

RoHS

# Specification

## 规格书

Customer Name : \_\_\_\_\_

客户名称 :

Customer P/N : \_\_\_\_\_

客户品号 :

Factory P/N : **HL-A-4014H456W-S1-HR3-DM**

公司品号 :

Sending Date : \_\_\_\_\_

送样日期 :

Client approval 客户审核			Hongli approval 鸿利光电审核		
Approval 核准	Audit 确认	Confirmation 制作	Approval 核准	Audit 确认	Confirmation 制作
			林德顺		黄雪梅
<input type="checkbox"/> Qualified 接受		<input type="checkbox"/> Disqualified 不接受		DATE: 日期:	

Adr : Airport High-tech Industry Base Jingu South Road(XianKe 1st Road Intersection),  
Huadu District, Guangzhou, China

地址: 中国广州市花都区机场高科技产业基地金谷南路与先科一路交汇

Tel/电话 : 020-86733333

Fax/传真 : 020-86733883 86733938 86733265

Web/网址 : www.honglitronic.com

注:1. 此规格书以中英文方式书写,若有冲突以中文版本为准文本.

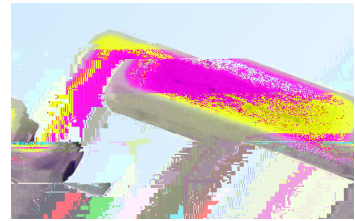
2. 此规格书的最终解释权归广州鸿利光电股份有限公司

3. 此规格书的有效期限为两年,自盖章或签字之日起计算,期满时双方可以续签协议,但应采用书面形式

## HL-A-4014H456W-S1-HR3-DM

### Features( 特征)

- PLCC-2 Package.(PLCC-2 封装)
- Extremely wide viewing angle. ( 宽的发光角度)
- Suitable for all SMT assembly and solder process. ( 适用于所有的SMT组装和焊接工艺)
- Available on tape and reel. ( 适用于载带及卷轴)
- Moisture sensitivity level: Level 4. ( 防潮等级 Level 4)
- Package:4000pcs/reel..(包装每卷4000PCS)
- RoHS compliant. (RoHS 认证)



### Description ( 描述)

The White LED which was fabricated using a blue chip and the phosphor  
白光LED由蓝光芯片与荧光粉激发而成



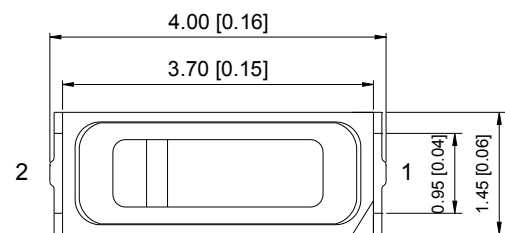
**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
DISCHARGE  
SENSITIVE  
DEVICES

注意：操作时应注意静电敏感  
释放设备装置

### Applications ( 应用)

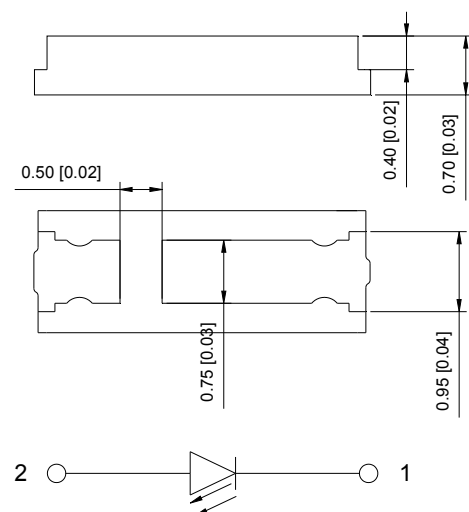
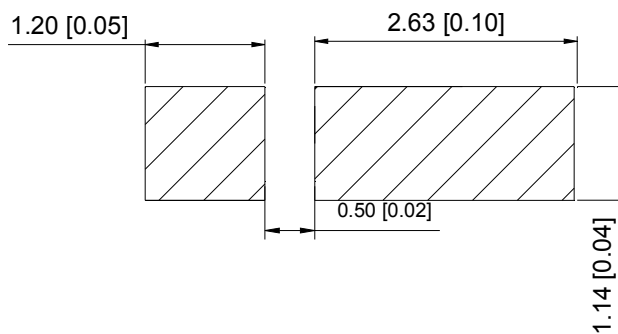
- Optical indicator ( 光学指示)
- Indoor display ( 室内显示)
- Automotive lighting ( 汽车照明)
- Backlight for LCD, switch and Symbol, display  
(LCD背光、转换器, 开关和标志, 显示器等)
- Tubular light application ( 用于日光灯管)
- General use ( 一般应用)

### Package Dimensions ( 封装尺寸)



### Recommended Soldering Pattern

( 建议焊盘尺寸图)



Notes: ( 备注)

1. All dimension units are millimeters. ( 所有标注尺寸单位为毫米)
2. All dimension tolerance is  $\pm 0.15\text{mm}$  unless otherwise noted. ( 除特别标注外, 所有尺寸允许公差  $\pm 0.15\text{mm}$  )

## HL-A-4014H456W-S1-HR3-DM

### Selection Guide (选择指南)

Part No. 型号	Chip Materials 芯片材料	Lens Type 胶体类型
HL-A-4014H456W-S1-HR3-DM	InGaN	Yellow Diffused

### Mass Production list (批量生产目录)

Part No. 型号	CCT (K) Min	CCT (K) Typ	CCT (K) Max	Φ (lm) Min	Φ (lm) Typ	Test Condi- tions 测试条件
HL-A-4014H456W-S1-HR3-DM	5700	6000	6500	25	27	IF=60mA
	4750	5000	5300	25	27	IF=60mA
	3800	4000	4250	25	27	IF=60mA
	2800	3000	3100	23	25	IF=60mA

### Electrical / Optical Characteristics at Ta=25°C 电性与光学特性

Parameter (参数)	Symbol (符号)	Min. (最小)	Typ. (平均)	Max. (最大)	Units (单位)	Test Conditions 测试条件
Forward Voltage 正向电压	V <sub>F</sub>	2.8	--	3.4	V	IF=60mA
Viewing Angle 角度	2θ <sub>1/2</sub>	--	120	--	Deg	IF=60mA
Color Rendering Index 显色性指数	R <sub>a</sub>	80	--	--		IF=60mA
Reverse Current 反向电流	I <sub>R</sub>	--	--	10	μA	VR = 5V

Note:(备注)

- 2θ<sub>1/2</sub> is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.  
2θ<sub>1/2</sub> 是半值角,指光强是光学中心线光强的1/2处到光学中心线的角度
- The above luminous flux measurement allowance tolerance is ±10%.  
上述发光通量的测试允许公差为±10%
- The above Color Rendering Index measurement allowance tolerance is ±2  
以上显色性指数的测试允许公差为±2
- The above forward voltage measurement allowance tolerance is ±0.1V.  
以上所示电压测量误差±0.1V
- The above color coordinates measurement allowance tolerance is ±0.003.  
以上所示坐标测量误差±0.003

## HL-A-4014H456W-S1-HR3-DM

### Absolute Maximum Ratings at Ta=25°C 绝对最大额定值

Parameter (参数)	Symbol (符号)	Rating (值)	Units (单位)
Power Dissipation (功耗)	Pd	200	mW
Forward Current (正向电流)	IF	60	mA
Peak Forward Current [1] (峰值正向电流)	IFP	150	mA
Reverse Voltage (反向电压)	VR	5	V
Electrostatic Discharge (HBM) (静电)	ESD	1000	V
Operating Temperature (操作温度)	Topr	-40 ~ +85	°C
Storage Temperature (保存温度)	Tstg	-40 ~ +100	°C
Thermal Resistance (Junction / Soldering point) 热阻	Rthj-s	35	°C/W
Junction Temperature结温	Tj	115	°C

Note: (备注)

1. 1/10 Duty cycle, 0.1ms pulse width. (脉宽0.1ms, 周期1/10)

# HL-A-4014H456W-S1-HR3-DM

## Typical optical characteristics curves 典型光学特性曲线

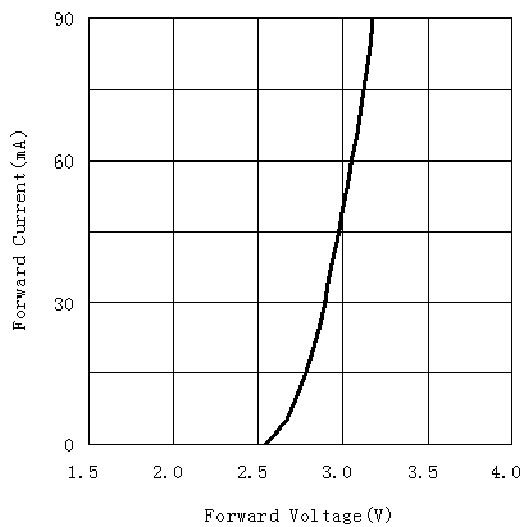
Soldering Temperature vs. Forward Current  
焊盘温度与正向电流特性曲线

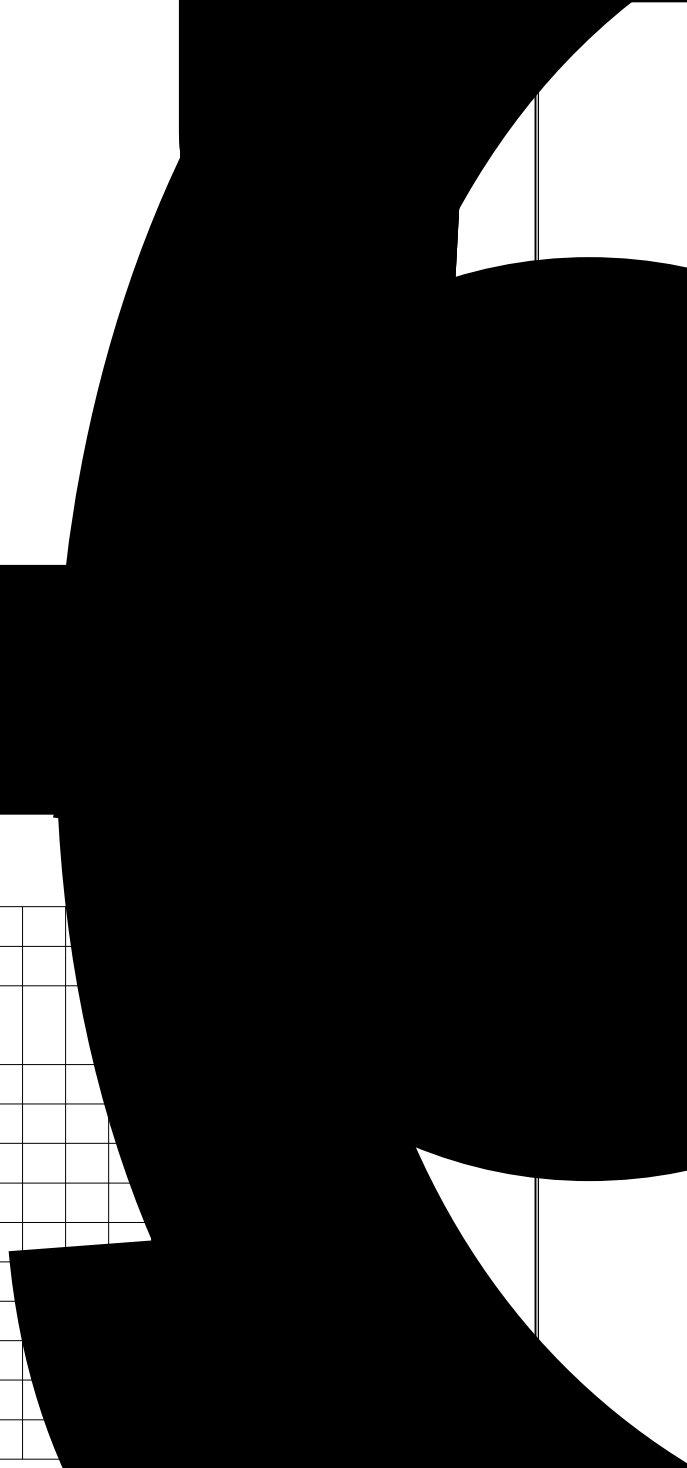
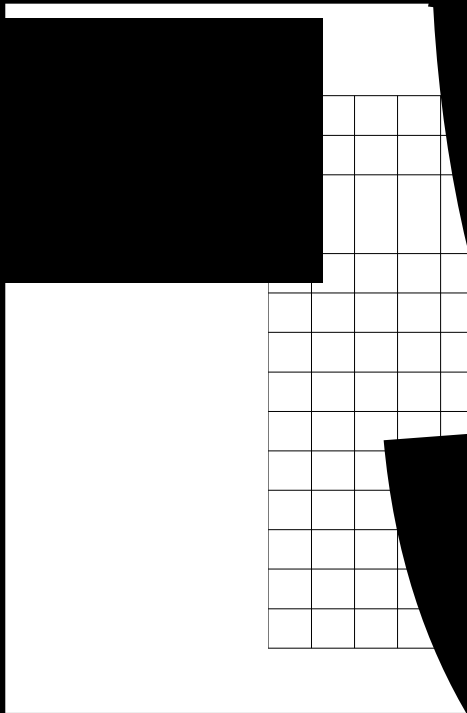
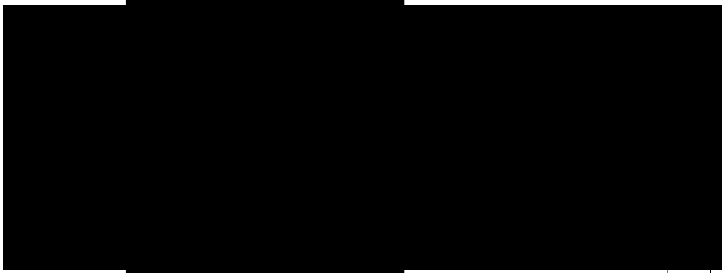
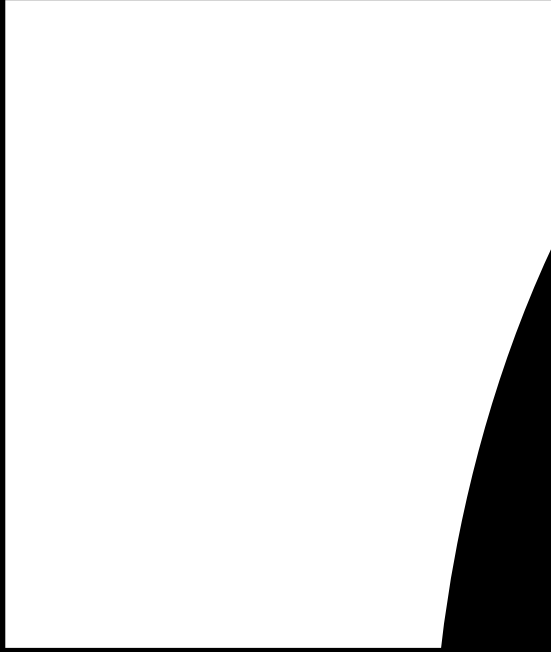
Forward Current VS. Relative Intensity  
正向电流与相对光强特性曲线

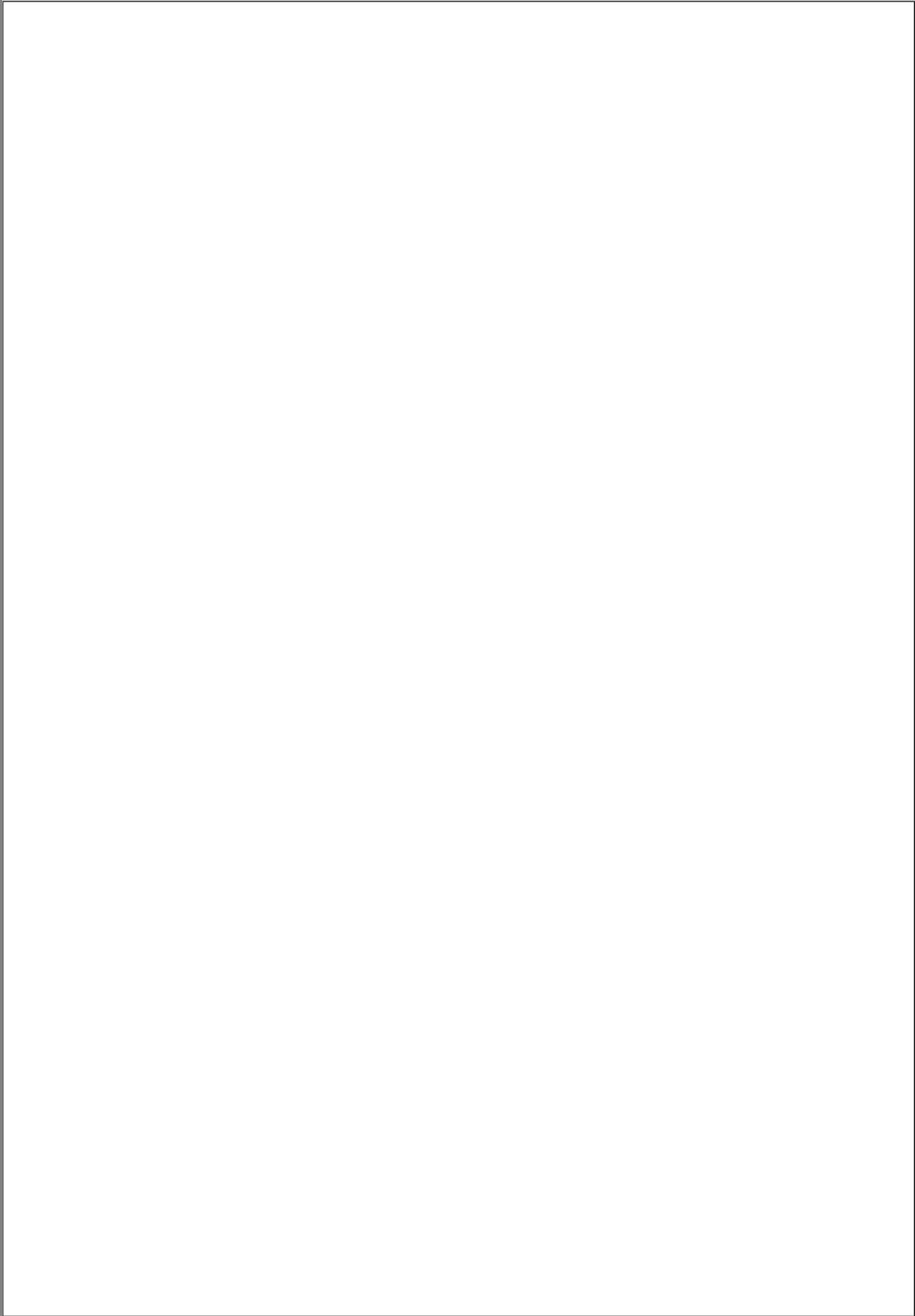


Forward Voltage VS. Forward Current  
正向电压与正向电流特性曲线

Ambient Temperature VS. Relative Intensity  
环境温度与相对光强特性曲线







## HL-A-4014H456W-S1-HR3-DM

### Bin Range of Chromaticity Coordinate Bin区分类及色坐标范围

CCT 色温	Bin Code Bin代码	CIE_x	CIE_y	Bin Code Bin代码	CIE_x	CIE_y
6000K	C32 6000-6500K	0.3205	0.3481	C42 5700-6000K	0.3211	0.3468
		0.3117	0.3393		0.3294	0.3542
		0.3131	0.329		0.3296	0.3429
		0.3213	0.3371		0.3219	0.3360
		0.3213	0.3371		0.3219	0.3360
	C33 6000-6500K	0.3131	0.329	C43 5700-6000K	0.3296	0.3429
		0.3145	0.3187		0.3298	0.3315
		0.3221	0.3261		0.3227	0.3251
		0.3376	0.3616		0.3461	0.3685
		0.3461	0.3685		0.3545	0.3754
5000K	C62 5000-5300K	0.3451	0.3561	N12 4750-5000K	0.3530	0.3625
		0.3372	0.3497		0.3451	0.3561
		0.3372	0.3497		0.3451	0.3561
		0.3451	0.3561		0.3530	0.3625
		0.3441	0.3437		0.3514	0.3496
	C63 5000-5300K	0.3368	0.3378	N13 4750-5000K	0.3441	0.3437
		0.3731	0.3853		0.3839	0.3920
		0.3839	0.3920		0.3947	0.3987
		0.3803	0.3777		0.3903	0.3839
		0.3703	0.3716		0.3803	0.3777
4000K	N42 4000-4250K	0.3703	0.3716	N52 3800-4000K	0.3803	0.3777
		0.3803	0.3777		0.3903	0.3839
		0.3767	0.3634		0.3858	0.3690
	N43 4000-4250K	0.3675	0.3578	N53 3800-4000K	0.3767	0.3634



CCT 色温	Bin Code Bin代码	CIE_x	CIE_y	Bin Code Bin代码	CIE_x	CIE_y
--------	----------------	-------	-------	----------------	-------	-------

## HL-A-4014H456W-S1-HR3-DM

### Reliability Test Items And Conditions 信赖性测试项目及条件

Test Items 项目	Ref. Standard 参考标准	Test Condition 测试条件	Time 时间	Quantity 数量	Ac/Re 接收/拒收
Reflow 回流焊	JESD22-B106	Temp:260°Cmax T=10 sec	3 times.	22Pcs.	0/1
Temperature Cycle 温度循环	JESD22-A104	100°C±5°C 30 min. ↑↓5 min -40°C±5°C 30 min.	100 Cycles	22Pcs.	0/1
High Temperature Storage 高温保存	JESD22-A103	Temp:100°C±5°C	1000Hrs.	22Pcs.	0/1
Low Temperature Storage 低温保存	JESD22-A119	Temp:-40°C±5°C	1000Hrs.	22Pcs.	0/1
Life Test 常温通电	JESD22-A108	Ta=25°C±5°C IF=60mA	1000Hrs.	22Pcs.	0/1
High Temperature High Humidity Life Test 高温高湿通电	JESD22-A101	85°C±5°C/ 85%RH IF=40mA	1000Hrs.	22Pcs.	0/1

### Failure Criteria 失效判定标准

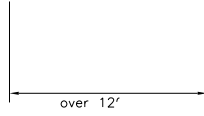
Test Items 项目	Symbol 符号	Test Condition 测试条件	Failure Criteria 判定标准	
			Min. 最小	Max. 最大
Forward Voltage 正向电压	VF	IF=60mA	--	U.S.L*)x1.1
Reverse Current 反向电流	IR	VR = 5V	--	10uA
Luminous Flux 光通量	Im	IF=60mA	L.S.L*)x0.7	--

U.S.L: Upper Specification Limit 规格上限

L.S.L: Lower Specification Limit 规格下限

\*The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.

数据工作表中所示的技术信息仅限于典型特征和电路实例引用的产品。它既不构成工业特性的保证，也不构成任何许可的授权



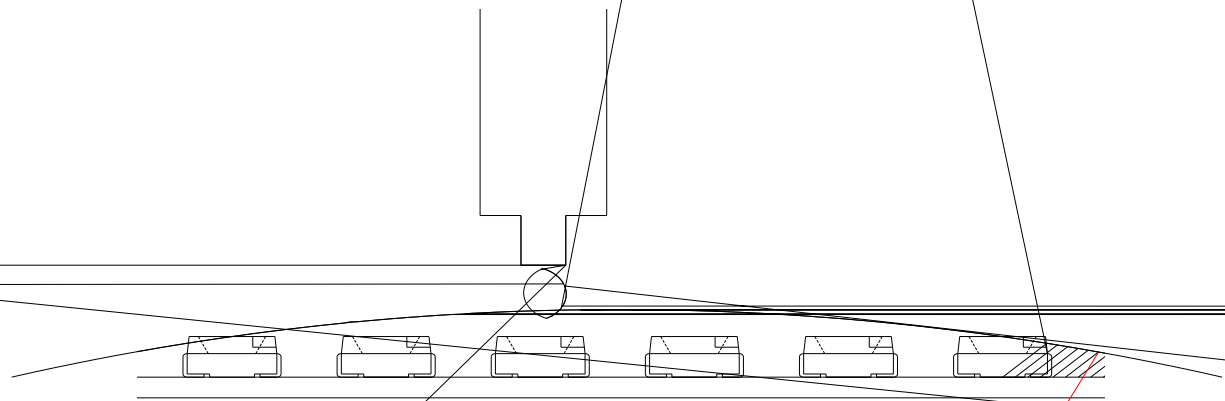
1. Handle the component along the  
touch or Handle the silicone lens  
通过使用适当的工具从材料侧面夹取，

5.LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating usage material.

LED工作环境及与LED适配的材料中硫元素及化合物成份不可超过100PPM

6.When we need to use external glue for LED application products, please make sure that the external glue matches the LED packaging glue. Additionally ,as most of LED packaging glue is silica gel, and it has strong Oxygen permeability as well as strong moisture permeability; in order to prevent external material from getting into the inside of LED, which may cause the malfunction of LED, the single content of Bromine element is required to be less than 900PPM,the single content of Chlorine element is required to be less than 900PPM,the total content of Bromine element and Chlorine element in the external glue of the application products is required to be less than 1500PPM

当我们需要使用外封胶涂抹LED产品时，应确保外封胶与LED封装胶水相匹配，因为大多数LED的封装胶水为硅胶，它有较强的氧化性和较强的吸湿性，必须防止外封材质进入LED内部以造成LED的损伤，单一的溴元素含量要求小于900PPM，单一氯元素含量要求小于900PPM，在涂抹LED产品时要求外封胶溴元素与氯元素总含量必须小于1500PPM



7.Other points for attention, please refer to our LED user manual.

其它注意事项请参照我们的LED使用手册

