



Data Sheet

承认书

Customer Name: _____
 (客户名称)

Customer P/N: _____
 (客户品号)

Factory P/N: FM2835L--CT--KR8S3V09W10 _____
 (公司品号)

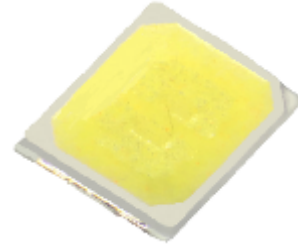
Factory L/N: _____
 (公司料号)

Sending Date: _____
 (送样日期)

| Client approval 客户审核 | | Approval 审核 | | |
|--|--|----------------|-------------|--------------------|
| Approval 核准 | Audit 确认 | Approval 核准 | Audit 确认 | Confirmation 制作 |
| | | | | 马恒玉 |
| <input type="checkbox"/> Qualified 接受 | <input type="checkbox"/> Disqualified 不接受 | DATE: 日期 | | |

Features (特征)

1. PLCC-2 package (PLCC-2封装)
2. Top view white LED (平面式白光LED)
3. Wide viewing angle (大角度发光)
4. RoHS compliant (符合RoHS标准)
5. Package:17000pcs/reel.(包装每卷17000PCS)



Application(应用)

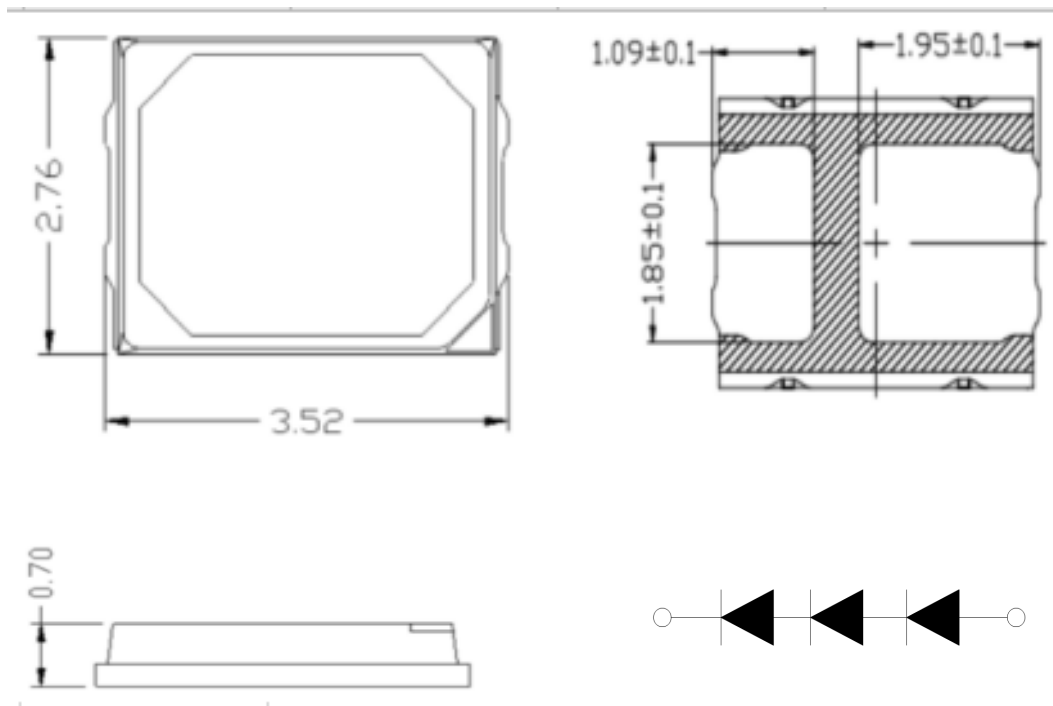
1. General lighting (一般照明)
2. Optical indicator (光学指示)
3. Switch Lights (开关照明)
4. Decorative and Entertainment Lighting (装饰与娱乐照明)



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

Diagrammatic Sketch(封装尺寸图)



Notes: (备注)

1. All dimensions are in millimeters (所有标注尺寸单位为毫米)
2. Tolerances are ±0.10mm unless otherwise noted (除特别标注外，允许公差为 ±0.10mm)

Absolute maximum ratings at $T_a=25^{\circ}\text{C}$ (绝对最大额定值)

| Item (项目) | Symbol (符号) | Absolute Maximum Rating (数值) | Unit (单位) |
|--------------------------------------|----------------|---------------------------------|--------------------|
| Forward Current (正向电流) | I_F | 100 | mA |
| Pulse Forward Current (脉冲正向电流) | I_{FP} | 120 | mA |
| Power Dissipation (功率消耗) | P_D | 960 | mW |
| Operating Temperature (工作温度) | T_{opr} | -40~+85 | $^{\circ}\text{C}$ |
| Storage Temperature (储存温度) | T_{stg} | -40~+100 | $^{\circ}\text{C}$ |
| Temperature of welding pad (焊盘温度) | T_S | 105 | $^{\circ}\text{C}$ |
| Electrostatic Discharge (静电) | ESD | 2000(HBM) | V |

Electrical-Optical characteristics @T_a=25°C (电性与光学特性)

| Item 项目 | Symbol 符号 | Code 代码 | Test Condition 测试条件 | Min 最小 | Typ 平均 | Max 最大 | Unit 单位 |
|---------------------------|--------------|------------|------------------------|-------------------------------------|-----------|-----------|------------|
| Forward voltage 正向电压 | VF | - | IF=100mA | 8.7 | - | 9.6 | V |
| Luminous Flux 亮度 | φv | 27K | IF=100mA | 120 | 125 | - | LM |
| | | 30K | IF=100mA | 120 | 125 | - | LM |
| | | 40K | IF=100mA | 130 | 135 | - | LM |
| | | 50K | IF=100mA | 130 | 135 | - | LM |
| | | 57K | IF=100mA | 130 | 135 | - | LM |
| | | 60K | IF=100mA | 130 | 135 | - | LM |
| | | 65K | IF=100mA | 130 | 135 | - | LM |
| View Angle 角度 | 2θ1/2 | - | IF=100mA | - | 120 | - | deg |
| Color Temperature 色温 | CCT | 27KJ | IF=100mA | 2600 | - | 2850 | K |
| | | 30KJ | IF=100mA | 2800 | - | 3050 | K |
| | | 40KJ | IF=100mA | 3800 | - | 4200 | K |
| | | 50KJ | IF=100mA | 4700 | - | 5300 | K |
| | | 57KC | IF=100mA | 5320 | - | 6050 | K |
| | | 60K-X | IF=100mA | 5700 | - | 6400 | K |
| | | 65KJ | IF=100mA | 6100 | - | 6800 | K |
| Color Rending Index 显指 | Ra | / | IF=100mA | 80 | - | - | - |
| | R9 | / | IF=100mA | 0 | - | - | - |
| CIE Chromaticity 色坐标 | X | / | IF=100mA | please see the bin sorting standard | | | |
| | Y | / | | | | | |

Notes(备注):

1. Forward voltage (VF) ± 0.1V

正向电压允许公差为 ± 0.1V

2. Luminous Flux(φv) ±10%

流明允许公差为 ±10%

3. The above color coordinates measurement allowance tolerance is ±0.01

以上所示坐标测量误差 ±0.01

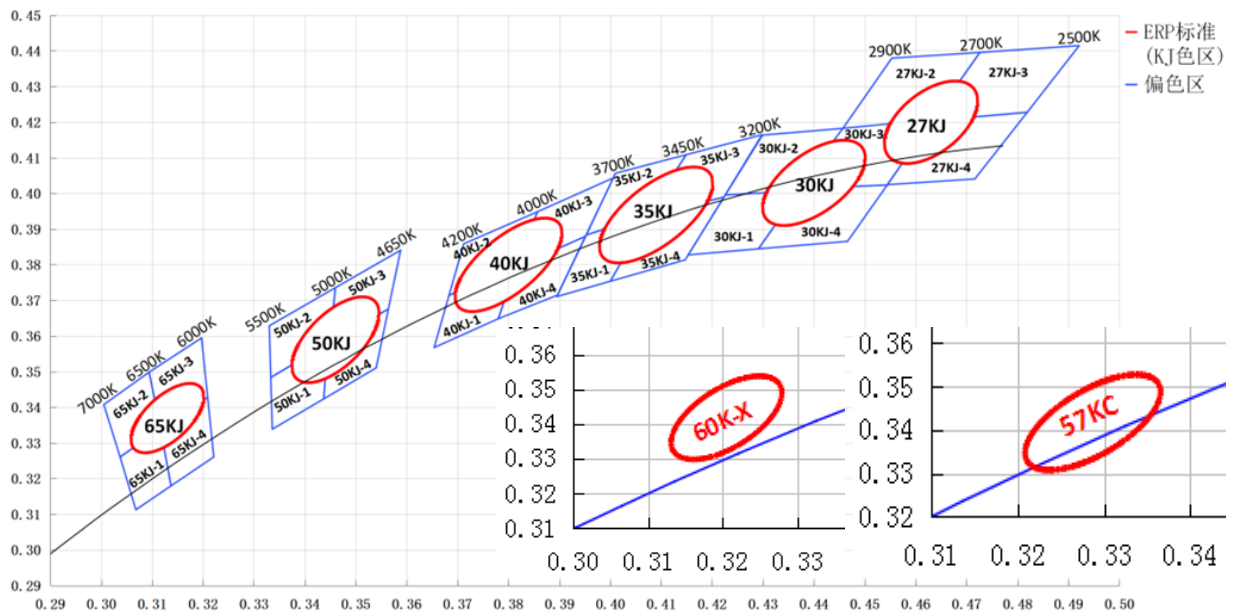
4. Color Rending Index (Ra) ±3

显指允许公差为 ±3

5. View Angle (2θ1/2) ±5

角度允许公差为 ±5

CIE Chromaticity Diagram @IF=100mA , Ta=25°C (色区图)



| | | | | | | | | |
|--------------|----------|----------|-------------|----------|----------|-------------|----------|----------|
| 27KJ | X | 0.463 | 30KJ | X | 0.44 | 35KJ | X | 0.409 |
| | Y | 0.42 | | Y | 0.403 | | Y | 0.394 |
| | a | 0.00258 | | a | 0.00278 | | a | 0.00317 |
| | b | 0.00137 | | b | 0.00136 | | b | 0.00139 |
| | θ | 57.28333 | | θ | 53.16667 | | θ | 52.96667 |
| | SDCM | 5 | | SDCM | 5 | | SDCM | 5 |
| 40KJ | X | 0.38 | 50KJ | X | 0.346 | 65KJ | X | 0.313 |
| | Y | 0.38 | | Y | 0.359 | | Y | 0.337 |
| | a | 0.00313 | | a | 0.00274 | | a | 0.00223 |
| | b | 0.00134 | | b | 0.00118 | | b | 0.00095 |
| | θ | 54 | | θ | 59.61667 | | θ | 58.38333 |
| | SDCM | 5 | | SDCM | 5 | | SDCM | 5 |
| 60K-X | X | 0.3205 | 57KC | X | 0.3287 | | | |
| | Y | 0.3418 | | Y | 0.3417 | | | |
| | a | 0.0026 | | a | 0.002486 | | | |
| | b | 0.0011 | | b | 0.001066 | | | |
| | θ | 65 | | θ | 59.09 | | | |
| | SDCM | 5 | | SDCM | 5 | | | |

| | | | | | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 色区 | X | Y | 色区 | X | Y | 色区 | X | Y | 色区 | X | Y |
| 65KJ-1 | 0.3068 | 0.3113 | 65KJ-2 | 0.3037 | 0.3261 | 65KJ-3 | 0.3116 | 0.3338 | 65KJ-4 | 0.3137 | 0.3180 |
| | 0.3037 | 0.3261 | | 0.3005 | 0.3408 | | 0.3094 | 0.3499 | | 0.3116 | 0.3338 |
| | 0.3116 | 0.3338 | | 0.3094 | 0.3499 | | 0.3197 | 0.3595 | | 0.3209 | 0.3428 |
| | 0.3137 | 0.3180 | | 0.3116 | 0.3338 | | 0.3209 | 0.3428 | | 0.3221 | 0.3261 |
| 色区 | X | Y | 色区 | X | Y | 色区 | X | Y | 色区 | X | Y |
| 50KJ-1 | 0.3333 | 0.3484 | 50KJ-2 | 0.3333 | 0.3484 | 50KJ-3 | 0.3449 | 0.3581 | 50KJ-4 | 0.3437 | 0.3424 |
| | 0.3336 | 0.3339 | | 0.3330 | 0.3629 | | 0.3460 | 0.3736 | | 0.3449 | 0.3581 |
| | 0.3437 | 0.3424 | | 0.3460 | 0.3736 | | 0.3588 | 0.3841 | | 0.3564 | 0.3676 |
| | 0.3449 | 0.3581 | | 0.3449 | 0.3581 | | 0.3564 | 0.3676 | | 0.3540 | 0.3511 |
| 色区 | X | Y | 色区 | X | Y | 色区 | X | Y | 色区 | X | Y |
| 40KJ-1 | 0.3654 | 0.3568 | 40KJ-2 | 0.3683 | 0.3714 | 40KJ-3 | 0.3818 | 0.3793 | 40KJ-4 | 0.3780 | 0.3649 |
| | 0.3683 | 0.3714 | | 0.3712 | 0.3859 | | 0.3857 | 0.3949 | | 0.3818 | 0.3793 |
| | 0.3818 | 0.3793 | | 0.3857 | 0.3949 | | 0.4006 | 0.4044 | | 0.3951 | 0.3880 |
| | 0.3780 | 0.3649 | | 0.3818 | 0.3793 | | 0.3951 | 0.3880 | | 0.3896 | 0.3715 |
| 色区 | X | Y | 色区 | X | Y | 色区 | X | Y | 色区 | X | Y |
| 35KJ-1 | 0.3895 | 0.3711 | 35KJ-2 | 0.3953 | 0.3884 | 35KJ-3 | 0.4075 | 0.3932 | 35KJ-4 | 0.4000 | 0.3754 |
| | 0.3953 | 0.3884 | | 0.4010 | 0.4057 | | 0.4149 | 0.4109 | | 0.4075 | 0.3932 |
| | 0.4075 | 0.3932 | | 0.4149 | 0.4109 | | 0.4298 | 0.4165 | | 0.4223 | 0.3990 |
| | 0.4000 | 0.3754 | | 0.4075 | 0.3932 | | 0.4223 | 0.3990 | | 0.4147 | 0.3814 |
| 色区 | X | Y | 色区 | X | Y | 色区 | X | Y | 色区 | X | Y |
| 30KJ-1 | 0.4153 | 0.3828 | 30KJ-2 | 0.4226 | 0.3996 | 30KJ-3 | 0.4372 | 0.4009 | 30KJ-4 | 0.4291 | 0.3845 |
| | 0.4226 | 0.3996 | | 0.4299 | 0.4164 | | 0.4457 | 0.4183 | | 0.4372 | 0.4009 |
| | 0.4372 | 0.4009 | | 0.4457 | 0.4183 | | 0.4632 | 0.4205 | | 0.4544 | 0.4024 |
| | 0.4291 | 0.3845 | | 0.4372 | 0.4009 | | 0.4544 | 0.4024 | | 0.4466 | 0.3866 |
| 色区 | X | Y | 色区 | X | Y | 色区 | X | Y | 色区 | X | Y |
| 27KJ-2 | 0.4457 | 0.4183 | 27KJ-3 | 0.4632 | 0.4205 | 27KJ-4 | 0.4544 | 0.4025 | | | |
| | 0.4553 | 0.4380 | | 0.4726 | 0.4396 | | 0.4632 | 0.4205 | | | |
| | 0.4726 | 0.4396 | | 0.4921 | 0.4415 | | 0.4819 | 0.4228 | | | |
| | 0.4632 | 0.4205 | | 0.4819 | 0.4228 | | 0.4716 | 0.4041 | | | |

Luminous Intensity Rank (亮度等级) ϕ_v @IF=100mA, Ta=25°C (Unit:lm)

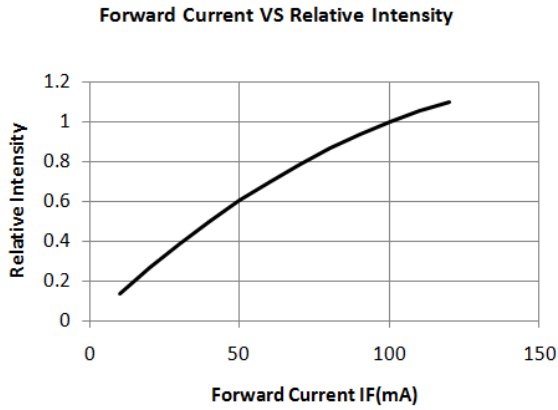
| BIN | Min | Max |
|-----|-----|-----|
| J6 | 115 | 125 |
| J7 | 120 | 130 |
| J8 | 125 | 135 |
| J9 | 130 | 140 |

Forward Voltage Rank (电压等级) VF @IF=100mA, Ta=25°C (Unit:V)

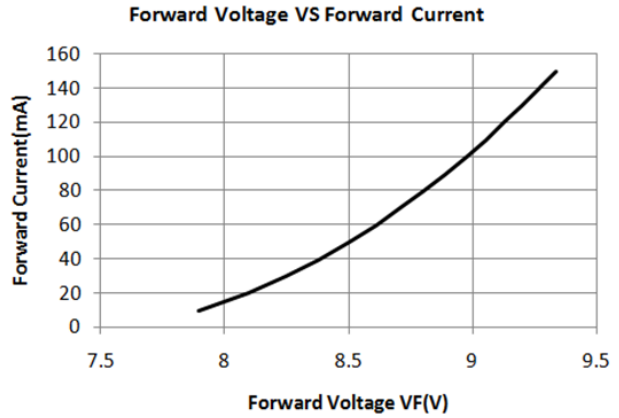
| BIN | Min | Max |
|-----|-----|-----|
| S2 | 8.7 | 9.0 |
| S3 | 9.0 | 9.3 |
| S4 | 9.3 | 9.6 |

Typical optical characteristics curves @Ta=25°C (典型光学特性曲线)

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

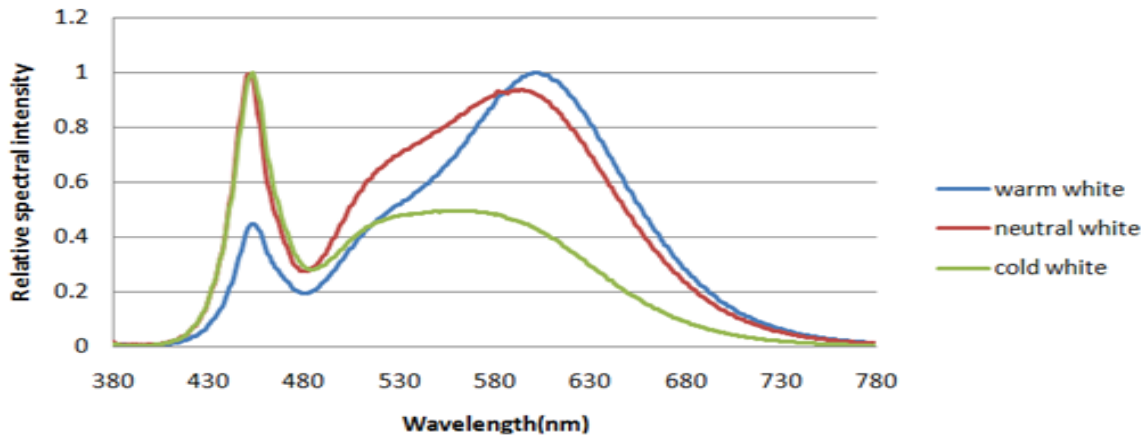


Forward Voltage VS. Forward Current
正向电压与正向电流特性曲线



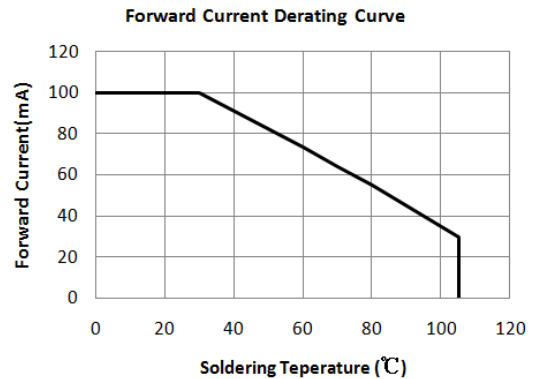
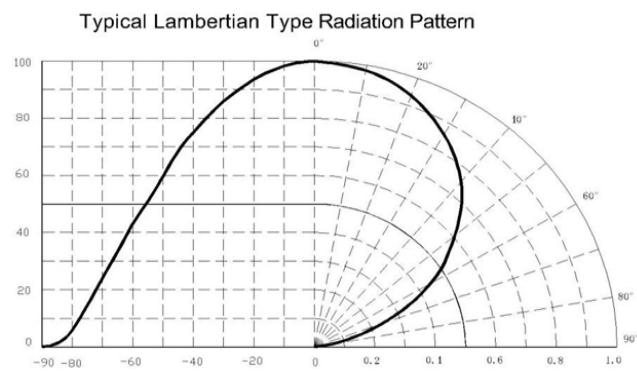
Relative spectral emission

相对光谱分布特性曲线



Radiation diagram 辐射图特性曲线

Ambient Temperature VS Allowable Forward Current 环境温度与允许温度电流特性



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 Conditions 测试条件 | Time 时间 | Quantity 数量 |
|--|-----------------------|--|------------|----------------|
| High Temperature storage 高温储存 | JESD22-A103 | Temp:100°C±5°C | 1000 hrs | 22 |
| Low Temperature Storage 低温储存 | JESD22-A119 | Temp:-40°C±5°C | 1000 hrs | 22 |
| Temperature Cycle 温度循环 | JESD22-A104 | 100°C±5°C 30min ↓↑5min -40°C±5°C 30min | 300 cycle | 22 |
| Reflow回流焊 | JESD22-B106 | Temp:max260°C Time:10sec 8min/ cycle | 3cycle | 22 |
| Life Test常温通电 | JESD22-A108 | Ta=25°C±5°C IF=100mA | 1000 hrs | 22 |
| High Temperature High Humidity Life Test高温高湿通电 | JESD22-A101 | 85°C±5°C/85%RH I _F =100mA | 1000 hrs | 22 |

Criteria For Judging Damage (失效判定标准)

| Item 项目 | Symbol 符号 | Test Conditions 测试条件 | Criteria for Judgement 判定标准 | |
|-----------------------|--------------|-------------------------|--------------------------------|--------------|
| | | | Min.最小 | Max.最大 |
| Forward Voltage正向电压 | VF | IF=100mA | - | (U.S.L*)×1.1 |
| Luminous Intensity光通量 | ΦV | IF=100mA | (L.S.L*) ×0.7 | - |

Note(备注):

U.S.L.: Upper Standard Level(规格上限)L.S.L.: Lower Standard Level(规格下限)

Label Explanation (标签说明)

No: Product part number(生产料号)

QTY: Number of packages (Only denoted by K)(数量)

Part No: Product model (生产型号)

ΦV: Luminous Intensity rank (流明)

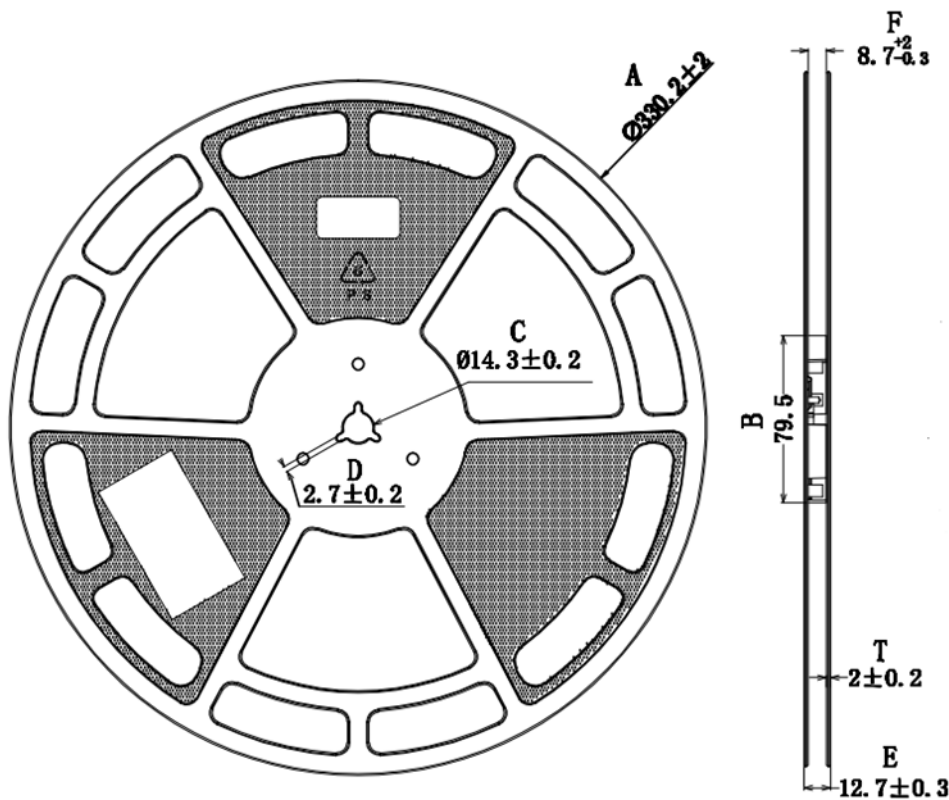
VF: Voltage (电压)

X/Y: Color zone (色区)

Lot NO: Lot number (批号)

| | | |
|--------------------------------|-----------|------------------------------|
| | | No.:XXXXXXXXXXXXX QTY:XXK |
| Part No.:XXXXXXXXXXXXXXXXXXXXX | | |
| ΦV | :XX-XX lm | |
| VF | :XX-XX V | |
| x/y | :XXXXX | |
| Lot No.:XXXXXXXXXXXXXXXXXXXXX | | |

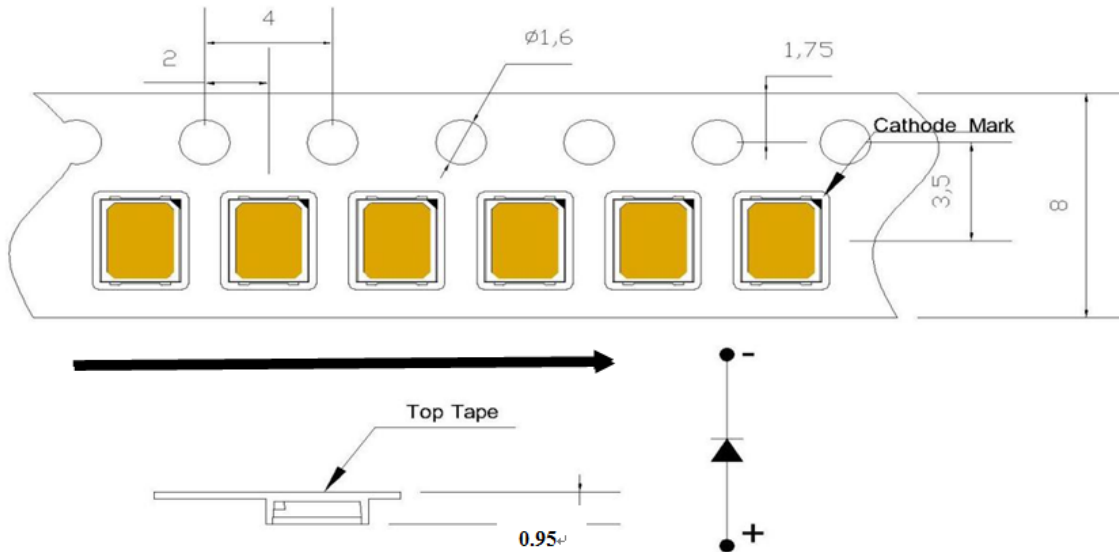
Reel Dimensions (卷盘尺寸)



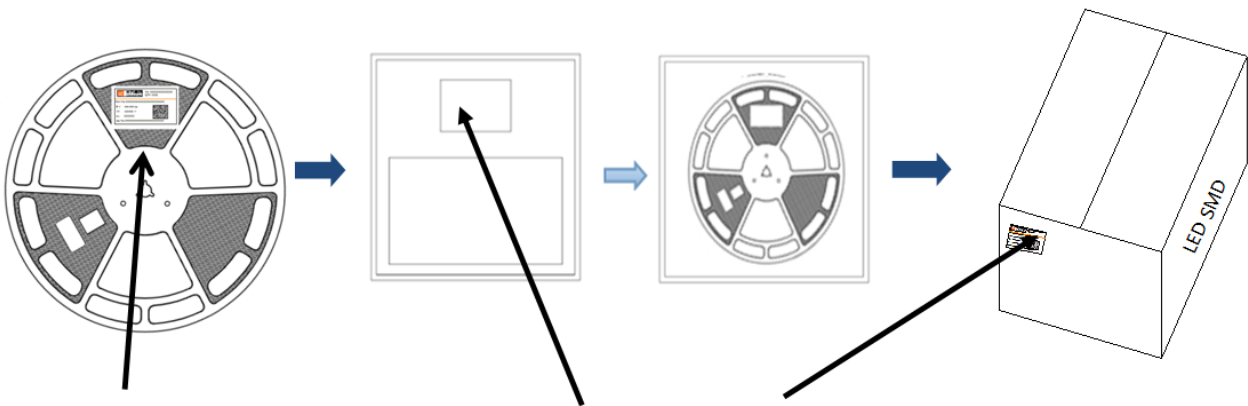
Note(备注):

Tolerance unless mentioned is $\pm 0.3\text{mm}$; unit=mm(未标注公差为 $\pm 0.3\text{mm}$, 尺寸单位: mm)

Carrier Tape Dimensions (载带尺寸)



Moisture Resistant Packing Process (防潮包装过程)



Label 一 20K Aluminum moisture proof bag Label 二 80K Label 三 400K

(标签一 20K) (铝箔袋) (标签二 80K) (标签三 400K)

Note (备注):

1. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/ELARS-481 specifications

负极朝向定位孔, 符合 ANSI/ELARS-481 规格。

2. 20000PCS/Reel.

每盘 20000 颗

Precautions for use Over-current-proof (通电使用时的注意事项)

Customer must apply resistors for protection otherwise slight voltage shift will cause big current change (burn out will happen)

客户必须使用电阻进行保护，否则轻微的电压变化会引起大电流变化(会发生烧坏)

Storage (存储)

Do not open moisture proof bag before the products are ready to use

在使用之前禁止打开防潮包装

Storage conditions prior to uncapping : 5 - 30 °C , maximum relative humidity of 60 %

开封前的贮藏条件: 5-30°C, 最大相对湿度为60%RH

After opening the package, The LEDs should be soldered within 4 hours after opening the package

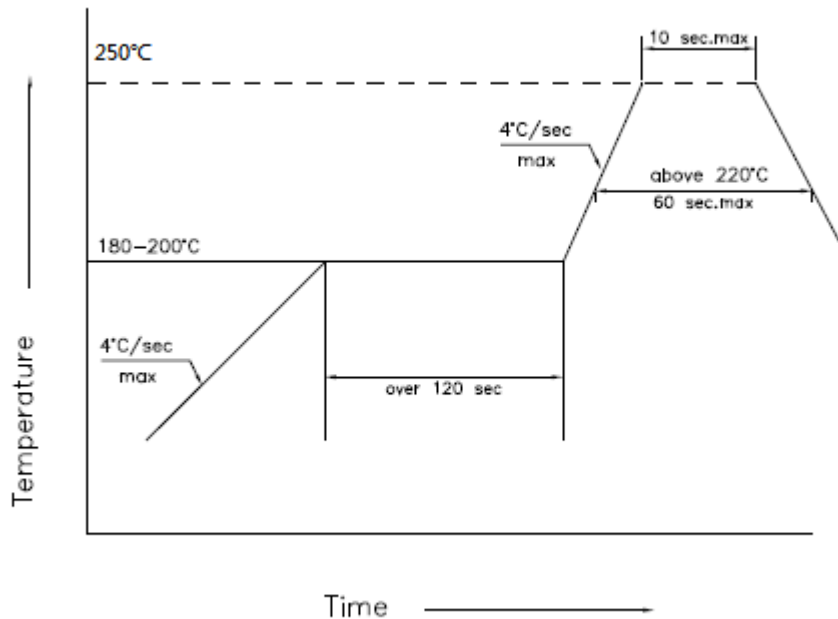
打开包装之后,应在4hrs 内焊接完毕

Soldering Condition (焊接条件)

Number of reflow process shall be less than 2 times and cooling process to normal temperature is required between first and Second soldering process

本产品最多只可回流焊两次,且在首次回焊后须冷却至室温之后方可进行第二次回流焊.

Recommended soldering conditions



Soldering Iron (烙铁焊接)

1. When hand soldering, keep the temperature of iron below less 250°C less than 10 seconds

当手工焊接时，烙铁的温度必须小于250°C，时间不可超过10秒

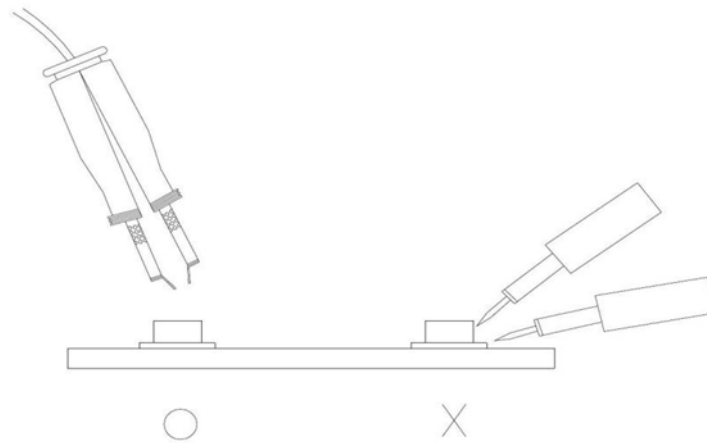
2. The hand solder should be done only one time.

手工焊接只可焊接一次

Repairing (修补)

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing

不应在LED焊接后进行修复。当修复不可避免时，应使用（如下图）之类的双头烙铁，应事先确认此种修补方法会不会损坏LED本身



Cautions:(使用注意事项)

1. Please check if there is air leak before opening the package, if so, please return the goods back to take drying process for later using.

在开包装之前，请先检查包装袋有无漏气，如果有漏气现象，请退回我司重新烘烤除湿包装后再使用

2. Products can be used within 6 months after packaging, after that, they must be:

抽真空包装材料未超过6个月可正常使用，包装袋开启后，产品必须：

A. Soldered within 4 hrs

A. 在4hrs内焊接完毕

B. Used in the condition: 30°C within and 60%RH below

B. 使用条件需： 温度:30°C以内湿度:60%RH以下

3. The vacuum packaging material is not used for more than 6 months after being packaged unless opening the package and take drying our process in 70°C/12H

抽真空包装材料超过6个月未使用，再使用时需重新拆铝箔袋取出烘烤70°C/12H除湿后才可使用

Handling Precautions (处理防备措施)

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

相对环氧树脂较脆较硬而言，硅胶封装较柔软且有弹性，虽然它的特性大大减少了热应力，但易受机械外力损坏，因此，在手工处理方面须要对硅胶封装材料做预防措施，若未按要求操作，可能会导致LED损坏和光衰

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

不可将模组材料堆积在一起，它可能会损坏内部电路

2.Not suitable to operate in acidic environment, PH<7

不可用在PH<7的酸性场所

3.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

4.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