拓展光电 TOPZONE™

DATASHEET

TZ-L2F23-R0/A-WFC0Kx-Rx11xxx-xxxx

234红发红长脚

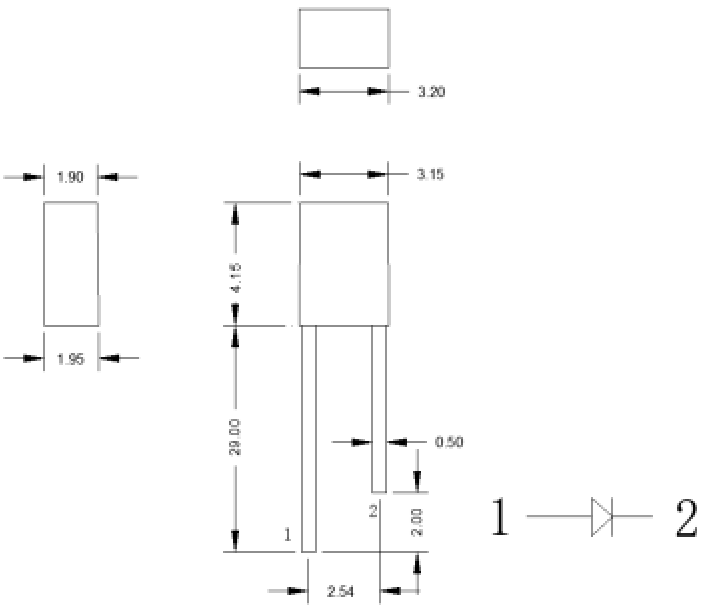
1、产品描述产品描述/Product Description：

- **外观尺寸（ L/W/H ）/** Product Dimensions：1.95*3.2*4.15mm
- **静电袋标准包装/** Standard packing for electrostatic bags
- **符合ROHS要求/** Meet ROHS requirements
- **适用于无铅波峰焊/** Suitable for lead-free wave soldering
- **胶体颜色：红/** Lens color：Water Red
- **发光颜色：红光/** Luminous color：Red

2 、产品主要应用/Product Applications：

- 背光/Backlight
- 照明 /Lighting
- 发光指示灯/Indicator light
- 其他/Others

3 、外观及建议焊盘尺寸/Appearance and recommended pad size：



注/Note:
1 、单位：毫米 (mm)/ Unit: mm.
2 、公差：如无特别标注则为± 0.20mm
Tolerances are±0.20mm unless mentioned.

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4、最大绝对额定值/Absolute Maximum Ratings:(Ta=25℃)

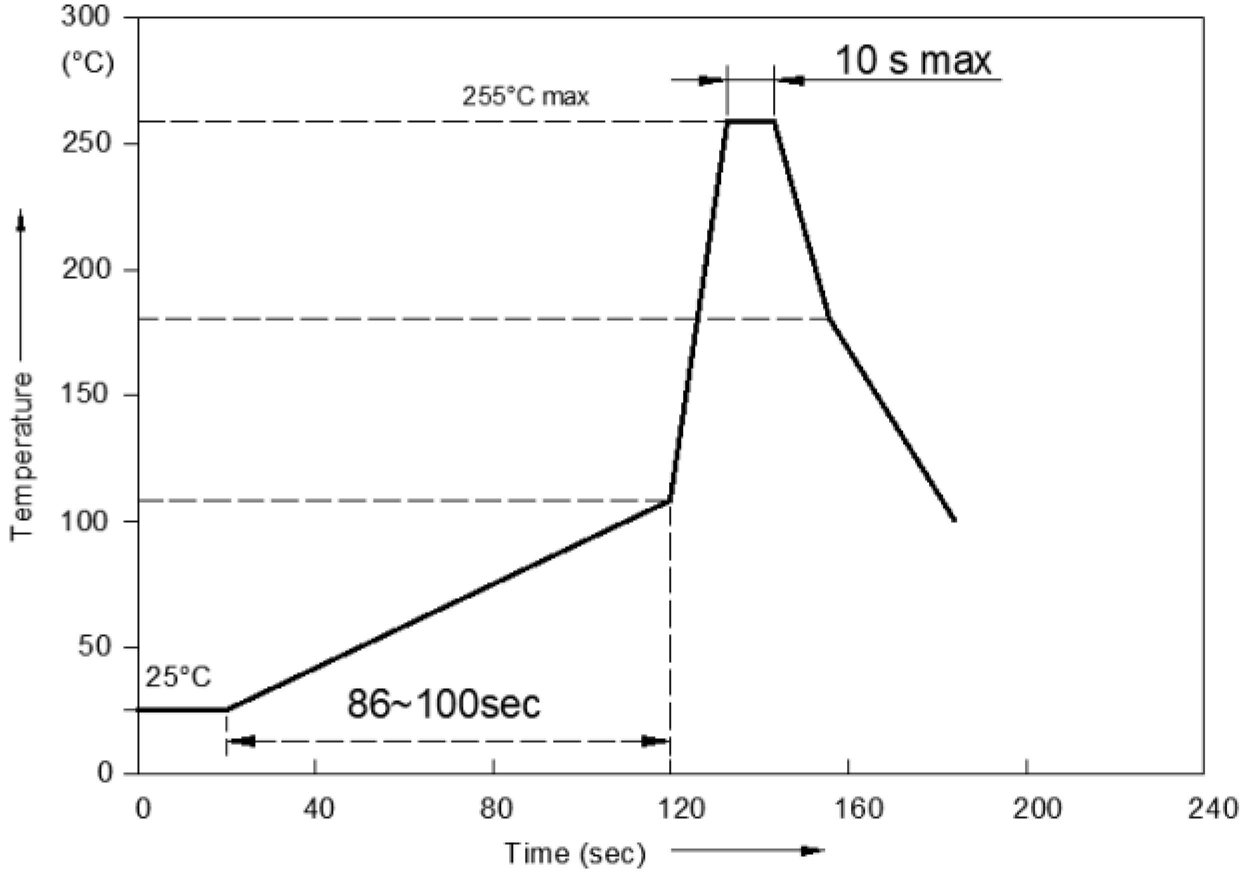
参数 Parameter	符号 Symbol	额定值 Value	单位 Unit
消耗功率 Power Dissipation	Pd	60	mW
最大脉冲电流* Max Pulse Current	IFP	40	mA
直流工作电流 DC Forward Current	IF	20	mA
反向电压 Reverse breakdown Voltage	VR	5	V
抗静电能力(人体模式)* Electrostatic Discharge Threshold (HBM)	ESD	2000	V
工作环境温度 Operating Temperature	Topr	-40 to 85℃	℃
储存环境温度 Storage Temperature	Tstg	-40 to 85℃	℃
焊接温度 Soldering Temperature	Tsol	回流焊/ soldering:260℃/10S 手工焊/ Hands soldering:320℃/3S	℃

注/Note: *: 占空比 1/10，脉冲宽 0.1ms/ Duty cycle 1/10, pulse width 0.1 ms.

*: 静电测试属于破坏性测试，只代表抽测数据/Static tests are Destructive testing and only represent random sampling data.

5、建议焊接温度曲线/ Recommended welding furnace temperature curve:

无 铅焊接：(Lead-free Soldering)



注/ Note:

1、灯珠在温度较高时不要施加外力在灯珠上。

Do not apply external force on led lamp beads when the temperature is high.

2、不建议过回流焊，若必须过回流焊，请提前与我司提出.

Reflow soldering is not recommended. If reflow soldering is necessary, please contact us in advance.

6、电特性参数：Photoelectric characteristic parameters(Ta=25℃)：

参数 Parameter	符号 Symbol	最小值 Min	典型值 Typ	最大值 Max	单位 Unit	测试条件 Test condition
发光强度 luminous intensity	IV	150	---	250	mcd	IF = 20mA
正 向电压 Forward Voltage	VF	1.8	2.0	2.4	V	IF = 20mA
主波长 main wavelength	λD	620	---	625	nm	IF = 20mA
反向漏电流 Reverse Current	IR	---	---	10	uA	VR=5V
半功率视角 Half Power View	2θ 1/2	---	100	---	deg	IF = 20mA

注/Note:

1.测量误差： 电压±0.1V， 光功率±10%， 波长 (X,Y)±1nm/±0.01。

Measurement errors : Vf±0.1V

Luminous Intensity : ±10%

Wavelength(x,y) : ±1nm/±0.01

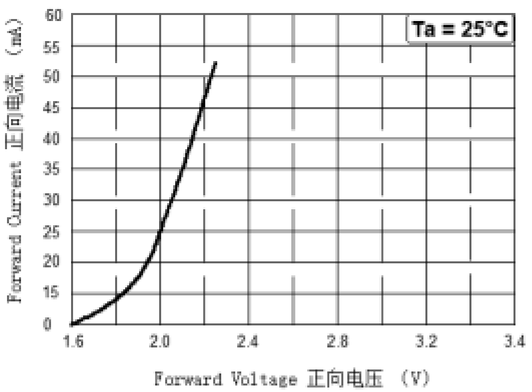
7、编码原则/Coding principles:

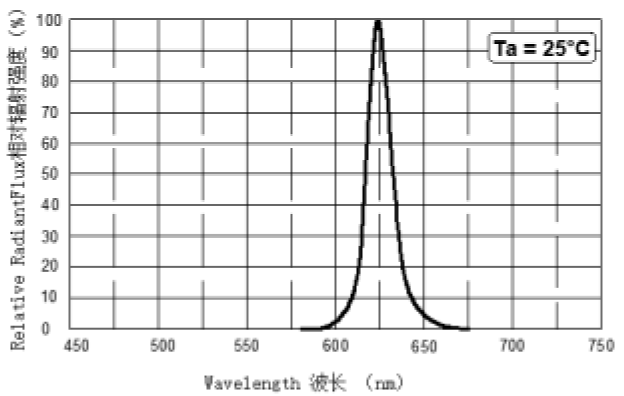
TZ-X XXXX - XXXX/X - XXXX X X - X X XX XX X X/X X X X

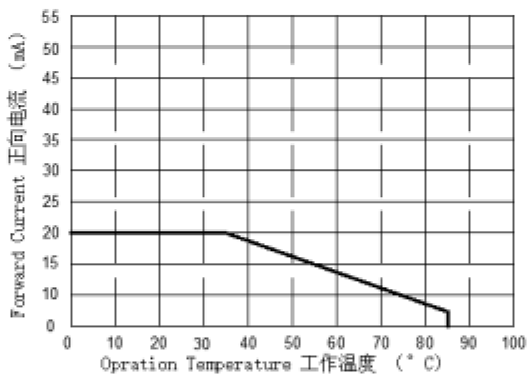
①②③ ④ ⑤ ⑥ ⑦⑧ ⑨⑩⑪ ⑫⑬⑭ ⑮

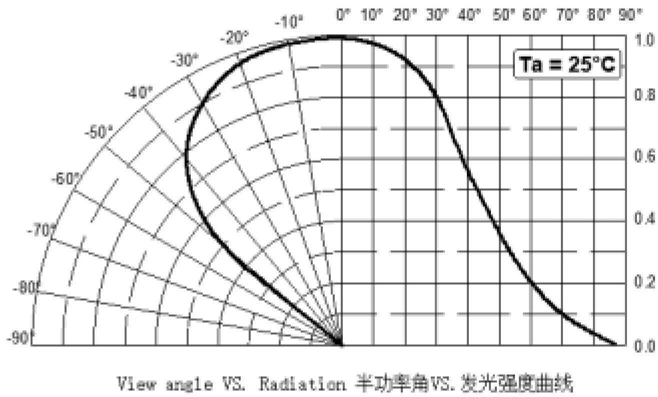
①：公司LOGO	⑥：支架/模条	⑪：串/并数量
②：产品系列	⑦：线材代码	⑫：分光电流
③：产品系列	⑧：脚位/极性	⑬：齐纳/电阻
④：发光颜色	⑨：胶体颜色	⑭：编带方向
⑤：显色指数	⑩：发光角度	⑮：内部识码

8、光电参数代表值特征曲线：Typical Optical-Electronic Characteristic Curves



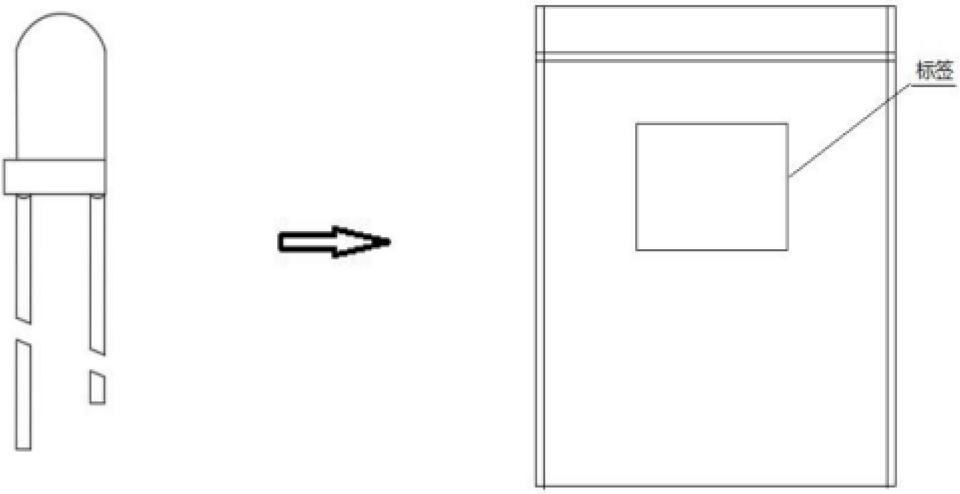






9、标签标识/ Label Identifier:

10、包装尺寸/ Packing Disc size:



注: Notes

(1) 数量：1000pcs/包 Quantity :1,000pcs/package

(2) 包装 :品名，生产数据代码和数量须在防静电包装袋上注明.

Package : P/N, Manufacturing data Code No. and .Notes on the anti-static packaging bag.

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11、信赖性实验/Reliability Test

实验项目 Test Items	参考标准 Reference	实验条件 Test Conditions	时间 Time	样品数 Quantity	判据 Criterion
冷热冲击 Thermal Shock	MIL-STD-202G	-40℃(15min) - 100℃ (15min)	200循环 200cycles	22	0/22
湿热循环 Temperature And Humidity Cycle		85℃，85%RH 24hrs/1 cycle	10循环 10cycles	22	0/22
高温储存 High Temperature Storage	JEITA ED-4701 200 201	Ta=100℃	1000h	22	0/22
低温储存 Low Temperature Storage	JEITA ED-4701 200 202	Ta=-40℃	1000h	22	0/22
常温寿命 Lifespan test	JESD22-A108D	Ta=25℃ IF=20mA	1000h	22	0/22
耐焊性 Resistance to Soldering Heat	GB/T 4937,Ⅱ,2.2&2.3	Tsol*=260℃ 10Secs	2次 2times	22	0/22

12、失效判定标准/Failure criteria：

测试项目 Test items	符号 Symbol	测试条件 Test conditions	判定标准 criterion
正向电压 Forward Voltage	VF	IF=20mA	初始值±10% Initial Data±10%
反向电流 Reverse Current	IR	VR=5V	IR≤10uA
光强 Luminous Intensity	IV	IF=20mA	IV光衰≤50% IV degradation≤50%
耐焊性 Resistance to Soldering Heat	Tsol	/	无死灯 No dead light

13、使用注意事项/Cautions：

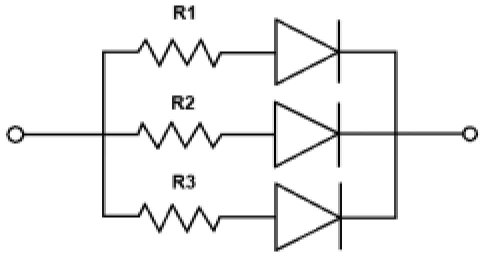
Ⅰ、使用/using :

1、LED是电流驱动元件，电压的细微变化会产生较大的电流波动，导致元件遭到破坏。客户应使用电阻串联作限流保护。

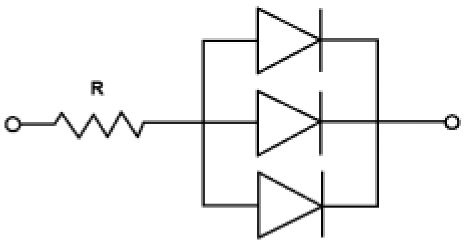
Leds are current-driven components , and small changes in voltage will produce large current fluctuations , leading to component damage . Customers should use resistors in series for current limiting protection .

2、为了确保多颗LED并联使用时光色一致，建议每条支路使用单独电阻,如下图模式A所示；如采用下图模式B所示电路，LED光色可能因每一颗LED不同的伏安特性而造成光色差异。

In order to ensure that CIE are consistent when multiple leds are connected in parallel , it is recommended to use separate resistors for each branch , as shown in mode A in below. If the circuit shown in mode B below is used , the LED light color may be different due to the different volt-ampere characteristics of each LED.



电路模式 A
Circuit model A



电路模式 B
Circuit model B

3、过高的环境温度会影响LED的亮度以及其他性能,所以为能使LED有较好的性能表现应远离热源。

Too high ambient temperature will affect the brightness of LEDS and its properties , please be away from the heat so as to keep their performance much better.

Ⅱ、存储/Storage:

1、未打开原始包装的情况下，建议储存环境为:温度:5℃~30℃、湿度:60%RH以下，有效期为1年。

If the original package is not opened, the recommended storage environment is: Temperature :5 ° C to 30 ° C, humidity: less than 60%RH, valid for one year.

2、打开原始包装后，建议储存环境为：温度 5~30 ° C 、湿度 30% RH以下，LED是湿度敏感元件，为避免元件吸湿，建议打开包装后，将其储存在有干燥剂的密闭容器内，或者储存在氮气防潮柜内。此款灯珠防潮等级为 MSL3；打开包装后，元件应该在1周内使用；且插件后应尽快做焊接作业，避免发生氧化生锈现象影响焊接。

After opening the original packaging, it is recommended to store in a temperature of 5-30°C and humidity below 30% RH. LEDs are humidity sensitive components. To avoid moisture absorption, it is recommended to open the packaging and store them in a sealed container with desiccant or in a nitrogen moisture-proof cabinet. This lamp bead has a moisture proof rating of MSL3; After opening the packaging, the components should be used within one week; And welding operations should be carried out as soon as possible after the plugin is inserted to avoid oxidation and rust that may affect welding.

III 、ESD静电防护/Electrostatic Protection:

LED(特别是InGaN结构的蓝色、翠绿色、紫色、白色、粉红色LED)是静电敏感元件, 静电或者电流过载会破坏LED结构。LED受到静电伤害或电流过载可能会导致性能异常, 比如漏电流过大,VF变低,或者无法点亮等等 。所以请注意以下事项:

LED(especially InGaN structure of blue, green,purple,white,pink LED) is electrostatic sensitive components ,static electricity or current overload will damage the LED structure . LED static damage or current overload may lead to abnormal performance,such as large leakage current,low VF, or failure to light and so on. So please note the following:

1、接触 LED时应佩戴防静电腕带或者防静电手套。

Wear an ESD wrist strap or ESD gloves when touching leds.

2、所有的机器设备、工制具、工作桌、料架等等，应该做适当的接地保护(接地阻抗值10Ω 以内)。

All machines, tools, worktables, racks, etc . ,should be properly grounded (within 10Ω ground resistance).

3、储存或搬运LED应使用防静电料袋、防静电盒及防静电周转箱，严禁使用普通塑料制品。

Anti-static material bags, anti-static boxes and anti-static turnover boxes should be used to store or transport LED. Ordinary plastic products are strictly prohibited.

4、建议在作业过程中，使用离子风扇来压制静电的产生。

It is recommended to use ion fans to suppress static electricity generation during operation.

5、距离LED元件1英尺距离的环境范围内静电场电压小于100V。

The electrostatic field voltage is less than 100V within the ambient range at a distance of 1ft from the LED element.

Ⅳ 、清洗/Cleaning:

建议使用异丙醇等醇类溶液清洗LED，严禁使用腐蚀性溶液清洗。

It is recommended to use alcohol solution such as isopropyl alcohol to clean LED. Corrosive solution is strictly prohibited.

V 、焊接/welding:

1、波峰焊焊接条件参考第三页温度曲线。

The welding conditions for wave soldering refer to the temperature curve on page three.

2、波峰焊焊接次数不得超过两次。

The number of wave soldering times shall not exceed two.

3、手工焊接:最高焊接温度不超过 320度，且须在3秒内完成。烙铁最大功率应不超过30W。

Manual welding: The maximum welding temperature should not exceed 320 degrees and must be completed within 3 seconds. The maximum power of the soldering iron should not exceed 30W.

4 、焊接过程中,严禁在高温情况下碰触胶体。

During the welding process , it is forbidden to touch the colloid at high temperature.

5 、焊接后,禁止对胶体施加外力，禁止弯折PCB ,避免元件受到撞击。

After welding, do not apply external force to colloid, do not bend PCB, to avoid the impact of components.

Ⅵ 、其他/others

1 、本规格所描述的 LED定义应用在普通的的电子设备范围(例如办公设备、通讯设备等等)。如果有更为严苛的信赖度要求，特别是当元件失效或故障时可能会直接危害到生命和健康时 (如航天、运输、交通、医疗器械、安全保护等等) ，请事先知会敝司业务人员。

The LED definitions described in this specification are applied to a range of common electronic equipment (e .g.office equipment, communication equipment , etc .) . If there are more strict requirements of reliability, especially when the failure or failure of components may directly endanger life and health (such as aerospace , transportation ,traffic ,medical instruments ,safety protection, etc .) , please inform our business personnel in advance.

2、高亮度LED产品点亮时可能会对人眼造成伤害, 应避免从正上方直视。

High brightness LED products may cause damage to human eyes when lit. Avoid looking directly at them from above.

3、出于持续改善的目的，产品外观和参数规格可能会在没有预先通知的情况下作改良性变化。

For the purpose of continuous improvement , product appearance and specifications may be subject to benign changes without prior notice.

14 、修订历史

版本	修订日期	修订内容	修订人	审核人
V1	2024-05-31	新版制定	周星林	李海丰