苏州群力欣光电科技有限公司

Suzhou Que-lesion Optoelectronic Technology co.,Ltd

产品规格书

SPECIFICATION

客户名称 Customer		产品名称 Product	3528LED
客户料号 Customer No.		产品型号 Type	QSTRRB4-01-20MA
规格书编号 SPEC No	20150416001	日期 Date	2015.04.16

客户确认 APPROVED SIGNATURES		

制定(DRAW)：________ 审核(CHECK)：_________ 批准（APPROVE）：__________

地址:江苏省苏州市相城区阳澄湖镇石田路 3 号

ADD:NO.3 shitian road,yangchenhu town,xiangcheng district,Suzhou,china

电话(Tel): 0512-69599058

传真(Fax):0512-65485461

QSTRRB4-01-20MA

特征 Features

- 宽的发光角度
  Extremely wide viewing angle
- 适合所有 SMT 组装和焊接过程
  Suitable for all SMT assembly and solder process
- 可用在载带及卷轴上
  Available on tape and reel
- 防潮等级:2 级
  Moisture sensitivity level: Level 2
- 包装:2000pcs/卷
  Package:2000pcs/reel
- 符合欧盟 RoHS 标准
  RoHS compliant

描述 Description

红光 LED 由 AlGalnP 四种元素芯片激发而成

The red source color devices are made with AlGalnP on Substrate Light Emitting Diode

应用（Applications）

光学指示

Optical indicator

室内显示

Indoor display

汽车照明

Automotive lighting

LCD 背光、转换器，开关和标志，显示器等 Backlight for LCD , switch and symbol , display

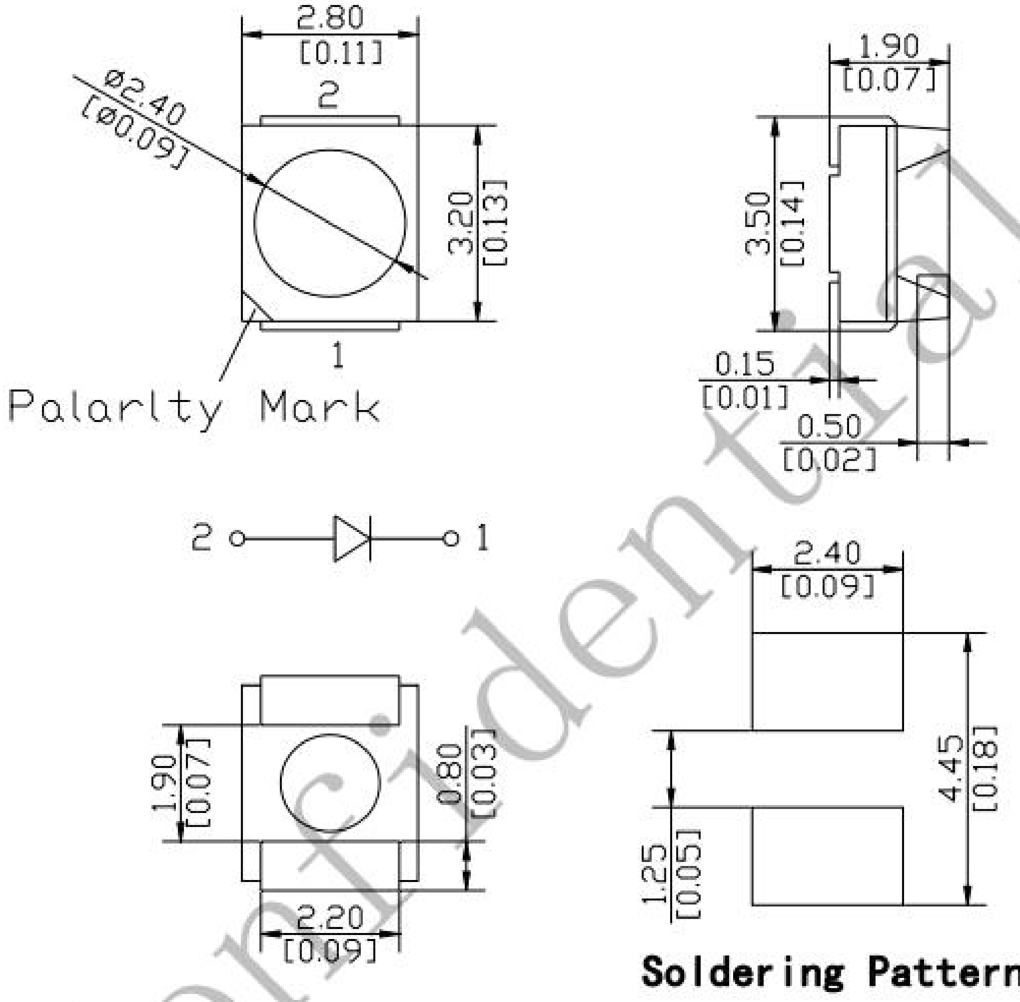
用于日光灯管

Tubular light application

一般应用

General use

外形尺寸 Outline Dimensions



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
SENSITIVE DEVICES

NOTES:

1. All dimensions units are millimeters. (所有尺寸标注单位为毫米)
2. All dimensions tolerances are ±0.2mm unless otherwise noted. (除特别标注外，所有尺寸公差为±0.2 毫米)

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Electrical / Optical Characteristics at Ta=25°C 电性与光学特性

Item 项目		Symbol 符号	test condition 测试条件	Value			unit 单位
				Min.	Max.	Typ.	
Forward Voltage	Rank B1	Vf	IF=20mA	1.8	1.9	---	V
	Rank C2			1.9	2.0	---	V
	Rank C1			2.0	2.1	---	V
	Rank C2			2.1	2.2	---	V
	Rank D1			2.2	2.3	---	V
	Rank D2			2.3	2.4	---	V
Dominant wavelength	Rank D20	λd	IF=20mA	617.5	620	---	nm
	Rank E10			620	622.5	---	nm
	Rank E20			622.5	625	---	nm
	Rank F10			625	627.5	---	nm
	Rank F20			627.5	630	---	nm
Luminous intensity	Rank 1AT	IV	IF=20mA	200	260	---	mcd
	Rank 1AU			260	330	---	mcd
	Rank 1AV			330	430	---	mcd
Reverse Current		VR=5V	IR	---	10	---	uA
Viewing Angle		2Θ1/2	IF=20mA	---	---	120	Deg
Thermal resistance		Rth(j-s)	IF=20mA	---	---	80	℃/W

Absolute Maximum Ratings at Ta=25°C 绝对最大值

Parameter（参数）	Symbol（符号）	Rating（值）	Units（单位）
Power Dissipation（功耗）	Pd	70	mW
Forward Current（正向电流）	IF	30	mA
Peak Forward Current（峰值电流）	IFP	100	mA
Reverse Voltage（反向电压）	VR	5	V
Electrostatic Discharge(HBM)（静电）	ESD	2000	V
Operating Temperature（操作温度）	Topr	-40 ~ +85	℃
Storage Temperature（储存温度）	Tstg	-40 ~ +100	℃
junction temperature（结温）	Tj	115	℃

Note: 1. 1/10 Duty cycle, 0.1ms pulse width. 脉宽0.1ms, 周期1/10.

2. The above forward voltage measurement allowance tolerance is 0.1V. 以上所示电压测量误差0.1V.

3. The above wavelength measurement allowance tolerance is ±1nm. 以上所示波长测量误差±1nm.

4. the above luminous intensity measurement allowance tolerance ±10%. 上述发光强度的测试允许公差为±10%.

5. Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product. 使用功率不能超过规定的最大值。

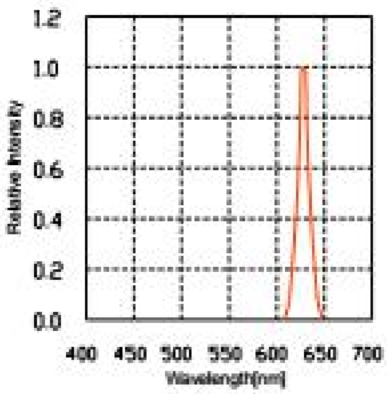
6. All measurements were made under the standardized environment of Refond. 所有测试都是基于瑞丰现有的标准测试平台。

7.When the LEDs are in operation the maximum current should be decided after measuring the package temperature，junction temperature should not exceed the maximum rate.LED使用的最大电流需要根据散热条件确定，结温不能超过最大值。

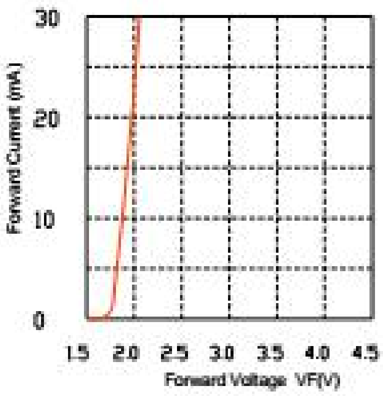
Typical optical characteristics curves 典型光学特性曲线

Spectral Distribution

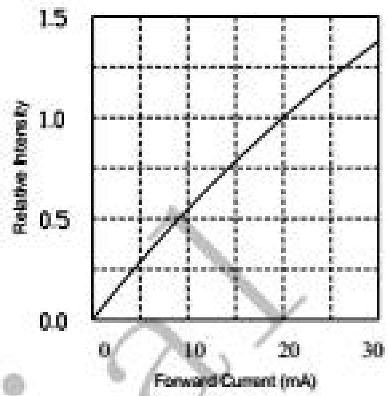
Relative Intensity vs. Wavelength (Ta=25°C)



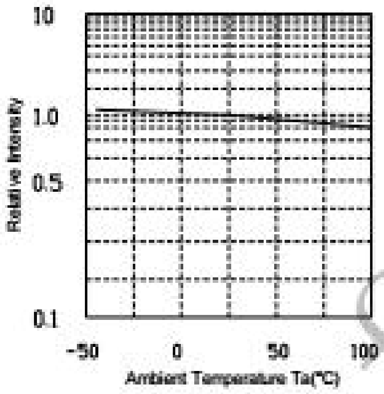
Forward Current vs. Forward Voltage (Ta=25°C)



Relative Intensity vs. Forward Current (Ta=25°C)

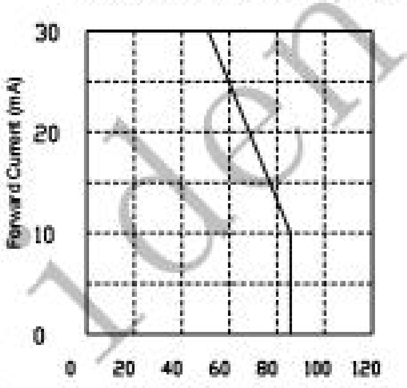


Relative Intensity vs. Ambient Temperature



Derating

Maximum Forward Current vs. Ambient Temperature



Forward Current vs. Chromaticity (Ta=25°C)

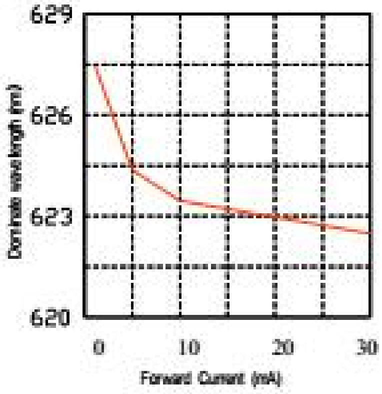
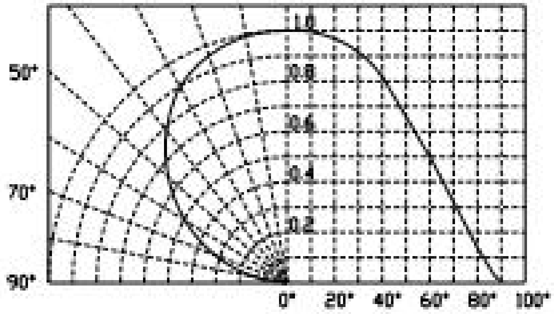


Diagram characteristics of radiation



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信赖性测试项目及条件 Reliability Test Item And Conditions

Test Items 项目	Ref.Standard 参考标准	Test Condition 测试条件	Time 时间	Quantity 数量	Ac/Re 接收/拒收
Reflow 回流焊	JESD22-B106	Temp:260℃max T=10 sec	2times.	22Pcs.	0/1
Temperature Cycle 温度循环	JESD22-A104	100℃ 30 min. ↑↓5 min -40℃ 30 min.	100 Cycles	22Pcs.	0/1
Thermal Shock 冷热冲击	JESD22-A106	-40℃ 15min ↑↓ 100℃ 15min	300 cycle	22Pcs.	0/1
High Temperature Storage 高温保存	JESD22-A103	Temp:100℃	1000Hrs.	22Pcs.	0/1
Low Temperature Storage 低温保存	JESD22-A119	Temp:-40℃	1000Hrs.	22Pcs.	0/1
Life Test 常温通电	JESD22-A108	Ta=25℃ IF=20mA	1000Hrs.	22Pcs.	0/1
High Temperature High Humidity Life Test 高温高湿通电	JESD22-A101	60℃/ 90%RH IF=20mA	1000Hrs.	22Pcs.	0/1

失效判断标准 Criteria For Judging Damage

Test Items 项目	Symbol 符号	Test Condition 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=20mA	-	U.S.L*)x1.1
Reverse Current 反向电流	IR	VR = 5V	-	U.S.L*)x2.0
Luminous Intensity 发光强度	mcd	IF=20mA	L.S.L*)x0.7	-

备注 Note:

Tsol-锡液温度； I_{FT}:典型电流 Tsol –Temperature of tin liquid ; I_{FT}:Typical current

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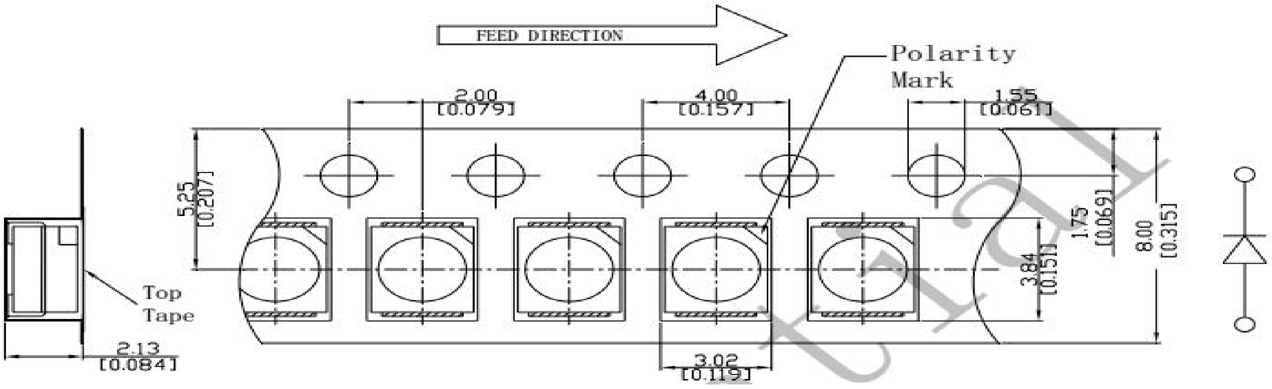
包装 Packaging

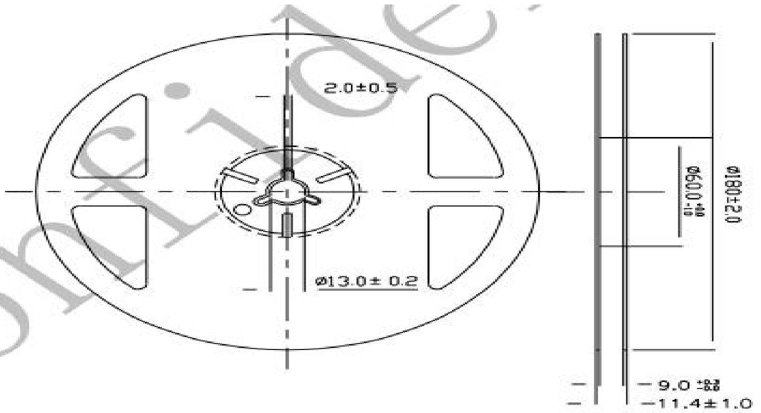
标签 Label

料号 Part No.:***　　批号 Lot No.:***　　数量 O’ty(pcs):***
亮度 Iv(mcd):***　　波长（nm）: ***　　电压 VF（v）:***
日期 Date:***

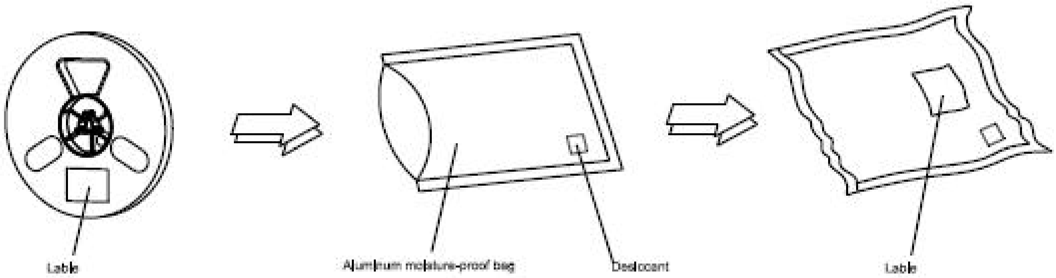
载带规格（单位：mm）Tape Specifications(Units:mm)



卷轴尺寸 Reel Dimensons



防潮袋包装 Moisture Resistant Packaging



备注：标注公差为±0.1mm,单位：mm

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

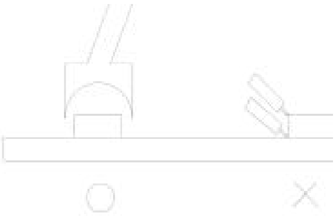
焊接指导 Guideline for Soldering

Soldering iron 烙铁焊接

1.When hand soldering, keep the temperature of iron below less 300℃ less than 3 seconds
当手工焊接时，烙铁的温度必须小于300℃，时间不可超过3秒
2.The hand solder should be done only one times
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 in advance whether the characteristics of LEDs will or will not be damaged by repairing.
LED回流焊后不应该修复，当修复是不可避免时，必须使用双头烙铁（如下图），但必须事先确认此种方式会或不会损坏LED本身的特性。



Cautions 注意事项

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 use the picking up nozzle, the pressure on the silicone resin should be proper.
LED封装为硅胶，故LED胶体表面较软，用力按压胶体表面会影响LED可靠性，因此应有预防措施避免在封装的零件上的强大压力，当使用吸嘴时，胶体表面的压力应是恰当的。

3.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

4.Not suitable to operate in acidic environment, PH<7
不可用在PH<7的酸性场所