

SPECIFICATION

Model: SE03H_Series

Date: 2021/01/11

NO: NCYM-DS-223

Approved	Checked	Drawn
孙国喜	朱磊	王磊

SHINEON (NANCHANG) TECHNOLOGY CO.,LTD

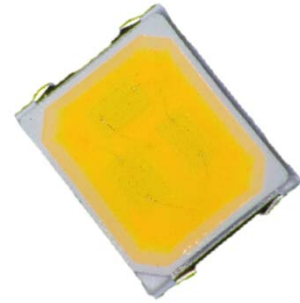
699 Tianxiang Avenue, Building 7-1, CEC Low-Carbon Technology Park, High-Tech
Development District, Nanchang City, Jiangxi Province, P.R.China
TEL: 0791-88130119
<http://www.shineon.cn>

SE03H (2835B03-XXH02-3P-D230-LX)

Datasheet

This 2835 LED is an energy-saving device with ultra-high luminous efficiency and can withstand high current. The small package outline and high intensity make it an ideal choice for LED Flat panel light, LED tube light, Horticulture lighting.

此款2835 LED光源是一款节能器件，具有超高光效、可以承受大电流使用。产品外形小巧，强度高，是植物照明、LED面板灯、LED管灯、等产品的理想选择。



This part has a foot print that is compatible to most of the same size LED in the market today.

此款LED光源焊盘结构与市场上主流LED光源焊盘尺寸基本相同。

FEATURES / 特点

- ANSI-compatible chromaticity bins
符合美标ANSI色坐标分BIN标准
- 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/低热阻
- Long operation life/长寿命
- Wide viewing angle at 120°
发光角度 120°
- Silicone encapsulation/硅胶封装
- Environmental friendly, RoHS compliance
环保材质，符合RoHS要求

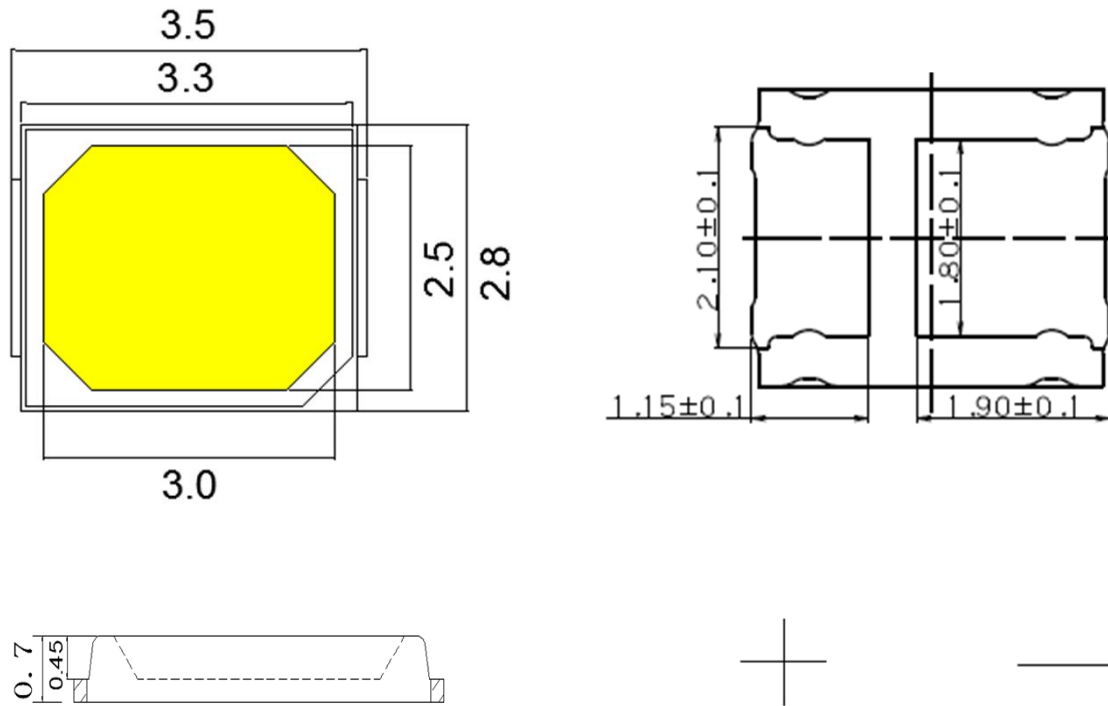
APPLICATIONS

- Horticulture lighting/植物照明
- Flat panel light/面板灯
- LED tube light/灯管
- Signage and channel letter/信号和发光字体
- Reading lamp/阅读灯

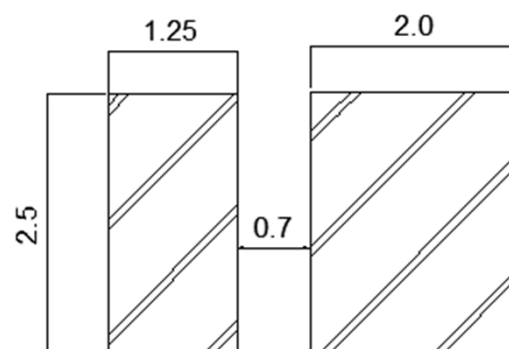
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注:本文件内的资料如有更改，恕不另行通知。

PACKAGE DIMENSIONS 封装尺寸



Recommended Solder Pad Design
推荐焊盘尺寸设计



Notes:

1. All dimensions in millimeters. 所有单位尺寸为毫米
2. Thickness tolerance of copper plate is ± 0.02 mm. 铜材厚度公差为 ± 0.02 毫米
3. Thickness tolerance of product is ± 0.05 mm. 产品厚度公差为 ± 0.05 毫米
4. Tolerance is ± 0.1 mm unless otherwise noted. 如未特别注明，默认公差为 ± 0.1 毫米

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

Parameter 项目名称	Symbol 符号	Value 规格	Unit 单位
Forward current 正向电流	I_F	100	mA
Pulse Forward Current 正向脉冲电流	I_{FP}	350	mA
Reverse Voltage 反向电压	V_R	5	V
Power Dissipation 消耗功率	P_d	280	mW
Operating Temperature 工作温度	T_{opr}	-40~+85	℃
Storage Temperature 储存温度	T_{stg}	-40~+100	℃
Soldering Temperature 焊接温度	T_{sld}	260℃ for 10 seconds	
LED Junction Temperature 结温	T_j	110	℃

Note:

I_{FP} Conditions: Pulse Width $\leq 10\text{msec.}$ and Duty $\leq 1/10$. 脉冲电流条件: 脉冲宽度 $\leq 10\text{msec.}$ 负载 $\leq 1/10$.

CHARACTERISTICS 光电参数 (Ta=25℃)

Parameter 项目名称	Symbol 符号	Test Condition 测试条件	Min 最小值	Typ 典型值	Max 最大值	Unit 单位
Forward Voltage/正向电压	V_F	IF=65mA	2.6		2.8	V
Viewing Angle/发光角度	$2\theta_{1/2}$	IF=65mA	--	120	--	deg.
Luminous Flux/亮度	$\Phi_v^{[1]}$	IF=65mA	38	--	40	lm
Color Rendering Index/显色指数	CRI ^[2]	IF=65mA	80	--	--	--
Color Temperature/色温	CCT	IF=65mA	3800	--	5300	K
Photon Flux /光合光子通量	PPF ^[3]	IF=65mA	0.55	--	0.57	$\mu\text{mol/s}$
Photon Flux Efficiency 光子效率	PPF/W	IF=65mA	--	3.28	--	$\mu\text{mol/s}$
Thermal Resistance/热阻	R_{th-js}	IF=65mA	--	20	--	℃/W

Notes:

1. Luminous flux is measured with an accuracy of $\pm 5\%$. /光通量的测量精度为 $\pm 5\%$

2. CRI is measured with an accuracy of ± 1 . /显色指数测量精度为 ± 1

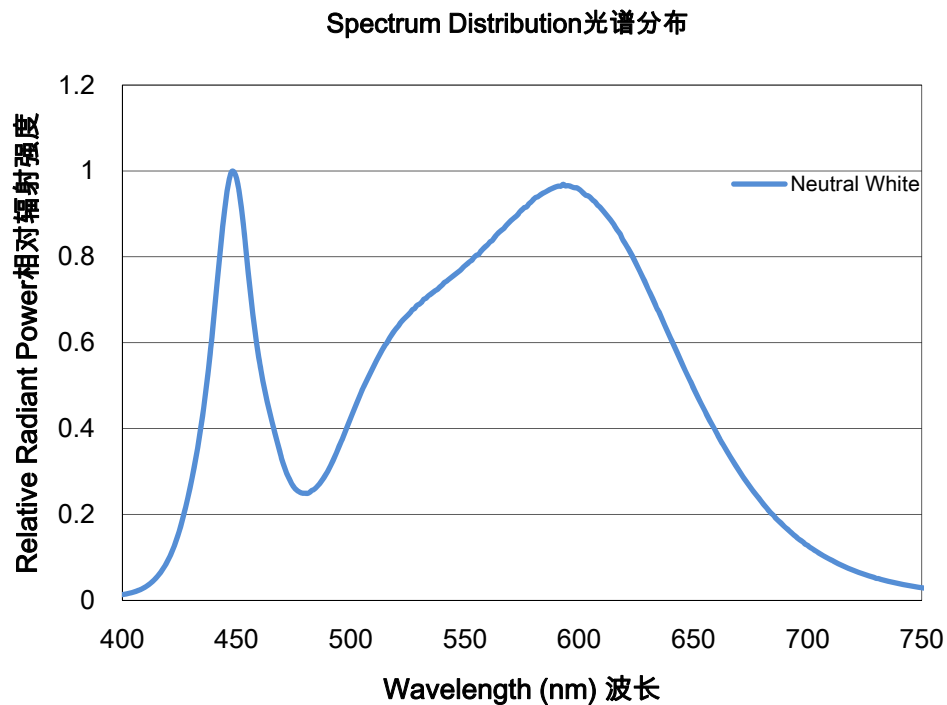
3. Photosynthetic photon flux (PPF) includes wavelengths between 400 and 700 nm. /波长在400-700nm波段里, 每秒辐射出光子的微摩尔数量.

4. Some color and CRI bins may have limited availability, please contact us before ordering. /部分颜色和显指可能有限制, 请在订购前与我们联系

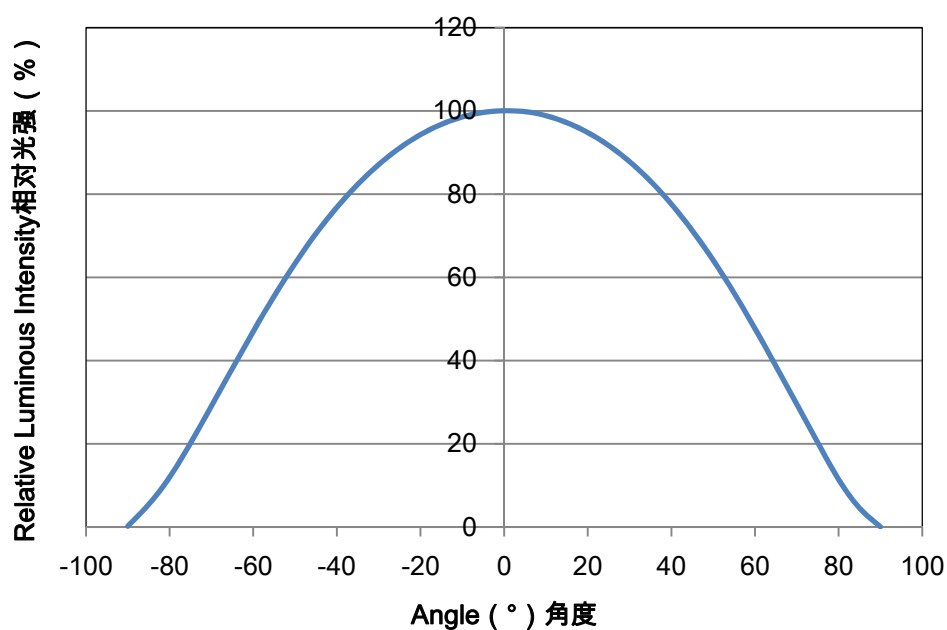
5. All measurements were made under the standardized environment of Shineon/所有的测量都是在易美的标准环境下进行的

RELATIVE SPECTRAL POWER DISTRIBUTION 相对光谱功率分布

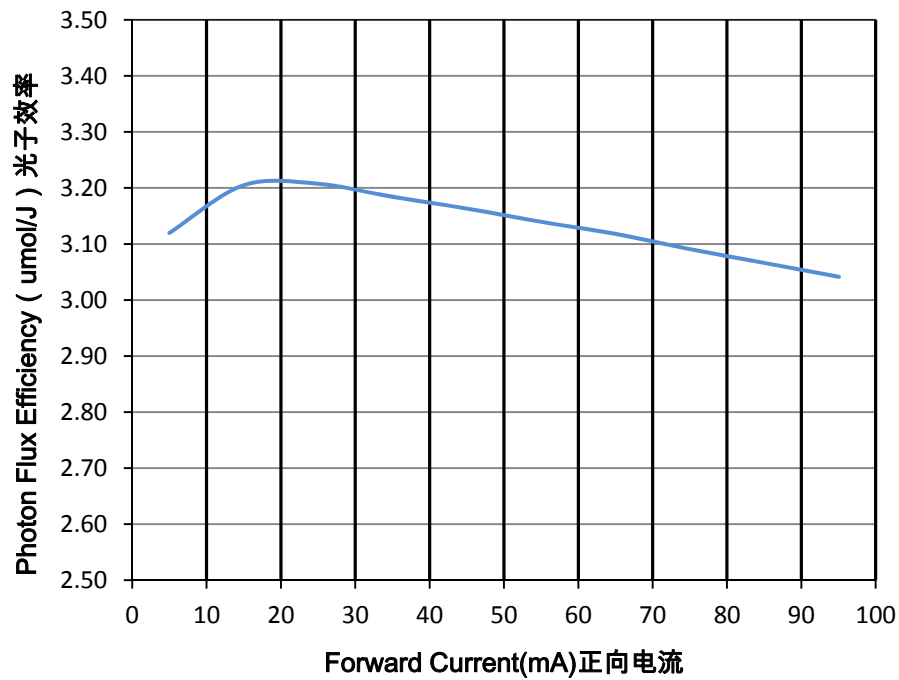
($T_j = 25^\circ\text{C}$)



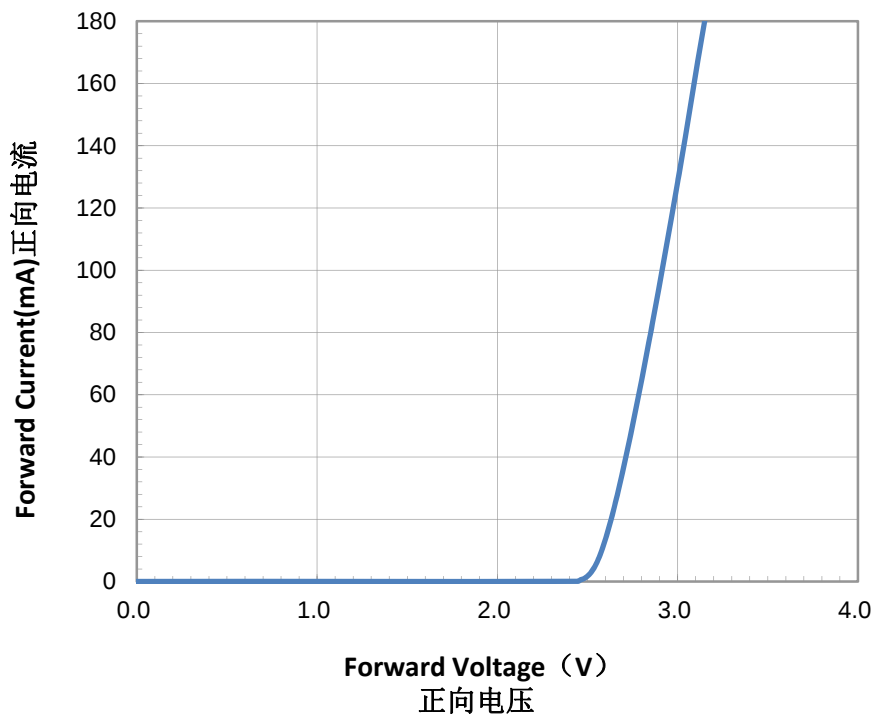
TYPICAL SPATIAL DISTRIBUTION 典型配光分布



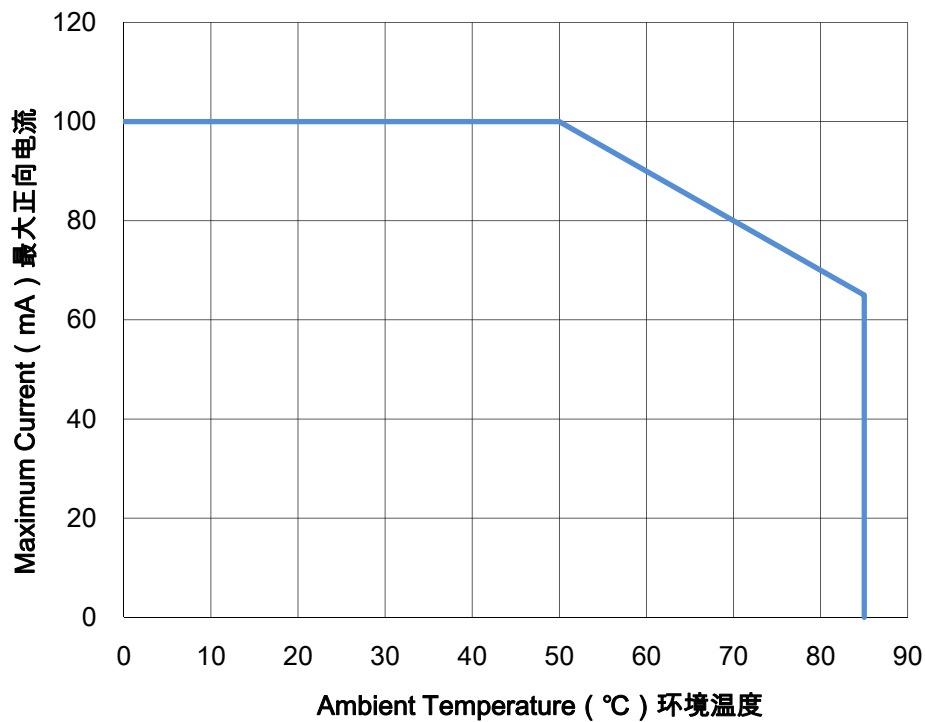
Photon Flux Efficiency VS. CURRENT 光子效率和电流($T_j = 25^\circ\text{C}$)



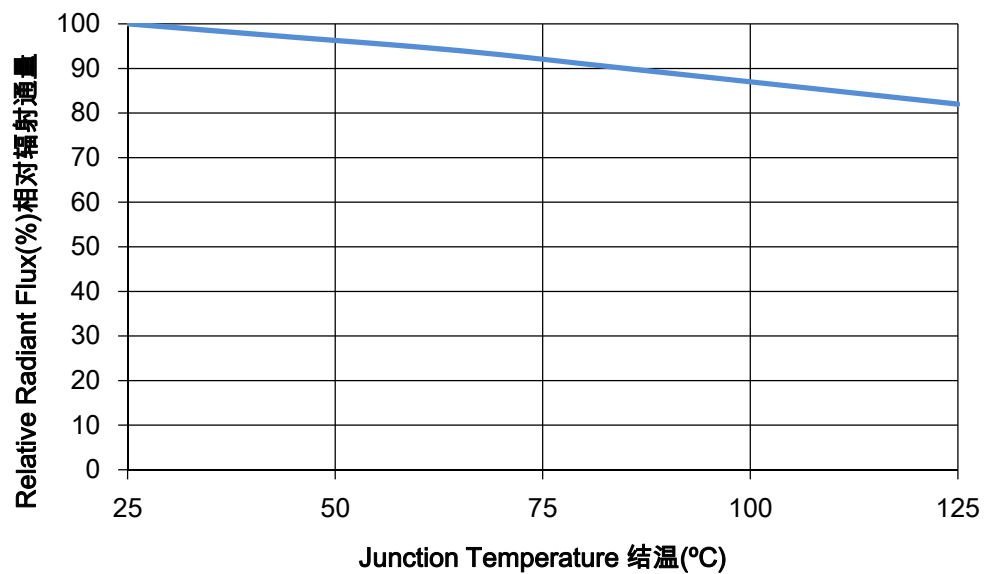
ELECTRICAL CHARACTERISTICS 电特性($T_j = 25^\circ\text{C}$)



MAXIMUM CURRENT VS. AMBIENT TEMPERATURE 最大电流和环境温度



RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE 相对辐射通量VS结温



SORTING RANKS 等级分选

(1) Luminous Flux 光通量(Tj=25°C , IF=65mA)

Part NO. 料号	Flux Code 光通量代码	Flux Range (lm) 光通量范围	PPF Range (μmol/s) 光子通量范围	PPF/W Type (μmol/s) 光子效率
2835B03-40H02-3P-D230-LX	O40	38-40	0.55-0.57	3.28
2835B03-50H02-3P-D230-LX	O40	38-40	0.55-0.57	3.28

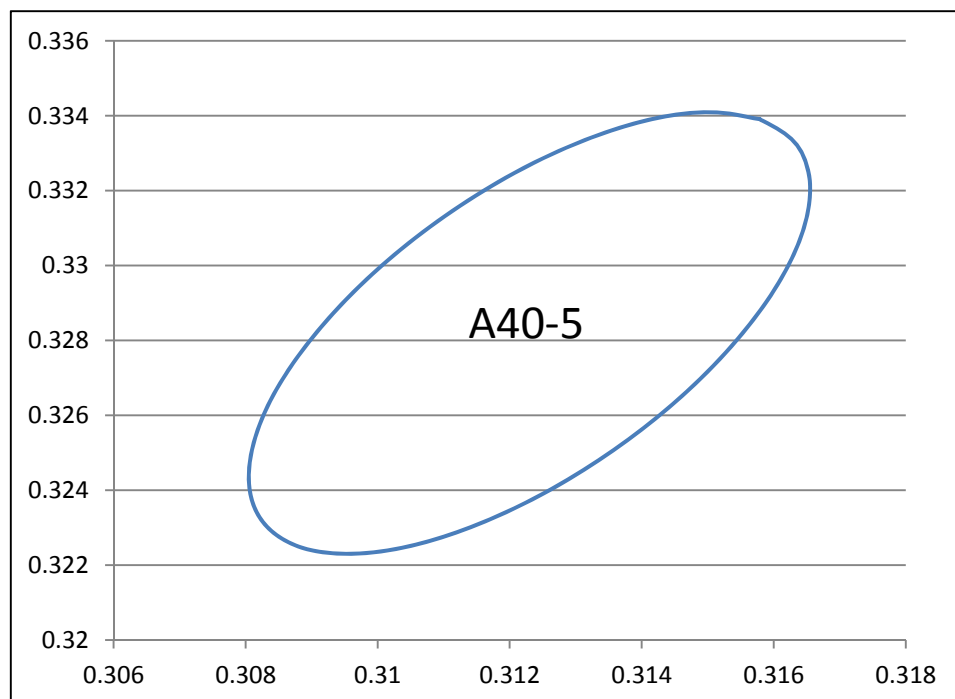
(2) Forward Voltage 正向电压(Tj=25°C)

Code 代码	Condition 条件	Min. 最小值	Max. 最大值	Unit 单位
A6	65mA	2.6	2.7	V
A7		2.7	2.8	

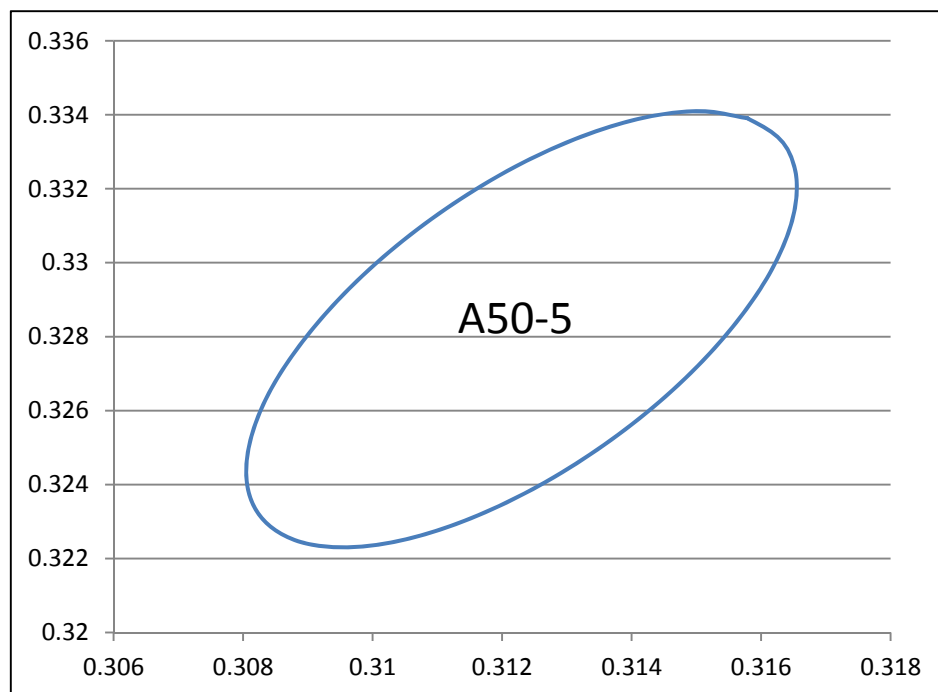
Notes:

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 : ± 0.1V 正向电压测量误差:± 0.1

Bin Code 代码	Color Coordinates(x,y) 色坐标				
	x	y	a	b	Theta°
A40-5	0.3818	0.3797	0.01565	0.0067	53.7200



Bin Code 代码	Color Coordinates(x,y) 色坐标				
	x	y	a	b	Theta°
A50-5	0.3447	0.3553	0.0137	0.0059	59.6200



REFLOW SOLDERING CHARACTERISTICS回流焊特性

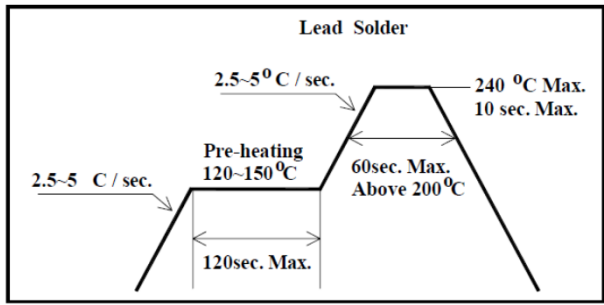
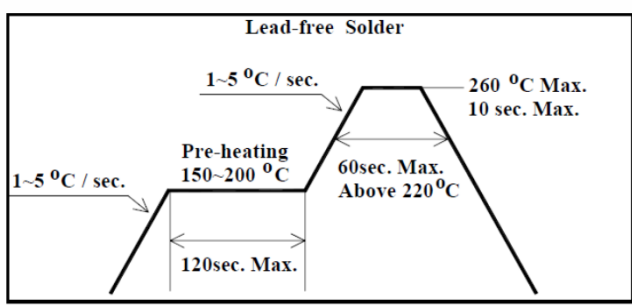
For Reflow Process:回流焊制程:

Preheating预热 : 140°C~160°C±5°C, within 2 minutes.

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

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°C	Pre-heat预热	150-200°C
Pre-heat time预热时间	120 sec.Max.	Pre-heat time预热时间	120 sec.Max.
Peak Temperature峰值温度	240°C Max.	Peak Temperature峰值温度	260°C Max.
Soldering condition 焊接条件	10 sec.Max.	Soldering condition 焊接条件	10 sec.Max.

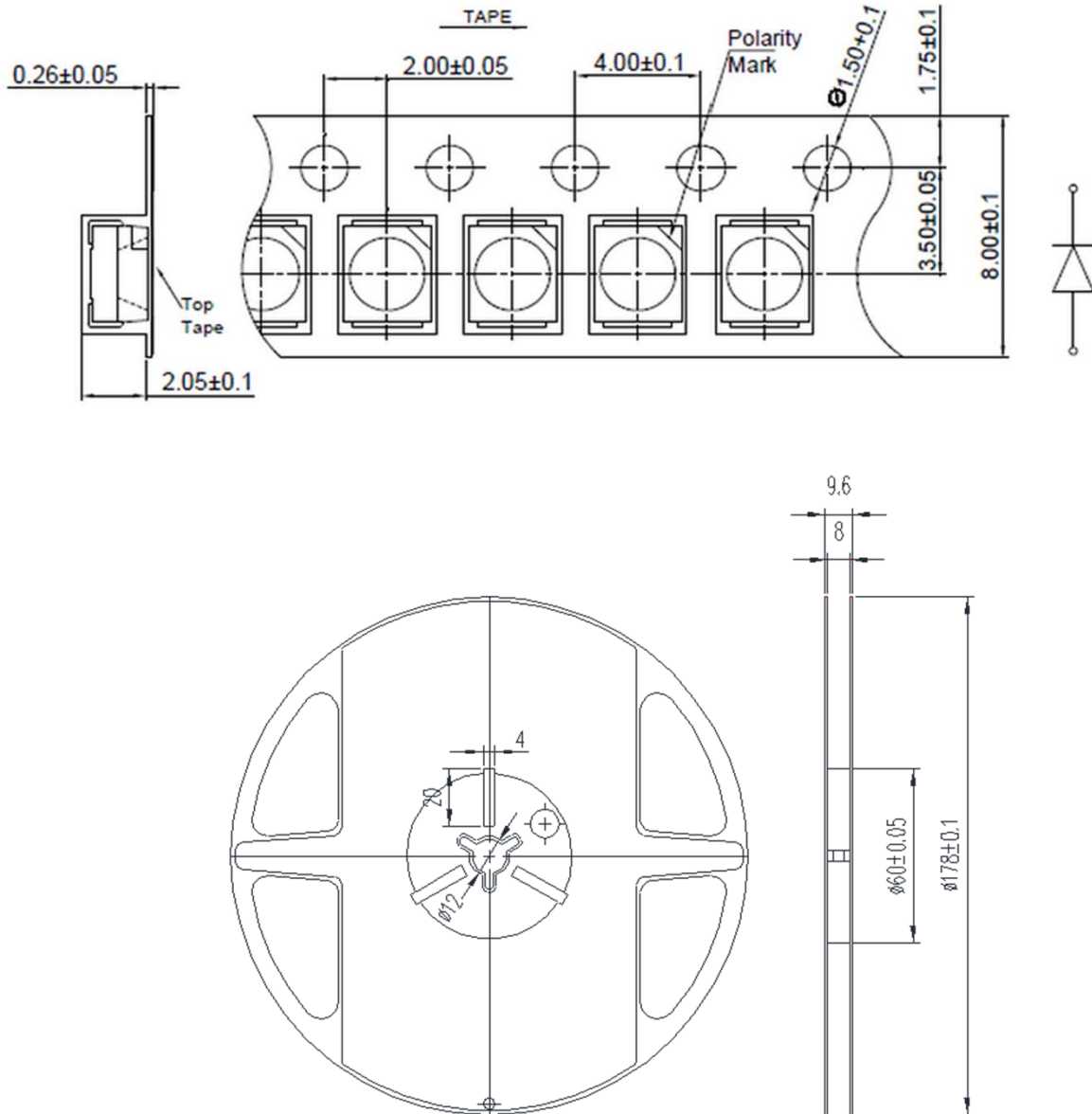
 Lead Solder 2.5~5 °C / sec. (Initial Ramp) Pre-heating 120~150 °C (120sec. Max.) 2.5~5 °C / sec. (Second Ramp) 240 °C Max. (10 sec. Max.) 60sec. Max. Above 200 °C		 Lead-free Solder 1~5 °C / sec. (Initial Ramp) Pre-heating 150~200 °C (120sec. Max.) 1~5 °C / sec. (Second Ramp) 260 °C Max. (10 sec. Max.) 60sec. Max. Above 220 °C	
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Notes:

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

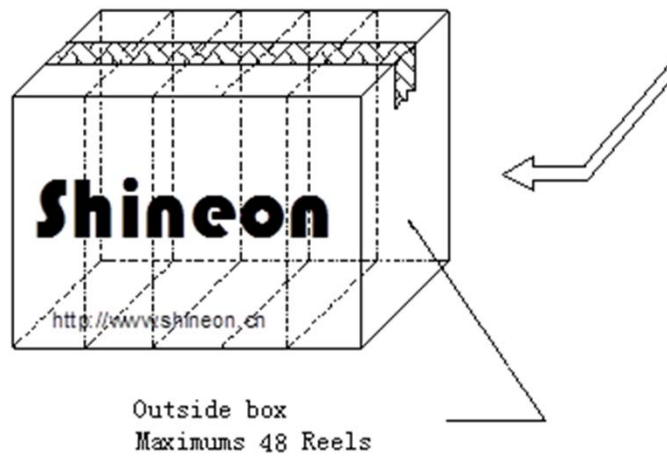
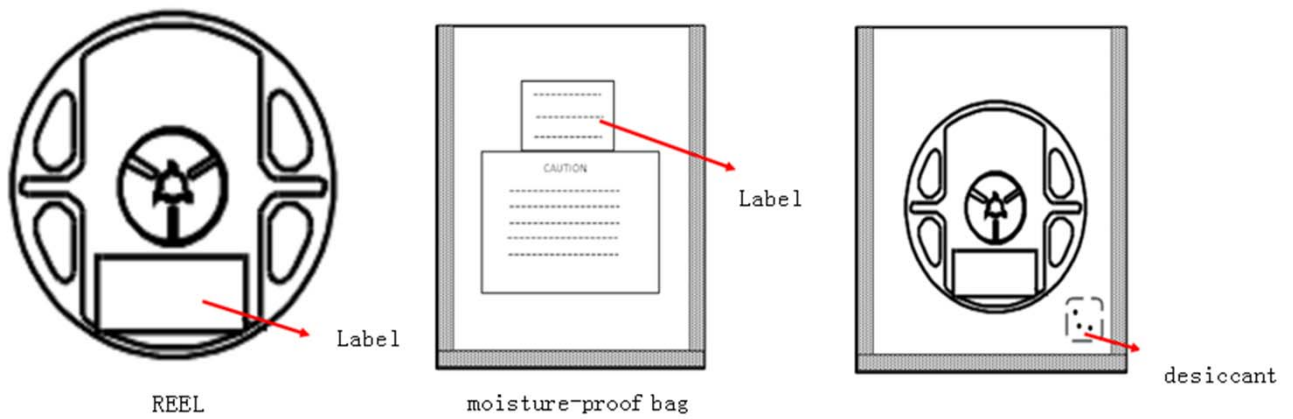


Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit=mm

Notes注:

- (1) Quantity : 4,000pcs/Reel
数量 : 4000pcs/卷
- (2) Cumulative Tolerance : Cumulative Tolerance/10 pitches to be $\pm 0.2\text{mm}$
累积公差: 累积公差/10间距 $\pm 0.2\text{毫米}$
- (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° to 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



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) $T_s=85^{\circ}\text{C}$, $I_F=\text{Max}$ 高温点亮稳态老化 $T_s=85^{\circ}\text{C}$, $I_F=\text{最大值}$	1000hrs	0/20
Steady State Operating Life of Low Temperature (LTOL) $T_a=-40^{\circ}\text{C}$, $I_F=\text{Max}$ 低温点亮稳态老化 $T_s=85^{\circ}\text{C}$, $I_F=\text{最大值}$	1000hrs	0/20
Pulse Wet Operating Life of High Temperature (PWHTOL) 高温高湿通断电老化 $60^{\circ}\text{C}/90\%\text{RH}$, $I_F 30\text{mins ON}/30\text{min OFF}$	500hrs	0/20
High Temperature Storage (HTS) 高温存储 100°C	1000hrs	0/20
Low Temperature Storage (LTS) 低温存储 -40°C	1000hrs	0/20
Thermal Shock (TS) $-45^{\circ}\text{C}\sim 125^{\circ}\text{C}$ 15min dwell 20sec transfer 冷热冲击 -45°C 15min $\sim 125^{\circ}\text{C}$ 15min, 转换时间20秒	100cycles	0/20
Solder Resistance (SR) 265°C , 3X MSL 阻焊测试 (3遍潮气敏感度试验后)	5sec	0/20
Solder Ability (SA) 245°C 5sec, 95% coverage 可焊性 95%覆盖	5sec	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	V_f	$I_F=\text{Typical Current}$ 典型电流		U.S.L x1.1
Luminous Flux 光通量	I_m	$I_F=\text{Typical Current}$ 典型电流	L.S.L x0.7	
CCX&CCY X坐标&Y坐标	x,y	$I_F=\text{Typical Current}$ 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.

本器件不得置于水、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 seven days 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七天内使用。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，焊接仪器必须接地。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。