

Spec. No.: HL3030-2P660W

Issued Date: 2022-07-29

# SPECIFICATION

Model Name: Multi Emitters

Model NO. : HL3030-2P660W Customer No.:

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Approved by: Xie Zhong Wu

Customer approved by: \_\_\_\_\_



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## Multi Emitters

### HL3030-2P660W

#### ■Features

Package Size: 3.2(L) ×3.0(W) × 0.65(T) mm

- Silicone Packed
- Suitable for different working environment
- Super long lifetime: 30000HRs
- Anti UV
- Red
- Wide viewing angle ( $2\theta 1/2=120^\circ$ )

#### ■Applications

- Indoor lighting: Fluorescent lamp, tube
- Commercial illumination and displays:  
Advertising words, light box
- Decorative lighting: light strip
- Automotive interior auxiliary lighting
- Other illumination and displays



#### ■Absolute Maximum Ratings

(Ta= 25℃)

Parameter	Symbol	Rating	Unit
Power Dissipation	P <sub>d</sub>	1400	mW
Forward Current	I <sub>F</sub>	700	mA
Operating Temperature	Topr	-40~+80	℃
Storage Temperature	Tstg	-40~+80	℃
Soldering Temperature	Tsol	260(for 5 seconds)	℃
Junction Temperature	T <sub>j</sub>	120	℃

#### ■Wavelength Rank and Code

红光	Group	WD (nm)
	RE	660-665

## Multi Emitters

## HL3030-2P660W

### ■lectrical/Optical Characteristics

(a= 25℃)

Parameter	Symbol	Value			Units	Test Conditions
		Min.	Typ.	Max.		
Forward Voltage	VF	2.0	2.2	2.4	V	IF=350mA
IV	$\Phi$ (lm)	0	0.5	1	LM	If=350mA
Reverse Current	Ir	---	---	10	$\mu$ A	Vr=5V
Viewing angle	2 $\theta$ 1/2	---	120	---	Deg	If=350mA

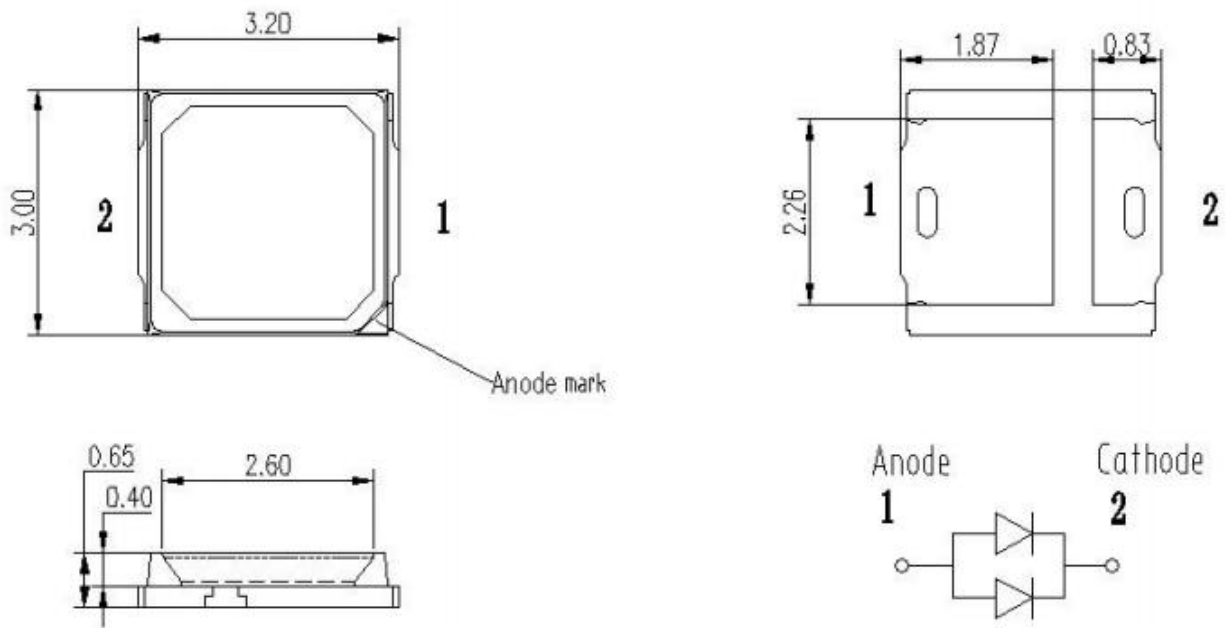
### ■Bin Range of Forward Voltage 电压等级代码

Group	Min VF(V)	Max VF(V)
G2	2.0	2.1
G3	2.1	2.2
G4	2.2	2.3
G5	2.3	2.4

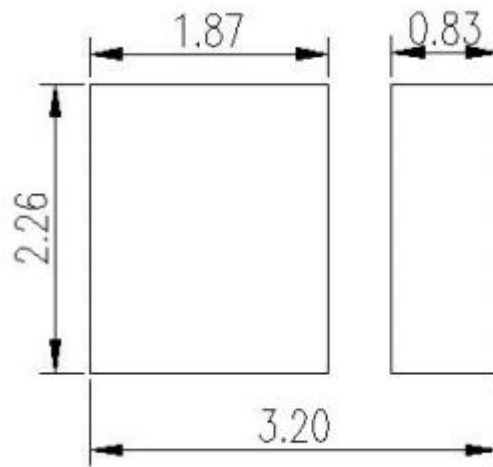
## Multi Emitters

### HL3030-2P660W

#### ■Dimension:



Recommended solder pad for ETXE-3030 series 建议用于 ETXE-3030 系列的焊盘



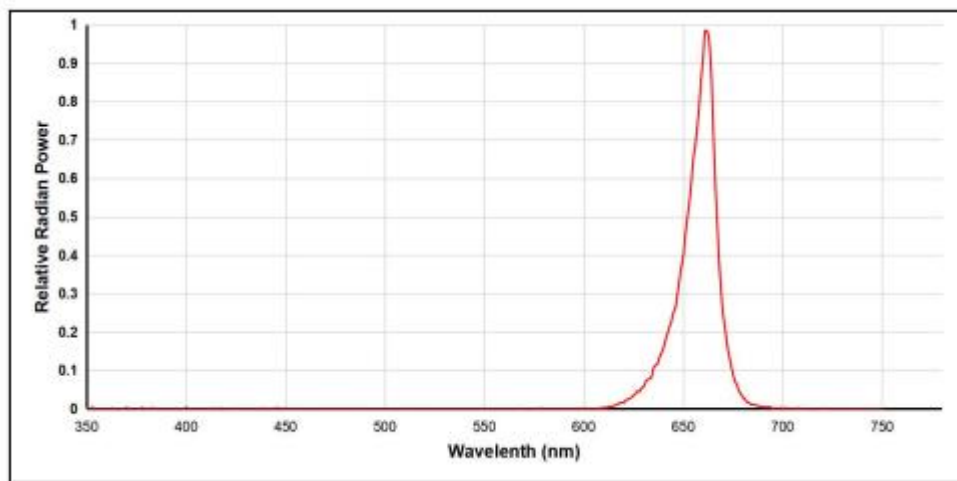
**Note:** 1. UNIT: MM [INCH]. 单位: 毫米[英寸]

2. The tolerances unless mentioned is  $\pm 0.05$  mm. 除非另有说明, 以上尺寸的公差为  $\pm 0.05$  mm。

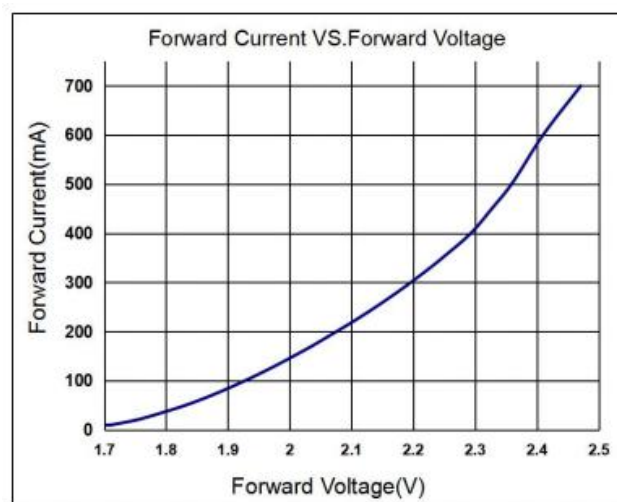
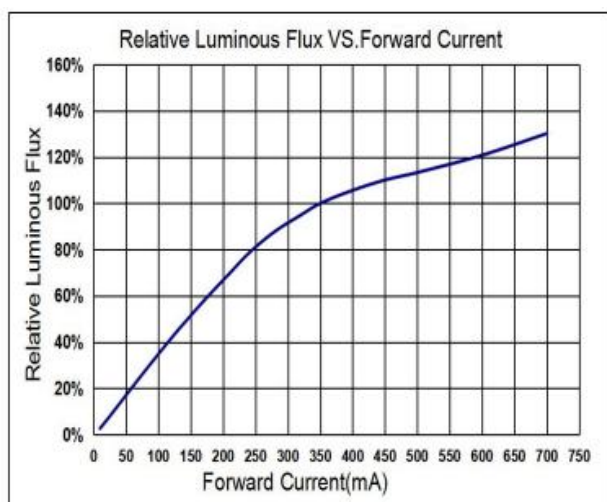
# Multi Emitters

**HL3030-2P660W**

## a) Spectrum Distribution



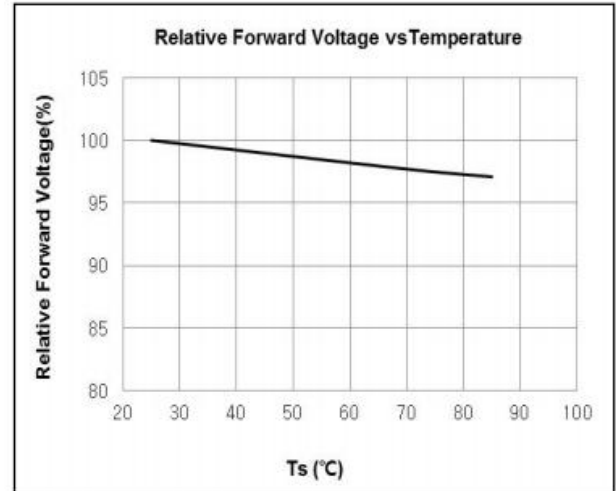
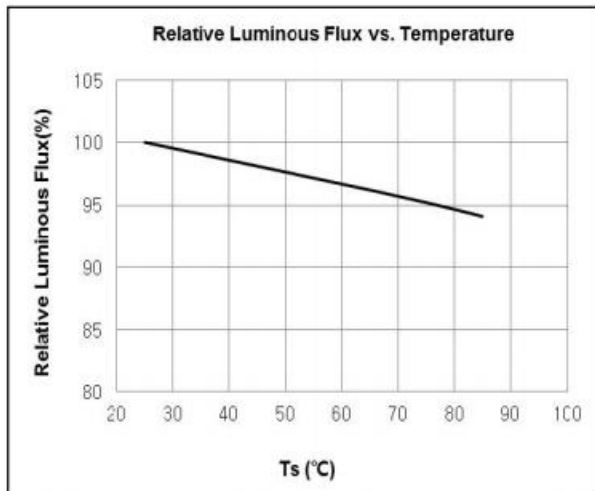
## b) Forward Current Characteristics (Ts = 25 °C)



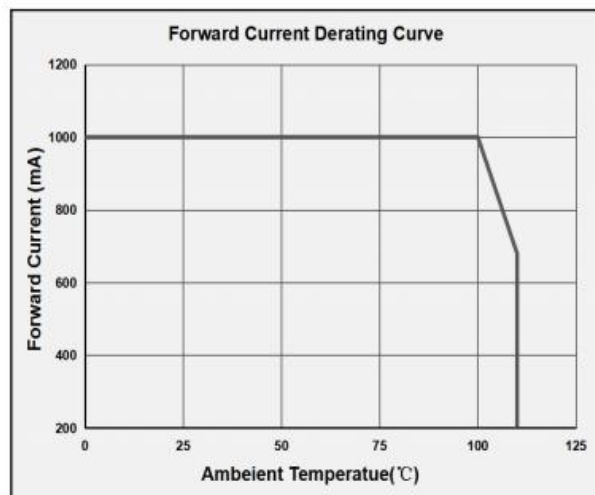
# Multi Emitters

## HL3030-2P660W

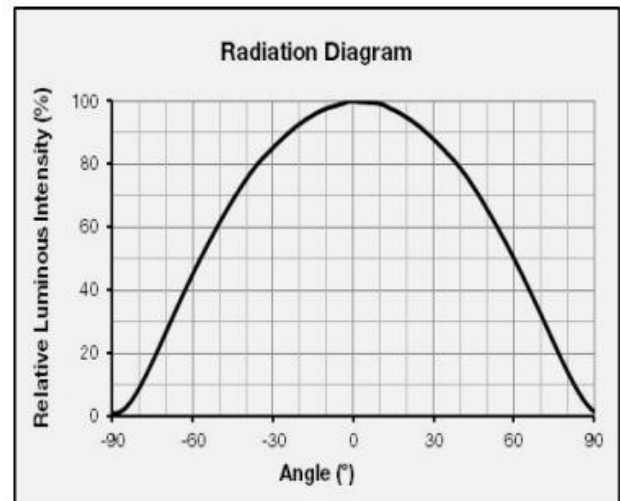
### c) Temperature Characteristics



### e) Derating Curve



### f) Beam Angle Characteristics



## ■Guideline for Soldering 焊接指导

Handling of an SMD LED should be done only when the package has been cooled down to below 40°C or less. This is to prevent SMD LED failures due to thermal-mechanical stress during handling.

SMD LED 焊接后，请将其冷却到 40°C 以下进行操作，以防止操作过程中因热应力造成 SMD LED 损坏。

### 1. Hand Soldering 使用烙铁人手焊接

A soldering iron of less than 20W is recommended to be used in Hand Soldering. Please keep the temperature of the soldering iron under 300°C while soldering. Each terminal of the LED is to go for less than 3 second and for one time only.

推荐使用功率低于 20W 的烙铁，焊接时烙铁的温度必须保持在 300°C 以下，且每个电极只能进行一次焊接，每次焊接的持续时间不得超过 3 秒。

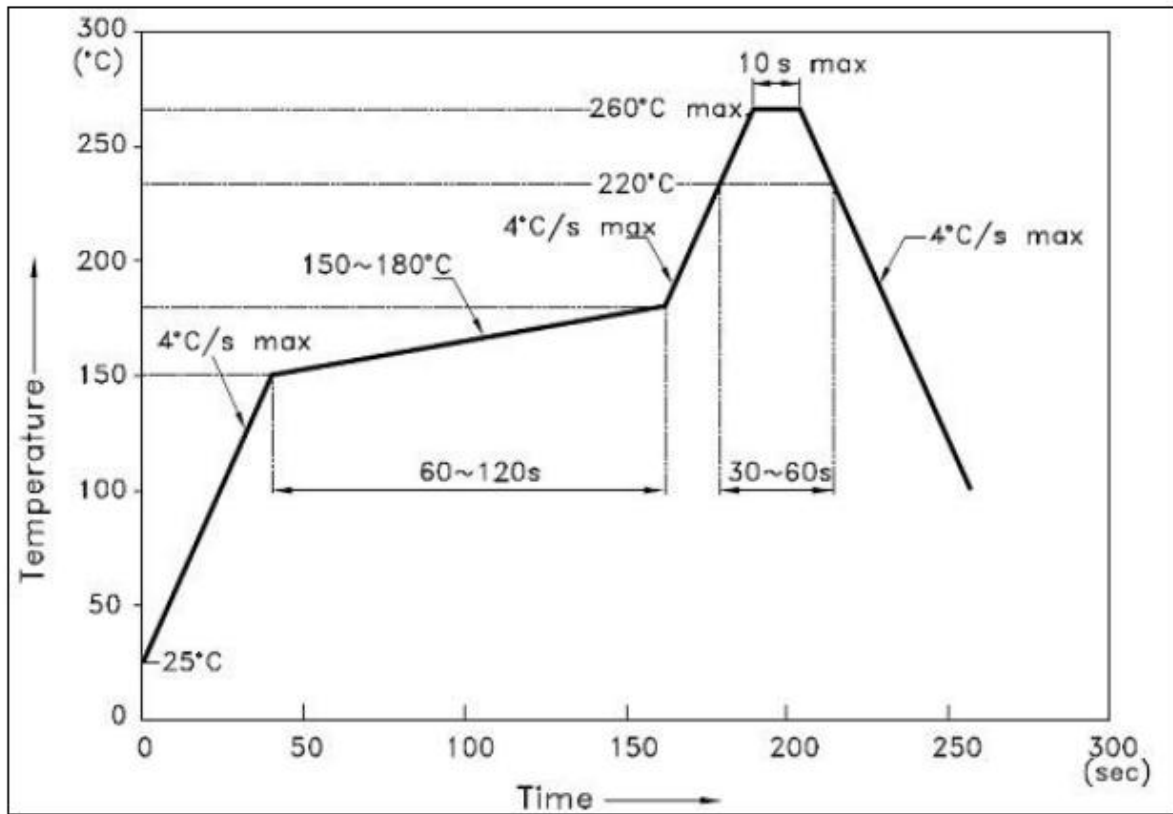
Be careful because the damage of the product is often started at the time of the hand soldering.

人手焊接过程中的不慎操作易引起 LED 产品的损坏，应当小心谨慎

### 2. Reflow Soldering 回流焊接

Recommended reflow soldering condition (Lead-free solder)

建议的回流焊条件（无铅焊锡）



**Note:** 1. We recommend the reflow temperature 245°C (+/-5°C). The maximum soldering temperature should be limited to 260°C. 建议的回流焊温度 245°C (+/-5°C)。最大的焊接温度需限制在 260°C。

2. Reflow soldering should not be done more than two times. 回流焊次数请勿超过两次。

3. When soldering, do not put stress on the LEDs during heating. 回流焊过程中，请勿挤压 LED。

## Multi Emitters

### HL3030-2P660W

#### ■Test items and results of reliability 信赖度测试项目及报告

Test Item	Test conditions	Test Duration	Sample NO.
Solderability 焊锡性	T=260℃±5℃, 5Sec	3Time	0/22
Temperature Cycle 温度循环	-40℃ (30min) ~25℃ (5min) ~100 (30min)	100cycles	0/50
High Temperature Storage 高温贮存	Ta=100℃±3℃	1000 hrs	0/50
Low Temperature Storage 低温贮存	Ta=-40℃±3℃	1000 hrs	0/50
Temperature Humidity Storage 高温湿度贮存	Ta=60℃±3℃, RH=90%±3%	1000 hrs	0/50
Life Test 寿命试验	Ta=25℃±3℃, If=350mA	1000 hrs	0/22
High Temperature Life Test 高温寿命试验	Ta=60℃±3℃, RH=90%±3%, If=350mA	240 hrs	0/22

#### CRITERIA FOR JUDGING THE DAMAGE

Item	Symbol	condition	Criteria for Judgment	
			MIN	MAX
Forward Voltage	VF	IF=350mA	-	USl (1) x 1.2
Luminous Intensity	Iv	IF=350mA	LSL (2) X 0.7	-

Note: (1)USL: Upper Standard Level

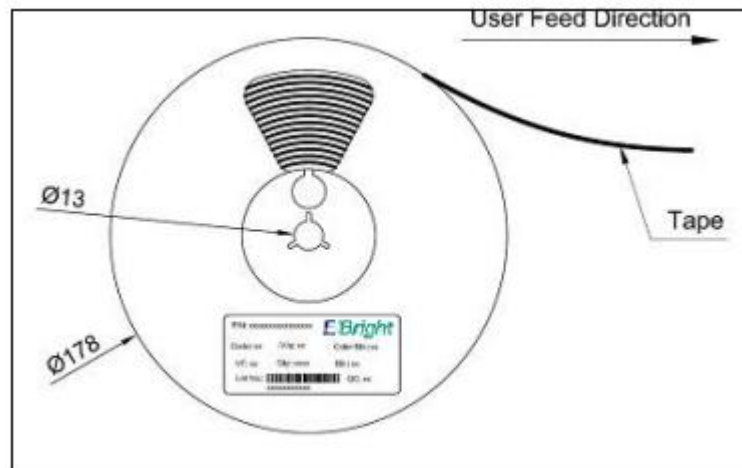
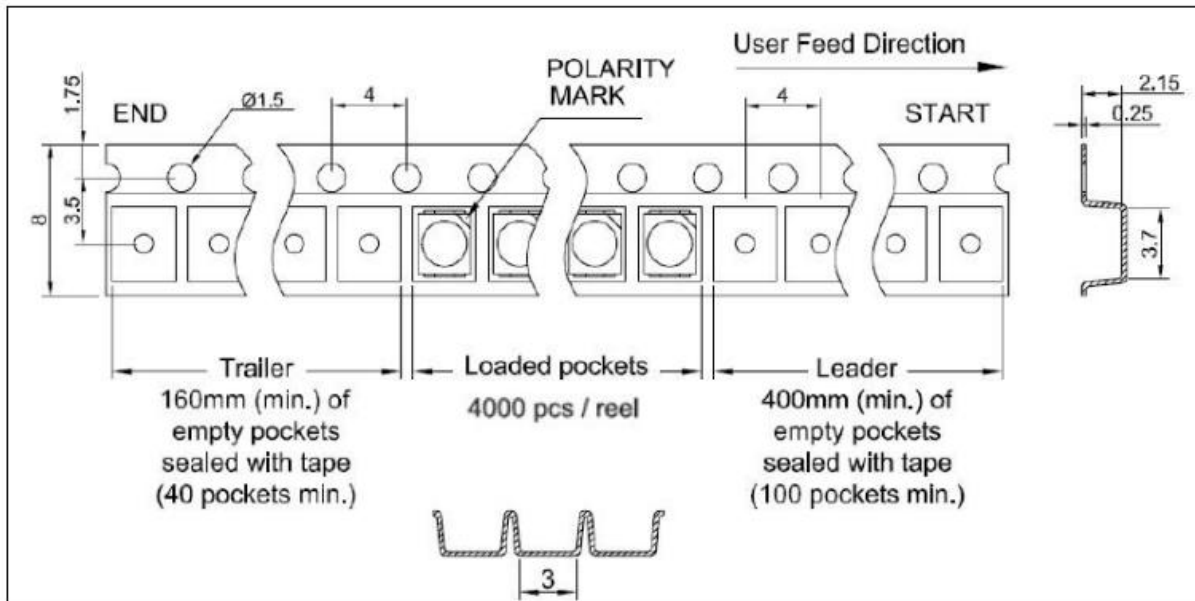
(2) LSL: Lower Standard Level



# Multi Emitters

## HL3030-2P660W

### ■Tape and Reel 载带和卷盘



#### Note:

1. The number of loaded products in the reel is 4000ea. 每卷所载产品数量为 4000pcs。
2. All dimensions are in millimeters (tolerance:  $\pm 0.2$ ). 所有尺寸单位为 mm, 公差为  $\pm 0.2$ 。
3. Scale: None. 产品比例: 无

PartNo:Part number

$\Phi V$ :Luminous intensity rank

VF:Coordinate rank

Color bin

PPE

QTY: Quantity

LotN0: Lot number

Article number

RA

型号

亮度等级

电压等级

色区

光合量子效率

数量

工单号

品号

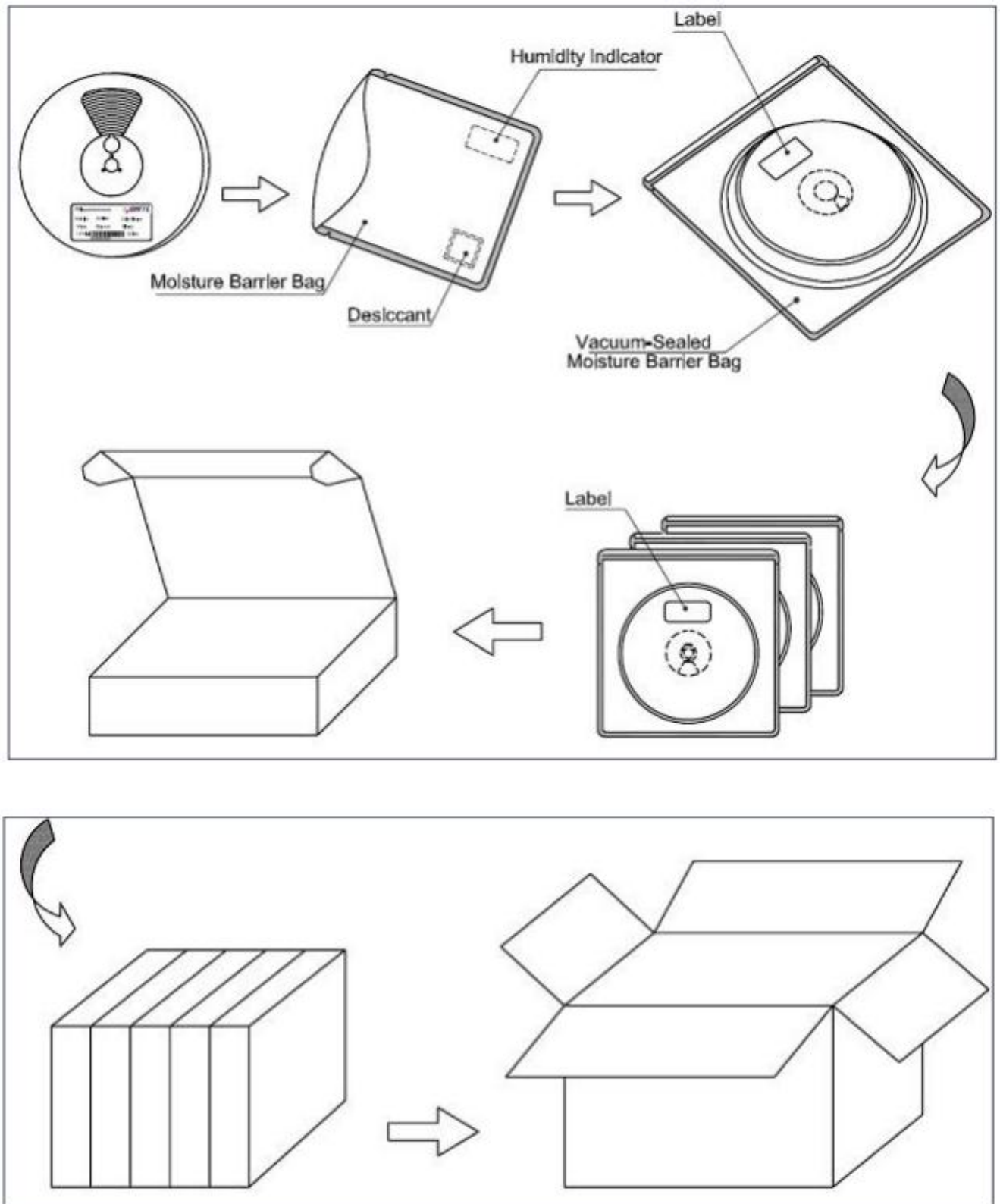
显色指数

LOT:GD202010000161					
P/N	ETRE-3030NN-MACB				
品号	8ETRE3030NNMACBAH0				
IF	90	mA	VF	2.7-2.8	V
CCT	4000k		Color bin	NN5	
PPE	2.85-3.05	umol/J	IV/ $\Phi$	50-55	LM
Ra	80		QTY	4000PCS	
料号: 13.01.02.0063			Date: 2020/10/29		

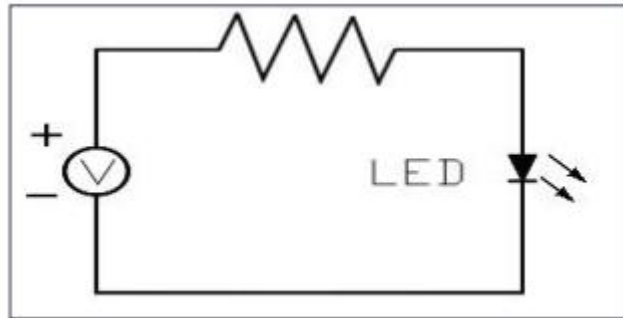
## Multi Emitters

**HL3030-2P660W**

### ■DryPackagingandPackaging 干式包装和包装



### ■TestCircuit 测试电路



NOTE: All temperatures refer to the top side of the package, measured on the package body surface.

注：所有温度是指在封装本体上表面测得的温度。

### ■HandlingPrecautions 处理注意事项

#### 1. Over-current-proof 过电流保护

Customer must apply resistors for protection; otherwise slight voltage shift will cause big current change (Burnout will happen).

客户必须采用电阻进行保护，否则轻微电压漂移将导致电流发生巨大变化(产品将被烧坏)。

#### 2. Cleaning 清洗

2.1 When necessary, cleaning should occur only with isopropyl alcohol (IPA) at room temperature (25°C) for a duration of no more than one minute. Dry at room temperature for 15 minutes before use.

产品如需清洗，只能在室温(25°C)下采用异丙醇(IPA)清洗，清洗时间不超过 1 秒。使用前在室温下放置 15 分钟晾干产品。

2.2 The influence of ultrasonic cleaning on the SMD LED depends on factors such as ultrasonic power and the way the SMD LEDs are mounted. Ultrasonic cleaning should be pre-qualified to ensure this will not cause damage to the SMD LEDs.

超声波清洗对 SMD LED 的影响取决于超声波功率及 SMD LED 的贴装方式等因素。超声波清洗需经过预审合格，以确保此举不会对 SMD LED 造成损害。

#### 3. Storage 储存

3.1 Don't open moisture proof bag before the products are ready to use.

产品在准备使用之前，请勿打开防潮袋

3.2 Before opening the package: The LEDs should be kept at 30°C or less and 90%RH or less.

防潮袋打开之前：LED 应该保存在环境温度 30°C(含)以下和相对湿度 90%(含)以下的环境

3.3 After opening the package: The LED's floor life is 24 hours under 30°C or less and 70% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

防潮袋打开之后：在环境温度 30°C(含)以下和相对湿度 70%(含)以下，LED 的使用时间是 24 小时；未用完的 LED 需使用防潮袋密封包装

#### 4. Baking 烘烤

It is recommended to bake before soldering when the pack is unsealed after 24hrs. The conditions are as followings:

如包装敞开超过 24 小时，我们建议焊接前对产品进行烘烤。烘烤条件如下：

4.1  $65 \pm 3^{\circ}\text{C}$  x (24hrs) and  $<5\%\text{RH}$ , taped reel type 卷带

4.2  $100 \pm 3^{\circ}\text{C}$  x (4hrs), bulk type 散装

4.3  $130 \pm 3^{\circ}\text{C}$  x (2hrs), bulk type 散装

#### 5. Operating 操作

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force. As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might leads to damage and premature failure of the LED.

与又硬又脆的环氧封装相比，硅胶更软，更具弹性。尽管它的特性明显降低热应力，但它更易被外界压力破坏。因此，在使用硅胶封装的 LED 产品时，应该留意安装过程中的一些特殊处理事项。不遵守操作的话可能导致 LED 损坏和失效

5.1 Handle the component along the side surfaces by using forceps or appropriate tools.

用镊子或合适的工具夹在元件的侧边



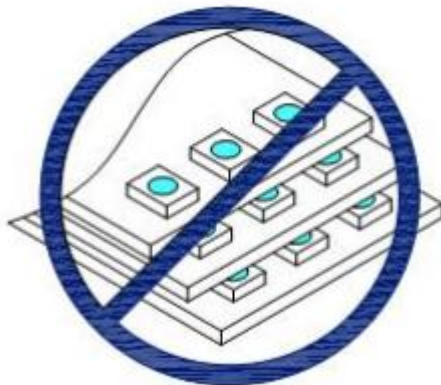
5.2 Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.

请勿直接触摸或操作硅胶透镜表面，这可能会损坏内部的电路



5.3 Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the silicone lens or damage the internal circuitry.

若 PCB 上已贴装了 LED 且暴露在外，请勿将 PCB 叠成堆。相互间的挤压可能会划伤硅胶透镜表面或损坏内部电路



5.4 The outer diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible.

SMD 吸嘴的外径不应超过 LED 的尺寸以避免漏气。吸嘴的内径应尽可能大

5.5 A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup.

吸嘴头建议使用柔软的材料以避免 LED 硅胶表面划伤或损坏

5.6 The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.

元件的尺寸必须在贴片机器上精确地程序化，以确保准确地拾取及避免生产中的损坏



5.7 Users should be cautioned not to stare at the light of this LED product. The bright light can damage the eye.

用户应注意，LED 发光时，请勿直视。LED 的强光可能会伤害您的眼睛。

### ■ Chemicals Tested as Harmful 化学测试中的有害物质

In testing, EBRIGHT has found the following chemicals to be harmful to the LEDs. EBRIGHT recommends not using these chemicals anywhere in an LED system. The fumes from even small amounts of these chemicals may damage the LEDs.

经过测试，EBRIGHT 发现下列化学品会对 LED 造成损害，建议不要在任何的 LED 系统使用这些化学品。即使这些化学品量很少，其所释放的气体也可能导致 LED 损害。

- Chemicals that might outgas aromatic hydrocarbons (e.g., toluene, benzene, xylene)

可能会致使芳香烃化合物释气的化学物（如：甲苯，苯，二甲苯）

- Methyl acetate or ethyl acetate (i.e., nail polish remover)

乙酸甲酯或乙酸乙酯（如：指甲油清洗剂）

- Cyanoacrylates (i.e., Superglue)

氰基丙烯酸酯（如：强力胶）

- Glycol ethers (including Precision Electronics Cleaner - dipropylene glycol monomethyl ether)

乙二醇（包括精密电子清洗剂-二丙二醇单甲醚）

- Formaldehyde or butadiene

甲醛或丁二烯

- bleach

漂白剂

- Cleaner spray

洁喷雾剂

- activator

活化剂

- thread locker

螺丝固定胶

- Sulfur, bromide, iodine , chloride

硫, 溴, 碘, 氯

### ■ ESD Protection During Production 生产过程中的静电保护

Electric static discharge can result when static-sensitive products come in contact with the operator or other conductors.

当操作人员或者其他导体接触静电敏感材料时, 容易产生静电放电。

The following procedures may decrease the possibility of ESD damage:

以下操作可降低静电破坏的可能性

1. Minimize friction between the product and surroundings to avoid static buildup.

将产品和外界之间的摩擦减到最低以避免静电产生

2. All production machinery and test instruments must be electrically grounded.

所有的产品设备和测试仪器必须接地

3. Operators must wear anti-static bracelets.

操作人员必须配戴静电环

4. Wear anti-static suit when entering work areas with conductive machinery.

进入带电设备工作区域时需穿防静电服

5. Set up ESD protection areas using grounded metal plating for component handling.

使用经电镀处理的金属部件接地从而建立 ESD 保护区域

6. All workstations that handle IC and ESD-sensitive components must maintain an electrostatic potential of 150V or less.

所有操作 IC 和 ESD 敏感器件元器件的工作台必须保持低于 150V 的静电保护

7. Maintain a humidity level of 50% or higher in production areas.

产品区域环境需保持高于 50%的湿度水平



8. Use anti-static packaging for transport and storage.

运输和储存需使用防静电包装

9. All anti-static equipment and procedures should be periodically inspected and evaluated for proper functionality.

防静电设备及相关操作应该定期检查及评估以确保运行正常

### ■Thermal Management 热管理

1. Thermal design of the end product is of paramount importance. Please consider the heat generation of the LED when making the system design. The coefficient of temperature increase per input electric power is affected by the thermal resistance of the circuit board and density of LED placement on the board, as well as other components. It is necessary to avoid intense heat generation and operate within the maximum ratings given in this specification.

终端产品的散热设计是极其重要的。在做整体设计时请考虑 LED 的热量处理。单位输入功率的温度系数的增加受线路板的热阻，LED 在板上布置的密度和其他元器件的影响。避免热量积累和在本规格书中指定的最大额定范围内操作是必要的

2. The equation ① indicates correlation between  $T_j$  and  $T_a$ , and the equation ② indicates correlation between  $T_j$  and  $T_s$

等式①表明  $T_j$  和  $T_a$  的相互关系，等式②表明  $T_j$  和  $T_s$  的相互关系

$$T_j = T_a + R_{thj-a} * W \dots\dots\dots \textcircled{1}$$

$$T_j = T_s + R_{thj-s} * W \dots\dots\dots \textcircled{2}$$

$T_j$  = dice junction temperature: °C       $T_j$  = 晶片结点温度: °C

$T_a$  = ambient temperature: °C       $T_a$  = 环境温度: °C

$T_s$  = solder point temperature: °C       $T_s$  = 焊接点温度: °C

$R_{thj-a}$  = heat resistance from dice junction temperature to ambient temperature : °C / W

$R_{thj-a}$  = 晶片结温至环境温度之间的热阻: °C/W

$R_{thj-s}$  = heat resistance from dice junction temperature to  $T_s$  measuring point : °C / W

$R_{thj-s}$  = 晶片结温至  $T_s$  测量点之间的热阻: °C/W

$W$  = inputting power ( $I_F \times V_F$ ) : W

$W$  = 输入功率 ( $I_F \times V_F$ ) : W



## Multi Emitters

**HL3030-2P660W**

### Humidity Indicator Card 湿度卡

After the moisture barrier bag is opened, make sure that Humidity Indicator Card does not become red at 30%RH. Otherwise, Devices require baking again under below conditions.

$65 \pm 3^{\circ}\text{C}$  x (24hrs) and  $<5\%\text{RH}$ , taped reel type

防潮袋开封后，应立即确认湿度卡 30%处是否变成淡红色，若 30%处开始变成淡红色，该包产品需要在如下条件下重新烘烤：

$65 \pm 3^{\circ}\text{C}$  x (24hrs) and  $<5\%\text{RH}$ , 卷带

