



承 认 书

SPECIFICATION FOR APPROVAL

客 户:

Customer: _____

客户料号:

Customer Part No.: _____

格天料号:

NW- Part No.: MLT-SMD-2835-12060D40

规 格:

Specification: VF=11-13V IF=60MA CCT=4000K IV=110-130LM

文件编号:

Documents No.: EW-SPC2201002

送承认日期:

SAMPLE DATE: 2022-01-04

客户承认签核栏

CUSTOMER AUTHORIZED SIGNATURE

核 准 Checked	审 核 Verify	承认人 approve by

Pleas retun to us oen copy of "SPECIFICATION FOR APPROVAL" With you approved Signatu 客户签字确认，盖章后请回传一份承认书我司

送承认确认栏

CONFIRM THE SIGNATURE

核 准 Checked	审 核 Verify	制作人 MAKER



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MLT-SMD-2835-12060D40

Description (描述)

3.50mmx2.80mmSMT-LED(表面贴片器件尺寸为3.50mmx2.80mm)

The materials of the LED dice is INGaN(发光二极管所用芯片材料为氮化镓)

Features(特征)

Extremely wide viewing angle(宽的发光角度)

Suitable for all SMT assembly and solder process.(适用于的所有的SMT装配和焊接工艺)

Available on tape and reel(可用在载带及卷轴上)

Moisture sensitivity level: Level 4(防潮等级Level 4)

Applications(用途)

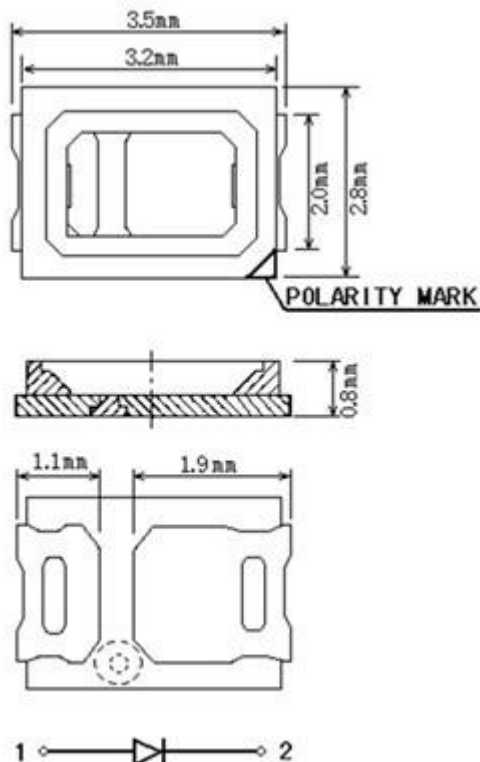
- Indoor lighting(室内照明)
- Interior automotive lighting(汽车应用)
- Backlight for LCD, switch and Symbol, display(LCD背光源转换器,开关和标志,显示器)
- Light pipe application (日光灯管)
- Advertisement(广告应用)



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

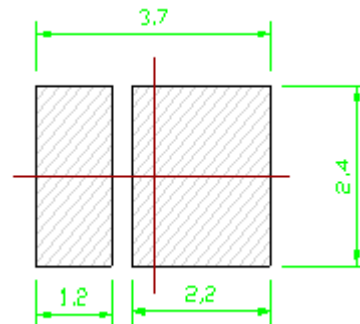
Package Dimensions(封装尺寸)

PATTERN



Recommended Soldering

建议焊盘模式尺寸



No

1. All dimension units are millimeters. (所有标注尺寸的单位均为毫米)

2.All dimension tolerance is $\pm 0.15\text{mm}$ unless otherwise noted.(除了特别注明,所有标注尺寸的公差均为 $\pm 0.15\text{mm}$)



MLT-SMD-2835-12060D40

Selection Guide(选择指南)

Part No. 型号	Dice	Lens Type 胶体类型	RANK 亮度等级	Luminous intensity(mcd) 光强 @ 60mA		Luminous flux(lm) 光通量 @60mA		Viewing Angle 角度
				Min.	Max.	Min	MAX	2θ1/2
MLT-SMD-2835-12060D40	WHITE (InGaN)	Yellow Diffused	A	-	-	110	120	120°
			B	-	-	120	130	

Note::

- 1.θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
θ1/2 是从光学中心线角度，其中发光强度是 1/2 光学中心线值
- 2.the above luminous intensity measurement allowance tolerance ±10%.上述发光强度的测试允许公差为±10%
The above luminous flux intensity measement allowance tolerance ± 0.5Lm.上述光通量的测试误差为±0.5LM.

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)	TestConditions 测试条件
Forward Voltage (正向电压)	VF	11.5	-	12.5	V	IF=60mA
Reverse Current (反向电流)	IR	--	--	10	μA	VR = 5V
Color Coordinates (色坐标)	X	--	0.38	--	--	IF=60mA
	Y	--	0.38	--	--	IF=60mA
Color Temperature (色温)	TC	3900	-	4100	K	IF=60mA
Color Rendering Index (显色性指数)	RA	80	--	--	CRI	IF=60mA

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

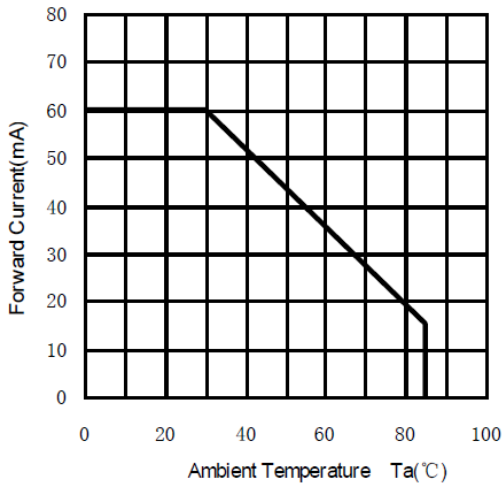
Parameter (参数)	Symbol (符号)	Rating (值)	Units (单位)
Power Dissipation (功耗)	Pd	1300	mW
DC Forward Current (直流正向电流)	IF	100	mA
Peak Forward Current [1] (峰值正向电流)	IFP	170	mA
Reverse Voltage (反向电压)	VR	5	V
Electrostatic Discharge (HBM)(静电)	ESD	2000	V
Operating Temperature (操作温度)	Topr	-40 ~ +85 °C	°C
Storage Temperature (保存温度)	Tstg	-40 ~ +100 °C	°C



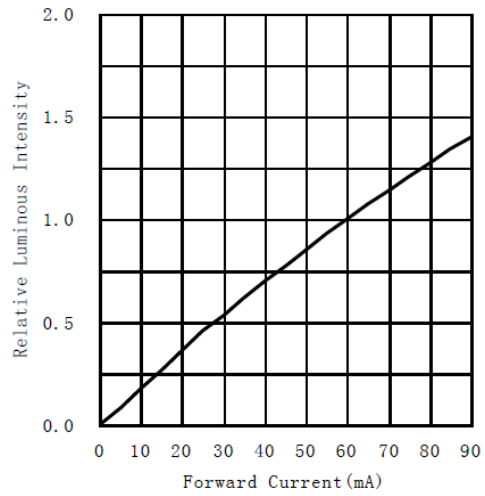
MLT-SMD-2835-12060D40

Typical optical characteristics curves 典型的光学特性曲线

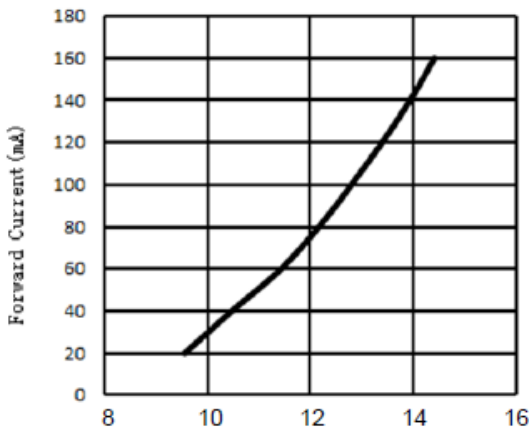
Ambient Temperature VS. Forward Current 环境温度与正向电流曲线



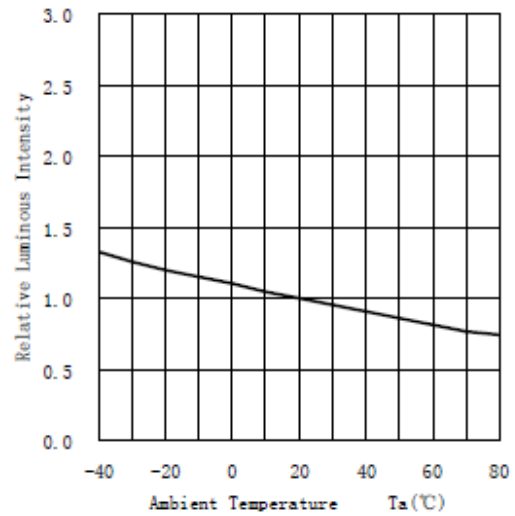
Forward Current VS. Relative Intensity 正向电流与相对光强曲线



Forward Voltage VS. Forward Current 正向电压与正向电流曲线



Ambient Temperature VS. Relative Intensity 环境温度与相对光强曲线



Relative spectral emission

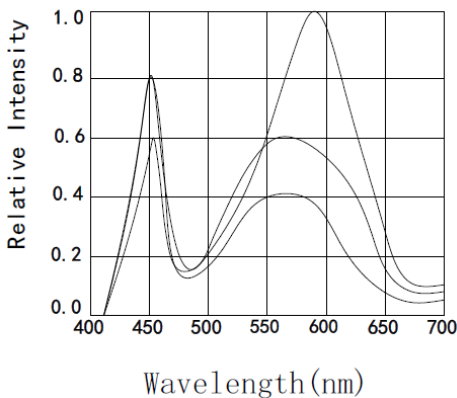
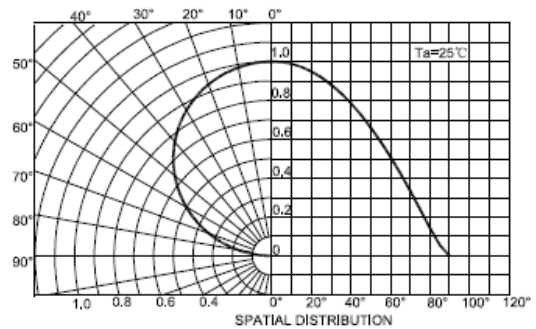


Diagram characteristics of radiation 辅射图特征 (发光角度图)



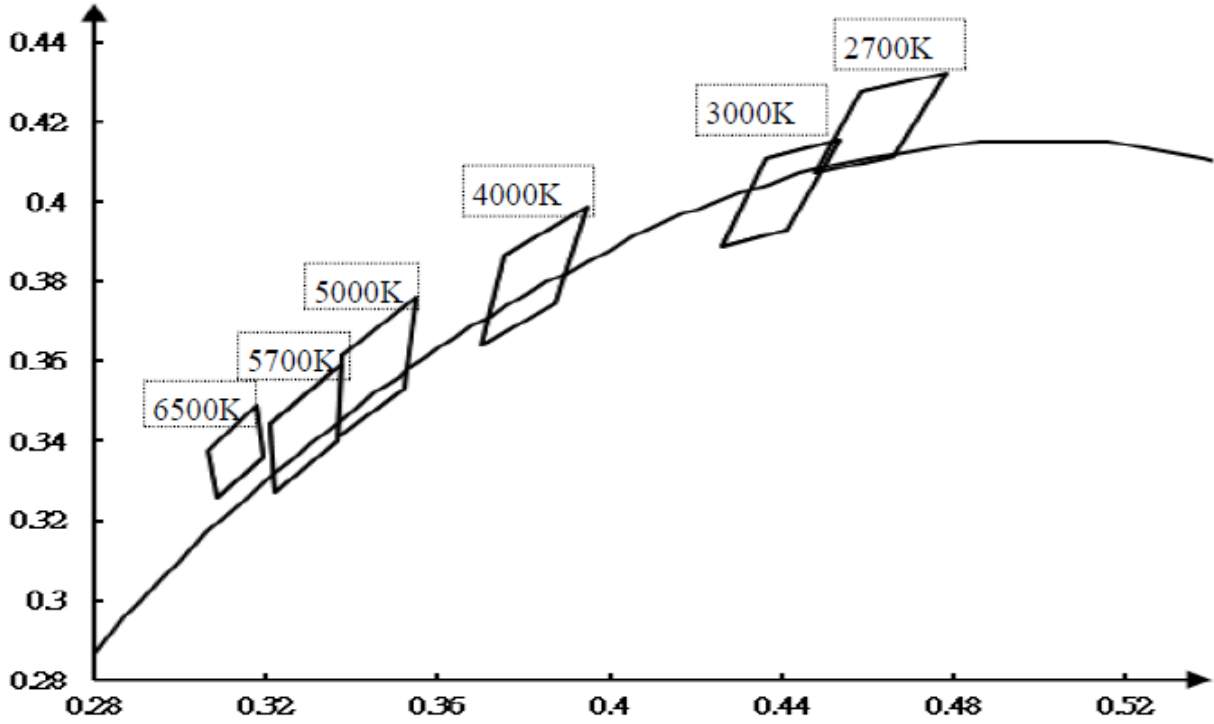


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CIE Chromaticity Diagram

CIE区块坐标图

The C.I.E.1931 Chromaticity Diagram



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



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

The reliability of products shall be satisfied with items listed below.

Confidence level :90%

LTPD :10%

产品的可靠性应满足于下列项目

信任级别: 95% LTPD: 5 %

No.	Items 项目	Ref.Standard 判定标准	Test Condition 测试条件	Test Hours/ Cycles	Sample Size 样品数量	Ac/Re OK/NG
1	Reflow 回流焊	JESD22-B106	Temp:260°C max,T=10 sec	3 times.	50Pcs	0/1
2	Temperature Cycle 温度循环	JESD22-A104	100°C±5°C 30 min.↑↓5 min,-40°C ±5°C 30 min.	100 Cycles	50Pcs	0/1
3	Thermal Shock 冷热冲击	JESD22-A106	100°C±5°C 5 min.↑↓-40°C±5°C 5 min.	100 Cycles	50Pcs	0/1
4	High Temperature Storage 高温保存	JESD22-A103	Temp:100°C±5°C	1000Hrs.	50Pcs	0/1
5	Low Temperature Storage 低温保存	JESD22-A119	Temp:-40°C±5°C	1000Hrs.	50Pcs	0/1
6	DC Operating Life 常温通电	JESD22-A108	Ta=25°C±5°C IF=60mA	1000Hrs.	50Pcs	0/1
7	High Temperature High Humidity 高温高湿通电	JESD22-A101	85°C±5°C/ 85%RH IF=30mA	1000Hrs.	50Pcs.	0/1

*

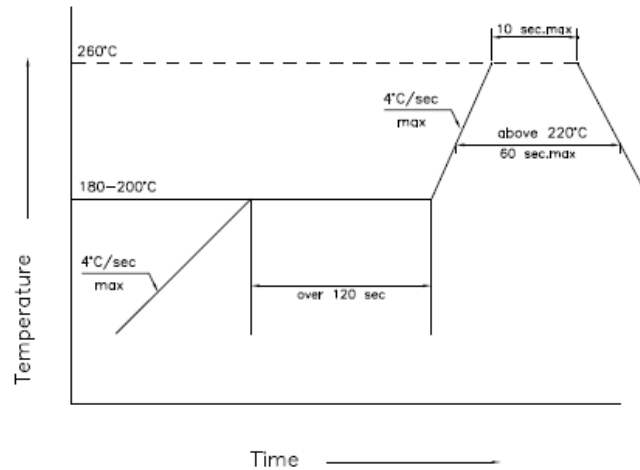
The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of thereferenced products. It does not constitute the warranting of industrial property nor the granting of any license.

数据的工作表中所示的技术信息仅限于典型特征和电路实例的引用的产品。它并不构成值得工业产权也不给予任何许可。



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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 当回焊时,不要在材料受热时用力压胶体表面

Soldering iron 烙铁

- 1.When hand soldering, the temperature of the iron must less than 300°C for 3 seconds

当手工焊接时,烙铁的温度必须小于300°C, 时间不可超过3秒

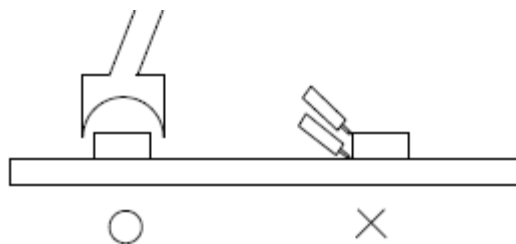
- 2.The hand solder should be done only one times

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 beforehand Whether the characteristics of LEDs will or will not be damaged by repairing.

LED回流焊后不应该修补,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。



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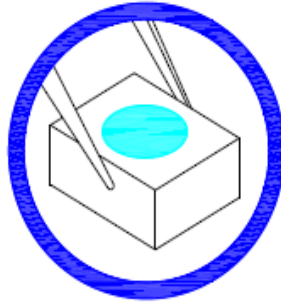
Handling Precautions 处理防备措施

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force. As a result, special handling precautions need to be observed during assemble 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，因它的特性大大减少了热应力，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

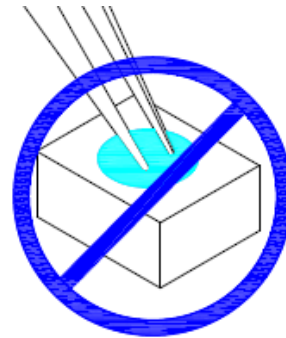
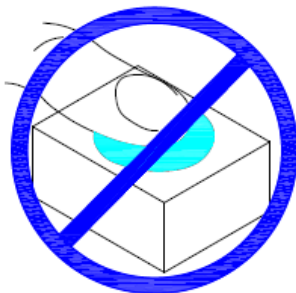
1.Handle the component along the side surface by using forceps or appropriate tools

通过使用适当的工具从材料侧面夹取



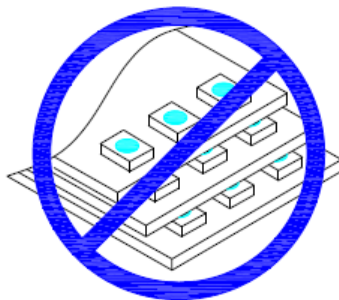
2.Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry

不可直接用手或尖锐金属压胶体表面，它可能会损坏内部电路



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 available in the situation of acidity for PH

不可用在PH<7的酸性场所





MLT-SMD-2835-12060D40

Label 标签

Lm: Luminous intensity rank 亮度等级

VF: Forward voltage rank 电压等级

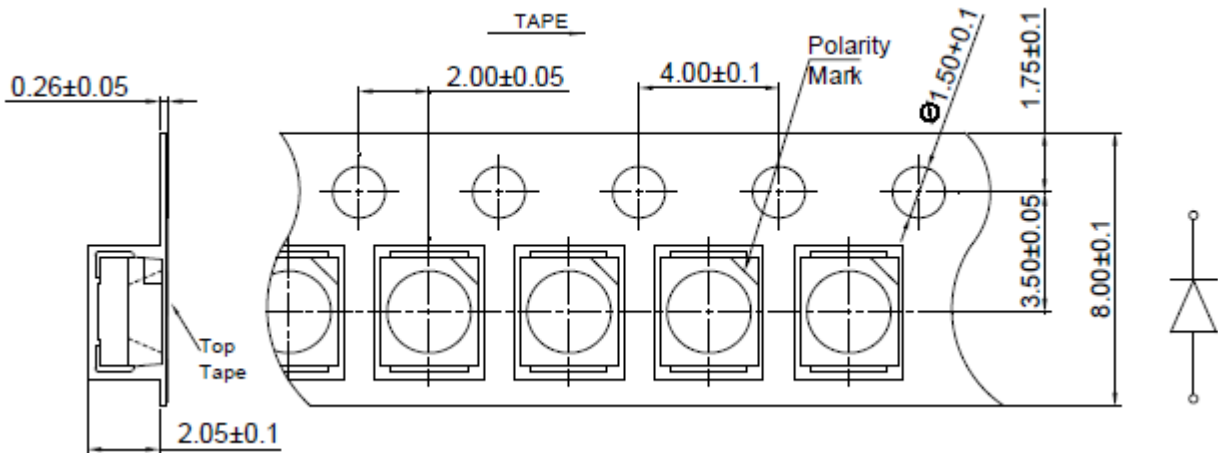
TC: Color temperature 色温

Customer TYPE:

TYPE		ROHS
LOT NO		
WL/TC	LM	
VF (V)	DATE	
QC	QTY(PCS)	

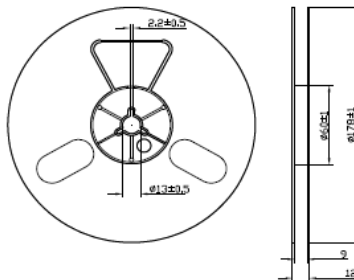


Tape Specifications (Units : mm) 载带规格 (单位: mm)

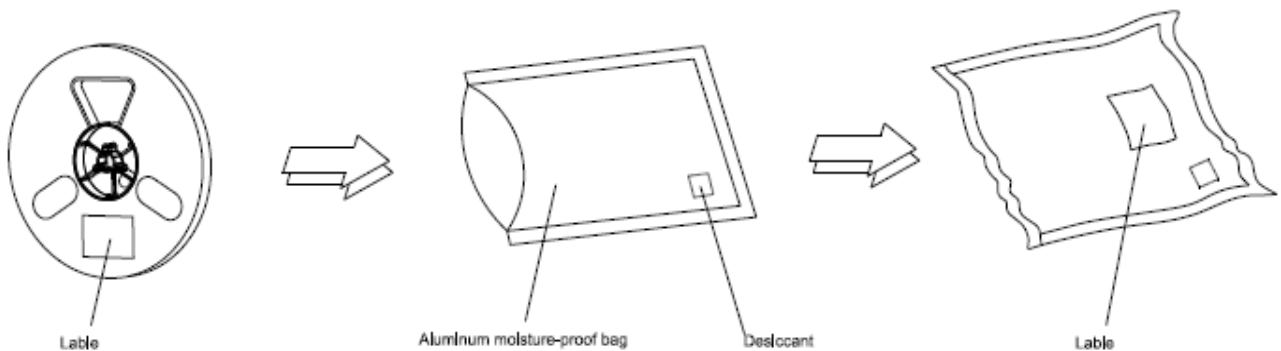


Reel Dimensions 卷轴尺寸

卷轴尺寸



Moisture Resistant Packaging 防潮带包装



Note: The tolerances unless mentioned is ± 0.1 mm, Unit: mm 注: 标注公差为 ± 0.1 MM, 单位: MM