SPECIFICATION

产品规格书

NO.(编号）： NCYM-DS-060

Customer(客户）：

Part No.(型号）： 5050RGBW02-30H02-UT16-WF01

Description(描述）： 5050RGB/W

Model(说明）： 5050RGB /W LED

Version(版本）： R&D SPEC

CUSTOMER APPEROVED (客户审核）	APPROVED （核准）	ISSUED （制定）
	朱磊	杨攀

Shineon (Nanchang)Technology CO.,LTD

RoHS Compliant

The RGBW 5050 package has high luminous intensity output, low power consumption, wide viewing angle and a compact form factor. These features make this package an ideal LED for a broad range of lighting applications
此款5050RGBW 产品具有高亮度，低功耗，发光角度广等一系列特性，这些特性使其成为照明应用的首选。

The White small Power LED is available in the range of color temperature from2700 K-6500K.
此款白光小功率LED色温2700K-6500K。

FEATURES/特点

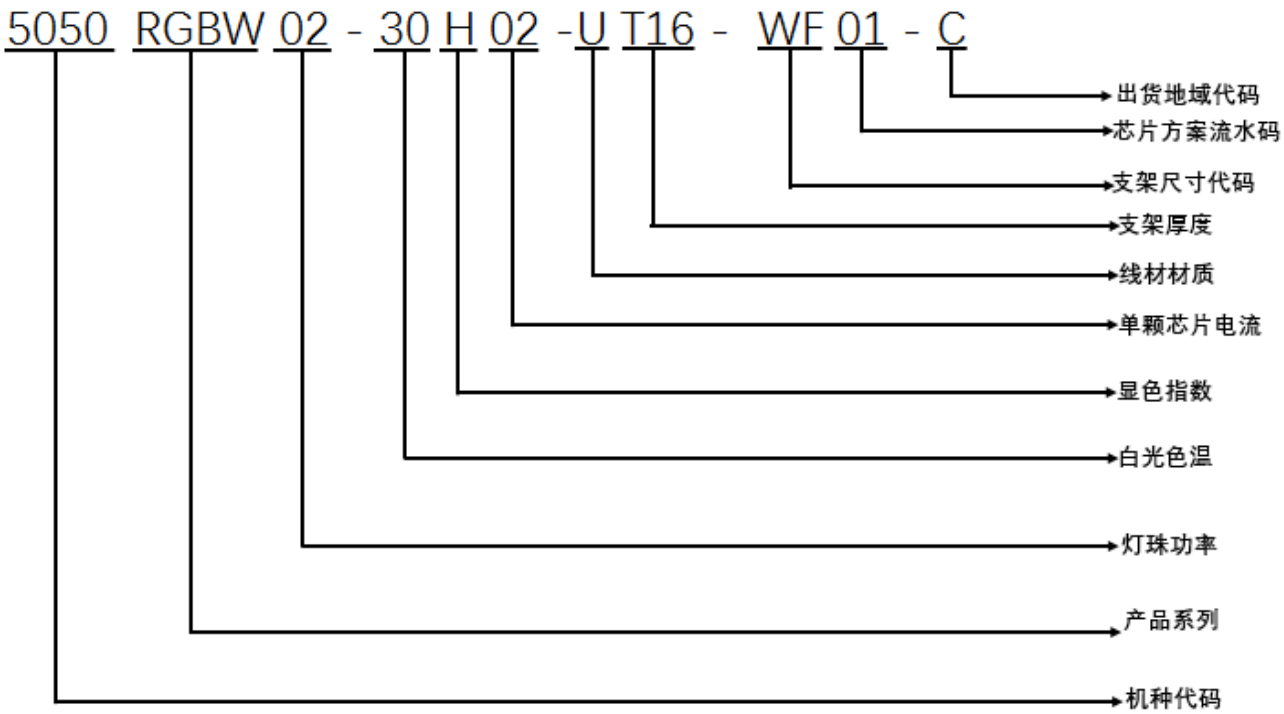
- Available in, Neutral White and Warm White color
  颜色包括中性白和暖白
- ANSI-compatible chromaticity bins
  符合美标ANSI色坐标分BIN
- High luminous Intensity and high efficiency
  高亮度、高光效
- Compatible with reflow soldering process
  匹配回流焊制程
- Low thermal resistance/热阻低
- Long operation life/寿命长
- Wide viewing angle at 120°
  120° 大发光角度
- Silicone encapsulation/硅胶封装
- Environmental friendly, RoHS compliance
  材质环保，符合RoHS要求
- Qualified according to JEDEC moisture sensitivity Level 4/符合JEDEC湿度敏感等级4

APPLICATIONS

- Indicators /指示灯
- Illumination /灯彩装饰
- Decorative and Entertainment Lighting /装饰和娱乐照明
- Decorative and landscape lighting
  装饰和景观照明
- Signage and channel letter
  标识和发光字
- Decorating and entertainment lighting
  装修和娱乐照明
- Architectural lighting
  建筑照明

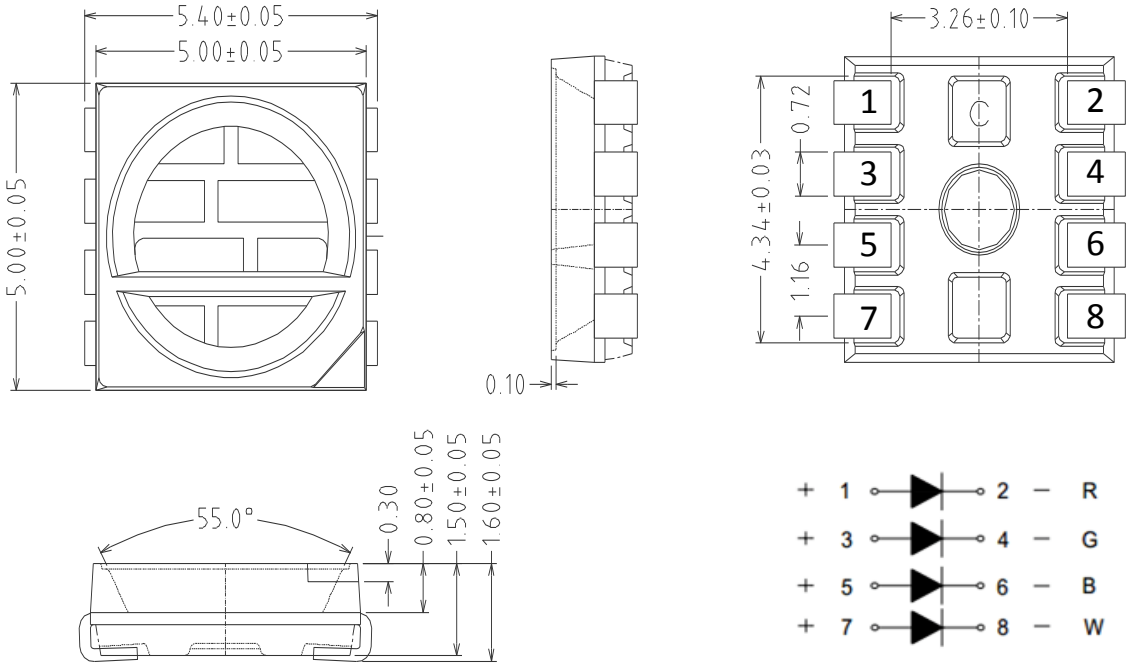
Note: The information in this document is subject to change without notice.
注:本文件内的资料如有更改，恕不另行通知。

PRODUCT NAMING SPECIFICATION 产品命名规范



机种代码 XXXX	5050；3528；5054；3030；2835；
产品系列 XXX	RGB；
灯珠功率 XX	02:0.2W；05:0.5W；10:1.0W；15:1.5W；
白光色温 XX	27K：2700K; 30K：3000K； 35K:3500K；
显色指数 X	L：60—70； N：70—80； H：80—90； V：85-95； S：90—100； E：95—100； F：96-100（全光谱）
单颗芯片电流 XX	02:20mA；03:30mA；06:60mA；10:100mA； 12:120mA；
线材材质 X	U：金线； K：K金线； G：合金线；
支架厚度 XXX	T13:1.3mm；T14:1.4mm；T17:1.75mm；T18:1.85mm； T19:1.9mm；
支架尺寸代码 X	R:2835；T:3030；F:5050；
芯片方案流水码 XX	代表芯片方案
出货地域代码 X	默认C:China；J:Japan；US:America

PACKAGE DIMENSIONS 封装尺寸



Notes/ 注:

1. All dimensions in millimeters.所有尺寸单位为mm
2. Thickness tolerance of copper plate is ±0.02mm. 铜材料片厚度公差为±0.02mm
3. Thickness tolerance of product is ±0.05mm. 产品厚度公差为±0.02mm
4. Tolerance is ±0.1mm unless otherwise noted. 如未特别注明，默认公差为±0.1mm

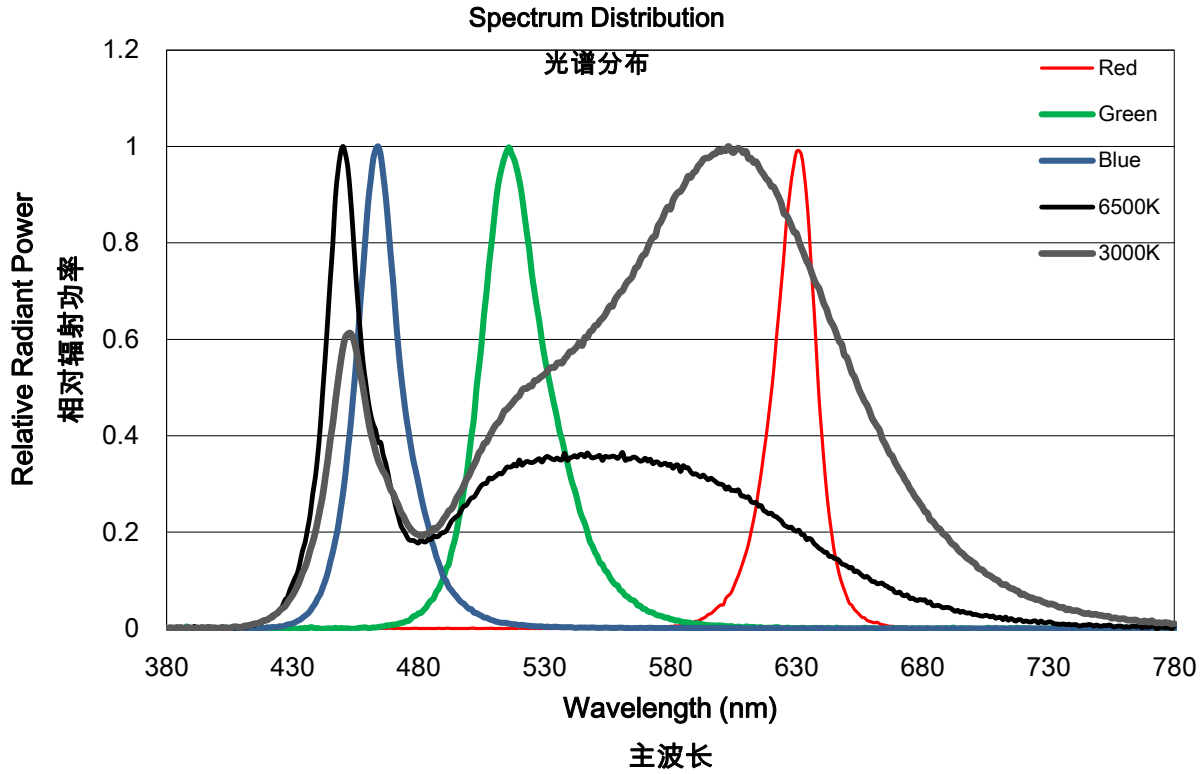
ABSOLUTE MAXIMUM RATINGS 最大限定参数（Ta=25℃）

Parameter 项目名称	Symbol 符号	Absolute Maximum Rating 绝对最大额定值				Unit 单位
		Red 红光	Green绿光	Blue 蓝光	White 白光	
Forward current 正向电流	IF	30	30	30	30	mA
Peak Forward Current 正向脉冲电流	IFP	50	50	50	50	mA
Power Dissipation 消耗功率	Pd	60	100	100	100	mW
Operating Temperature 工作温度	Topr	-30~+80				℃
Storage Temperature 储存温度	Tstg	-40~+85				℃
Soldering Temperature 焊接温度	Tsld	Reflow Soldering: 260℃ for 10 seconds 回流焊：260℃ 10s				
LED Junction Temperature 结温	Tj	110				℃

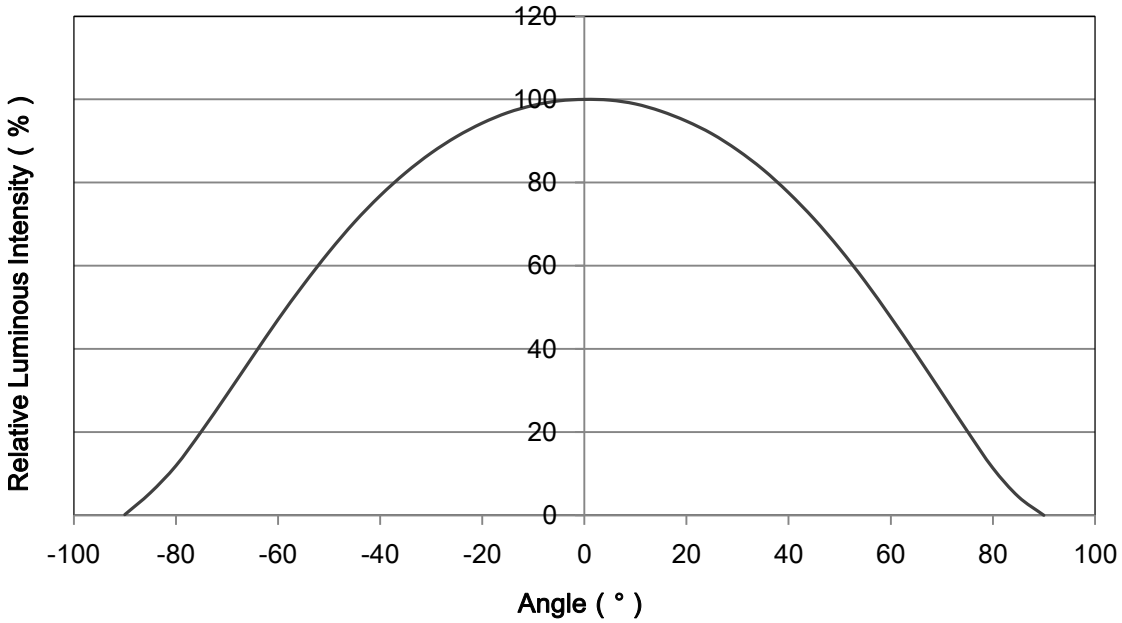
ELECTRO-OPTICAL CHARACTERISTICS 主要光电参数(Ta=25℃)

Parameter 参数	Symbol 符号	Color 颜色	Min 最小值	Typ 典型值	Max 最大值	Unit 单位	Coondition 条件
Forward Voltage/正向电压	VF	Red 红光	1.9	----	2.3	V	IF=20mA
		Green 绿光	2.7	----	3.1	V	IF=20mA
		Blue 蓝光	2.7	----	3.1	V	IF=20mA
		White 白光	2.6	----	3.0	lm	IF=20mA
Luminous Flux/光通量	Φ	Red 红光	2.0	----	3.0	lm	IF=20mA
		Green 绿光	5.0	----	8.0		IF=20mA
		Blue 蓝光	1.2	----	2.0		IF=20mA
		White 白光	6.0	----	12.0		IF=20mA
Dominate Wavelength/主波长	WD	Red 红光	619	----	630	nm	IF=20mA
		Green 绿光	515	----	525		IF=20mA
		Blue 蓝光	460	----	470		IF=20mA
Color Tempeerature/色温	Tc	White 正白	2700	----	6500	K	IF=20mA
Color rendering Index/显色指数	Ra	----	----	80	----	----	IF=20mA
Viewing Angle/发光角度	2θ1/2	----	----	120	----	deg	IF=20mA
Reverse Current/ 反向电流	Ir	Red 红光	0	----	1.0	uA	Vr=-10V
		Green绿光	0	----	1.0	uA	Vr=-13V
		Blue 蓝光	0	----	1.0	uA	Vr=-13V
		White白光	0	--	1.0	uA	Vr=-5V

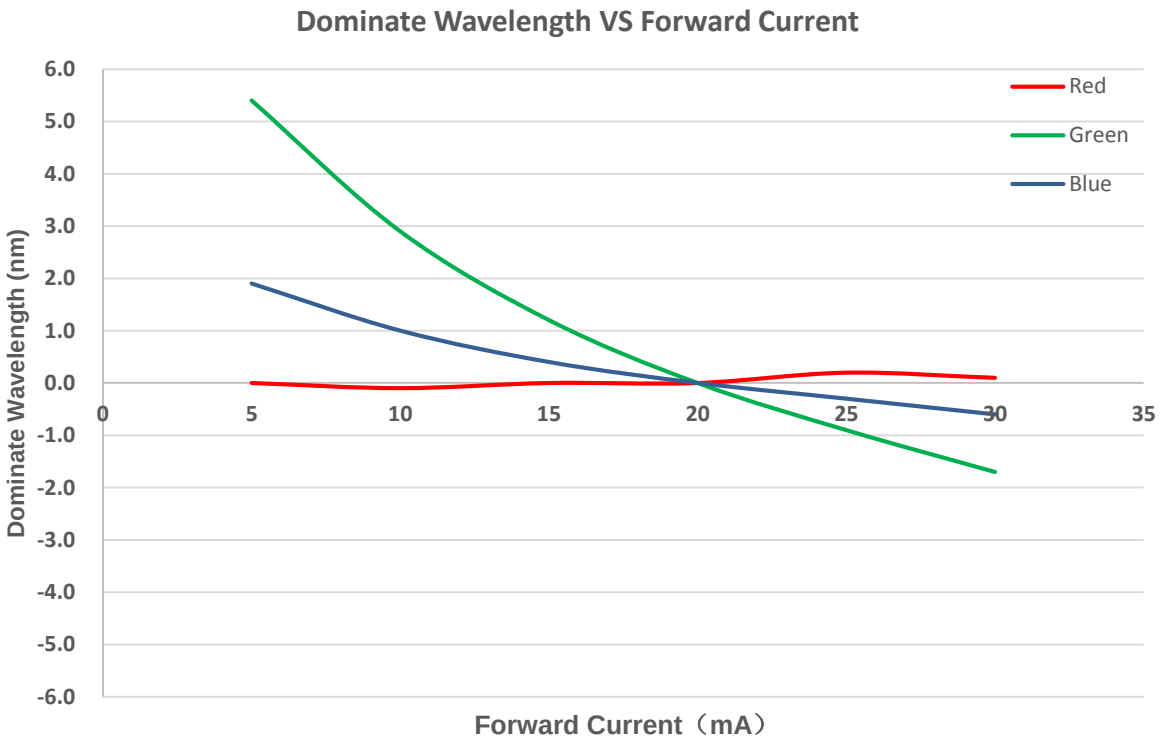
RELATIVE SPECTRAL POWER DISTRIBUTION 相对光谱功率分布(T_j=25℃)



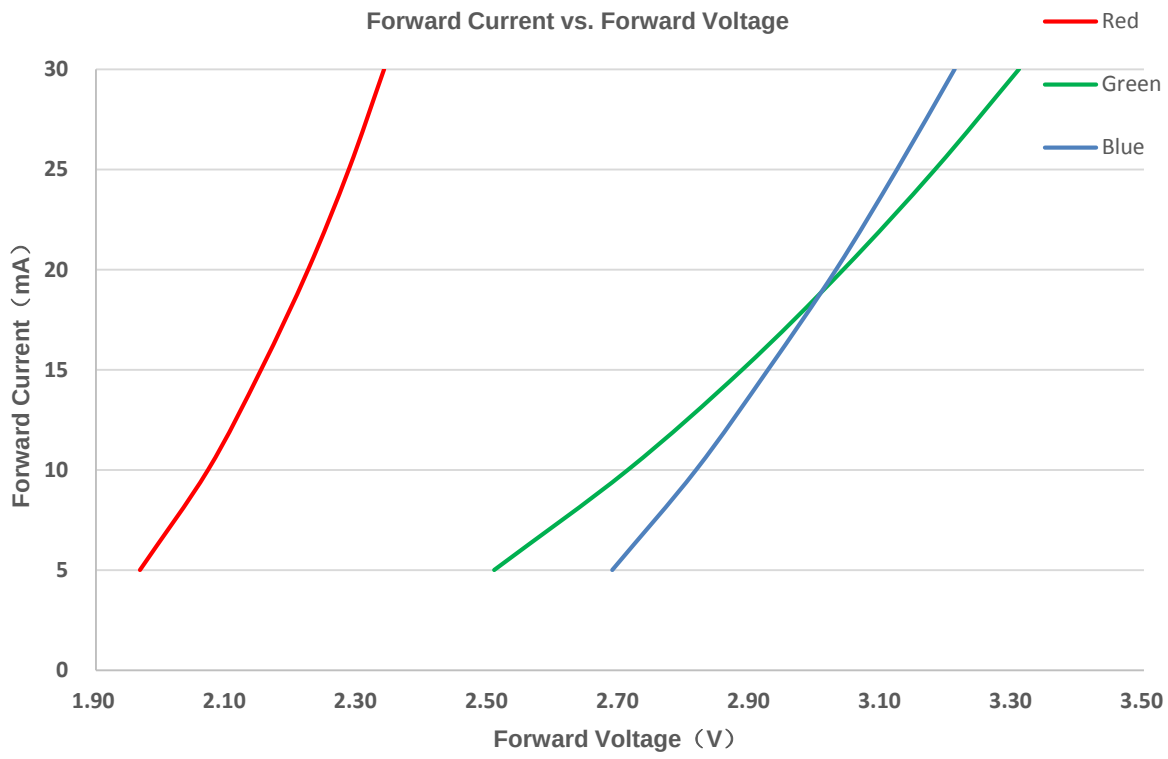
TYPICAL SPATIAL DISTRIBUTION 典型配光分布



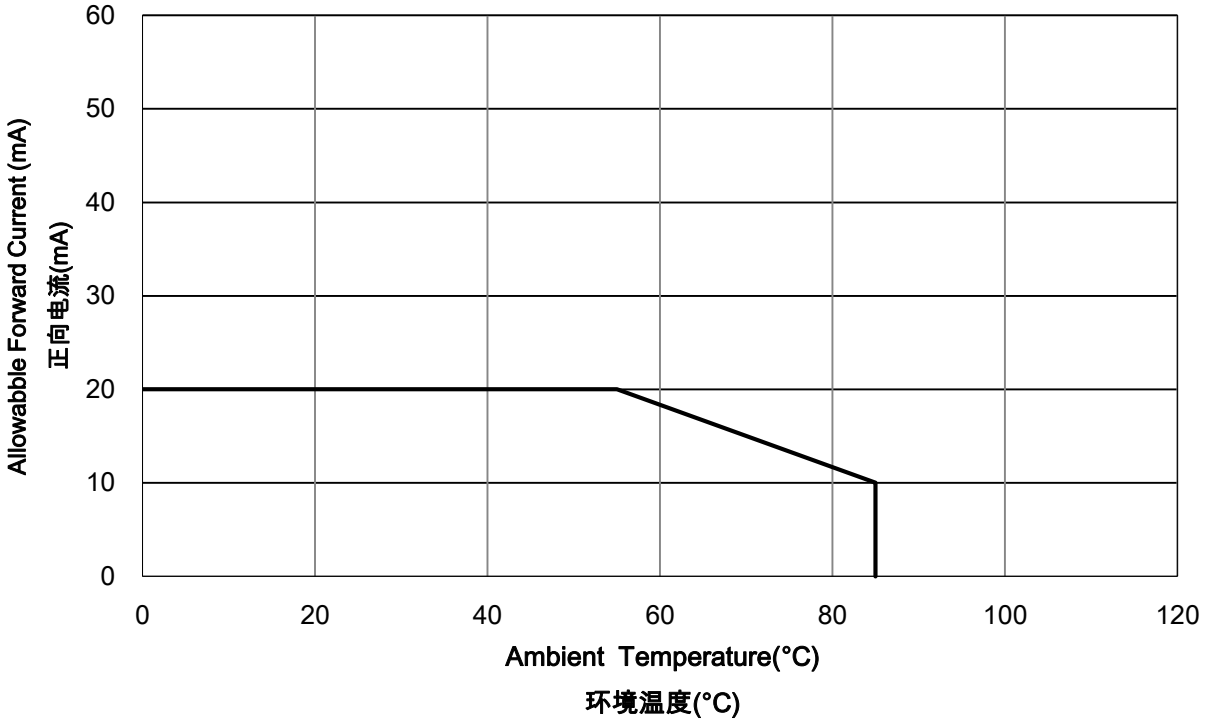
RELATIVE LUMINOUS FLUX VS. CURRENT (T_j=25℃)



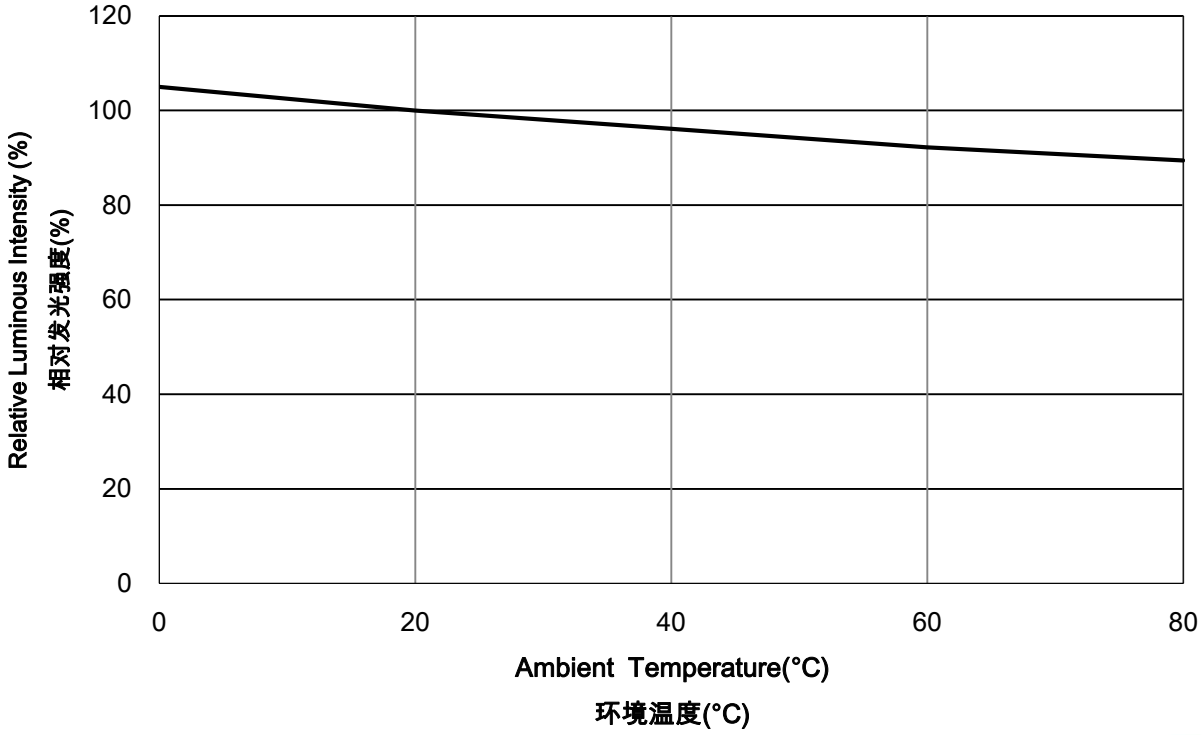
ELECTRICAL CHARACTERISTICS (Tj=25℃)



MAXIUM CURRENT VS. AMBIENT TEMPERATURE



RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE



SORTING RANKS 分光等级

(1) Bin Range of Luminous Intensity / 光强及光通量 (Tj=25℃)

Red 红光			Green 绿光			Blue 蓝光			White 白光		
Bin Code	Min 最小值	Max 最大值	Bin Code	Min 最小值	Max 最大值	Bin Code	Min 最小值	Max 最大值	Bin Code	Min 最小值	Max 最大值
EB	2.0	3.0	LC	7.0	8.0	EA	1.0	2.0	LG	7.0	10.0

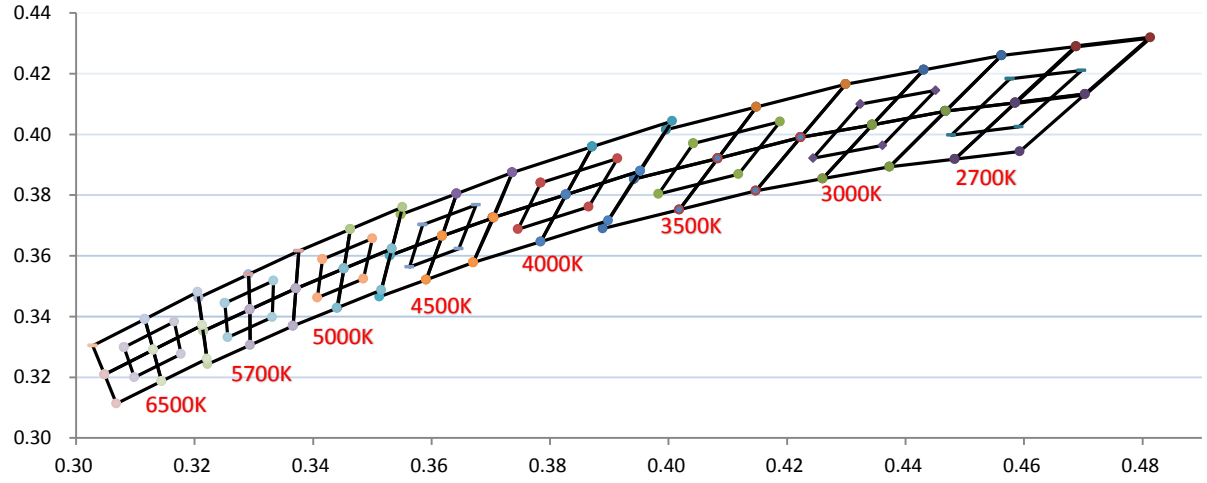
(2) Bin range of Dominate Wavelength 主波长划分(Tj=25℃)

Red(nm) 红光(波长)			Green(nm) 绿光(波长)			Blue(nm) 蓝光(波长)			White(K) 白光(色温)	
Bin Code	Min 最小值	Max 最大值	Bin Code	Min 最小值	Max 最大值	Bin Code	Min 最小值	Max 最大值	Min 最小值	Max 最大值
R617	617.5	620.0	G517	515	520	B462	462.5	465.0	2700K	6500K
R620	620.0	622.5	G520	520	525	B465	465.0	467.5		

(3) Bin range of Forward Voltage 电压Bin

Color 颜色	Bin Code 代码	Min 最小值	Max 最大值	Color 颜色	Bin Code 代码	Min 最小值	Max 最大值	Color 颜色	Bin Code 代码	Min 最小值	Max 最大值	Color 颜色	Bin Code 代码	Min 最小值	Max 最大值
Red 红光	A0	1.9	2.0	Green 绿光	A7	2.7	2.8	Blue 蓝光	A7	2.7	2.8	White 白光	A6	2.6	2.7
	A1	2.0	2.1		A8	2.8	2.9		A8	2.8	2.9		A7	2.7	2.8
	A2	2.1	2.2		A9	2.9	3.0		A9	2.9	3.0		A8	2.8	2.9
	A3	2.2	2.3		B0	3.0	3.1		B0	3.0	3.1		A9	2.9	3.0

(4) Color Coordinates Rank 色区等级



Notes 注 :

1. 5% tolerance for luminous intensity may be caused by measurement inaccuracy.
   光通量测量精度误差± 5%
2. Measurement Uncertainty of the Forward Voltage : ± 3%
   正向电压测量误差:± 3%

REFLOW SOLDERING CHARACTERISTICS 回流焊特性

For Reflow Process 回流焊制程:

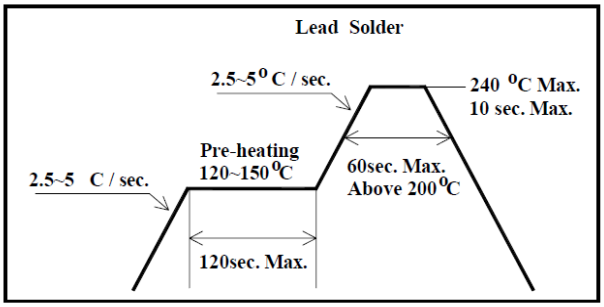
Preheating预热 : 140℃~160℃±5℃,within 2 minutes. 2分钟

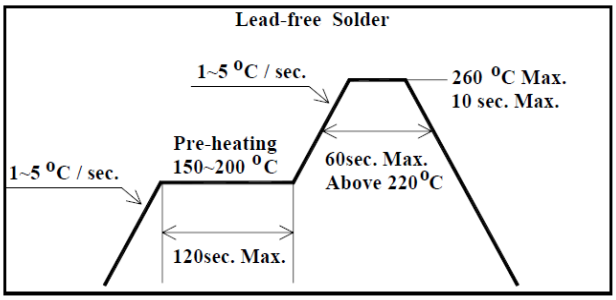
Operation heating作业加热 : 260℃(Max.) within 10 seconds.(Max)

260℃(最高) within 10 seconds.(最长)

Gradual Cooling (Avoid quenching).逐渐冷却(避免淬火)

Lead solder 有铅焊接		Lead-free solder 无铅焊接	
Pre-heat 预热	120-150℃	Pre-heat 预热	150-200℃
Pre-heat time 预热实际那	120 sec.Max.	Pre-heat time 预热实际那	120 sec.Max.
Peak Temperature 峰值温度	240℃ Max.	Peak Temperature 峰值温度	260℃ Max.
Soldering time condition 回流焊时间	10 sec.Max.	Soldering time condition 回流焊时间	10 sec.Max.



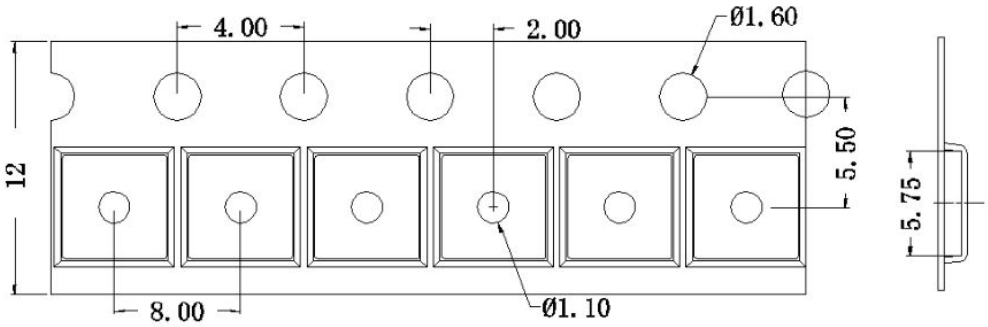


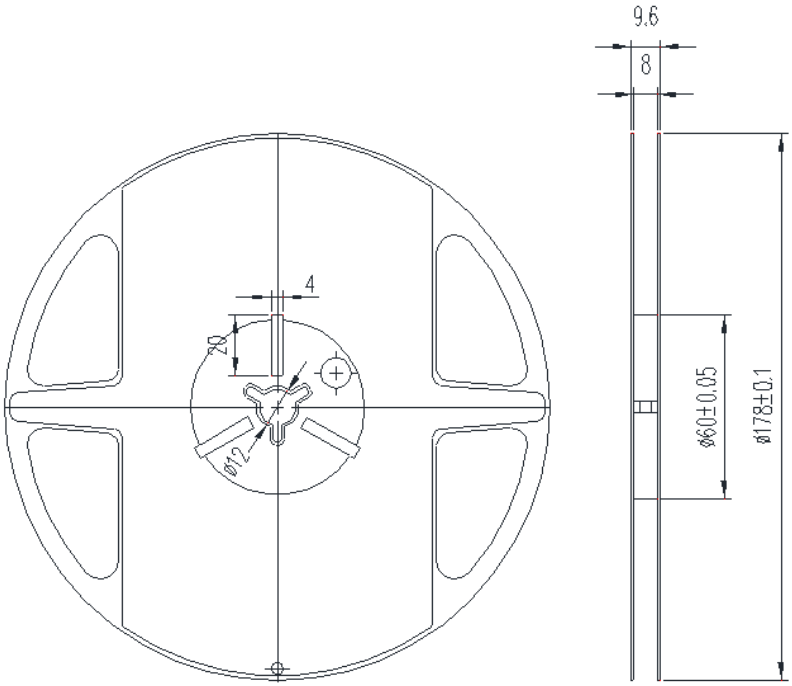
Notes注:

The encapsulated material of the LEDs is silicone . Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when using the picking up nozzle, the pressure on the silicone resin should be proper.

由于LED的封装材料是硅胶，led封装顶部表面是柔软的，顶部表面的压力会影响led的可靠性。应采取预防措施，以避免密封部件受到强大的压力。因此，在使用吸嘴时，应使硅胶表面的压力适中。

TAPE AND REEL 编带





Note: The tolerances unless mentioned is ±0.1mm, Unit=mm

Notes注:

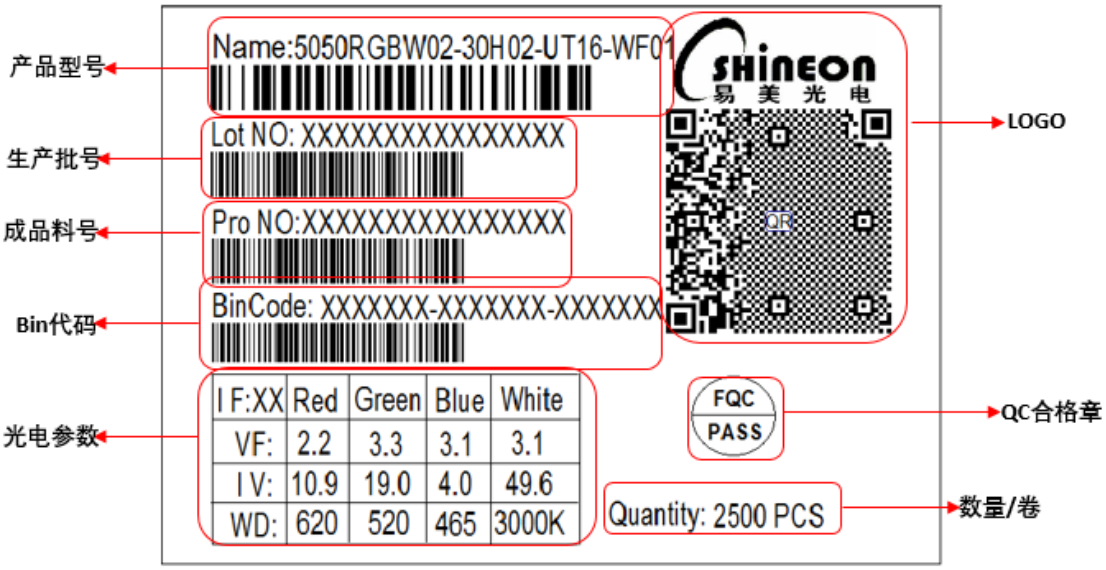
(1) Quantity : 2000pcs/Reel
数量：2000pcs/卷

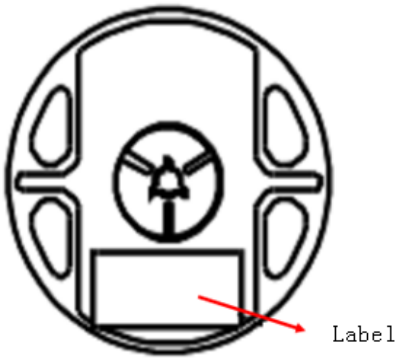
(2) Cumulative Tolerance : Cumulative Tolerance/10 pitches to be ±0.2mm
累积公差:累积公差/10间距 ±0.2毫米

(3) Adhesion Strength of Cover Tape : Adhesion strength to be 0.1-0.7N when the cover tape is turned off from the carrier tape at the angle of 10 ºto the carrier tape
盖带粘附强度:盖带反向拉，与载带角度为10°，拉力为0.1-0.7N

(4) Package : P/N, Manufacturing data Code No. and quantity to be indicated on a damp proof Package.
包装 :品名，生产数据代码和数量须在防潮包装上注明

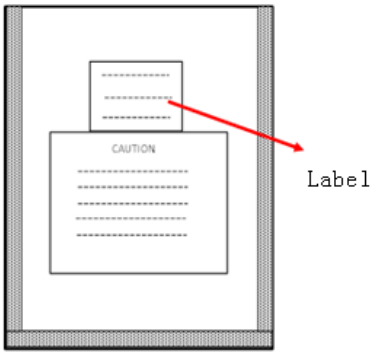
PACKAGING 包装





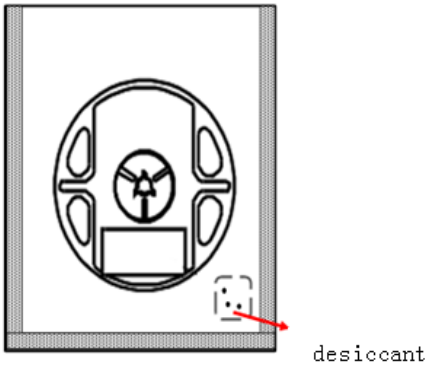
REEL

卷盘

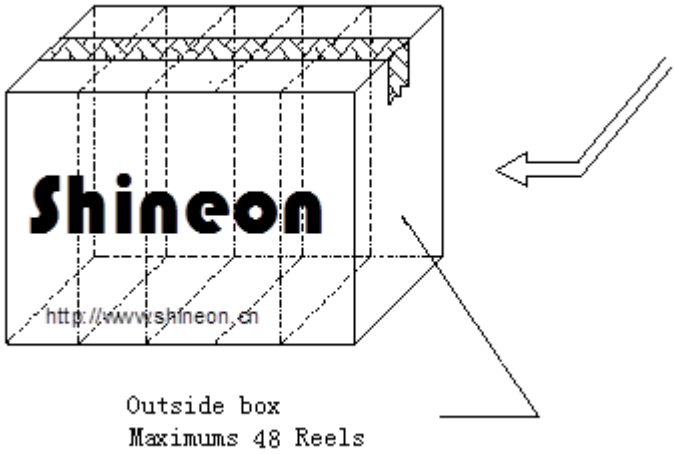


moisture-proof bag

防潮袋



干燥包



Outside box
Maximums 48 Reels

外箱
最多48卷盘

Reliability Test Items 可靠性测试项目

Test Items 测试项目	Test Duration 测试时长	Number of Damaged 不良数
Steady State Operating Life of High Temperature (HTOL) Ts=85℃, IF=Max 高温点亮稳态老化Ts=85℃, IF=最大值	1000hrs	0/20
Steady State Operating Life of Low Temperature (LTOL) Ta=-40℃, IF=Max 低温点亮稳态老化Ts=85℃, IF=最大值	1000hrs	0/20
Pulse Wet Operating Life of High Temperature (PWHTOL) 高温高湿通断电老化 60℃/90%RH, IF30mins ON/30min OFF	500hrs	0/20
High Temperature Storage (HTS) 高温存储 100℃	1000hrs	0/20
Low Temperature Storage (LTS) 低温存储 -40℃	1000hrs	0/20
Thermal Shock (TS) -45℃~125℃ 15min dwell 20sec transfer 冷热冲击-45℃ 15min~125℃ 15min ，转换时间20秒	100cycles	0/20
Solder Resistance (SR) 265℃, 3X MSL 阻焊测试（3遍潮气敏感度试验后）	5sec	0/20
Solder Ability (SA) 245℃5sec, 95% coverage 可焊性 95%覆盖	5sec	0/11
Mechanical Shock (MS) 1500G 0.5msec pulse shock 机械冲击(MS) 1500G 0.5毫秒脉冲冲击	Each6 axis	0/6
Random Vibration (RV) 随机振动 6G RMS, 10-2000Hz, 10min	Per axis	0/6
Variable Vibration Frequency (VVF) 10-2000-10Hz, log or linear sweep rate, 20G for 1 min, 1.5mm each apply 3x per axis over 变频振动(VVF) 10-2000-10Hz，对数或线性扫频，20G, 1分钟，1.5mm，每轴3遍以上	6hrs	0/6
Salt Spread (SS) 35℃, 30g/m2/day 盐雾试验35℃,30克/平方米/天	48hrs	0/11

Item 项目	Symbol 符号	Test Condition 测试条件	Criteria for Judgment 判定标准	
			Min. 最小	Max. 最大
Forward Voltage 正向电压	Vf	IF=Typical Current 典型电流		U.S.L x1.1
Luminous Flux 光通量	lm	IF=Typical Current 典型电流	L.S.L x0.7	
CCX&CCY X坐标&Y坐标	x,y	IF=Typical Current 典型电流		Shift<0.02 漂移<0.02

PRECAUTION FOR USE 使用注意事项

(1) This device should not be used in any type of fluid such as water, oil, organic solvent, etc. When washing is required, IPA should be used.
本器件不得用于水、油、有机溶剂等任何流体中。如需清洁，请使用异丙醇进行清洗。

(2) When the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.
当LED发光工作时，应根据环境最高温度来确定工作电流。

(3) LEDs must be stored to maintain a clean atmosphere. If the LEDs are stored for 3months or more after being shipped from ShineOn, a sealed container with a nitrogen atmosphere should be used for storage.
LED储存环境须保持清洁。如果LED从易美发货后需储存3个月或更长时间，则应使用氮气柜进行储存。

(4) The LEDs must be used within 72 Hours after opening the moisture proof packing.Repack unused Products with anti-moisture packing, fold to close any opening and then store in a dry place.
LED须在打开防潮包装后72小时内使用。用防潮包装重新包装未使用的产品，折叠以封住开口，然后存放在干燥的地方。

(5) The appearance and specifications of the product may be modified for improvement without notice.
产品外观及规格如有改进，恕不另行通知。

(6) This LED is sensitive to the static electricity and surge. It is recommended to use a wrist Band or anti-electrostatic glove when handling the LEDs.
LED对静电和浪涌很敏感。在处理LED时，建议使用防静电腕带或防静电手套。

(7) On manual soldering, a solder tip must be needed as grounded for usage. If over voltage which exceeds the absolute maximum rating is applied to LEDs, it will cause damage LEDs and result in destruction. Damaged LEDs will show some unusual characteristics such as leak current remarkably increase ,turn-on voltage becomes lower and the LEDs get unlighted at low current.
手工焊接时，焊接头必须接地。如果对led施加超过绝对最大额定值的过电压，会对led造成损坏。损坏的led会出现一些不寻常的特性，如漏电流明显增加，接通电压降低，低电流时led不亮。