Technical Data Sheet

Customer Part No.:

Inhere Part No.: E3030BPWD-AM-002

Part Name: EMC 3030 白光 LED

Spec Issue Date: 2024-03-17

Revision No.: A

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To Customer:

We submit herewith the following information for your approval:

■Sample □OQC Inspection Record ■LED Dimension

■Electrical Characteristics Curve ■Internal Circuit Diagram

■Soldering recommendation

Prepared by : Lily	Checked by : Tom	Approved by : Ares
Date : 2024-03-17	Date : 2024-03-17	Date : 2024-03-17

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Customer Opinion

☐ Approve and no objection

☐ Reject with the following reason:

_____

东莞市银河光电有限公司
Dongguan Inhere Opto Co., Ltd.
地址:东莞市莞城科技园 D 幢
ADD:Guancheng Science & Technology Park, Dongguan
TEL: 0769-23320868 FAX: 0769-23320878
E-mail: bill@inhereopto.com
Http://www.inhereopto.com

Features

3.00mm×3.00mm SMD LED, 0.60mm thickness

Low power consumption

Wide view angle

Package: 4000pcs/reel

RoHS Compliant

Compliance to automotive standard: AEC-Q102

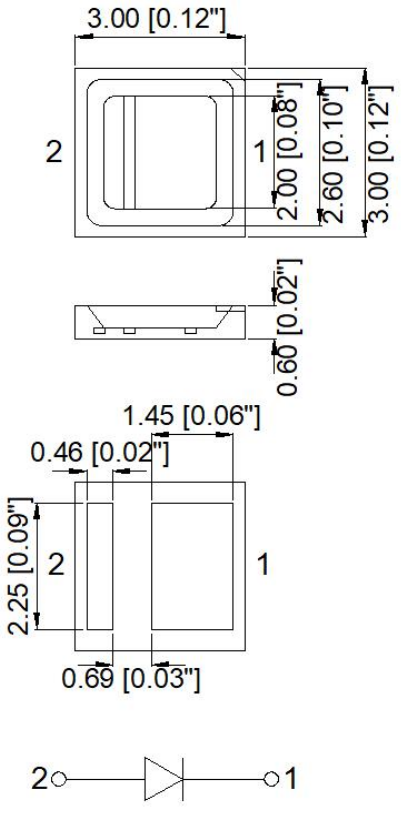
Applications

Automotive backlighting or lighting

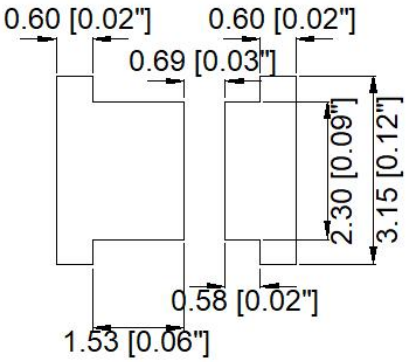
Ideal for back light and indicator

Various colors and lens types available

Package Outlines



Recommend Pad Layout



Part No.	Emitted color	Dice	Lens color
E3030BPWD-AM-002	White	InGaN/GaN	Yellow Diffused

Notes:

All dimensions are in millimeters (inches).

Tolerances are ± 0.2mm (0.008inch) unless otherwise noted.

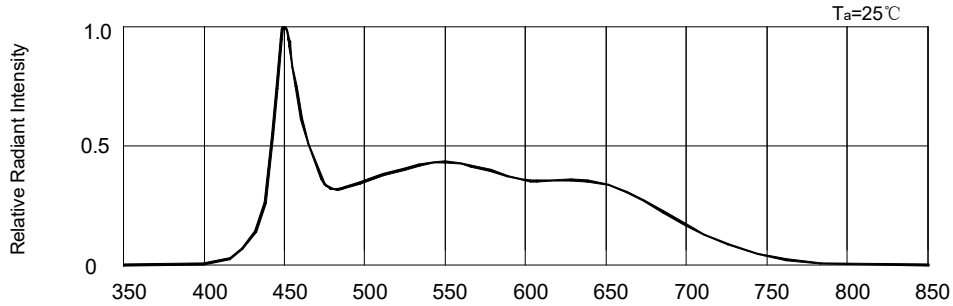
Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Value	Unit
Forward current	If	200	mA
Peak pulsing current (1/10 duty f=1kHz)	Ifp	300	mA
Power dissipation	Pd	680	mW
Electrostatic Discharge, HBM	ESD	8000	V
Reverse voltage	Vr	5	V
Operating temperature	Top	-40 ~+100	℃
Storage temperature	Tstg	-40 ~+100	℃
Junction temperature	T_J	125	℃
Humidity sensitive level	MSL	2a	--

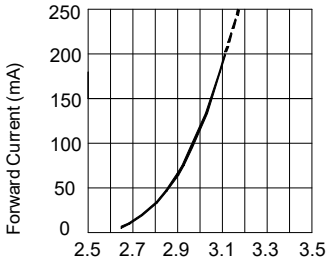
Electro-Optical Characteristics (Ta=25℃)

Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Forward voltage	If=150mA	Vf	2.8	--	3.4	V
Luminous flux	If=150mA	Φ	65	--	85	lm
CIE coordinates	If=150mA	X Y	0.3408 0.3291	-- --	0.3879 0.4037	--
Color rendering index	If=150mA	Ra	80	--	--	--
Viewing angle	If=150mA	2θ1/2	--	120	--	Deg
Reverse current	Vr=5V	Ir	--	--	10	μA
Thermal resistance	--	Rthj-s	--	18	--	℃/W

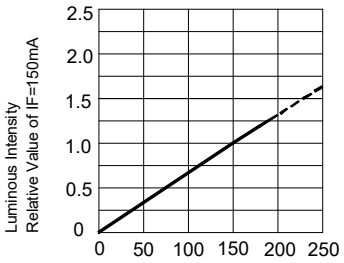
Optical Characteristic Curves



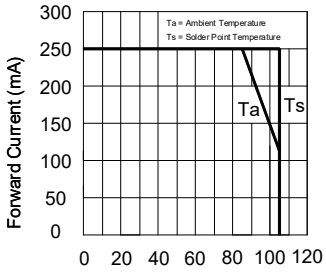
RELATIVE INTENSITY Vs.WAVELENGTH



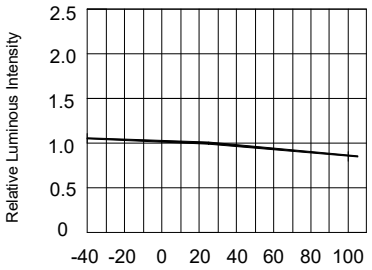
FORWARD CURRENT Vs.
FORWARD VOLTAGE



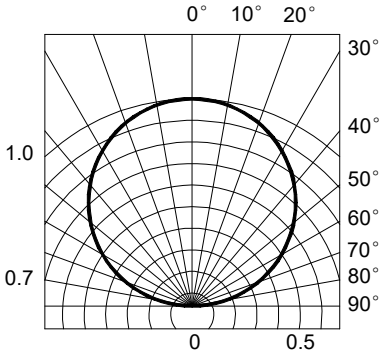
LUMINOUS INTENSITY Vs.
FORWARD CURRENT



FORWARD CURRENT Vs.
TEMPERATURE



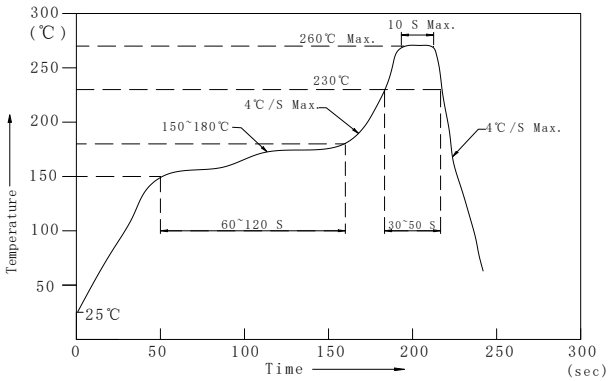
LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE



SPATIAL DISTRIBUTION

Reflow Profile

■ Reflow Temp/Time



Notes:

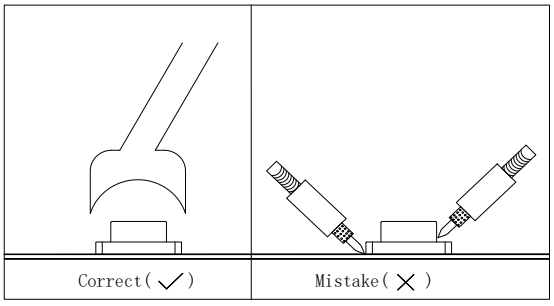
1. We recommend the reflow temperature 245℃ (±5℃).The maximum soldering temperature should be limited to 260℃.
2. Don’t cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

■Soldering iron

Basic spec is ≤ 5sec when 320℃ (±20℃). If temperature is higher, time should be shorter (+10℃→ -1sec). Power dissipation of iron should be smaller than 20W, and temperatures should be controllable. Surface temperature of the device should be under 350℃.

■Rework

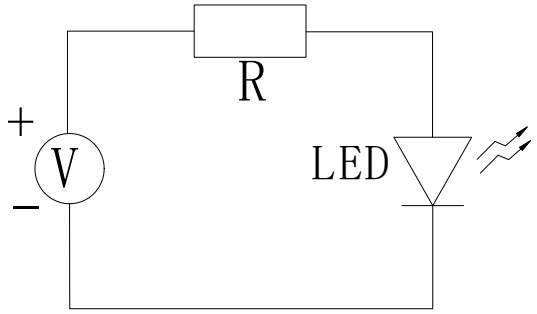
1. Customer must finish rework within 5 sec under 340℃.
2. The head of iron cannot touch copper foil.
3. Twin-head type is preferred.



■ Avoid rubbing or scraping the resin by any object, during high temperature, for example reflow solder etc.

Test Circuit and Handling Precautions

■ Test circuit



■ Handling precautions

1. Over-current-proof

Customer must apply resistors for protection; otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 It is recommended to store the products in the following conditions:

Humidity: 60% R.H. Max.

Temperature: 5℃~30℃

2.2 Shelf life in sealed bag: 12 month at ＜5℃~30℃ and ＜30% R.H. after the package is opened, the products should be used within 4weeks or they should be keeping to stored at≦20 R.H. with zip-lock sealed.

3. Baking

It is recommended to baking before soldering when the pack is unsealed after 4 weeks.

The Condition is: 65±5℃/24hrs.

Test Items and Results of Reliability (1)

Test Item	Test Conditions	Standard Test Method	Note	Number of Test
External Visual	Ta=25±3℃ ψ(%)=40%RH～60%RH	JESD22 B-101B	--	--
Parametric Verification	Ta=25±3℃ ψ(%)=40%RH～60%RH	JESD22 A-108C	--	0/25
D.P.A	Ta=25±3℃ ψ(%)=40%RH～60%RH Random Sample H3TRB, HAST,TC	AEC-Q101-004-C	--	0/3
ESD	Ta=25±3℃ ψ(%)=40%RH～60%RH HBM: R=1.5KΩ C=100pF	JESD22 A-114E	3 times Negative/ Positive	0/30
Physical Dimension	Ta=25±3℃ ψ(%)=40%RH～60%RH	JESD22 B-100B	--	0/3
Vibration Variable Frequency	Ta=25±3℃ ψ(%)=40%RH～60%RH 0.06inch displacement,20 to 100Hz,50g 100Hz to 2KHz	JESD22 B-103B	4times	0/30
Mechanical Shock	Ta=25±3℃ ψ(%)=40%RH～60%RH 1500g's for 0.5s,5blows, 3orentation	JESD22 B-104C	3times	0/30
Temperature Cycling	Ta=-40°-100°C,30min dwell, 5min transfer,1000 cycles	JESD22 A-104C	1000cycles	0/77
Power Temperature Cycling	Ta=-40～85℃,@150mA, 20min dwell/1hour transition 2 min ON / 2 min OFF	JESD22 A-105C	1000cycles	0/77
Steady-state temperature-humidity bias life test	Ta=85℃,ψ(%)=85%RH, @150mA	JESD22 A-101C	1000hrs	0/77

Test Items and Results of Reliability (2)

Test Item	Test Conditions	Standard Test Method	Note	Number of Test
High Temperature Operating Life	Ta=100℃,@150mA	JESD22 A-101C	1000hrs	0/77
Low Temperature Operating Life	Ta=-40℃,@150mA	JESD22 A-101C	1000hrs	0/77
Low Temperature Storage Life	Ta=-40℃, non-operating	JESD22 A-119	1000hrs	0/77
High Temperature Storage Life	Ta=100℃,non-operating	JESD22 A-103C	1000hrs	0/77
Thermal Cycles	Ta=-40～100℃,20min dwell, <10 second transfer	JESD22 A-104C	1000cycles	0/77
High Temperature Reverse Bias Test	Ta=85℃,VR=5V	JESD22 A-108C	1000hrs	0/77
Bond Shear/Die Shear	Ta=25±3℃ ψ(%)=40%RH～60%RH	AEC-Q101-D1	--	0/10
Sulphur resistance	Ta=40±3℃ ψ(%)=90%RH Concentration:H2S/15PPM	IEC60810	336hrs	0/10
Salt Atmosphere	Ta=35±3℃,PH=6.0～7.5	JESD22 A-107B	24hrs	0/5
Reflow soldering	Ta=260±5℃,Time=10S	JESD22 B-106C	5 times	0/30

Forward Voltage Rank Combination (IF=150mA)

Rank	Min.	Max.	Unit
H	2.8	2.9	V
I	2.9	3.0	
J	3.0	3.1	
K	3.1	3.2	
L	3.2	3.3	
M	3.3	3.4	

Luminous Intensity Rank Combination (IF=150mA)

Rank	Min.	Max.	Unit
L65	65	70	lm
L70	70	75	
L75	75	80	
L80	80	85	

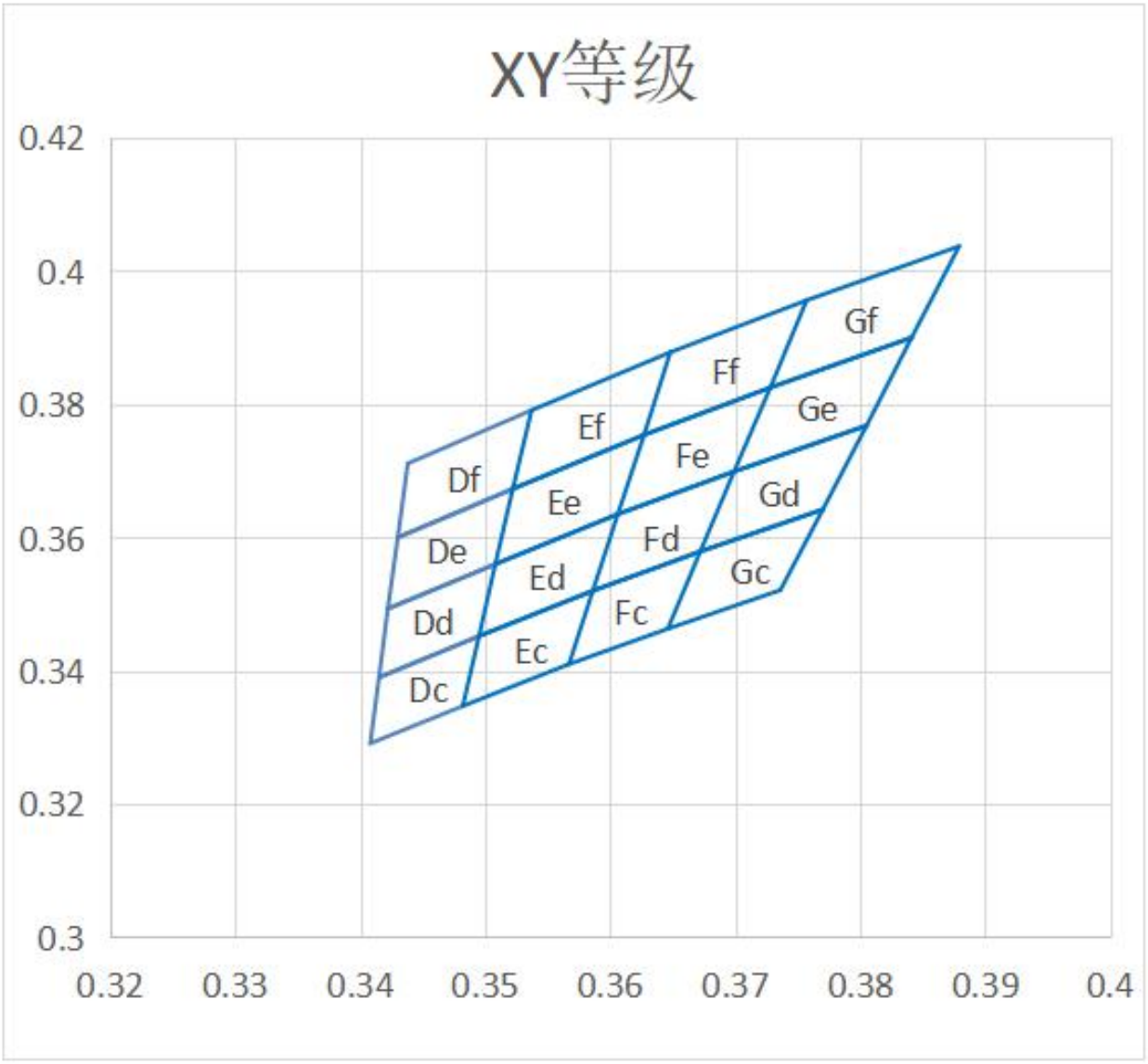
Chromaticity Coordinates Ranks Combination (IF=150mA)

Rank	Chromaticity Coordinates				
Dc	X	0.3482	0.3408	0.3415	0.3495
	Y	0.3347	0.3291	0.3390	0.3452
Dd	X	0.3495	0.3415	0.3422	0.3508
	Y	0.3452	0.3390	0.3493	0.3560
De	X	0.3508	0.3422	0.3430	0.3522
	Y	0.3560	0.3493	0.3600	0.3673
Df	X	0.3522	0.3430	0.3438	0.3537
	Y	0.3673	0.3600	0.3711	0.3791
Ec	X	0.3567	0.3482	0.3495	0.3586
	Y	0.3410	0.3347	0.3452	0.3520
Ed	X	0.3586	0.3495	0.3508	0.3606
	Y	0.3520	0.3452	0.3560	0.3635
Ee	X	0.3606	0.3508	0.3522	0.3627
	Y	0.3635	0.3560	0.3673	0.3754
Ef	X	0.3627	0.3522	0.3537	0.3648
	Y	0.3754	0.3673	0.3791	0.3878
Fc	X	0.3646	0.3567	0.3586	0.3672
	Y	0.3463	0.3410	0.3520	0.3579
Fd	X	0.3672	0.3586	0.3606	0.3699
	Y	0.3579	0.3520	0.3635	0.3699
Fe	X	0.3699	0.3606	0.3627	0.3728
	Y	0.3699	0.3635	0.3754	0.3825
Ff	X	0.3728	0.3627	0.3648	0.3757
	Y	0.3825	0.3754	0.3878	0.3956
Gc	X	0.3736	0.3646	0.3672	0.3770
	Y	0.3521	0.3463	0.3579	0.3642
Gd	X	0.3770	0.3672	0.3699	0.3805
	Y	0.3642	0.3579	0.3699	0.3768
Ge	X	0.3805	0.3699	0.3728	0.3841
	Y	0.3768	0.3699	0.3825	0.3900
Gf	X	0.3841	0.3728	0.3757	0.3879
	Y	0.3900	0.3825	0.3956	0.4037

Notes:

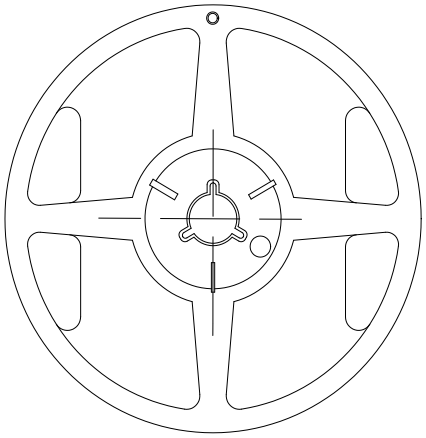
1. The tolerance of forward voltage is±0.1V.
2. The tolerance of luminous flux (Φ) is±11％.
3. The tolerance of CIE coordinates(X, Y) is±0.01.
4. This specification is preliminary.
5. This specification is a standard specification of our factory, can make in accordance with customer's special requirement.

XY Chromaticity Coordinate

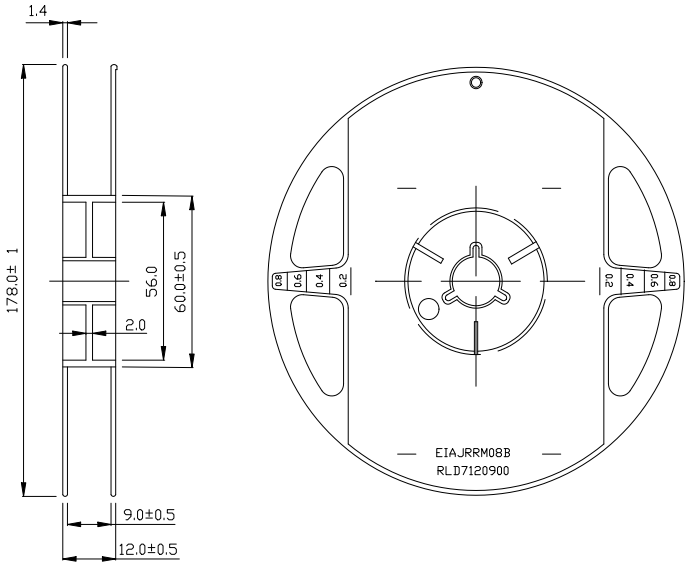


EMC 3030 Series SMD Top LED Lamps Packaging Specifications

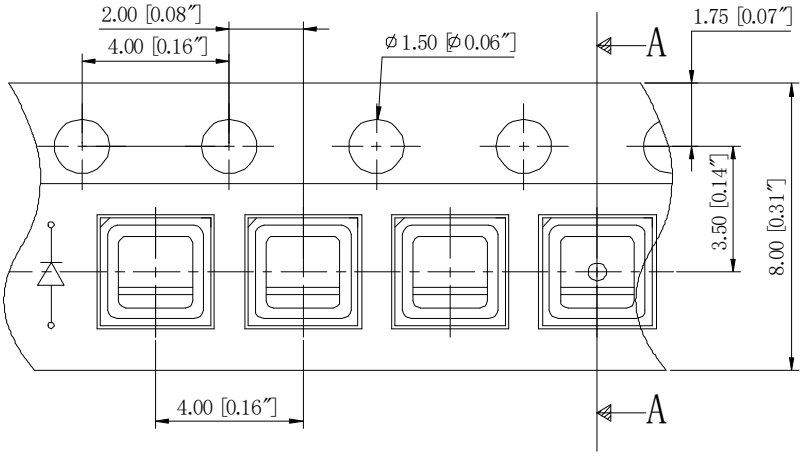
- **Feeding Direction**



- **Dimensions of Reel (Unit: mm)**



- **Dimensions of Tape (Unit: mm)**

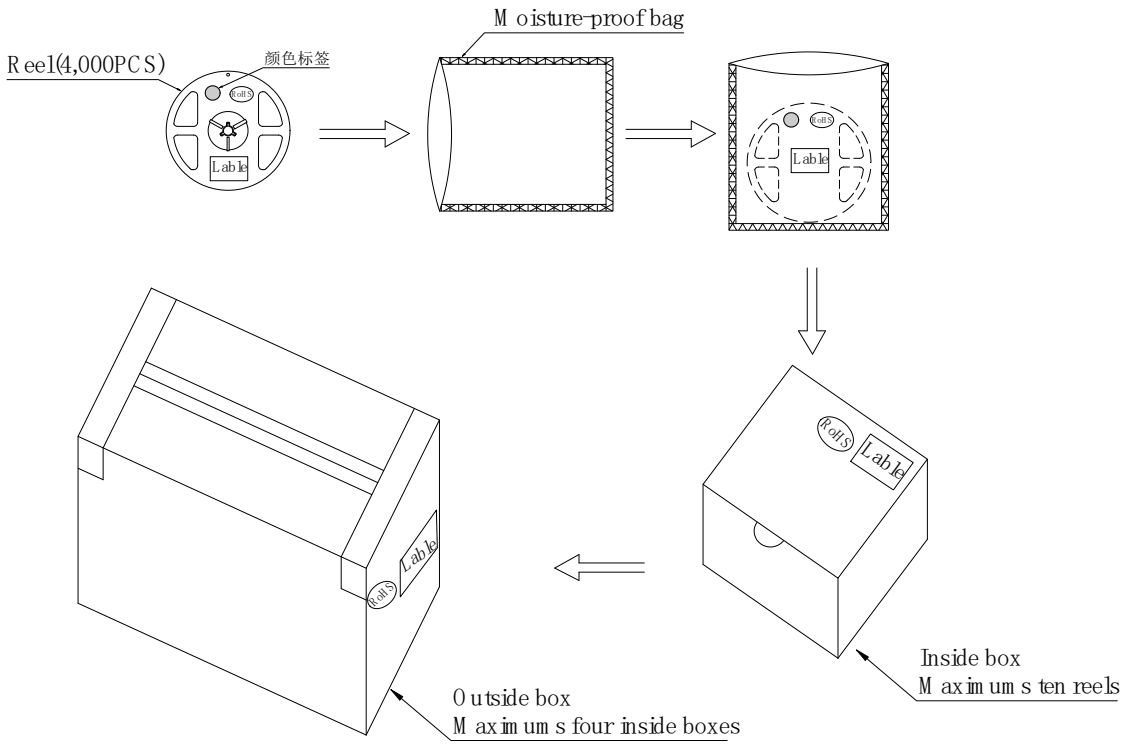


Notes:

1. Empty component pockets are sealed with top cover tape.
2. The maximum number of missing lamps is two.
3. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications.
4. 4000pcs/Reel.

EMC 3030 Series SMD Top LED Lamps Packaging Specifications

- **Packaging specifications**



Notes:

Reeled products (numbers of products are 4,000pcs) packed in a seal off moisture-proof bag along with a desiccant one by one, ten moisture-proof bag of maximums (total maximum number of products are 40,000pcs) packed in an inside box (about size: 240x 230x 130mm) and four inside boxes of maximums are put in the outside box (about size: 545mm x 260mm x 250mm) Together with buffer material, and it is packed. (Part No., Lot No., quantity should appear on the label on the moisture-proof bag, part No. And quantity should appear on the label on the cardboard box.) The number of the loading steps of outside box (cardboard box) has it to three steps.