

DATA SHEET 数据表

Revise History 修订记录

Rev.版本	Descriptions描述	Date日期	Page页
1.0	-	23-10-2009	-
2.0	Renew form续订表格	15-12-2015	-
2.1	Renew form续订表格	10-11-2018	-
2.2	Renew form续订表格	27-12-2021	-
-	-	-	-
-	-	-	-



Contains trade secret information which is the property of hinchytek and shall not be made available to, or copied or used by anyone outside hinchytek without its written authorization. Copyright © 2021 hinchytek Optoelectronics Co., Ltd. All rights reserved.

包含属于高欣奇光电财产的商业秘密信息，未经高欣奇光电书面授权，不得向高欣奇光电以外的任何人提供、复制或使⽤。版权所有©2021高欣奇光电有限公司保留所有权利。

Features 特征

- Long operating life. 使用寿命长.
- Low Power Consumption. 低功耗.
- Wide Viewing Angle. 宽视角.
- Low voltage DC operated. 低压直流工作.
- RoHS Compliant. 符合 RoHS.
- Moisture sensitivity level: 3. 湿度敏感性等级:3.



Application 应用

- Backlight, Status indicator, Home and smart appliances, Wearable and portable devices, Healthcare applications
背光, 状态指示器, 家用和智能电器, 可穿戴和便携式设备, 医疗保健应用

Part Number 产品型号	Dice Material 芯片材质	Emitted Color 发光颜色	Dominant Wavelength λ_d (nm) 波长	Luminous Intensity IV(mcd) 亮度	Forward Voltage VF(V) 电压	Lens Color 胶体形态	Viewing Angle 2 θ 1/2 (deg) 发光角度
			IF=20mA				
GC12069Z2RCF-122-0Z0H	AlGaInP	Red 红	616-628	70-190	1.7-2.4	Water Clear 水色透明	130
GC12069Z2HRCF-122-0Z0H		Hyper Red 深红	629-635	70-150	1.7-2.4		
GC12069Z2DRCF-122-0Z0H		Dark Red 暗红	639-645	10-70	1.7-2.4		
GC12069Z2OCF-122-0Z0H		Orange 橙	600-610	70-190	1.7-2.4		
GC12069Z2YCF-122-0Z0H		Yellow 黄	586-595	70-190	1.7-2.4		
GC12069Z2YGCF-122-0Z0H		Yellow Green 黄绿	566-575	10-70	1.7-2.4		
GC12069Z2GCF-132-0S0H	InGaN	Pure Green 纯绿	516-534	400-1200	2.6-3.4		
GC12069Z2BCF-132-0S0H		Blue 蓝	460-475	70-190	2.7-3.4		

Absolute Maximum Ratings 绝对最大额定值 (Ta=25°C)

Parameter 参数	Symbol 符号	Max. 最大值								Unit 单位
		R	HR	DR	O	Y	YG	G	B	
Power Dissipation 消耗功率	Pd	60	60	60	60	60	60	85	85	mW
Peak Forward Current*1 脉冲峰值电流	IFP	60								mA
Forward Current 正向电流	IF	25								mA
Reverse Current 反向电流	IR	10								uA
Reverse Voltage 反向电压	VR	5								V
Operating Temperature Range 工作温度	Topr	-30to+85								°C
Storage Temperature Range 贮存温度	Tstg	-40to+90								°C
Reflow Soldering 回流焊	Tsld	260°C for 5 secs								

Notes 备注:

1. Duty Factor=10%, Frequency=1kHz. 占空因数=10%, 频率=1kHz.

Electro-Optical Characteristics 电光参数(Ta=25°C)

Bin Range Of Forward Voltage 正向电压等级(Unit:V@20mA 单位:V@20mA)

Part Number产品型号	Color 颜色	V1	V2	V3	V4	V5	V6	V7
GC12069Z2RCF-122-0Z0H	■ R	1.7-1.8	1.8-1.9	1.9-2.0	2.0-2.1	2.1-2.2	2.2-2.3	2.3-2.4
GC12069Z2HRCF-122-0Z0H	■ HR	1.7-1.8	1.8-1.9	1.9-2.0	2.0-2.1	2.1-2.2	2.2-2.3	2.3-2.4
GC12069Z2DRCF-122-0Z0H	■ DR	1.7-1.8	1.8-1.9	1.9-2.0	2.0-2.1	2.1-2.2	2.2-2.3	2.3-2.4
GC12069Z2OCF-122-0Z0H	■ O	1.7-1.8	1.8-1.9	1.9-2.0	2.0-2.1	2.1-2.2	2.2-2.3	2.3-2.4
GC12069Z2YCF-122-0Z0H	■ Y	1.7-1.8	1.8-1.9	1.9-2.0	2.0-2.1	2.1-2.2	2.2-2.3	2.3-2.4
GC12069Z2YGCF-122-0Z0H	■ YG	1.7-1.8	1.8-1.9	1.9-2.0	2.0-2.1	2.1-2.2	2.2-2.3	2.3-2.4
GC12069Z2GCF-132-0S0H	■ G	2.6-2.7	2.7-2.8	2.8-2.9	2.9-3.0	3.0-3.1	3.1-3.2	3.2-3.4
GC12069Z2BCF-132-0S0H	■ B	2.7-2.8	2.8-2.9	2.9-3.0	3.0-3.1	3.1-3.2	3.2-3.3	3.3-3.4

Bin Range Of Luminous Intensity 亮度等级(Unit:mcd@20mA 单位:mcd@20mA)

Part Number产品型号	Color 颜色	L1	L2	L3	L4	L5
GC12069Z2RCF-122-0Z0H	■ R	70-110	110-150	150-190	-	-
GC12069Z2HRCF-122-0Z0H	■ HR	70-110	110-150	-	-	-
GC12069Z2DRCF-122-0Z0H	■ DR	10-30	30-50	50-70	-	-
GC12069Z2OCF-122-0Z0H	■ O	70-110	110-150	150-190	-	-
GC12069Z2YCF-122-0Z0H	■ Y	70-110	110-150	150-190	-	-
GC12069Z2YGCF-122-0Z0H	■ YG	10-30	30-50	50-70	-	-
GC12069Z2GCF-132-0S0H	■ G	400-600	600-800	800-1000	1000-1200	-
GC12069Z2BCF-132-0S0H	■ B	70-110	110-150	150-190	-	-

Bin Range Of Wavelength 波长等级(Unit:nm@20mA 单位:nm@20mA)

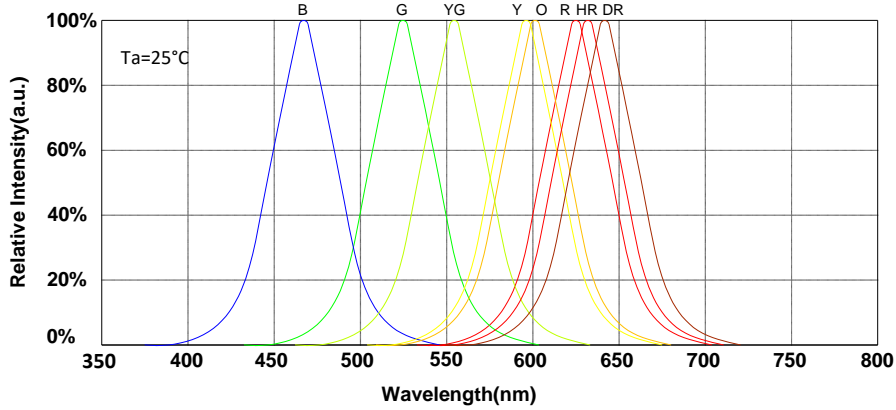
Part Number产品型号	Color 颜色	W1	W2	W3	W4	W5	W6
GC12069Z2RCF-122-0Z0H	■ R	616-619	619-622	622-625	625-628	-	-
GC12069Z2HRCF-122-0Z0H	■ HR	629-632	632-635	-	-	-	-
GC12069Z2DRCF-122-0Z0H	■ DR	639-642	642-645	-	-	-	-
GC12069Z2OCF-122-0Z0H	■ O	600-602	602-604	604-606	606-608	608-610	-
GC12069Z2YCF-122-0Z0H	■ Y	586-589	589-592	592-595	-	-	-
GC12069Z2YGCF-122-0Z0H	■ YG	566-569	569-572	572-575	-	-	-
GC12069Z2GCF-132-0S0H	■ G	516-519	519-522	522-525	525-528	528-531	531-534
GC12069Z2BCF-132-0S0H	■ B	460-463	463-466	466-469	469-472	472-475	-

Notes备注:

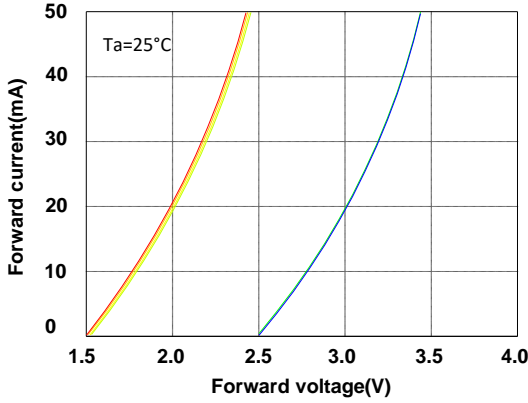
- Luminous Intensity measurement tolerance: $\pm 10\%$. 亮度测量公差: $\pm 10\%$.
- Wavelength measurement tolerance: $\pm 1\text{nm}$. 波长测量公差: $\pm 1\text{nm}$.
- Forward voltage measurement tolerance: $\pm 0.1\text{V}$. 电压测量公差: $\pm 0.1\text{V}$.

Optical & Electrical Characteristics Curves 光电特性曲线

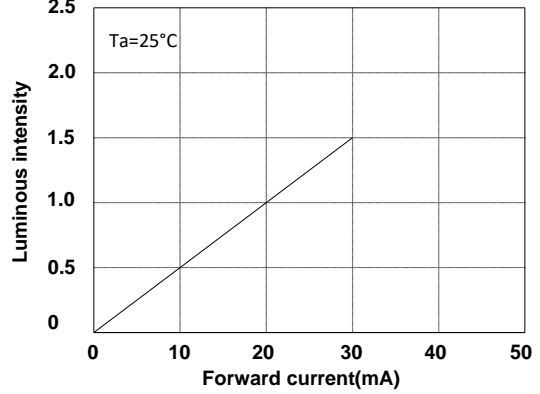
Relative Intensity vs.Wavelength



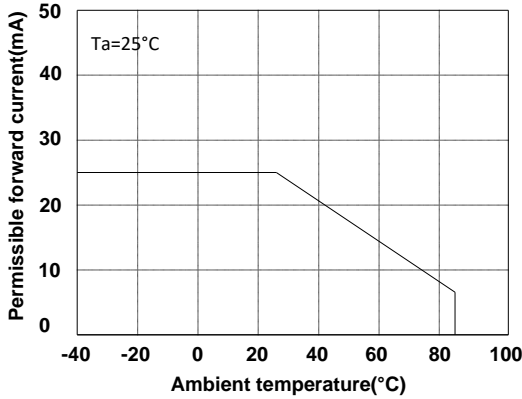
Forward Current vs.Forward Voltage



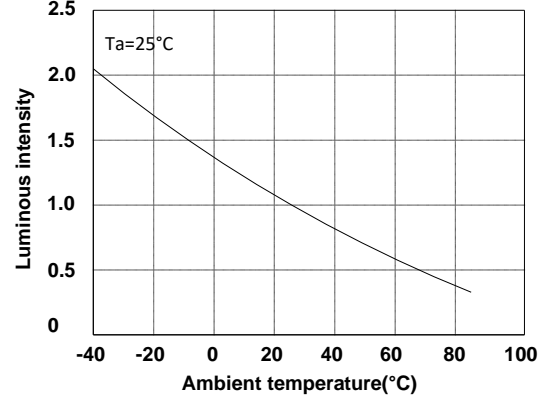
Luminous Intensity vs. Forward Current



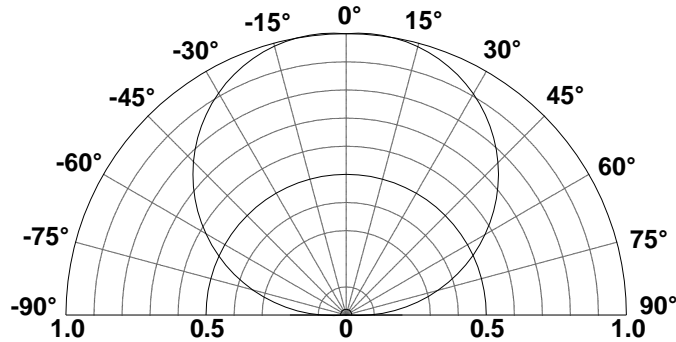
Forward Current Derating Curve



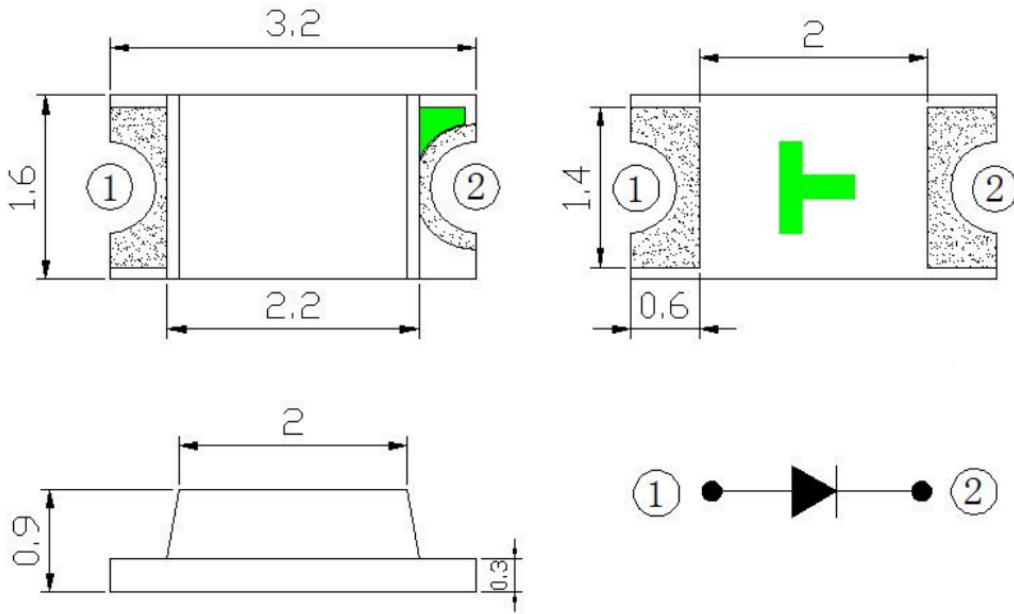
Luminous Intensity vs. Ambient Temperature



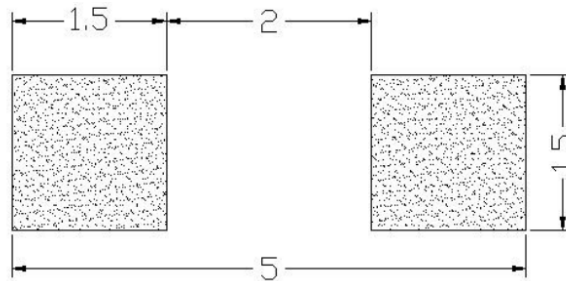
Spatial Distribution



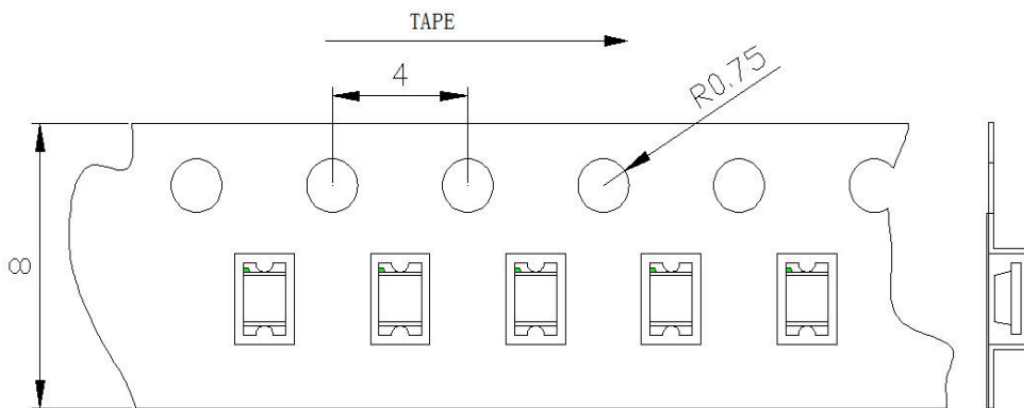
Package Dimension 封装尺寸 (Unit:mm,Tolerance: $\pm 0.20\text{mm}$ 单位:mm,公差: $\pm 0.20\text{mm}$)



Recommended Soldering Pad Design 推荐焊盘设计 (Unit:mm,Tolerance: $\pm 0.10\text{mm}$ 单位:mm,公差: $\pm 0.10\text{mm}$)

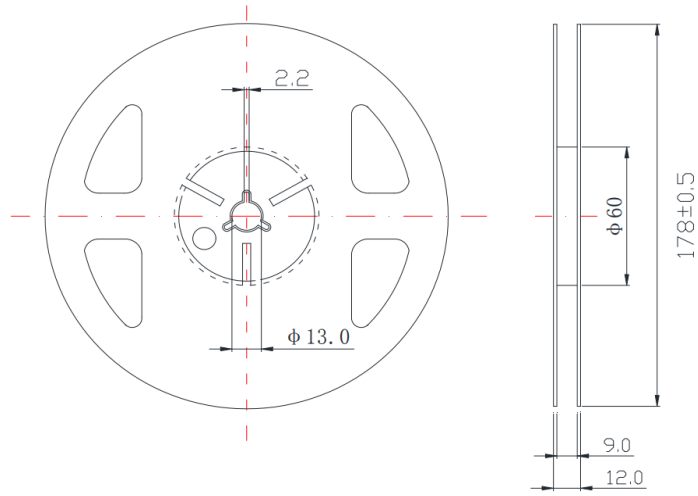


Carrier Tape Dimensions 载带尺寸 (Unit:mm,Tolerance: $\pm 0.10\text{mm}$ 单位:mm,公差: $\pm 0.10\text{mm}$)

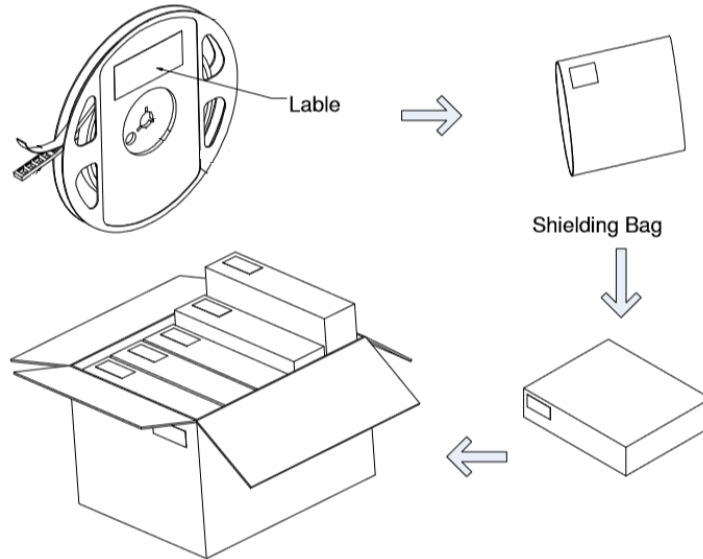


●Loaded quantity 3000 pcs per reel. 每个卷轴装载3000个。

Reel Dimensions 卷轴尺寸 (Unit:mm,Tolerance: ±0.25mm单位:mm,公差:±0.25mm)



Packaging method 包装方法



Label Style 包装样式



SMT Reflow Soldering Instructions 回流焊说明

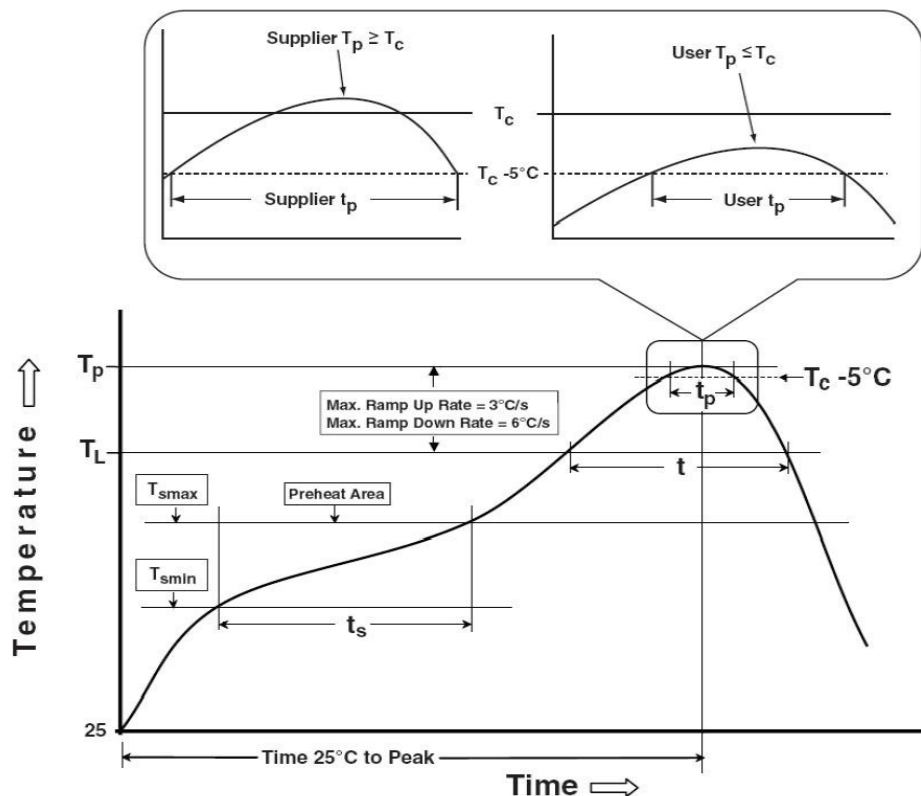
Profile Feature 配置文件特征	Sn-Pb Eutectic Assembly Sn-Pb 共晶组件	Pb-Free Assembly 无铅组件
Preheat & Soak 预热和浸泡	100°C	150°C
Temperature min (T _{smin})最低温度	150°C	200°C
Temperature max (T _{smax})最高温度	60-120 seconds 秒	60-120 seconds 秒
Time (T _{smin} to T _{smax}) (t _s)时间	-	-
Average ramp-up rate (T _{smax} to T _p)平均上升速率	3°C/second max 秒,最大	3°C/second max 秒,最大
Liquidous temperature (T _L)液体温度	183°C	217°C
Time at liquidous (t _L)流动时间	60-150 seconds 秒	60-150 seconds 秒
Peak temperature (T _p)*峰值温度	230°C ~235°C	255°C ~260°C
Classification temperature (T _c)分级温度	235°C	260°C
Time (t _p) within 5°C of the specified Classification temperature (T _c) 指定分级温度(T _c)5°C 范围内的时间(t _p)	20 seconds 秒	30 seconds 秒
Average ramp-down rate (T _p to T _{smax}) 平均下降速率	6°C/second max 秒,最大	6°C/second max 秒,最大
Time 25°C to peak temperature 25°C 至峰值温度时间	8 minutes max 分钟,最大	8 minutes max 分钟,最大

1.Tolerance for peak temperature (T_p) is defined as a supplier minimum and a user maximum.

峰值温度 (T_p) 的公差定义为供应商最小值 and 用户最大值。

2.Tolerance for time at peak temperature (t_p) is defined as a supplier minimum and a user maximum.

峰值轮廓温度下的时间公差 (t_p) 定义为供应商最小值 and 用户最大值。



Precautions 注意事项

1. Storage 储存:

- Moisture proof and anti-electrostatic package with moisture absorbent material is used, to keep moisture to a minimum.

防潮防静电包装采用吸湿材料,使水分保持在最低限度.

- Before opening the package, the product should be kept at 30°C or less and humidity less than 60% RH, and be used within a year. 打开包装前,产品应保持在 30°C 或以下,湿度小于 60%RH,并在一年内使用.

- After opening the package, the product should be stored at 30°C or less and humidity less than 10%RH. It is recommended that the product be operated at the workshop condition of 30°C or less and humidity less than 60%RH.

打开包装后,产品应储存在 30°C 或以下,湿度小于 10%RH 的环境中.建议在 30°C 及以下,湿度低于 60%RH 的车间条件下操作。

- If the moisture absorbent material has faded away or the LEDs have exceeded the storage time, baking treatment should be performed based on the following condition: (70±5) °C for 24 hours.

如果吸湿材料已经褪色或 LED 已经超过储存时间,则应根据以下条件进行烘烤处理: (70±5) °C,持续 24 小时.

2. Static Electricity 静电:

- Static electricity or surge voltage damages the LEDs. Damaged LEDs will show some unusual characteristic such as the forward voltage becomes lower, or the LEDs do not light at the low current. All devices, equipment and machinery must be properly grounded. At the same time, it is recommended that wrist bands or anti-electrostatic gloves, anti-electrostatic containers be used when dealing with the LEDs.

静电或浪涌电压会损坏 LED,损坏的 LED 将显示一些不寻常的特性,例如正向电压变低,或者 LED 在低电流下不亮.所有装置、设备和机械必须正确接地.同时,建议在处理 LED 时使用腕带或防静电手套、防静电容器.

3. Vulcanization 硫化:

- LED curing is due to sulfur being in bracket and the +1 price of silver in the chemical reaction generated Ag₂S in the process. It will lead to the capacity of reflecting of silver layer reducing, light color temperature drift and serious decline, seriously affecting the performance of the product. So we should take corresponding measures to avoid vulcanization, such as to avoid using sulphur volatile substances and keeping away from high sulphur content of the material.

LED 固化是由于硫的存在,在化学反应中生成 Ag₂S,导致银层的反射能力下降,光色温漂移和严重性能下降.因此,我们应该采取相应的措施避免硫化,比如避免使用挥发性硫化物,远离高硫含量的材料.

4. Handling Precautions 搬运注意事项:

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

使用钳子或适当的工具沿着侧面处理部件.

- Do not directly touch or handle the epoxy resin lens surface. It may damage the internal circuitry.

请勿直接触摸或处理环氧树脂镜片表面,它可能会损坏内部电路.

- Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the epoxy resin lens or damage the internal circuitry.

不要将组装好的含有暴露LED的PCB堆叠在一起,撞击可能划伤环氧树脂透镜或损坏内部电路.