

ROHS

编 号: BR-BP-1904008

Specification

规格书

Customer Name:

(客户名称)

Customer P/N:

(客户品号)

Factory P/N:

(公司品号)

L02A28351C03WD

Client approval 客户审核 (签章)		Bore approval 般若电子工业审核 (签章)		
Approval 核准	Audit 确认	Approval 核准	Audit 确认	Fabrication 制作
		方丹	胡勋涛	马加正
☐ Qualified 接受		☐ Disqualified 不接受		DATE: 日期: 2018. 12. 15

Add: NO.3, tianjing road, Jan Hu economic development zone , Yan Cheng city , Jiang Su province.

地址: 江苏省盐城市建湖县经济开发区天津路三号。

Tel/电话: (0086) 515-8635666

Fax/传真: (0086) 515-80698966

注: 1. 此规格书以中英文方式书写, 若有冲突以中文版本为准文本。

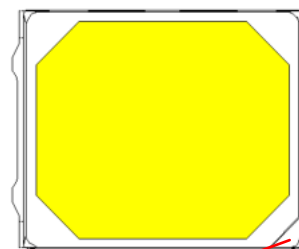
2. 此规格书的最终解释权归江苏般若电子工业工业公司。

3. 此规格书的有效期限为两年, 自盖章或签字之日起计算, 期满时双方可以续签协议, 但应采用书面形式。

L02A28351C03WD

Features(特征)

- I PLCC-2 Package.(PLCC-2 封装)
- I Extremely wide viewing angle. (宽的发光角度)
- I Suitable for all SMT assembly and solder process. (适用于所有的SMT组装和焊接工艺)
- I Available on tape and reel. (适用于载带及卷轴)
- I Moisture sensitivity level: Level 4. (防潮等级 Level 4)
- I Package: 16000pcs/reel..(包装每卷16000PCS)
- I ROHS compliant. (ROHS 认证)



缺口为负极

Description (描述)

The White LED which was fabricated using a blue chip and the phosphor
白光LED由蓝光芯片与荧光粉激发而成

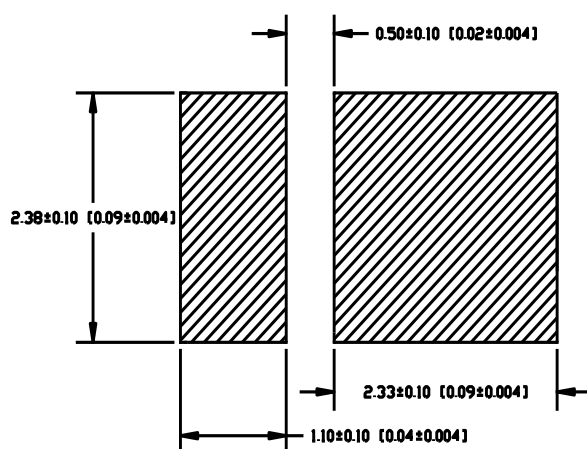


ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

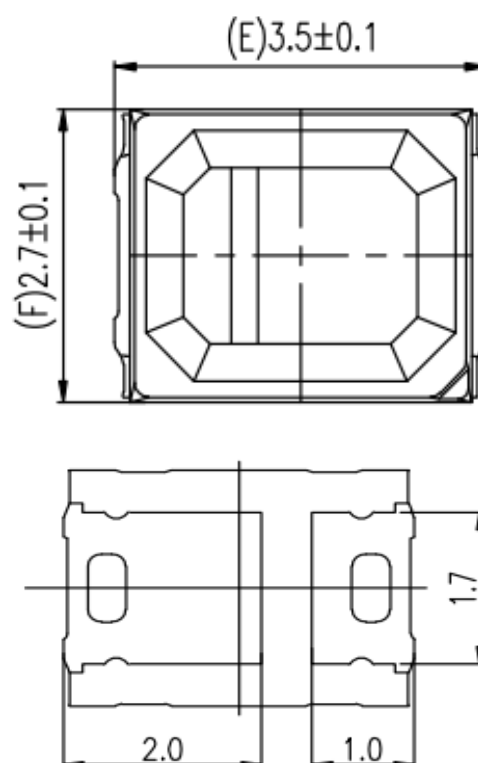
注意：操作时应注意静电敏感释放

Applications (应用)

- Optical indicator (光学指示)
- Backlight for LCD, switch and Symbol, display
(LCD背光、转换器, 开关和标志, 显示器等)
- General use (一般应用)

Recommended Soldering Pattern
(建议焊盘尺寸图)

Package Dimensions (封装尺寸)



Notes: (备注)

1. All dimension units are millimeters. (所有标注尺寸单位为毫米)
2. All dimension tolerance is $\pm 0.15\text{mm}$ unless otherwise noted. (除特别标注外, 所有尺寸允许公差 $\pm 0.15\text{mm}$)

L02A28351C03WD

Selection Guide（选择指南）

Part Number

L	0	2	A	2	8	3	5	1	C	0	6	W	C	Z
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

类别	功率	预留码	尺寸	串并	电流	光色	显指	zener
L: Lighting	02 0.2W	A代表PPA	2835: 2835	1C 1串	01 10mA	W: 白光	A Ra>70	Z 齐纳
B: Backlighting	05 0.5W	B代表PCT	4014: 4014	2C 2串	06 60mA	B: 蓝光 G: 绿光	B Ra>80, R9>0	
A: Automotive	10 1.0W	C代表双色温	5730: 5730	3C 3串	10 100mA	O: 橙光 P: 粉红光 R: 红光 V: 紫光 Y: 黄光	C Ra>90, R9>10	
	06 0.6W			2B 2并	15 150mA		D Ra>80 无R9	
	04 0.4W			3B 3并	75 75mA		E Ra>95 R9>50	
	03 0.3W			4C 4串	65 65mA			
	01 0.1W				03 30mA			
					30 300mA			
					02 20mA			
					55 55mA			

此位代码只针对带齐纳灯珠编写，不带齐纳，不编写此位

L02A28351C03WD**Selection Guide (选择指南)**

Part No. 型号	Chip Materials 芯片材料	Lens Type 胶体类型
L02A28351C03WD	InGaN	Yellow Diffused

Mass Production list (批量生产目录)

Part No. 型号	TC (k)	TC (k)	Φ (lm)	Φ (lm)	Test Conditions
	Min	Max	Min	Max	测试条件
L02A28351C03WD	2600	2800	22	--	IF=60mA
	2800	3100	23	--	IF=30mA
	3800	4200	24	--	IF=30mA
	4700	5300	24	--	IF=30mA
	5700	6300	24	--	IF=30mA
	6200	6800	24	--	IF=30mA

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

Parameter (参数)	Symbol (符号)	Min. (最小)	Typ. (平均)	Max. (最大)	Units (单位)	Test Conditions 测试条件
Forward Voltage 正向电压	VF	5.8	--	6.6	V	IF=30mA
Viewing Angle 角度	2 θ 1/2	--	120	--	deg	IF=30mA
Color Rendering Index 显色性指数	Ra	80	--	--		IF=30mA
Color Rendering Index 显色性指数	R9	--	--	--		IF=30mA
Reverse Current 反向电流	IR	--	--	10	μ A	VR = 10V
Color Tolerance Adjustment 色容差	SDCM	--	--	6	SDCM	IF=30mA

Note:(备注)

- 2 θ 1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
2 θ 1/2 是半值角, 指光强是光学中心线光强的1/2处到光学中心线的角度
- The above luminous flux measurement allowance tolerance $\pm 10\%$.
上述发光通量的测试允许公差为 $\pm 10\%$
- The above Color Rendering Index measurement allowance tolerance is ± 2
以上显色性指数的测试允许公差为 ± 2
- The above forward voltage measurement allowance tolerance is $\pm 0.1V$.
以上所示电压测量误差 $\pm 0.1V$
- The above color coordinates measurement allowance tolerance is ± 0.005 .
以上所示坐标测量误差 ± 0.005

L02A28351C03WD**Absolute Maximum Ratings at Ta=25°C** 绝对最大额定值

Parameter (参数)	Symbol (符号)	Rating (值)	Units (单位)
Power Dissipation (功耗)	P _d	225	mW
Forward Current (正向电流)	I _F	35	mA
Peak Forward Current [1] (峰值正向电流)	I _{FP}	35	mA
Reverse Voltage (反向电压)	V _R	5	V
Electrostatic Discharge (HBM) (静电)	ESD	2000	V
Operating Temperature (操作温度)	T _{opr}	-40 ~ +85	°C
Storage Temperature (保存温度)	T _{stg}	-40 ~ +100	°C
Junction Temperature结温	T _j	115	°C

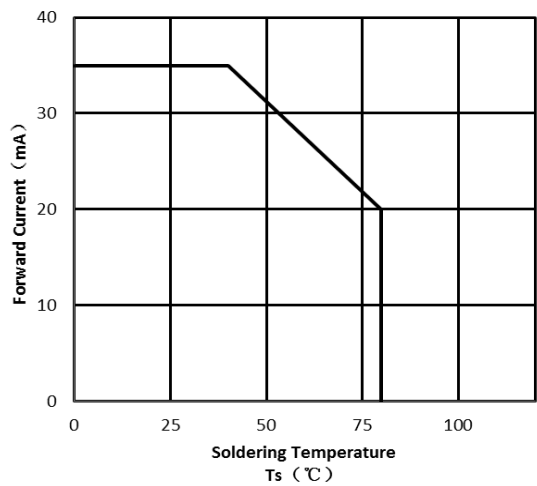
Note: (备注)

1. 1/10 Duty cycle, 0.1ms pulse width. (脉宽0.1ms, 周期1/10)

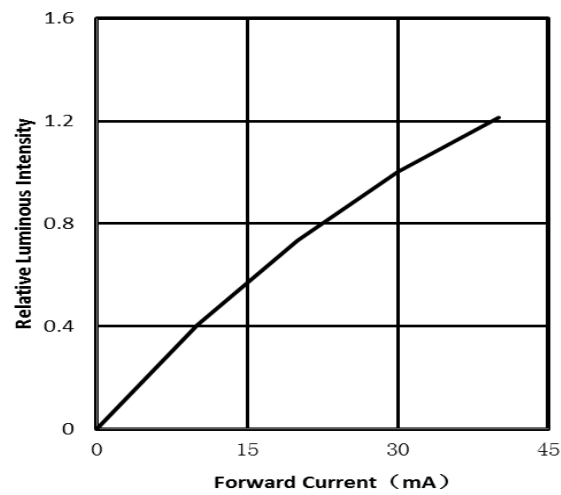
L02A28351C03WD

Typical optical characteristics curves 典型光学特性曲线

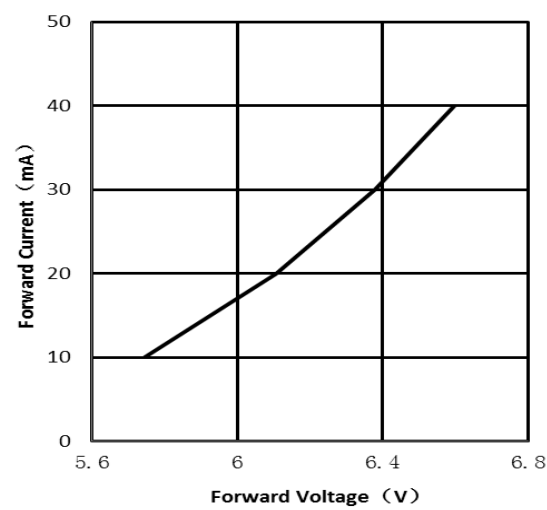
Soldering Temperature vs. Forward Current
焊盘温度与正向电流特性曲线



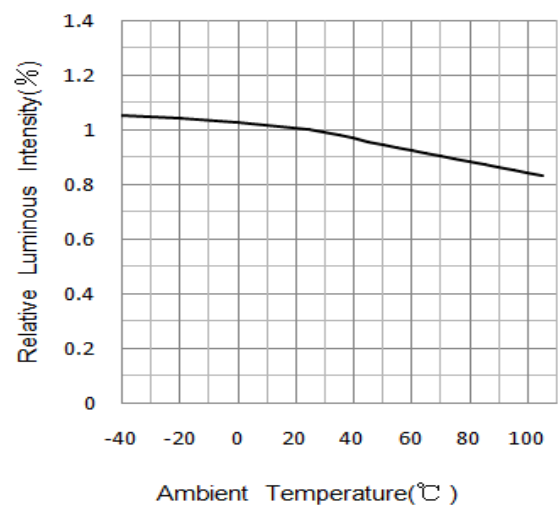
Forward Current VS. Relative Intensity
正向电流与相对光强特性曲线



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



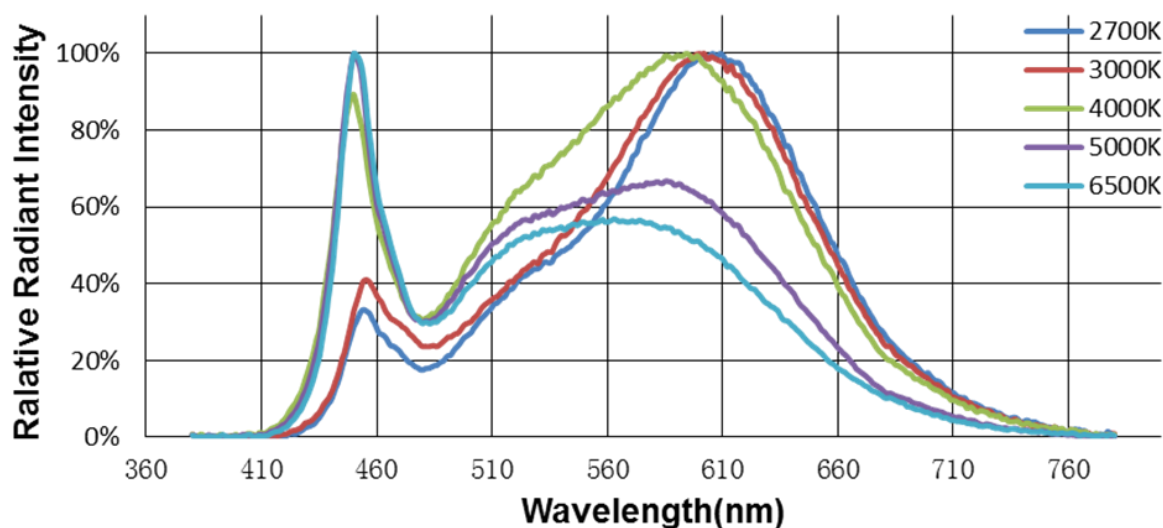
Ambient Temperature VS. Relative Intensity
环境温度与相对光强特性曲线



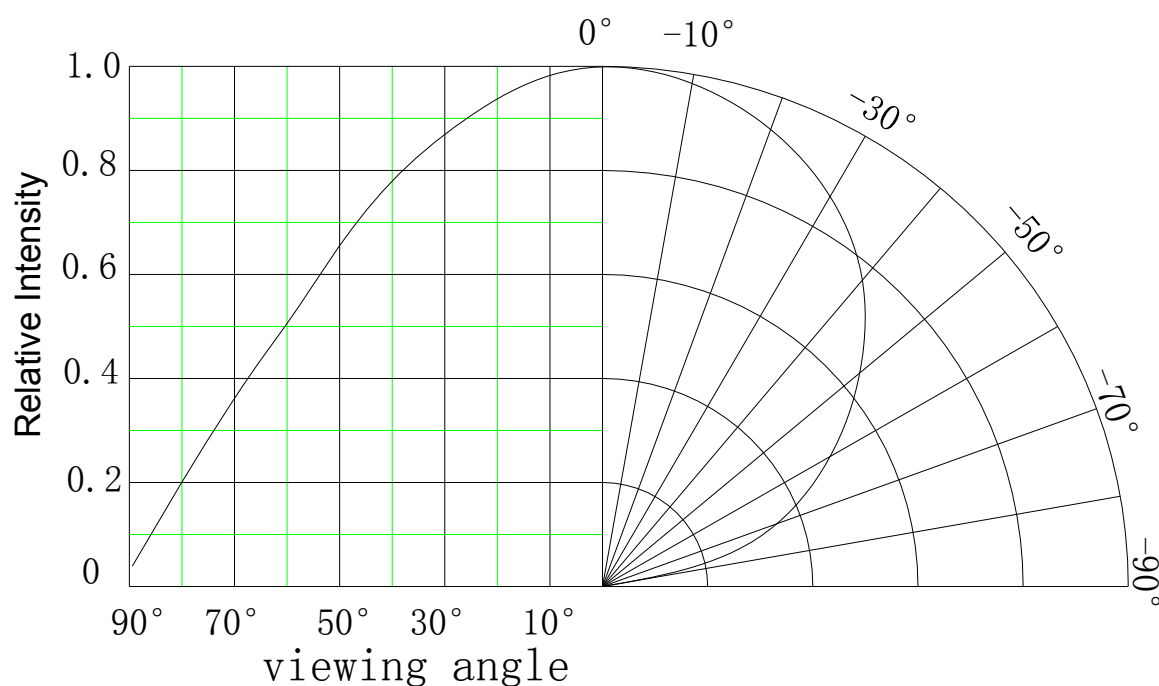
L02A28351C03WD

Typical optical characteristics curves 典型光学特性曲线

Relative spectral emission 相对光谱分布特性曲线

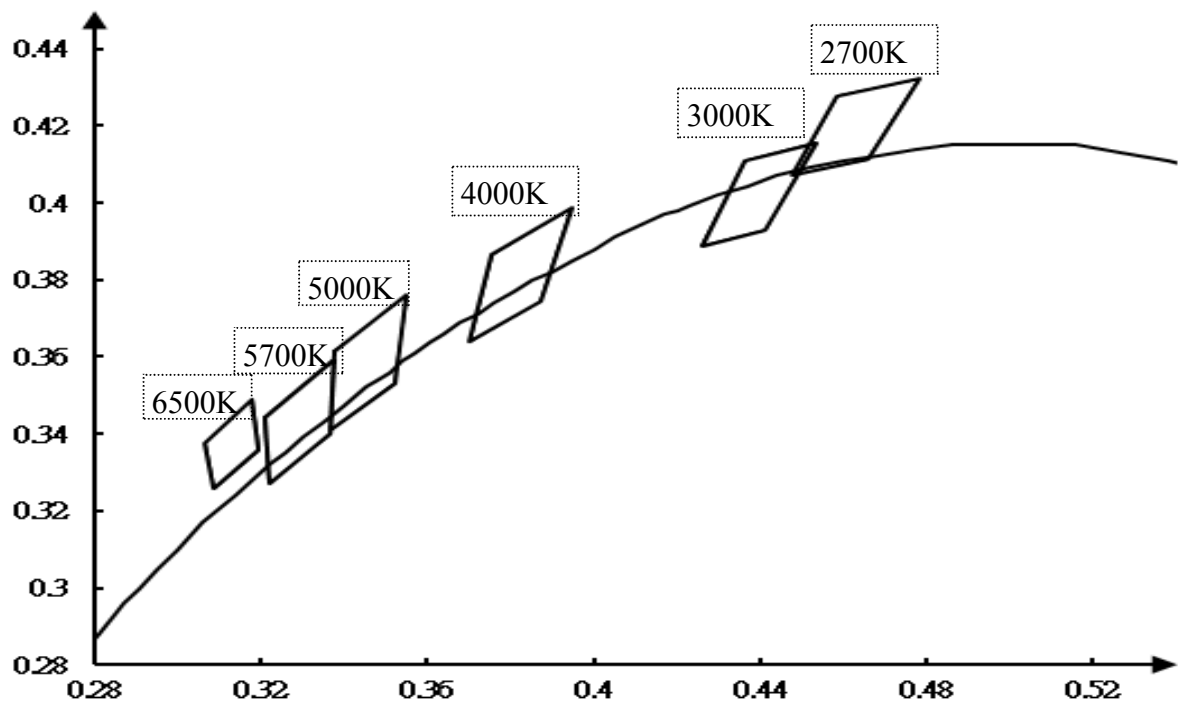


Radiation diagram 辐射图特性曲线



L02A28351C03WD

The C.I.E.1931 Chromaticity Diagram



Bin Range of Chromaticity Corrdinates

CCT	Bin Code	CIE_x	CIE_y	CCT	Bin Code	CIE_x	CIE_y
Reference Range:2600K-2800K				Reference Range:2800K-3100K			
2700K	27	0. 4782	0. 4321	3000K	30	0. 4534	0. 4157
		0. 4657	0. 4111			0. 4413	0. 3929
		0. 4477	0. 4071			0. 4260	0. 3887
		0. 4586	0. 4278			0. 4358	0. 4107
		0. 4782	0. 4321			0. 4534	0. 4157
Reference Range:3800K-4200K				Reference Range:4700K-5300K			
4000K	40	0. 3942	0. 3983	5000K	50	0. 3562	0. 3769
		0. 3876	0. 3746			0. 3534	0. 3542
		0. 3702	0. 3639			0. 3370	0. 3412
		0. 3750	0. 3862			0. 3376	0. 3616
		0. 3942	0. 3983			0. 3562	0. 3769
Reference Range:5300K-6000K				Reference Range:6200K-6800K			
5700K	57	0. 3375	0. 3595	6500K	65	0. 3185	0. 3496
		0. 3367	0. 3400			0. 3197	0. 3360
		0. 3220	0. 3271			0. 3097	0. 3266
		0. 3208	0. 3443			0. 3077	0. 3388
		0. 3375	0. 3595			0. 3185	0. 3496

L02A28351C03WD**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 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	3 times.	22Pcs.	0/1
Temperature Cycle 温度循环	JESD22-A104	120℃±5℃/30 min. ↑↓5 min -40℃±5℃/30 min.	100 Cycles	22Pcs.	0/1
High Temperature Storage 高温保存	JESD22-A103	Temp:100℃±5℃	1000Hrs.	11Pcs.	0/1
Low Temperature Storage 低温保存	JESD22-A119	Temp:-40℃±5℃	1000Hrs.	11Pcs.	0/1
Life Test 常温通电	JESD22-A108	Ta=25℃±5℃ IF=30mA	1000Hrs.	11Pcs.	0/1
High Temperature High Humidity Life Test 高温高湿通电	JESD22-A101	60℃±5℃/ 90%RH IF=30mA	1000Hrs.	11Pcs.	0/1

Failure Criteria 失效判定标准

Test Items 项目	Symbol 符号	Test Condition 测试条件	Failure Criteria 判定标准	
			Min. 最小	Max. 最大
Forward Voltage	VF	IF=30mA	--	U.S.L*)x1.1
Reverse Current 反向电流	IR	VR = 10V	--	U.S.L*)x2.0
Luminous Flux 光通量	Lm	IF=30mA	L.S.L*)x0.7	--

U.S.L: Upper Specification Limit 规格上限

L.S.L: Lower Specification Limit 规格下限

*The technical information shown in the data sheets is limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.

数据工作表中所示的技术信息仅限于典型特征和电路实例引用的产品,它既不构成工业特性的保证,也不构成任何许可的授权.

L02A28351C03WD

Label 标签

PartNo: Part number 型号
ΦV: Luminous intensity rank 亮度等级
VF: Forward voltage rank 电压等级
X/Y: Coordinate rank 色坐标
TC: Color temperature 色温

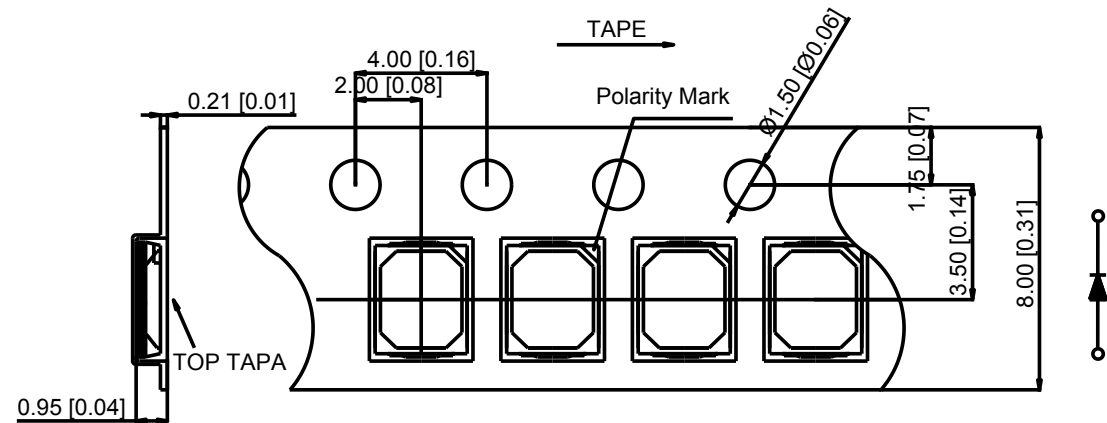
BORE 般若

PartNo: L02A28351CZ06WB-050
ΦV: 26-281m VF: 3.0-3.1V
TC: 4700-5300K Ra: 80
Qty: 16000 pcs X/Y: 50
M180601002
15B301216252120000



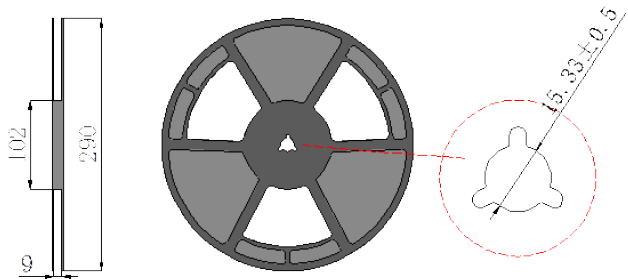
W5

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

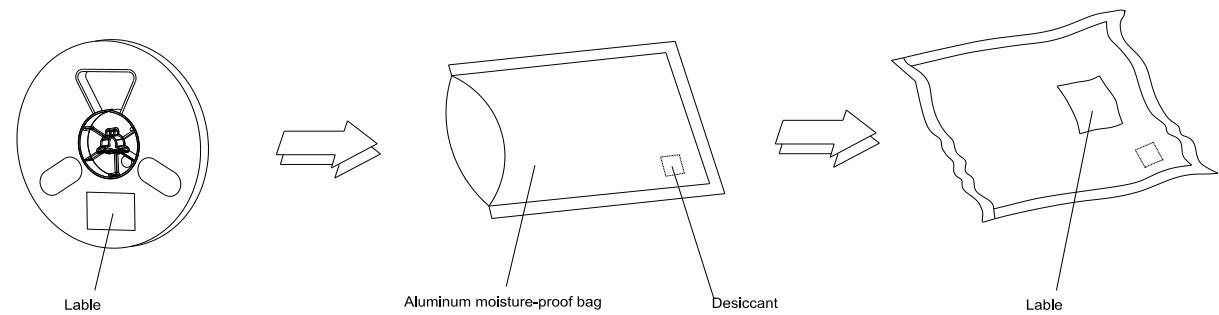


Reel Dimensions

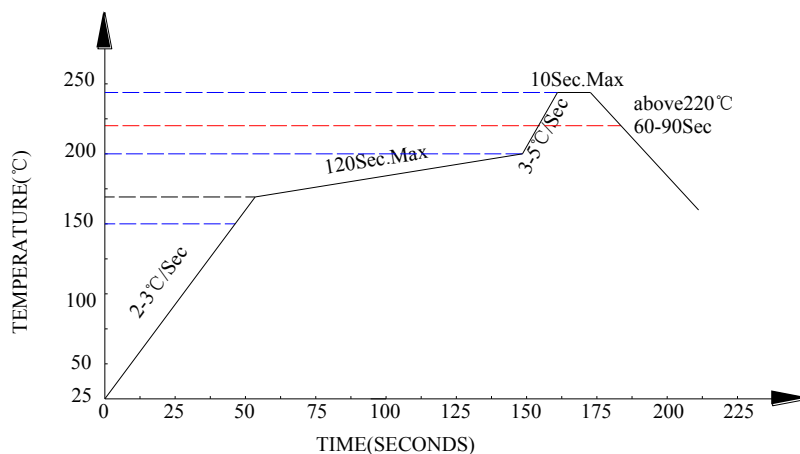
卷轴尺寸



Moisture Resistant Packaging 防潮带包装



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit: mm 注: 标注公差为 $\pm 0.1\text{mm}$, 单位: mm

L02A28351C03WD**SMT Reflow Soldering Instructions SMT回流焊说明**

1.Reflow soldering should not be done more than two times. 回流焊不可以做两次以上

2.When soldering , do not put stress on the LEDs during heating

当焊接时，不要在材料受热时用力压胶体表面

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

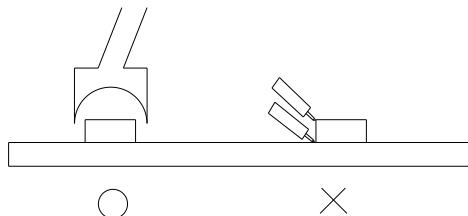
2.The hand solder should be done only one times

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。

L02A28351C03WD**Storage conditions** 储存条件

Before opening the package 打开包装袋前:

1. The LEDs can be preserved for 1 year in condition of temperature no more than 30℃ and humidity no more than 60%RH. Recommended for moisture-proof foil bag with desiccant packaging methods and stored in the constant temperature and humidity box. Can not reach the requirements under the environment of the guarantee as far as possible in six months after use.

在温度不超过30℃及湿度不超过60%RH 条件下, LED 可以保存一年, 建议采用带干燥剂的防潮铝箔袋的包装方式, 存放在恒温恒湿箱中。达不到要求的环境下, 尽量保证在6个月内使用完毕。

After opening the package 打开包装后:

1. The SMD LEDs should be run out with 12hours in condition of temperature no more than 30℃ and humidity no more than 60%RH. The rest products should be pressurized in vacuum condition with desiccants. Stored for more than 7 days, next time also must be dehumidification, the dehumidification conditions is 75℃ with 12hours.

开封后, LED 在 $\leq 30^{\circ}\text{C}$, $\leq 60\%\text{RH}$ 相对湿度的条件下, 12 小时内完成贴片作业, 未用完的产品重新真空密封, 并放置在一个密封容器中, 同时必须使用干燥剂。存储超过7天, 下次使用时同样需要除湿操作, 除湿条件为75℃ 12 小时。

2. The sealed storage products stock in the drying cabinet more for than one month, then must be dehumidified before used, and the dehumidified conditions is 75℃ 24 hours.

密封的产品在干燥箱中存储超过1个月的, 须经过深度除湿作业才能上线, 除湿条件: 75℃ 24小时。

3. If the product does not vacuum sealed packaging, and in the air for more than 40hours, this product must be removed from the tape of reel and put into the steel plate to dehumidify with 150℃ 2 hours, then could ensure the quality of the product after the soldering operation.

如果产品没有真空包装密封保存, 且在空气中放置超过40小时, 此产品必须从载带中拆出, 放入钢盘进行150℃ 2小时的除湿, 之后进行回流焊作业才能保证产品品质。