产 品 规 格 书

SPECIFICATION

客户名称 Customer		产品型号 Product No.	**MK7XM-HX**
客户型号 Customer No.		**ERP** 编码 ERP No.	

客 户 确 认 APPROVED SIGNATURES			

研 究 开 发 中 心 Research & Development Center		
批 准 APPROVE	审 核 CHECK	制 定 DRAW
赵治旭		
版本号(Version NO.): B2		
文件发放日期(Release Date): 2021-09-01		

※ **确认后请回传至 0755-32901132。**Please confirm and fax back to us at 86-755-32901132

※ **本页仅供客户确认产品规格，如需详细的规格书，请登录我公司网站下载。**
This page is only for confirming the part No., for specific data sheet please download from our website at **http://www.bmtcled.com**

Technical Data Sheet

1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）

Part No. Description 产品型号说明

① Company 公司代码	②Specification of Lead Frame 支架型号、规格	③CCT 产品色温	④CRI/Ra 产品显指	⑤Power 产品功率	⑥Luminous Flux Class 产品亮度档等级
M	K7	X	M	-H	X

Encoding rules of Part No.: 客户料号编码规则：

序号	1	2	3	4	5	6	7	8
Meaning of Code 编码定义	Company 公司代码	Specification of Lead Frame 支架型号、规格		CCT 产品色温	Ra 产品显指	Blank Space 空格符	Power 产品功率	Luminous Flux Class 产品亮度档等级
Example 示例	M	K	7	X	M	-	H	X

② The 2st&3nd code: Dimension

第 2/3 码：产品型号、规格

Code 代码	Dimension 产品型号、规格
K1	2.8*3.5*0.7（PCT 椭圆杯)
K4	2.8*3.5*0.7（PPA 中杯）
K7	2.8*3.5*0.68（PCT 对等焊盘)
K8	2.8*3.5*0.68（PCT 大小焊盘)

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③The 4th code: CCT

第 4 码：产品色温

Code 代码	CCT 色温系列
W	2700K
V	3000K
T	4000K
R	5000K
Q	5700/6000K
P	6200/6500/7000/7500K
C	9000/9500/10000K

④The 5th code: CRI/Ra

第 5 码：产品显指

Code 代码	CRI/Ra 产品显指	Code 代码	CRI/Ra 产品显指
N	小于 70	L	70
E	75	M	80
F	85	H	90
G	95	K	97
Y	98		

⑤The 6th code: Power

第 6 码：产品功率

代码	**功率**	**代码**	**功率**	**代码**	**功率**
A	0.2W 3V/60mA	B	0.3W 3V/100mA	C	0.5W 3V/150mA
D	0.5W 9V/60mA	E	0.5W 18V/30mA		
F	1W 6V/150mA	G	1W 9V/100mA	H	1W 18V/60mA
J	1W 36V/30mA	K	1W 54V/20mA	L	1W 12V/75mA

⑦The 7th code: Luminous Flux Class

第 7 码：产品亮度等级

Luminous Flux Class 亮度等级	Luminous Flux Range 亮度档	Luminous Flux Class 亮度等级	Luminous Flux Range 亮度档
D	100-110	K	135-145
E	105-115	L	140-150
F	110-120	M	145-155
G	115-125	N	150-160
H	120-130	O	155-165
I	125-135	P	160-170
J	130-140	Q	165-175

Technical Data Sheet

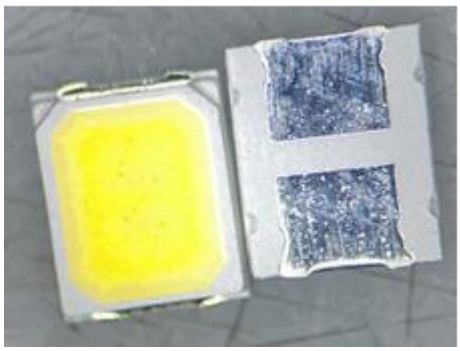
1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）

Features

- Package Size: 3.48 (L) ×2.77(W) × 0.68(T) mm
- Silicone Packed
- Suitable for different working environment
- Anti UV
- White colors are available in (2600K- 7000K)
- Wide viewing angle (2θ1/2=120°)

产品特征

- 封装尺寸：3.48(长) ×2.77(宽) ×0.68 (厚) mm
- 采用硅胶封装
- 适应多种工作环境
- 防紫外线
- 可供白光(2600K-7000K)
- 宽角度 (2θ1/2=120°)



Device Selection Guide 物料选用指南

ITEM 项目	MATERIALS 物料
Resin 胶体	Silicone 硅胶
Lens Color 胶体颜色	Yellow 黄色
Dice 晶片	GaN

Applications

- **Indoor lighting**: Fluorescent lamp, tub,bulb
- **Commercial illumination and displays**: Advertising words, light box
- **Decorative lighting**: light strip
- **Automotive interior auxiliary lighting**
- **Other illumination and displays**

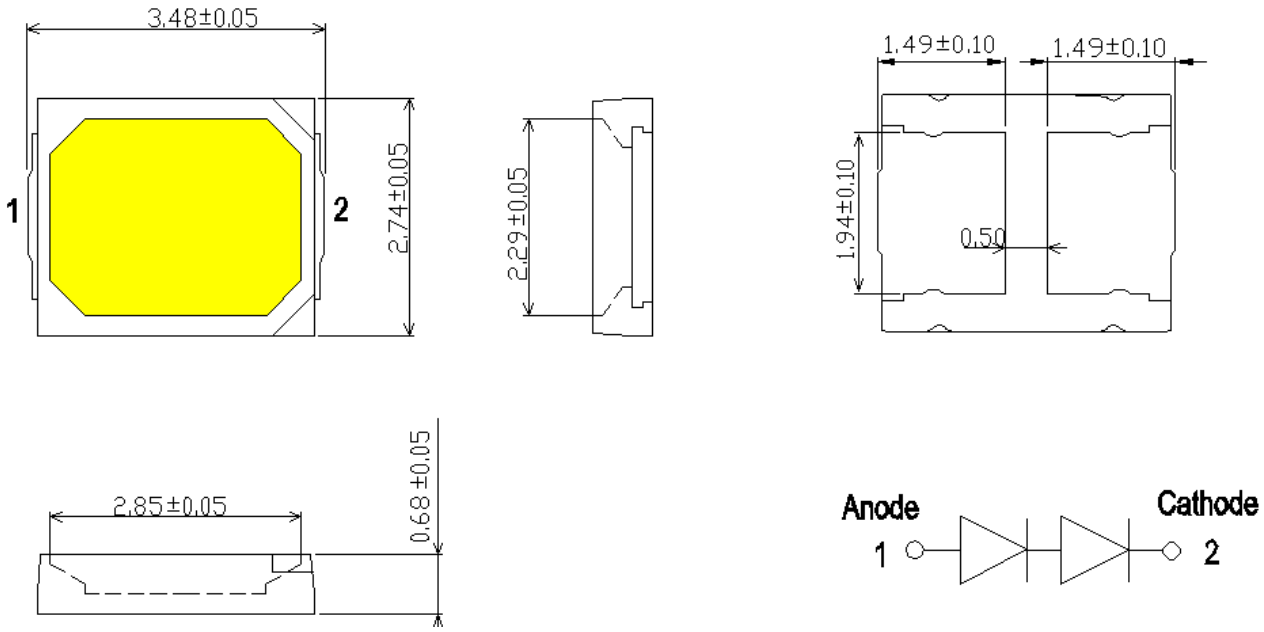
产品应用

- **室内照明**：日光灯管、灯条、球泡
- **商业照明显示**：广告字、广告灯箱
- **装饰照明**：柔性灯条
- **汽车内部辅助照明**
- **其它照明和显示类**

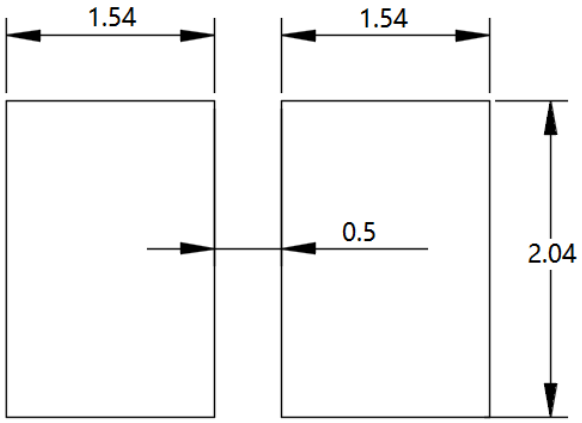
Technical Data Sheet

1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）

Package Outline Dimensions 封装外形尺寸



Recommended solder pad for K7 series
建议用于 K7 系列的焊盘



Note: 1. UNIT: MM [INCH]. 单位：毫米[英寸]

2. The tolerances unless mentioned is ±0.1 mm. 除非另有说明，以上尺寸的公差为±0.1 mm。

Technical Data Sheet

1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）

Absolute Maximum Ratings 极限参数

Parameter 参数	Symbol 符号	Rating 值	Unit 单位
Forward Current 正向电流	I_F	60	mA
Peak Pulsed Forward Current (Duty 1/10,pulse width 10ms) 峰值脉冲电流	I_{FP}	120	mA
Operating ambient temperature 工作环境温度	Topr	-40 ～ +85	℃
Storage Temperature 储存温度	Tstg	-40 ～ +85	℃
Junction Temperature 结点温度	Tj	150	℃
ESD(HBM) 抗静电	/	1000	V
Power Dissipation 功耗	Pd	1000	mW

Electro-Optical Characteristics 光电特性（Ta=25℃）

Parameter 参数	Symbol	Min.	Typ.	Max.	Unit	Condition 条件
Viewing Angle 角度	2θ1/2	-----	120	------	deg	I_F=60mA
Thermal Resistance (junction to solder point) 热阻	Rthj-s	-----	20	-----	℃/W	I_F=60mA
Ra 显指	Ra	-----	80-82	-----	-----	I_F=60mA

Technical Data Sheet

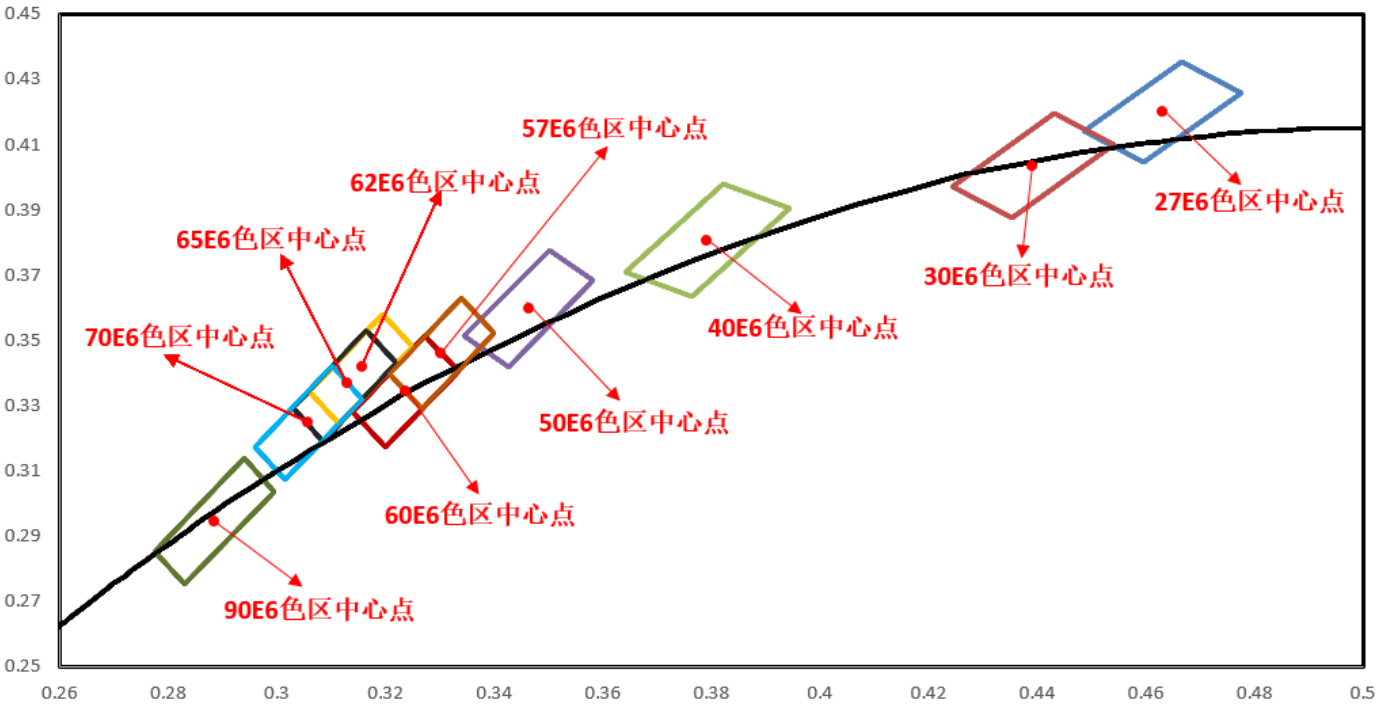
1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）

Bin Code of Luminous Flux 光通量等级代码

Part NO. 产品型号	Luminous Flux Range 光通量范围（lm）			CCT（K）（typ）	Current (mA)
	Min.	Typ	Max.		
MK7WM-HJ	130	＞133	140	2700	60
MK7VM-HL	140	＞143	150	3000	60
MK7TM-HN	150	＞153	160	4000	60
MK7RM-HN	150	＞153	160	5000	60
MK7QM-HN	150	＞153	160	5700	60
MK7QM-HN	150	＞153	160	6000	60
MK7PM-HN	150	＞153	160	6200	60
MK7PM-HN	150	＞153	160	6500	60
MK7PM-HN	150	＞153	160	7000	60
MK7CM-HL	140	＞143	150	9000	60

Note: Tolerance of Luminous Flux is ±5%. 光通量的公差为±5%。

White Bin Code of CIE1931　　白光 CIE 分级代码



Technical Data Sheet

1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）

Color coordinates 颜色坐标

Code	X	Y	Code	X	Y	Code	X	Y
27E6 (2670K-2780K)	0.4666	0.4354	30E6 (2880K-3040K)	0.4243	0.3970	40E6 (3910K-4230K)	0.3821	0.3979
	0.4487	0.4141		0.4431	0.4194		0.3642	0.3708
	0.4597	0.4046		0.4541	0.4099		0.3765	0.3633
	0.4776	0.4259		0.4353	0.3875		0.3944	0.3904
50E6 (4750K-5240K)	0.3501	0.3777	57E6 (5310K-5910K)	0.3340	0.3630	60E6 (5580K-6310K)	0.3140	0.3280
	0.3346	0.3514		0.3400	0.3524		0.3273	0.3513
	0.3427	0.3420		0.3267	0.3290		0.3334	0.3407
	0.3582	0.3683		0.3207	0.3397		0.3201	0.3173
62E6 (5920K-6730K)	0.3059	0.3345	65E6 (6070K-6960K)	0.3029	0.3293	70E6 (6430-7580K)	0.2960	0.3174
	0.3196	0.3582		0.3166	0.3531		0.3103	0.3422
	0.3251	0.3480		0.3221	0.3429		0.3158	0.3320
	0.3114	0.3242		0.3084	0.3191		0.3015	0.3072
75E6 (6860-8560K)	0.2876	0.3039	90E6 (7790K-10430K)	0.2775	0.2854	95E6 (8110-11110K)	0.2912	0.3091
	0.3040	0.3323		0.2939	0.3138		0.2967	0.2989
	0.3095	0.3221		0.2994	0.3036		0.2803	0.2705
	0.2931	0.2937		0.2830	0.2752		0.2748	0.2807

Note: Tolerance of Color coordinates is ±0.003. 颜色坐标 xy 的公差为±0.003。

Bin Range of Forward Voltage 电压等级代码

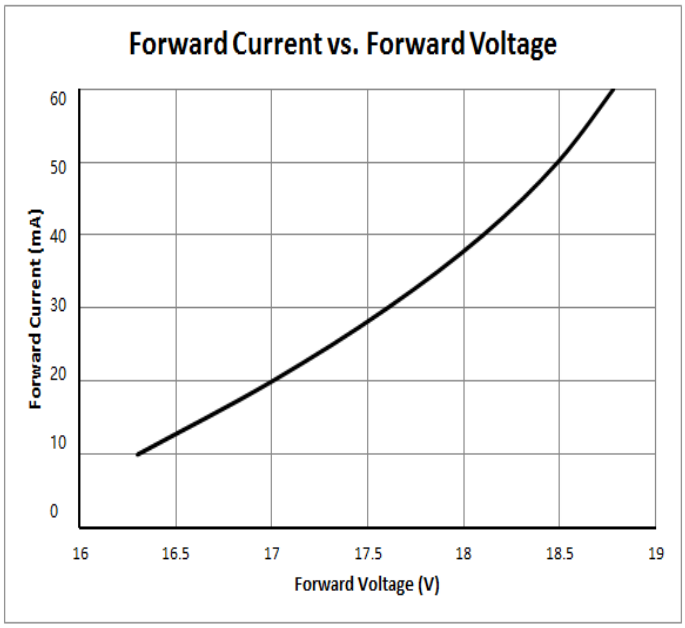
Min VF(V)	Max VF(V)
17	18
18	19
19	20

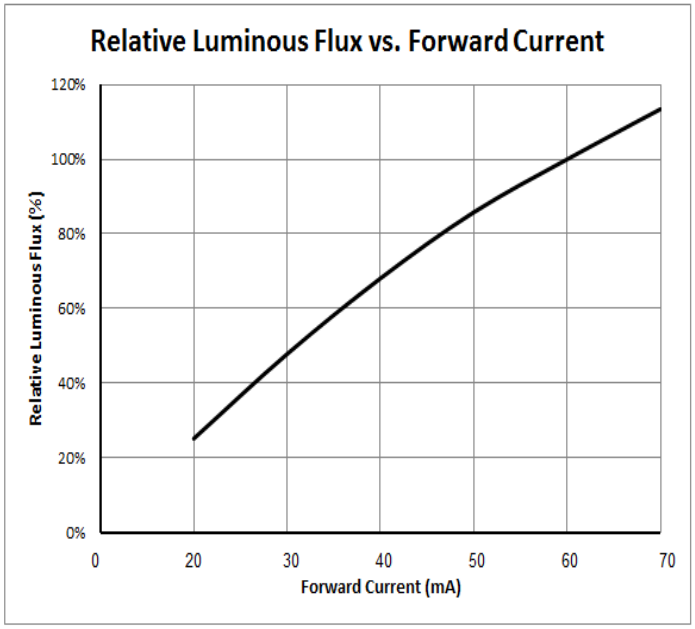
Note: Tolerance of Forward Voltage is ±0.5V. 正向电压的公差为±0.5V。

Technical Data Sheet

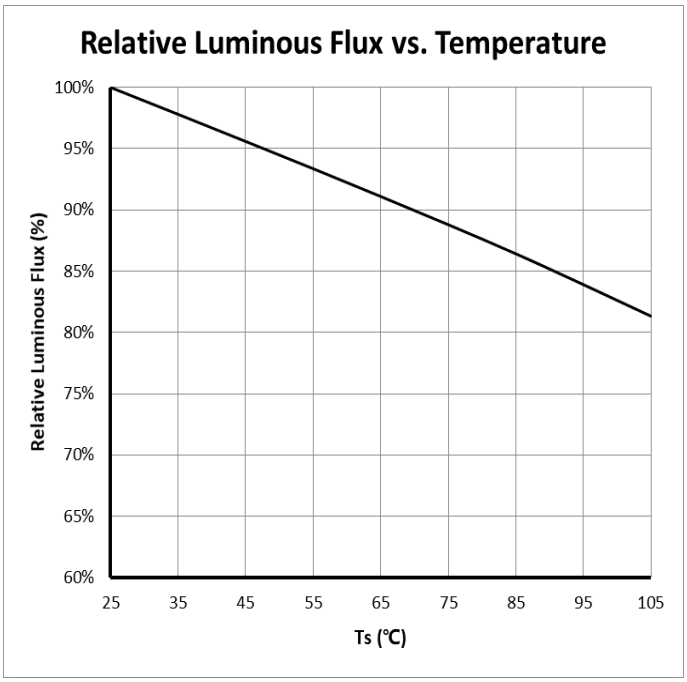
1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）

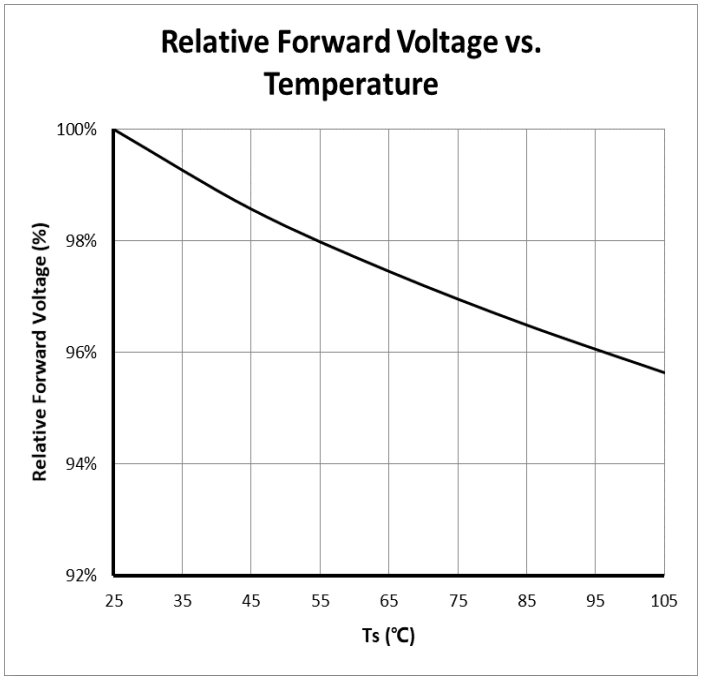
Electrical Characteristics 电性特征





Temperature Characteristics (IF = 60 mA) 温度特性

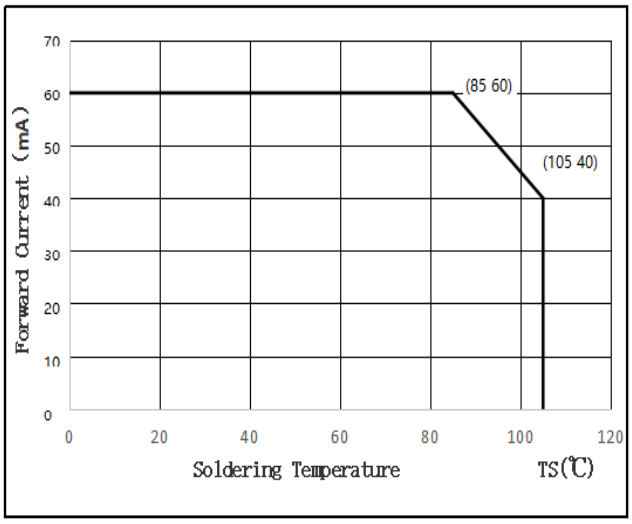




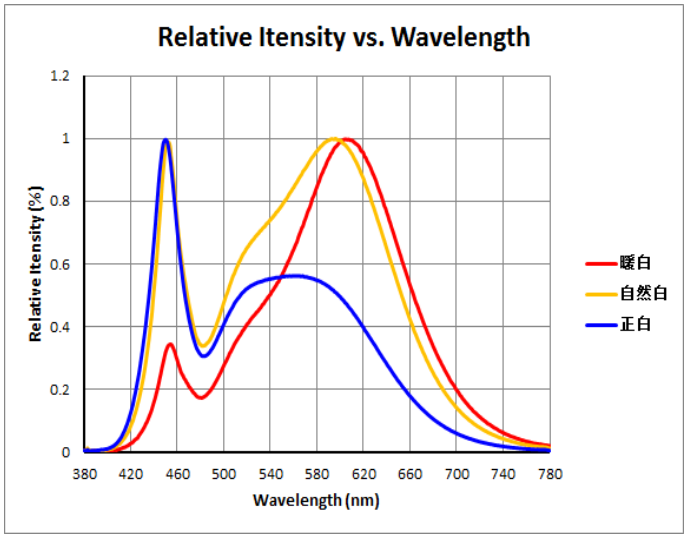
Technical Data Sheet

1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）

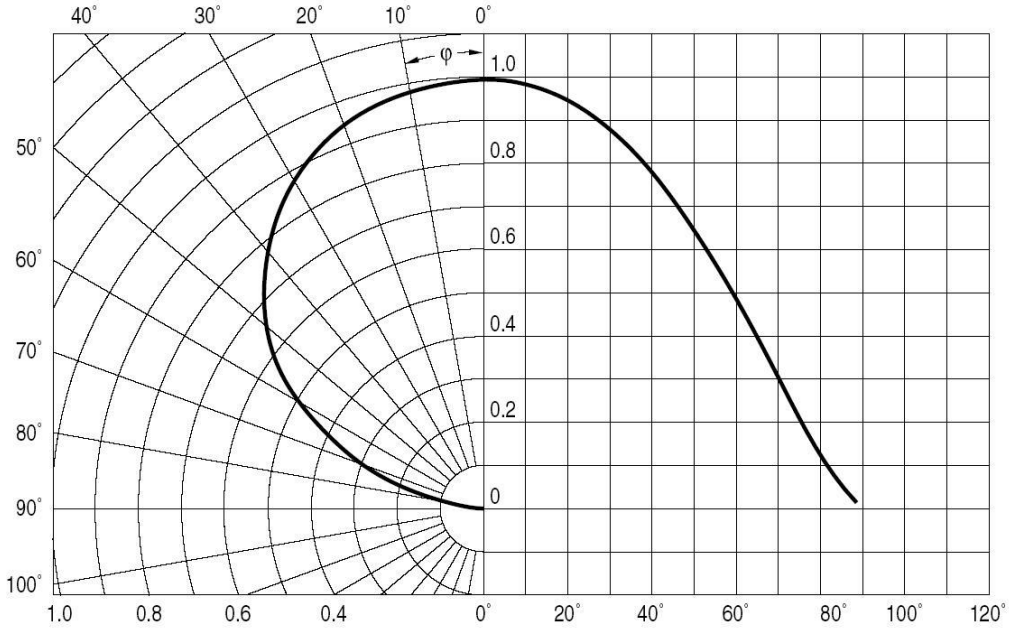
Soldering Temperature vs Forward Current
焊盘温度与正向电流特性曲线



Spectrum Distribution (IF = 60 mA, Ts = 25 ºC)
光谱分布图



Viewing Angle 发光角度



Technical Data Sheet

1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）

Guideline for Soldering 焊接指导

Handing of an SMD LED should be done only when the package has been cooled down to below 40℃ or less. This is to prevent SMD LED failures due to thermal-mechanical stress during handing.

SMD LED 焊接后，请将其冷却到 40℃以下进行操作，以防止操作过程中因热应力造成 SMD LED 损坏。

1. Hand Soldering 使用烙铁人手焊接

A soldering iron of less than 20W is recommended to be used in Hand Soldering. Please keep the temperature of the soldering iron under 300℃ while soldering. Each terminal of the LED is to go for less than 3 second and for one time only.

推荐使用功率低于 20W 的烙铁，焊接时烙铁的温度必须保持在 300℃以下，且每个电极只能进行一次焊接，每次焊接的持续时间不得超过 3 秒。

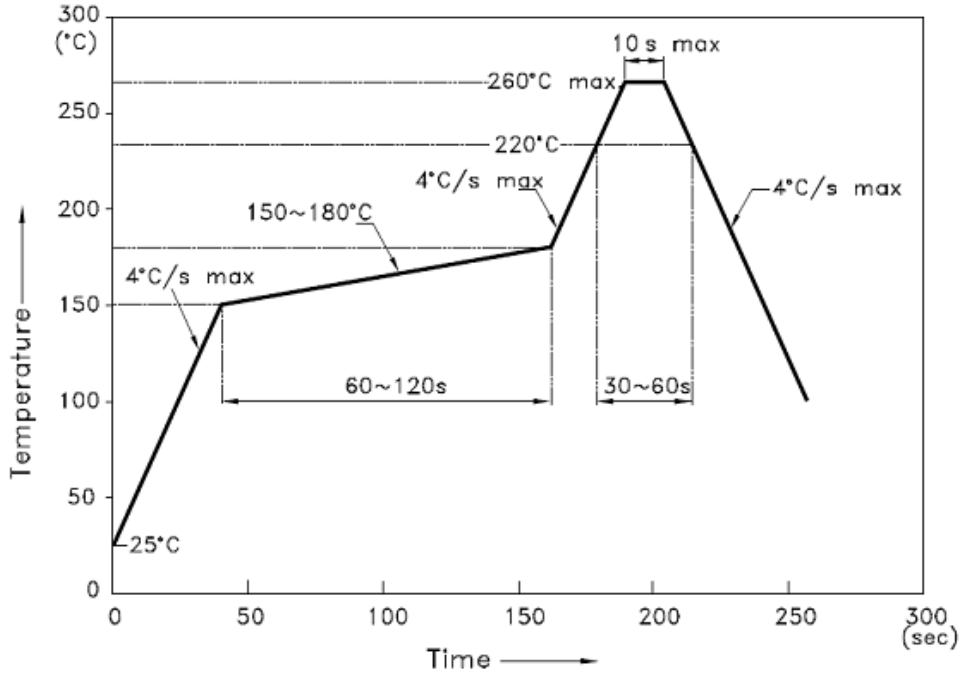
Be careful because the damage of the product is often started at the time of the hand soldering.

人手焊接过程中的不慎操作易引起 LED 产品的损坏，应当小心谨慎。

2. Reflow Soldering 回流焊接

Recommended reflow soldering condition（Lead-free solder）

建议的回流焊条件（无铅焊锡）



Note: 1. We recommend the reflow temperature 245℃(+/-5℃).The maximum soldering temperature should be limited to 260℃. 建议的回流焊温度245℃(+ / - 5℃)。最大的焊接温度需限制在260℃。

2. Reflow soldering should not be done more than two times. 回流焊次数请勿超过两次。

3. When soldering, do not put stress on the LEDs during heating. 回流焊过程中，请勿挤压LED。

Technical Data Sheet

1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）

Test items and results of reliability 信赖度测试项目及报告

Test Item	Test conditions	Test Duration	Sample NO.
Room Temperature Life Test 常温寿命试验	25℃, DC 60mA	1000h	0/22
High Temperature Life Test 高温寿命试验	105℃, DC 60mA	1000h	0/22
High Temperature Humidity Life Test 高温高湿寿命试验	85℃, 85 % RH, DC 60mA	1000h	0/22
Temperature cycling 温度循环	-40℃(30min) ~25℃(5min) ~100℃(30min)	200cycle	0/50
High Temperature Storage 高温贮存	Ta=100℃±3℃	1000 hrs	0/11
Low Temperature Storage 低温贮存	Ta=-40℃±3℃	1000 hrs	0/11

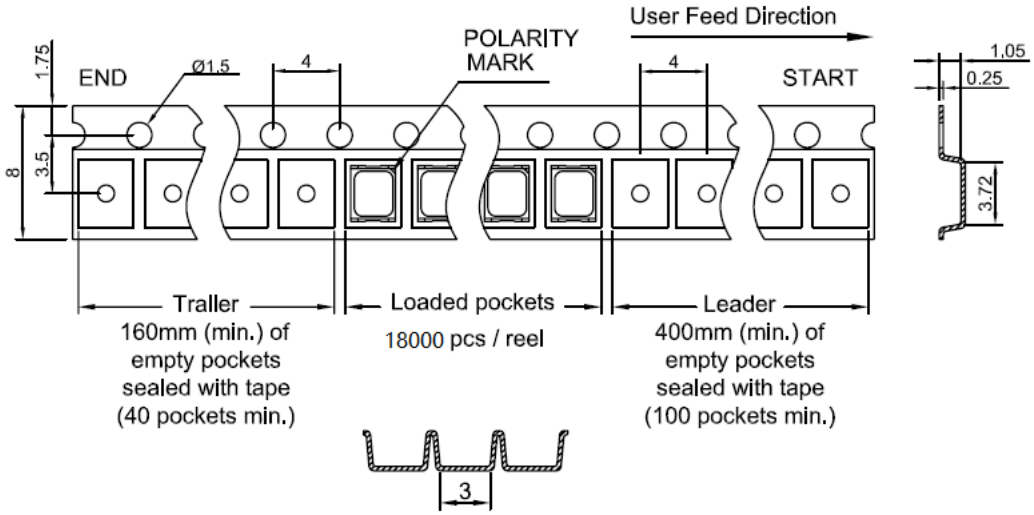
CRITERIA FOR JUDGING THE DAMAGE

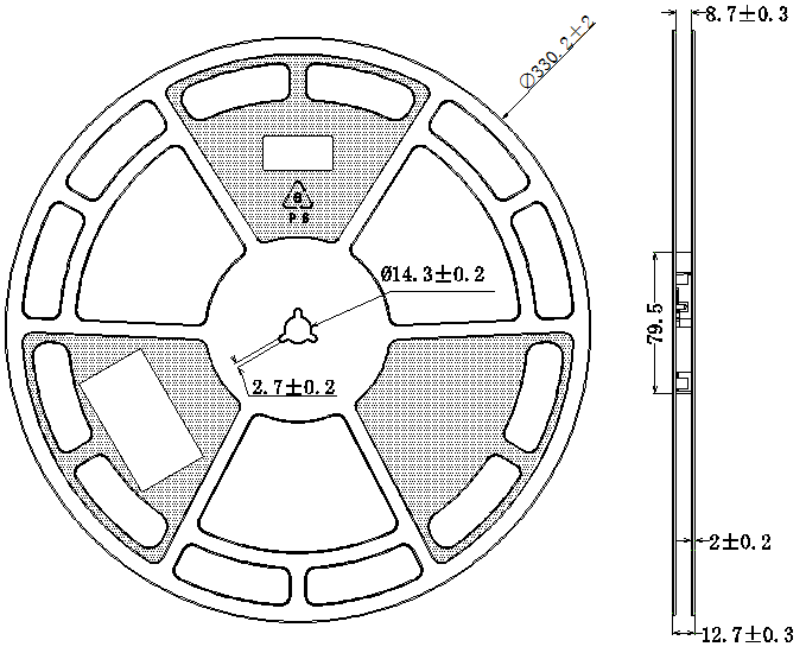
Item	Symbol	condition	Criteria for Judgment	
			MIN	MAX
Forward Voltage	V_F	I_F=60 mA	/	Init.Value*1.1
Luminous Flux	I_v	I_F=60 mA	Init.Value*0.7	/

Technical Data Sheet

1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）

Tape and Reel 载带和卷盘（18K/Reel）





Note:

1. The number of loaded products in the reel is 18000ea. 每卷所载产品数量为 18000pcs。

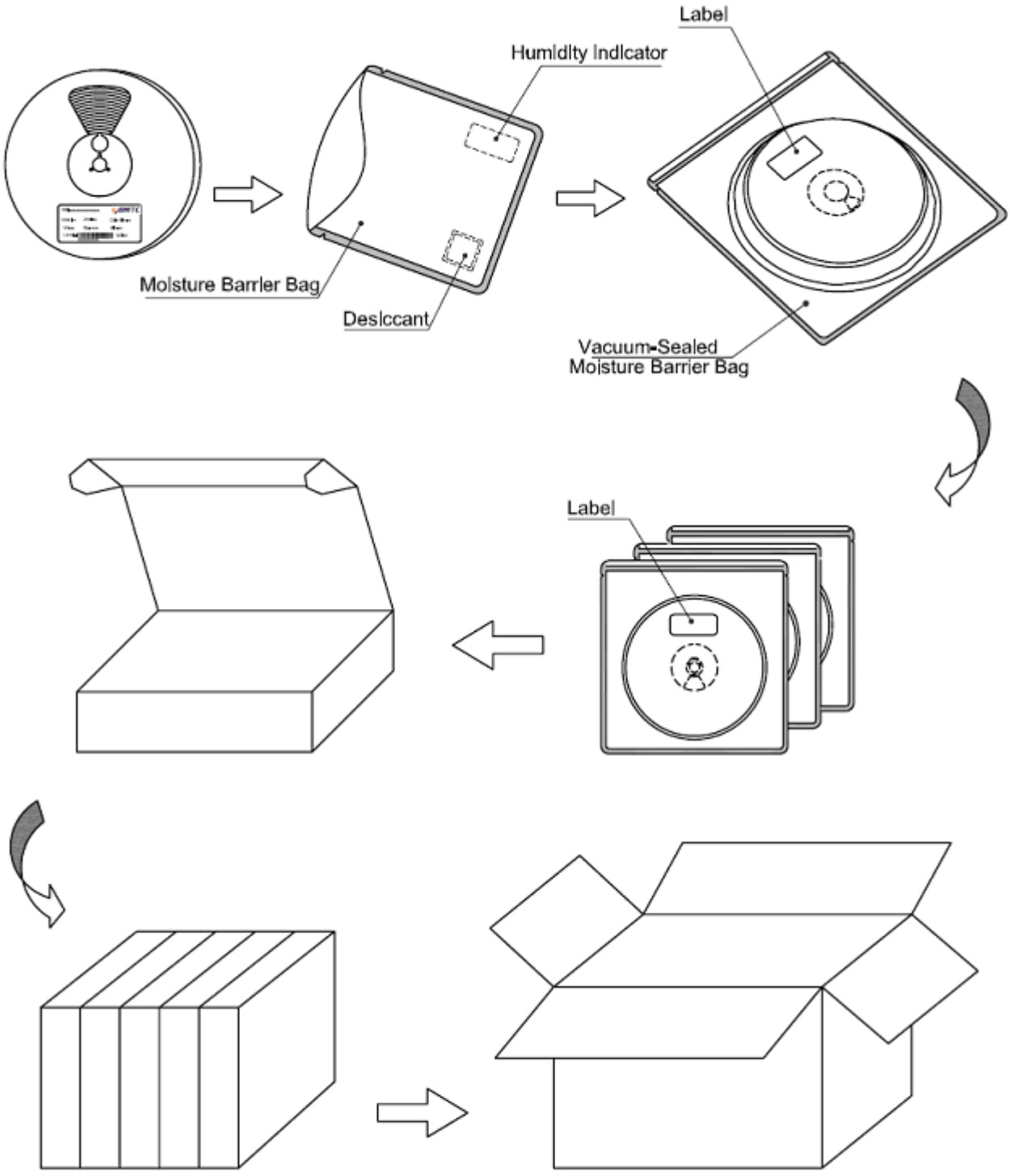
2. All dimensions are in millimeters (tolerance: ±0.2). 所有尺寸单位为 mm,公差为±0.2。

3. Scale: None. 产品比例：无。

Technical Data Sheet

1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）

Dry Packaging and Packaging 干式包装和包装



Technical Data Sheet

1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）

Chemicals Tested as Harmful 化学测试中的有害物质

In testing, BMTC has found the following chemicals to be harmful to the LEDs. BMTC recommends not using these chemicals anywhere in an LED system. The fumes from even small amounts of these chemicals may damage the LEDs.

经过测试，BMTC发现下列化学品会对LED造成损害，建议不要在任何的LED系统使用这些化学品。即使这些化学品量很少，其所释放的气体也可能会导致LED损害。

- Sulfur，bromide，iodine ，chloride

  硫，溴，碘，氯

- Volatile organic compounds (e.g., toluene, xylene, para-dichlorobenzene,ethylbenzene,styrene, formaldehyde,acetaldehyde, butadiene)

  挥发性有机物（如：甲苯，二甲苯，甲醛，乙醛，丁二烯）

- Beach, Cleaner spray, activator, thread locker, Superglue

  漂白剂，清洁喷雾剂，活化剂，螺丝固定胶，强力胶

ESD Protection During Production 生产过程中的静电保护

Static electricity or surge voltage damages the LEDs. Damaged LEDs will show some unusual characteristics such as the forward voltage becomes lower, or the LEDs do not light at the low current., even not light.

All devices, equipment and machinery must be properly grouded. At the same time, it is recommended that wrist bands or anti-electrostatic gloves, anti-electrostatic containers be used when dealing with the LEDs.

静电和电涌会导致产品特性发生改变，例如正向电压降低等，如果情况严重甚至会损毁产品。所以在使用时必须采取有效的防静电措施。

所有相关的设备和机器都应该正确接地，同时必须采取其他防止静电和电涌的措施。使用防静电手环，防静电垫子，防静电工作服、工作鞋、手套，防静电容器，都是有效的防止静电和电涌的措施。

Safety Advice For Human Eyes 眼睛保护忠告

Users should be cautioned not to stare at the light of this LED product. The bright light can damage the eye.

用户应注意，LED 发光时，请勿直视。LED 的强光可能会伤害您的眼睛。

Technical Data Sheet

1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）

Handling Precautions 使用注意事项

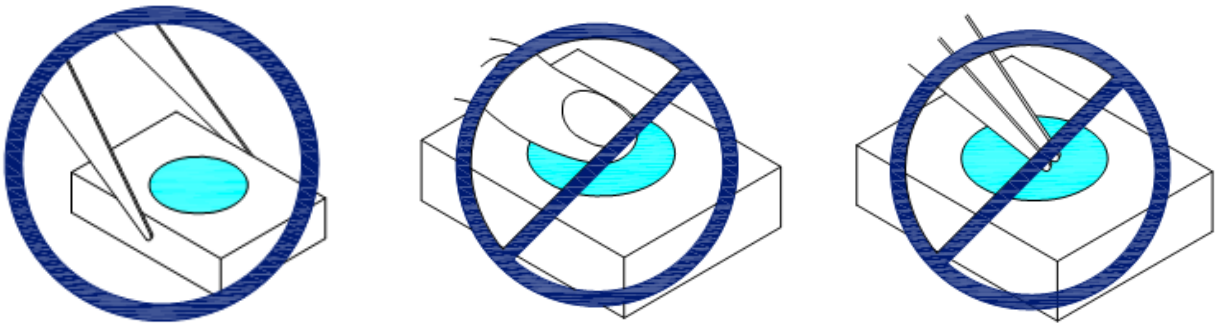
1. Operating 操作

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 assembly using silicone encapsulated LED products. Failure to comply might leads to damage and premature failure of the LED.

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

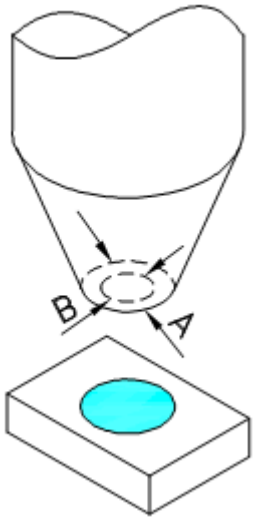
1.1 Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry.

通过使用适当的工具从材料侧面夹取，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



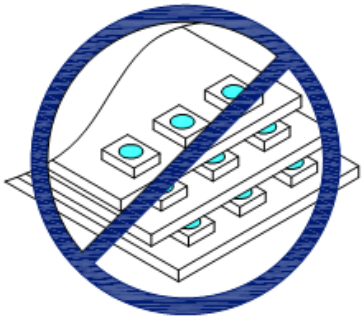
1.2 The outer diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup.

SMD 吸嘴的外径不应超过 LED 的尺寸以避免漏气。吸嘴的内径应尽可能大吸嘴头建议使用柔软的材料以避免 LED 硅胶表面划伤或损坏



Technical Data Sheet

1W TOP LED, Working Current @ IF = 60mA（以下测试数据以我司测试机台结果为准）



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

不可将 LED 模组材料堆积在一起，它可能会损坏内部电路

2. Storage 储存

2.1 Don't open moisture proof bag before the products are ready to use.

产品在准备使用之前，请勿打开防潮袋

2.2 Before opening the package: The LEDs should be kept at 30℃ or less and 90%RH or less.

防潮袋打开之前：LED应该保存在环境温度30℃(含)以下和相对湿度90%(含)以下的环境

2.3 After opening the package: The LED's floor life is 24 hours under 30℃ or less and 70% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

防潮袋打开之后：在环境温度30℃(含)以下和相对湿度70%(含)以下，LED的使用时间是24小时；未使用完的LED需使用防潮袋密封包装

2.4 After the moisture barrier bag is opened, make sure that Humidity Indicator Card does not become red at 30%RH. Otherwise, Devices require baking again. The conditions are as followings:

防潮袋开封后，应立即确认湿度卡 30%处是否变色，若 30%处开始变成淡红色，该包产品需要重新烘烤。烘烤条件如下：

2.4.1 65 ± 3℃ x (24hrs) and ＜5%RH, taped reel type 卷带

2.4.2 100 ± 3℃ x (4hrs), bulk type 散装