KENTO®

深圳匡通电子有限公司

SHENZHEN KENTO ELECTRONICCO.,LTD

SPECIFICATION FOR APPROVAL

Product Name: 1206 Emerald Green SMD Light Emitting Diode

Product No.: KT-1206-G

Client's name:

Customer No.:

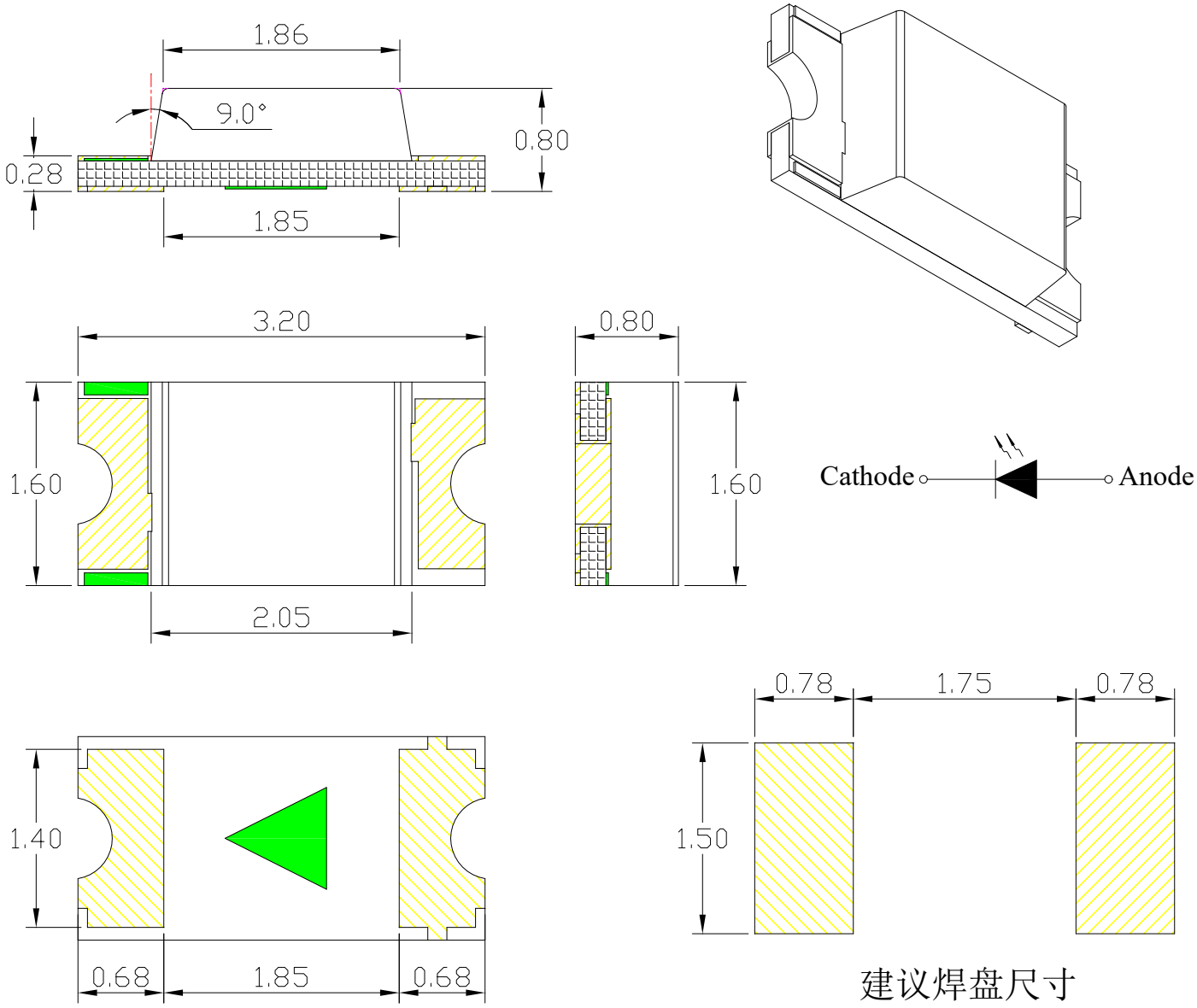
Release Date: May 2017

Client Approve		
Confirm	Eaxmine	Approve

一、 Product Description ：

- Dimensions (L/W/H): 3.2 x 1.6 x 0.8 mm
- Color: High brightness emerald green
- Colloid: Transparent colloid
- EIA standard standard packaging
- Environmental protection products, in line with ROHS requirements
- Suitable for automatic placement machine
- Suitable for reflow soldering process

二、 Outline Dimensions and Recommended solder pad Dimensions ：

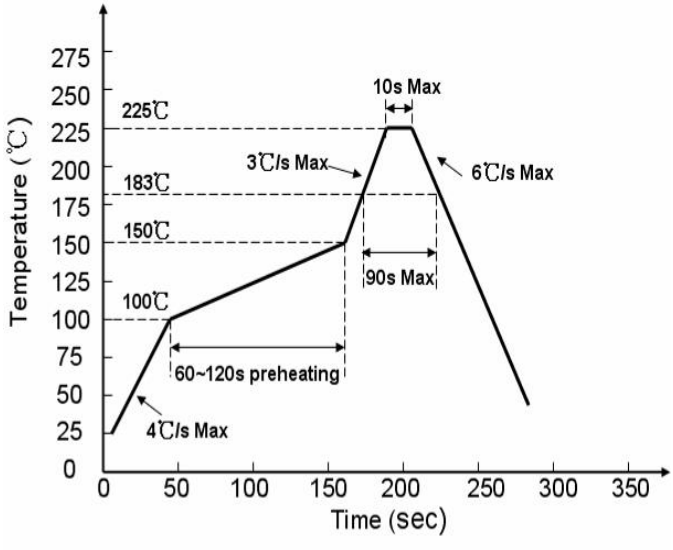


建议焊盘尺寸

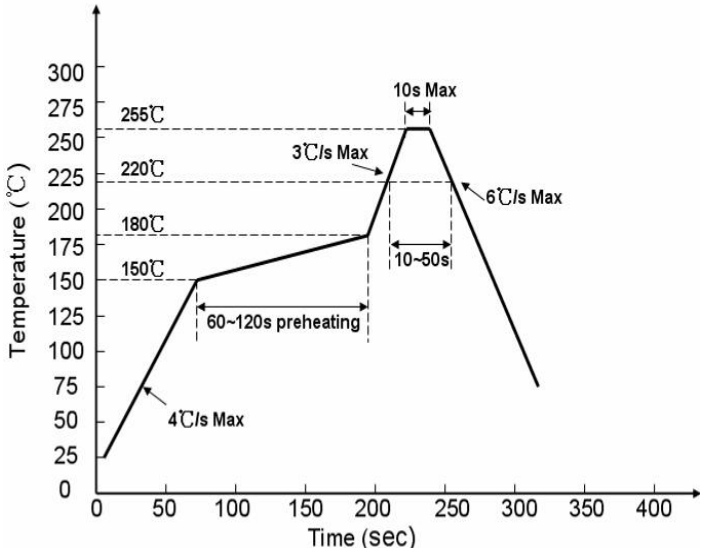
Notes: 1. unit : （mm）/All dimensions are in millimeters.

2. tolerance ：Unless otherwise specified, it is± 0.1 mm/Tolerance is ± 0.10 mm unless otherwise noted.

三、 Soldering Profile Suggested ：



process with lead include



process without lead

四、 Maximum absolute rating (Ta=25℃)：

Parameter	Symbol	Maximum rating	Unit
Power consumption	Pd	80	mW
Maximum pulse current (1/10 duty cycle, 0.1ms pulse width)	IFP	100	mA
Forward DC working current	IF	25	mA
reverse voltage	VR	5	**V**
Working temperature	Topr	-30°C ~ +85°C	
Storage ambient temperature	Tstg	-40°C ~ +90°C	
Welding conditions	Tsol	Reflow Soldering : 260°C ,10s Manual welding : 300°C ,3s	

五、 Photoelectric parameters (Ta=25℃):

Parameter	Symbol	Min.	Typical value	Max	Unit	Test condition
light intensity	IV	---	250	---	mcd	IF=5mA
Half-intensity viewing angle	2θ1/2	---	120	---	deg	IF=5mA
Dominant wavelength	λD	---	522.5	---	nm	IF=5mA
Half-wave width	Δλ	---	30	--	nm	IF=5mA
Forward Voltage	VF	2.5	---	3.2	V	IF=5mA
Reverse current	IR	---	---	1	uA	VR=5V

Brightness binning :

Code	Min	Max	Unit	Condition
Q3	160	192	mcd	IF=5mA
Q4	192	230		
R3	230	276		
R4	276	331		

Remarks: Light intensity error ± 11%

Voltage Binning:

Code	Min	Max	Unit	Condition
7A	2.6	2.7	V	IF=5mA
7B	2.7	2.8		
8A	2.8	2.9		
8B	2.9	3.0		
9A	3.0	3.1		

Remarks: Forward voltage error ± 0.02V

Wavelength Binning:

Code	Min	Max	Unit	Condition
C	517.5	520	nm	IF=5mA
D	520	522.5		
E	522.5	525		
F	525	527.5		
G	527.5	530		
H	530	532.5		
J	532.5	535		

Remarks: wavelength error ± 1 nm

六、Photoelectric parameter representative value characteristic curve:

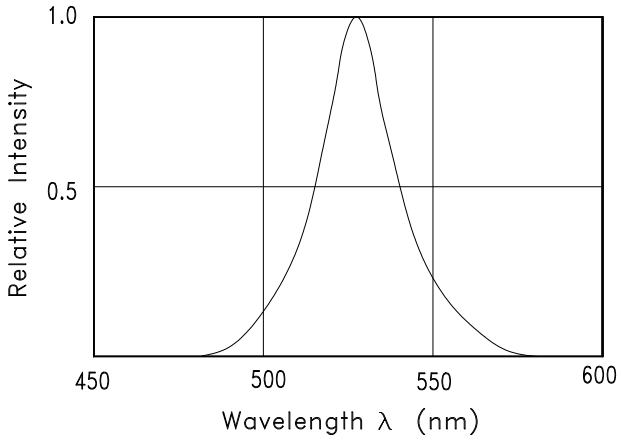


Fig.1 RELATIVE INTENSITY VS. WAVELENGTH

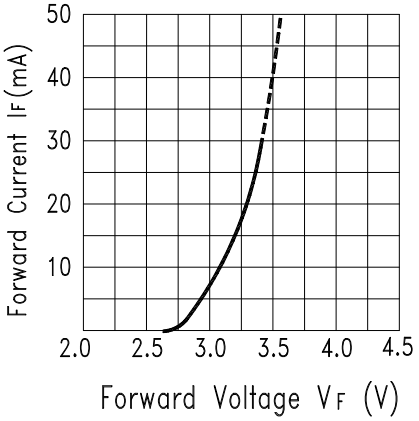


Fig.2 Forward Current vs. Forward Voltage

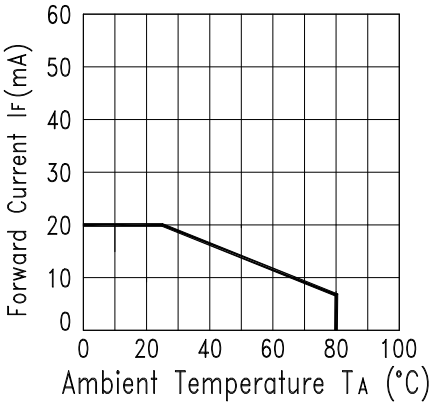


Fig.3 Forward Current Derating Curve

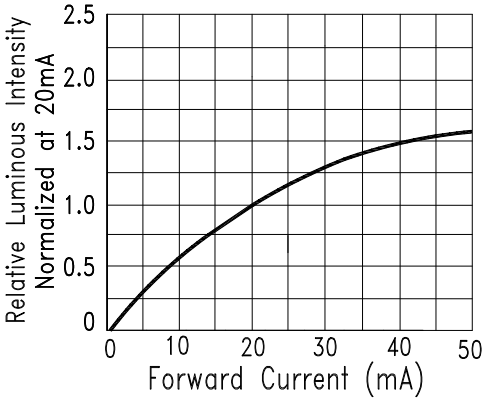


Fig.4 Relative Luminous Intensity vs. Forward Current

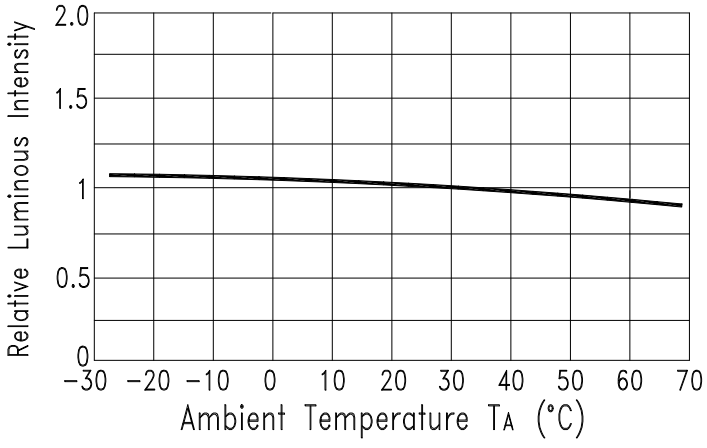


Fig.5 Luminous Intensity vs.Ambient Temperature

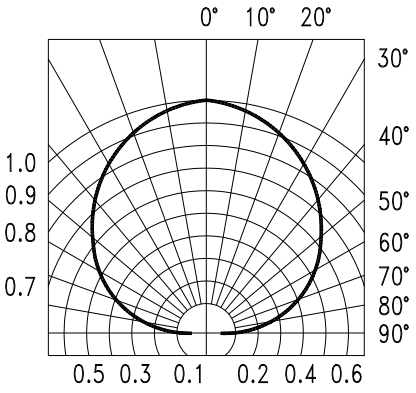


Fig.6 Spatial Distribution

七、 Label identification:

CAT: Light Intensity (mcd)

HUE: wavelength (nm)

REF: Voltage (V)

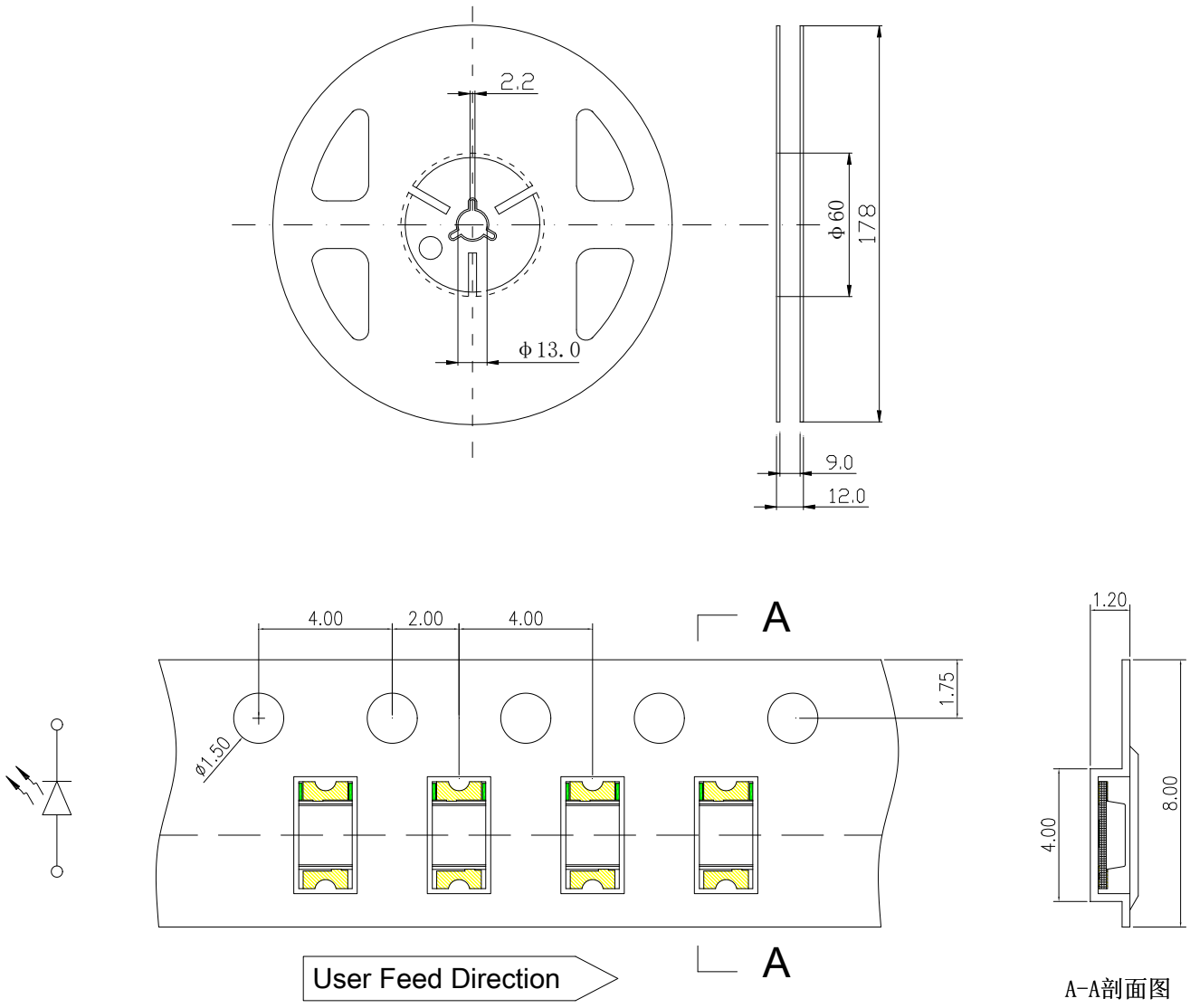
Tolerance scope

a. Luminous Intensity: ± 15%

b. HUE: ±1nm

c. Forward Voltage: ± 0.1V

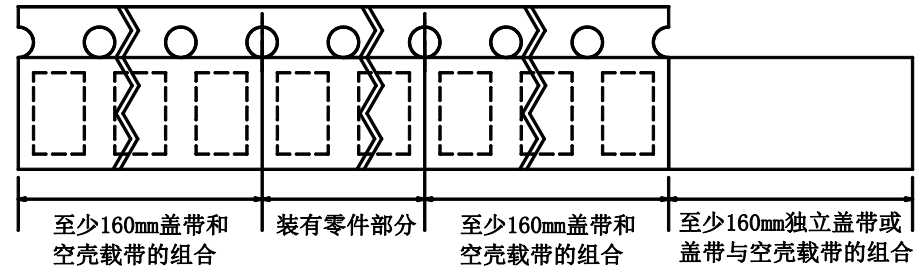
八、 Packaging tape and disc dimensions ：

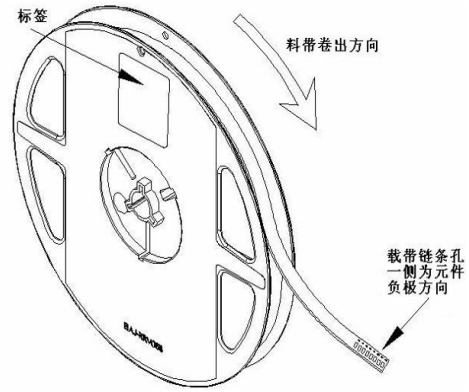


Remarks: 1. Unit: mm (mm)

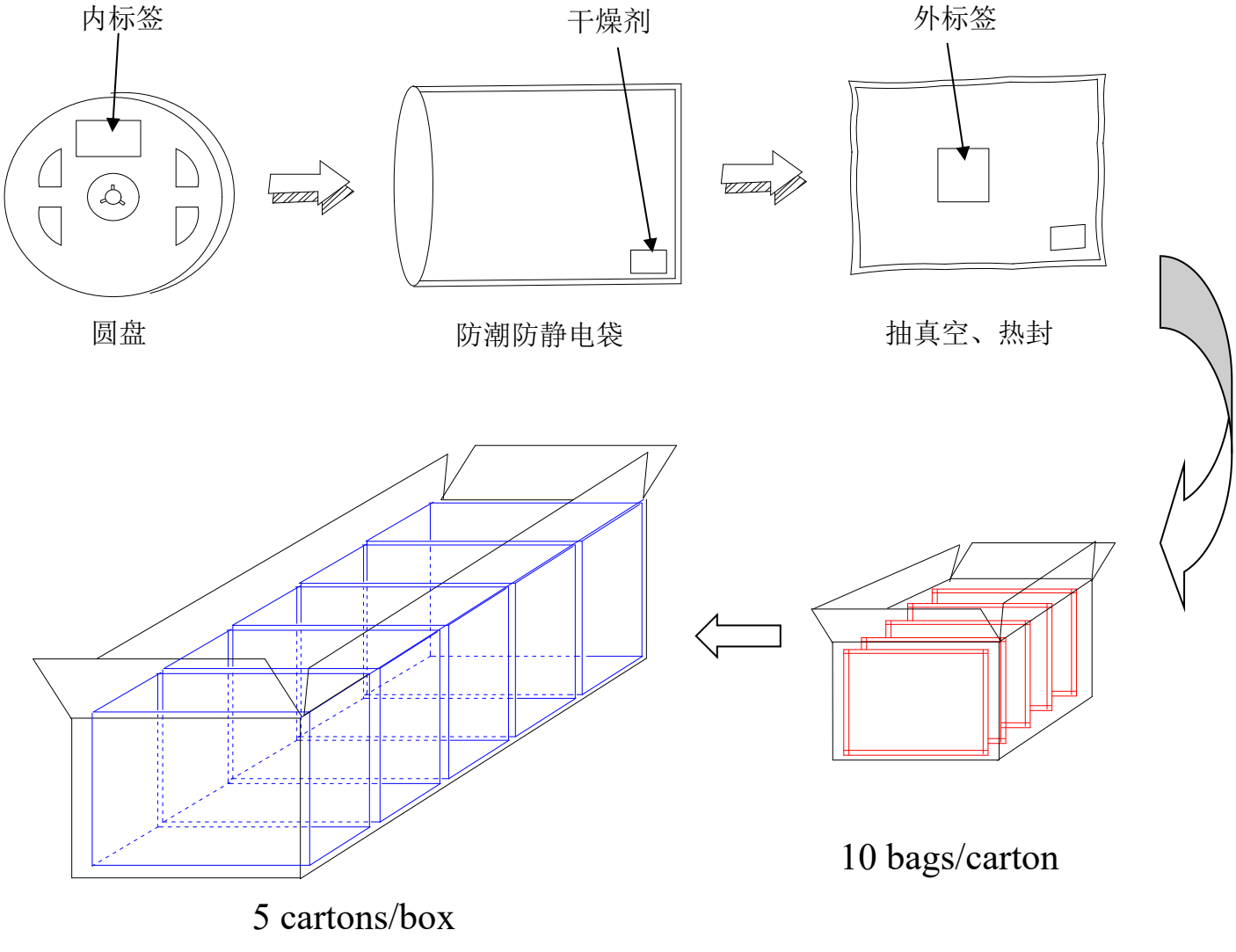
2. Tolerance: ± 0.15 mm unless otherwise specified

九、 Disk and carrier tape roll-out direction and cavity specifications:





十、Inner and outer packaging:



十一、 Reliable Testing

TEST ITEM	TEST ENVIRONMENT	TEST TIMES	STANDARD	Failure determination standard	Failure LED sums（PCS）
Moisture-proof grade	1.Max reflowing soldering temperature=260℃,10seconds，2 times reflow soldering； 2.storeage environment before reflow soldering：Tem.30℃，humidity=70%，168H；	-	JEITA ED-4701 300.301	**# 1**	0/22
Welding reliability（leadfree reflow soldering）	Max reflowing soldering temperature =245±5℃，5seconds（leadfree reflow soldering）	-	JEITA ED-4701 303 303A	**# 2**	0/22
thermal cycling	-40℃ 30minutes~25℃ 5minutes~ 100℃ 30minutes~25℃ 5minutes	300 cycles	JESD22-A104	**# 1**	0/22
Thermal Shock	-35℃ 15minutes Convert time 3minutes 85℃ 15minutes	300 cycles	JESD22-A106	**# 1**	0/22
High temperature storage	Ta=100℃	1000 小时	JESD22-A103	**# 1**	0/22
Low temperature storage	Ta=-40℃	1000 小时	JESD22-A119	**# 1**	0/22
Aging test normal temperature	Ta=25℃ IF=20mA	1000 小时	JESD2-A108	**# 1**	0/22

（2） Failure criteria

Standard #	Item	Test Condition	Failure Standard
# 1	Forward voltage (V_F)	I_F=20mA	＞U.S.L*1.1
	brightness（IV）	I_F=20mA	＜L.S.L*0.7
	Reverse current (I_R)	V_R=5V	＞U.S.L*2.0
# 2	Welding reliability	/	soler paste cover area less than 5%

★ U.S.L : Upper specification limit L.S.L : Lower specification limit

十二、 Attentions during using ：

◆ **Use:**

1. Excessive temperature will affect the brightness and other performance of the LED, so in order to make the LED have better performance, the LED should be

Keep away from heat sources.

2. Tolerance of photoelectric parameters:

Forward Voltage (REF / VF): ± 0.1V

Brightness (CAT/IV): ± 15%

Wavelength (HUE / WLD): ± 1nm

◆ **Storage:**

1. If the original packaging is not opened, the recommended storage environment is: temperature 5℃~30℃, humidity below 85%RH. When the inventory exceeds two months, dehumidification should be done before use, and the condition is 60 ℃ / 8 hours;
2. After opening the original packaging, the recommended storage environment is: temperature 5~30°C, humidity below 60%;
3. LEDs are humidity-sensitive components. In order to prevent the components from absorbing moisture, it is recommended to store them in an airtight container with desiccant after opening the package, or in a nitrogen moisture-proof cabinet;

4. After opening the package, the components should be used within 168 hours (7 days); and the welding should be completed as soon as possible after the patch;

5. If the desiccant fails or the components are exposed to the air for more than 168 hours (7 days), dehumidification should be done;

Baking condition: 60℃/24 hours.

◆ **ESD electrostatic protection**

LEDs (especially blue, emerald green, violet, white, and pink LEDs using InGaN structure wafers) are static-sensitive components, and static electricity or current overload can damage the LED structure. The LED is damaged by static electricity or current overload may cause abnormal performance, such as excessive leakage current, low VF, or failure to light up, etc. So please note the following:

1. Wear an anti-static wrist strap or anti-static gloves when touching the LED;

2. All machinery and equipment, tools, work tables, material racks, etc., should be properly grounded (within 10Ω of ground impedance);

3. Anti-static bags, anti-static boxes and anti-static turnover boxes should be used for storage or handling of LEDs, and ordinary plastic products are strictly prohibited;

4. It is recommended to use an ion fan to suppress the generation of static electricity during the operation;

5. The electrostatic field voltage is less than 100V within 1 foot distance from the LED element.

Cleaning

It is recommended to use alcohol solutions such as isopropanol to clean the LED, and it is strictly prohibited to use corrosive solutions.

Welding

1. For reflow soldering conditions, refer to the temperature curve on the first page.
2. The number of reflow soldering should not exceed twice.
3. It is only recommended to use manual welding in the case of repair and heavy work; the maximum welding temperature should not exceed 300 degrees and must be completed within 3 seconds. The maximum power of the soldering iron should not exceed 30W.
4. During the welding process, it is strictly forbidden to touch the colloid at high temperature.
5. After soldering, it is forbidden to apply external force to the colloid, and it is forbidden to bend the PCB to avoid impact on the components.

Other

1. The LED definition described in this specification is applied to the range of ordinary electronic equipment (such as office equipment, communication equipment, etc.). If there are more stringent reliability requirements, especially when component failure or failure may directly endanger life and health (such as aerospace, transportation, transportation, medical equipment, safety protection, etc.), please inform us in advance Division business staff.
2. High-brightness LED products may cause damage to human eyes when lit, so avoid looking directly from above.
3. For the purpose of continuous improvement, product appearance and parameter specifications may be subject to improved changes without prior notice.
4. Please avoid using materials containing sulfur to avoid affecting the plating surface.
5. Corrosive gases will deteriorate the surface of the LED plating and affe ct the weldability and optical properties. For example: sulfur.