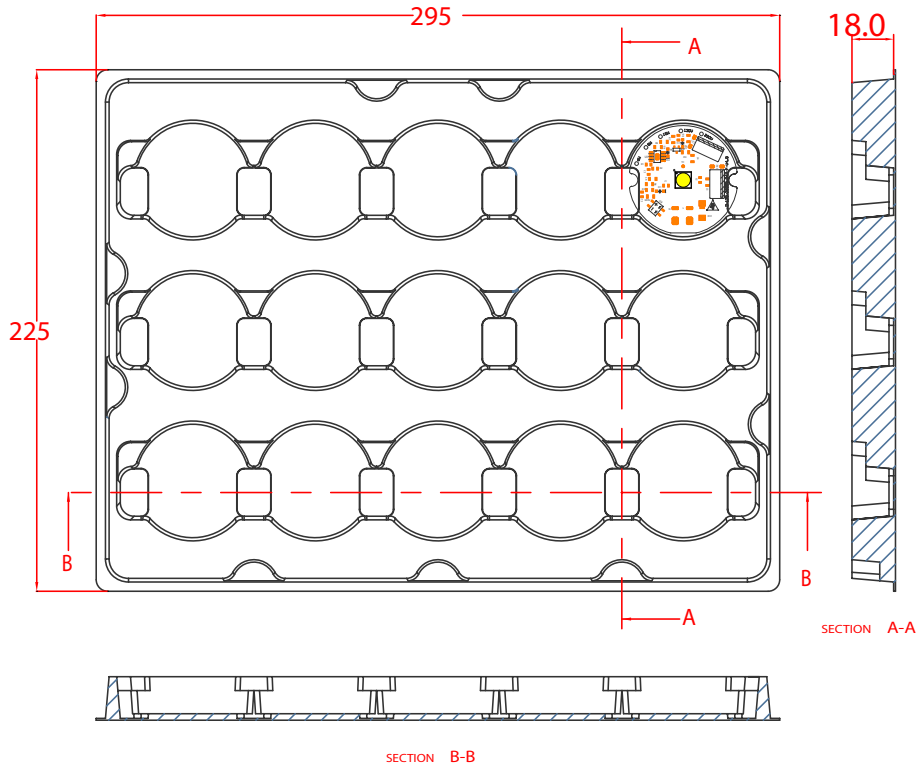
### Failure Criteria

Item	Criteria for Judgment	
	Min.	Max.
Luminous Flux	0.85	-
$\Delta u'v'$	-	0.006
Resistance to Soldering Heat	No dead lamps or visual damage	

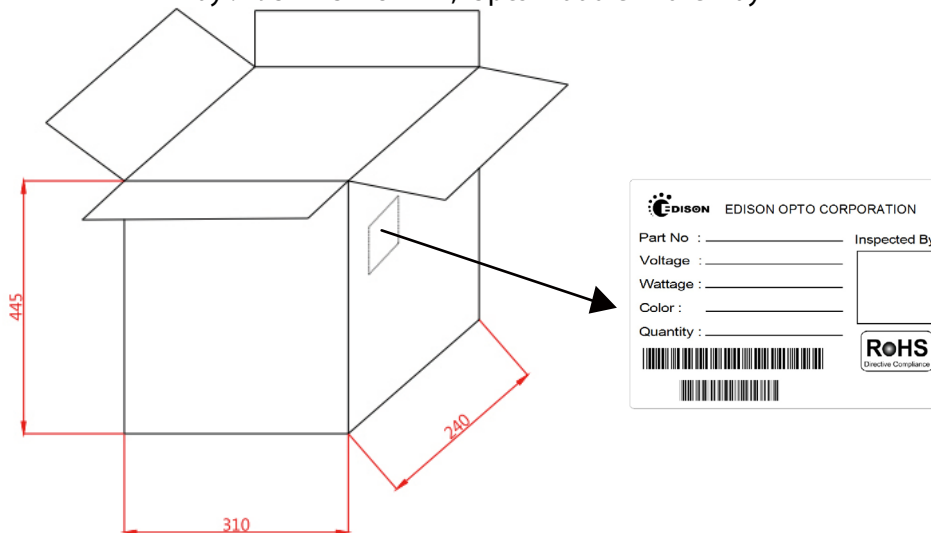
### Cautions

LED avoids being stored and lighted in the environment containing sulfur. Some materials, such as seals, printing ink, enclosure and adhesives, may contain sulfur, avoiding the exposure in acid or halogen environment.

## Product Packaging Information



Tray : 295x225x18 mm , 15pcs Module In the Tray



33 Tray in the outer box, 495 pcs Module in the outer box

Part No.	Number of module / Tray	Number of module / Box	Weight
5ELACN3T1206xxxx 5ELACN3T1208xxxx 5ELACN3T1210xxxx	15pcs	495pcs	5.2KG



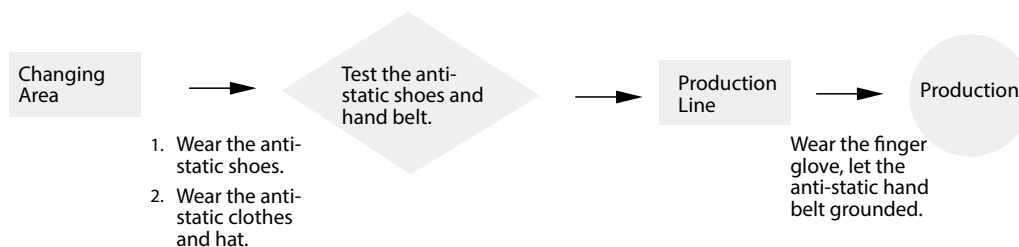
## Handling with a DOB Series

√ Both the light emitting area and white dam over the light emitting area is composed of resin materials. Please avoid the resin area from being pressed, stressed, rubbed, come into contact with sharp metal nail because the function, performance and reliability of this product are negatively impacted.

√ LED device are combine by many accurate parts which belong to static sensitive device. A human body may aware of the discharge voltage about 2-3KV, which is much larger than an electronic device may bear. Therefore, to keep the LED operation environment away from static and lower the exits static become an important issue in a LED manufacture.

1. Anti-Static Steps - All the staffs who has the possibility to contact with the LED components should follow the instructions to eliminate the static:

- Put on the hand or finger gloves before touch a LED device. (Do not use a nylon or rubber Glove )
- Do not do any actions that may generate the static in the protection area. Such as wipe hands or foot, put on/off the clothes.
- Avoid any movement that may cause static damages. When remove a component from the package, please be slow and gentle.
- Do not touch the metal part of a LED component.



2. Environmental anti-static protection

- Use an anti-static floor and make earth. Materials such as plastic or rubber contain carbon or conductive polyester is recommended.
- LEDs should be operated on the desk which is laid by the static discharge material.
- Protection area with a temperature at  $22\pm 5^{\circ}\text{C}$  and a relative humidity at  $70\pm 10\%\text{RH}$  are recommended.
- Layout an appropriate earth system. All the equipment should earth isolated into the ground or pillar.
- All soldering and testing equipment should also provide earth ability.
- Prevent the accumulation and the fractions between stuffs.

3. Anti-Static steps for package, transportation and storage.
  - Package: All the bags must have the ability of anti-static. Do not use any nylon bag, normal plastic bag or polyester bag for package. Do not open the bag if a LED is not ready to be handling. Open the bag at the protection area and put in a conductive case.
  - Transportation: The cart should install the conductive wheels. Avoid the mechanical vibration and impacts.
  - Storage: Be attention of the temperature and the relative humidity under the suggest condition.

√ Thermal Management

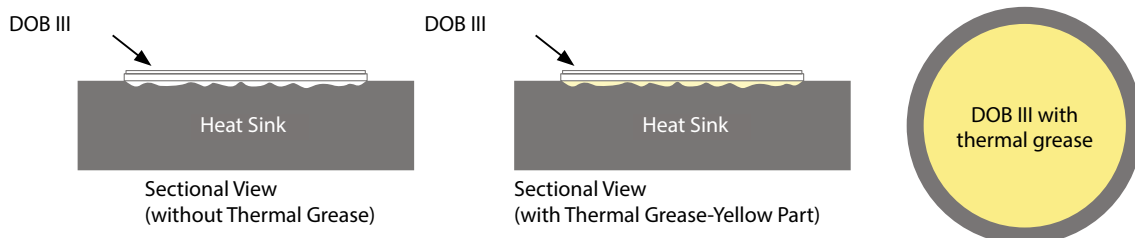
About 80% of input power of a LED transform into heat. A high temperature operation condition always easily causes the LEDs to decrease of flux and the life decay of LED dies. The highest operation temperature of a component is able to be found in its datasheet which is indicated as  $T_j$ .

The power dissipation ability, the ambient temperature between the LED junction, environment, thermal path and its thermal resistance are the mean parameters which affect the performance of a LED device. Therefore, the limitation of the junction temperature has become an important issue when designing a LED product.

For LEDs, choose an appropriate operation environment and conduct the heat to the air after light on LEDs may maintain the better performance and lifetime. Four major thermal path are :

- (1) From heat source (component) to heat sink. (By conduction)
- (2) Conduction from within the heat sink to its surface. (By conduction)
- (3) Transfer from the surface to the surrounding air. (By convection)
- (4) Emit heat from the heat sink surface. (By Radiation)

Path(1): The contact surface of the component and heat sink are not perfectly flat, they are not able to meet each other completely. Air between these two materials will result high thermal resistance and reduce the effect of heat transfer. To enhance the ability of thermal conduction, one common method is applying thermal grease between the two interfaces and use the screws to enforce the adhesion between two surface.



### Recommended thermal Grease Parameters

Characteristics	Value	Unit
Thermal Conductivity (K)	>3.0	W/m*K
Thickness	≤0.1	mm

- √ DO NOT touch any of the circuit board, components or terminals with body or metal while circuit is active.
- √ DO NOT add or change wires while circuit is active.
- √ DO NOT make any modification on module.
- √ DO NOT use together with the materials containing sulfur.
- √ DO NOT exceed the values given in this specification
- √ Keep cautions not to apply higher voltage above the maximum rating. Otherwise damage may occur.  
Pay attention not to exceed the maximum operation temperature of the Tc Point when the modules are used in an enclosed environment.
- √ DO NOT use adhesives to attach the LED that outgas organic vapor.
- √ DO NOT directly make the HI-POT test over 750V on the module.
- √ DO NOT separately connection L and N terminal when the power source turn on
- √ DO NOT wear any conductive accessories (such as jewelry) which could accidentally get an electric shock.
- √ DO NOT press the product; even a slight pressure may damage the product. The environments such as high temperatures, high humidity or direct expose to sunlight should be avoided since the product is sensitive to these conditions
- √ DOB AC Module uses integrated circuit (IC) which can be damaged when exposed to static electricity. Please operate with antistatic device. Do not touch the product unless ESD protection is used. DOB AC Module can't be installed in end product unless the ESD protection is used
- √ DO NOT assemble in conditions of high moisture and/or oxidizing gas such as Cl, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, NO<sub>x</sub>, etc. Damage by corrosion will not be allowed as defect claim.
- √ LED Module is recommended for Indoor use only. Longtime exposure to sunlight or UV can cause the lens to discolor.
- √ Please note that BOB AC Module products are driven by high voltage, therefore when operating DOB AC Modules should be very cautious
- √ Faults, lightning, or fast switch may cause voltage surge which surpasses the normal value
- √ The failure of internal component may cause excessive voltages
- √ Storage Precautions:
  - (1) The devices should be stored in the anti-static bag.
  - (2) If the anti-static bag has been opened, please make sure to reseal the bag to avoid air and moisture infiltrate in the bag.

## Revision History

Versions	Description	Release Date
1	Establish a Datasheet	2020/11/16
2	Revise Features Information Revise General Information Revise Absolute Maximum Ratings Revise Operation Voltage Max and Current THD Typ Information Revise Luminous Flux Characteristic Revise Characteristic curve Add Holder Dimensions Information Add Product Packaging Information	2021/06/23
3	Revise actual picture and Mechanical Dimensions	2022/03/07

## About Edison Opto

Edison Opto is a leading manufacturer of high power LED and a solution provider experienced in LDMS. LDMS is an integrated program derived from the four essential technologies in LED lighting applications- Thermal Management, Electrical Scheme, Mechanical Refinement, Optical Optimization, to provide customer with various LED components and modules. More Information about the company and our products can be found at [www.edison-opto.com](http://www.edison-opto.com)

Copyright©2022 Edison Opto. All rights reserved. No part of publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photo copy, recording or any other information storage and retrieval system, without prior permission in writing from the publisher. The information in this publication are subject to change without notice.

[www.edison-opto.com](http://www.edison-opto.com)

For general assistance please contact:  
[service@edison-opto.com.tw](mailto:service@edison-opto.com.tw)

For technical assistance please contact:  
[LED.Detective@edison-opto.com.tw](mailto:LED.Detective@edison-opto.com.tw)