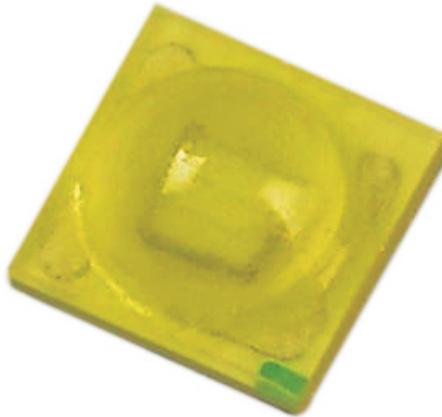


### LED Series

L-KLS9-L-3535W

5500-6000k 100-120lm 1w Pure white

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For 3535 Single Chip White Color Power LED

#### Technical Datasheet

3535 is thermal management characteristic is better than other LED Solutions. By package SMD design and good thermal emission material.

According to these advantages, it enables to apply various lighting applications and design solution, automotive lighting, and large size LCD backlight etc.

#### Application

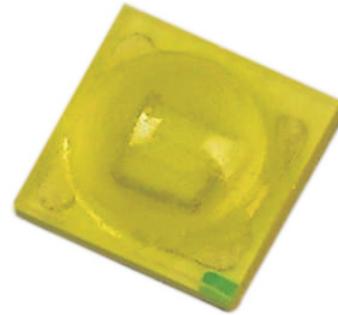
- Mobile phone flash
- Automotive interior / exterior lighting
- Automotive signal lighting
- Automotive forward lighting
- General Torch
- Architectural lighting
- Projector light source
- Traffic signals
- Task lighting
- Decorative / Pathway lighting
- Remote / Solar powered lighting •Tubular light application
- Household appliances

## LED Series

### Features :

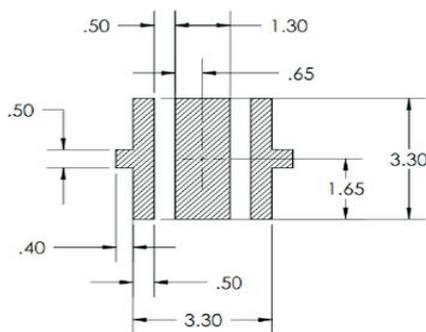
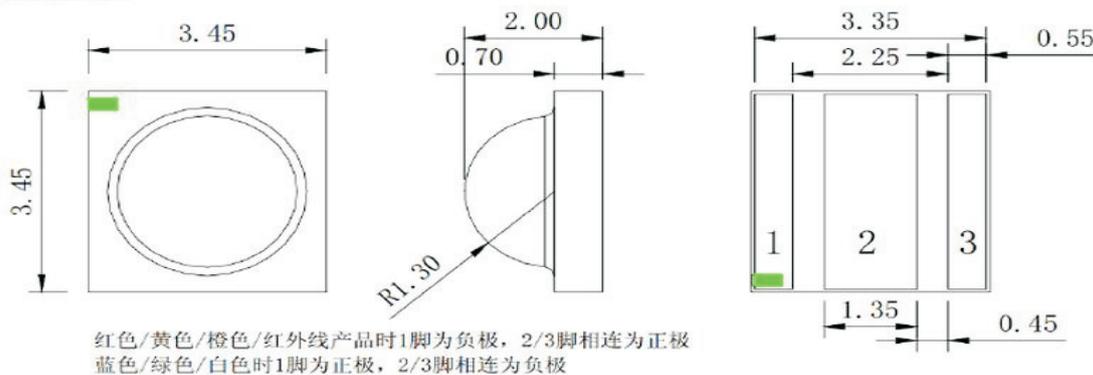
1. PLCC LED dimensions: 3.5(L) x 3.5(W) x 1.89(H) mm
2. High intensity
3. Extremely wide view angle
4. Anti-electrostatic tape package
5. Reliable and stable
6. Emitting Color : White

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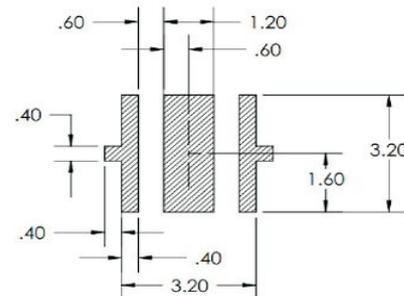


### Package Dimension

外观尺寸:



建议使用的 PCB 焊盘



建议使用的模板型式  
(阴影部分为开口)

### Notes:

1. All dimensions are in mm.
2. Tolerance is  $\pm 0.25$ mm unless otherwise noted.

**LED Series**

Absolute Maximum Ratings at Ta=25°C

Parameter	MAX.	Unit
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	1000	mA
Continuous Forward Current	350	mA
Reverse Voltage	5	V
Operating Temperature Range	-25°C to +85°C	
Storage Temperature Range	-40°C to + 100°C	
Lead Soldering Temperature	260°C for 3 Seconds	

Electrical Optical Characteristics at Ta=25

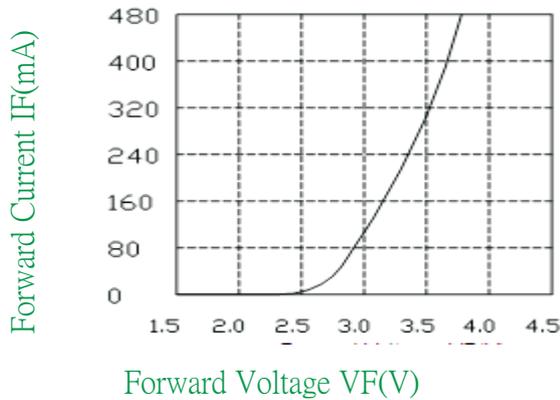
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous flux(lm)	Iv	100	--	120	lm	I <sub>F</sub> = 350mA (Note 8)
Color Rendering Index	CRI	70	---	--	Ra	I <sub>F</sub> = 350mA
Color Rank	x	---	0.32	---	NIL	I <sub>F</sub> = 350mA
	y	---	0.32	---	NIL	I <sub>F</sub> = 350mA
Viewing Angle	2θ1/2	---	120	---	Deg	I <sub>F</sub> = 350mA
Forward Voltage	V <sub>F</sub>	---	3.2	---	V	I <sub>F</sub> = 350mA
Reverse Current	I <sub>R</sub>	---	---	10	μA	V <sub>R</sub> =

**Notes:**

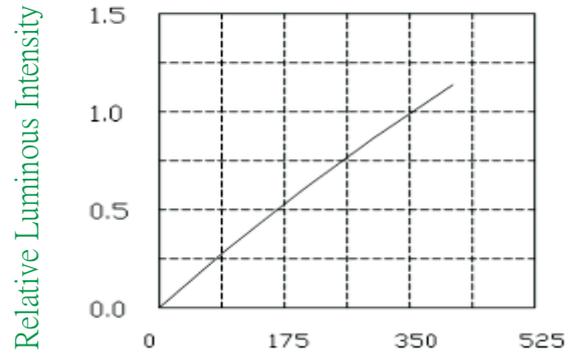
- All dimensions are in millimeter. Tolerance is ± 0.25mm(.01") unless others otherwise noted.
- maintains a tolerance of ±10% on flux and power measurements.
- CCT ±5% tester tolerance and □ d ±1nm; X.Y Tolerance each Bin limit is ± 0.01
- A tolerance of ±0.1V on forward voltage measurements
- View Angle maintains a tolerance of ±20°
- Specifications are subject to change without notice.
- These products are sensitive to static electricity; high standard of care must be fully taken when handling them. Particularly if an over-voltage that exceeds the Absolute maximum Rating of these products were applied, the overflow energy will cause damage to and possibly result in destruction of these products. Buyer shall take absolute secure countermeasures against static electricity and surge when handling these products.
- Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye- response curve.θ1/2 is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
- It use many parameters that correspond to the CIE 1931 2°
- X,Y, and Z are CIE1931 2° values of Red, Green and Blue content of the measurement.

**Typical Optical Characteristics Curves**

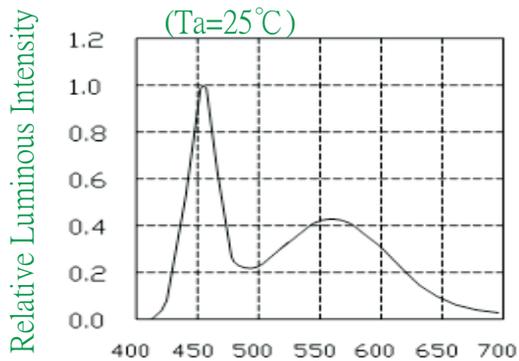
**Fig.1 IF-VF(Ta=25°C)**



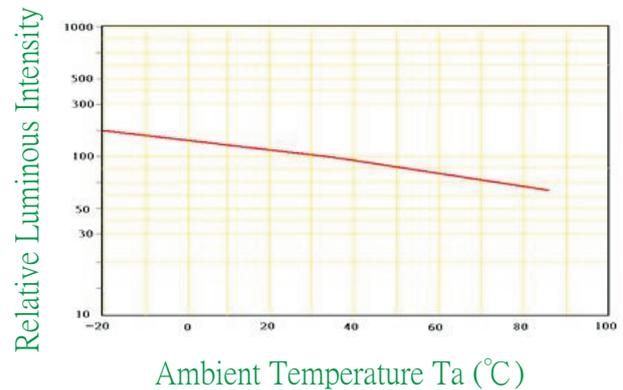
**Fig.2 Relative Luminous Intensity (Ta=25°C)**



**Fig.3 Wavelength Characteristics (Ta=25°C)**

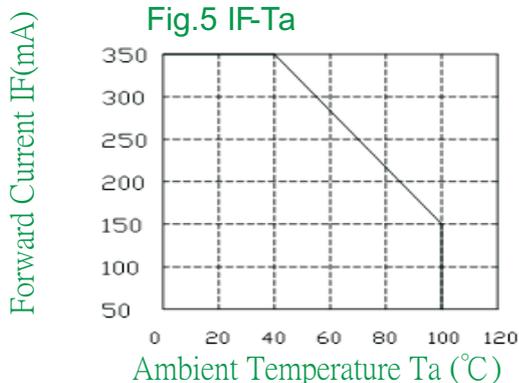


**Fig.4 Relative Luminous Intensity-Ta**

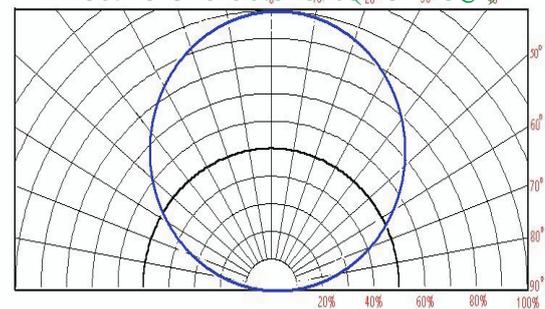


**Fig.4 Relative Luminous Intensity-Ta**

**Fig.5 IF-Ta**



**Directive Characteristics (Ta=25°C)**

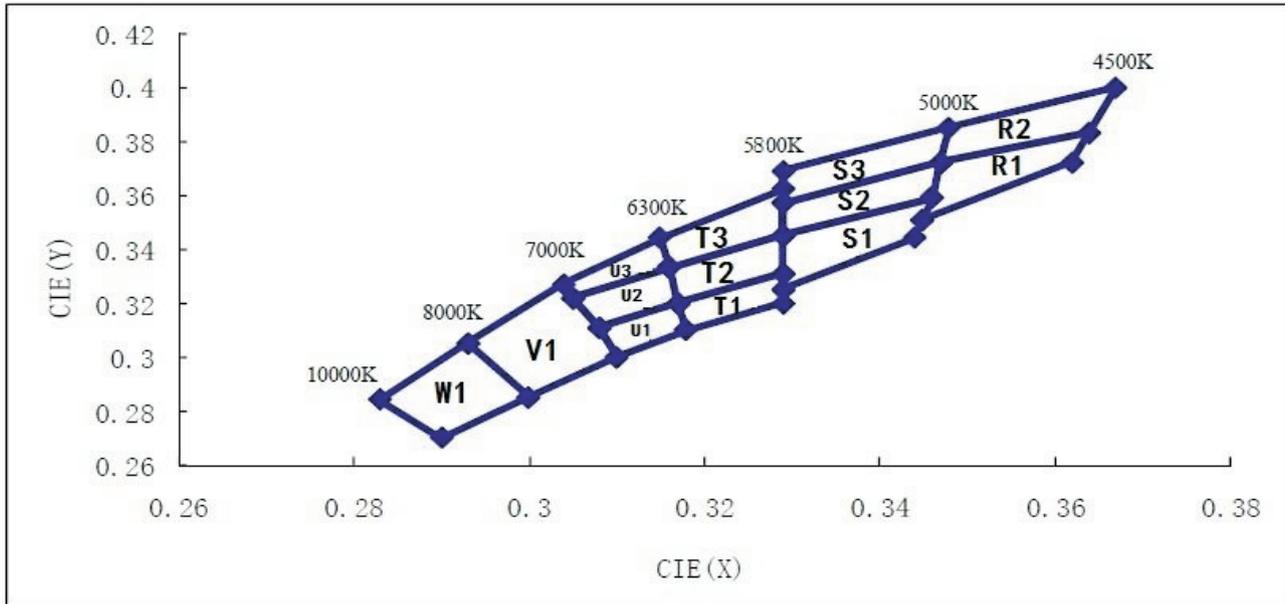


**LED Series**

Chromaticity Coordinates Specifications for Bin Grading:

COLOR RANKS (IF= 350mA;Ta=25°C)

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BIN	CHR-X	CHR-Y	TC(K)	BIN	CHR-X	CHR-Y	TC(K)
W1	0.293	0.305	9000	T1	0.329	0.331	6050
	0.283	0.284			0.317	0.32	
	0.29	0.27			0.318	0.31	
	0.3	0.285			0.329	0.32	
V1	0.304	0.327	7500	S3	0.329	0.325	5350
	0.293	0.305			0.348	0.385	
	0.3	0.285			0.329	0.369	
	0.31	0.3			0.329	0.362	
	0.308	0.311			0.329	0.357	
	0.305	0.322			0.347	0.372	
U3	0.315	0.344	6700	S2	0.347	0.372	5350
	0.304	0.327			0.329	0.357	
	0.305	0.322			0.329	0.345	
	0.316	0.333			0.346	0.359	
U2	0.316	0.333	6700	S1	0.346	0.359	5350
	0.305	0.322			0.329	0.345	
	0.308	0.311			0.329	0.331	
	0.317	0.32			0.329	0.325	
U1	0.317	0.32	6700	R2	0.344	0.344	4800
	0.308	0.311			0.345	0.351	
	0.31	0.3			0.367	0.4	
	0.318	0.31			0.348	0.385	
T3	0.329	0.362	6050	R1	0.347	0.372	4800
	0.315	0.344			0.364	0.383	
	0.316	0.333			0.364	0.383	
	0.329	0.345			0.347	0.372	
T2	0.329	0.357	6050		0.345	0.351	
	0.329	0.345			0.345	0.351	
	0.316	0.333			0.362	0.372	
	0.317	0.32					
	0.329	0.331					

## LED Series

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### RELIABILITY

### Test Items and Results

Items	Test Item	Standard Test Method	Equipment	Type	Experiment capacity	Reference
1	Temperature Cycle	-40°C ~ 25°C ~ 100°C ~ 25°C 30 mins 5 mins 30 mins 5 mins	thermostat	/	Temperature: 50°C -150°C	JEITA ED-4701 100 105
2	Thermal Shock	-40°C ~ 100°C 15mins 15 mins	thermostat	/	Temperature: 50°C-150°C	MIL-STD-20 2G
3	High Temperature Storage	Ta=100°C	thermostat	/	Temperature: 50°C-150°C	JEITA ED-4701 200 201
4	Low Temperature Storage	Ta=40°C	thermostat	/	Temperature: 50°C-150°C	JEITA ED-4701 200 202
5	Steady State Operating Life	Ta=25°C	Aging rack	/	/	
6	Steady State Operating Life of High Humidity & Temperature	Ta=60°C RH=90% IF=350mA(R,G,Y)300mA(W,B)	high-temperature test chamber	/	/	
			air humidifier	/	/	
			air hygrometer	/	/	
7	) Soderability (Reflow Sodering)	Tsol=235°C± 5°C, With soldering flux	Reflow Soldering Machine	/	/	JEITA ED-4701 300 303
8	Resistance to Soldering Heat(Reflow Soldering)	Tsd=260°C, 10second clock	Reflow Soldering Machine	/	/	JEITA ED-4701300 301

## LED Series

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### Cautions

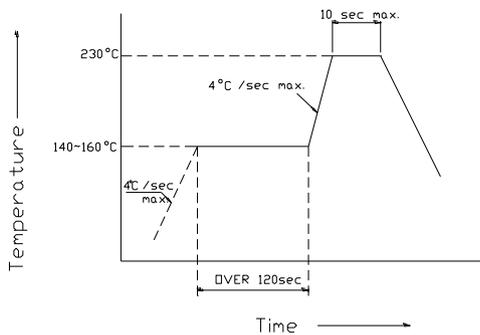
#### (1) Soldering Conditions

Number of reflow process shall be less than 2 times and cooling process to normal temperature is required between first and Second soldering process.

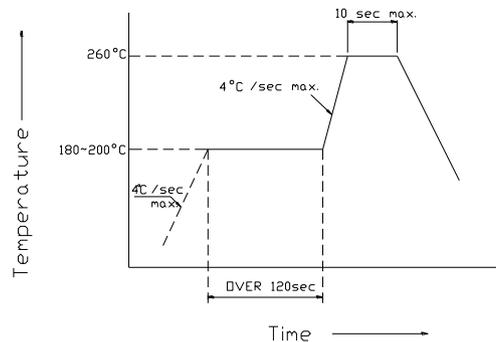
Recommended soldering conditions

Reflow Soldering			Hand Soldering	
	Lead Solder	Lead-free Solder	Temperature	350 °C Max.
Pre-heat	140 ~ 160 °C	180 ~ 200 °C	Soldering time	3 sec. Max.
Pre-heat time	120 sec. Max.	120 sec. Max.		(one time only)
Peak temperature	230 °C Max.	260 °C Max.		
Soldering time	10 sec. Max.	10 sec. Max.		
Condition				

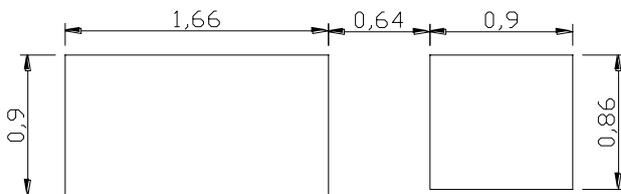
Lead Solder



Lead-Free Solder



(Recommended Soldering Pattern) 单位:毫米( Units:mm)



#### (2) Static Electricity

It is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.

All devices, equipment and machinery must be properly grounded.

Damaged LEDs will show some unusual characteristics such as the forward voltage becomes lower, or the LEDs do not light at the low current. Criteria : (VF > 2.0V at IF=0.5mA)

#### (3) Moisture Proof Package

It is recommended that moisture proof package be used .

#### (4) Storage

Before opening the package ,The LEDs should be kept at 30 °C or less and 70%RH or less. The LEDs should be used within a year.

## LED Series

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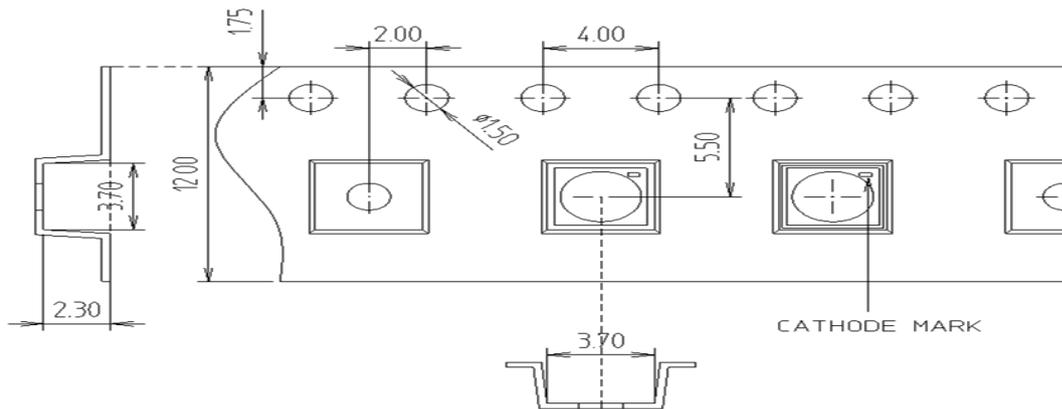
(5) After opening the package, The LEDs should be soldered within 24 hours (1days) after opening the package. If unused LEDs remain, they should be stored in moisture proof packages, such as sealed containers with packages of moisture absorbent material (silica gel).

If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions Baking treatment : more than 6 hours at  $85 \pm 5$  °C.

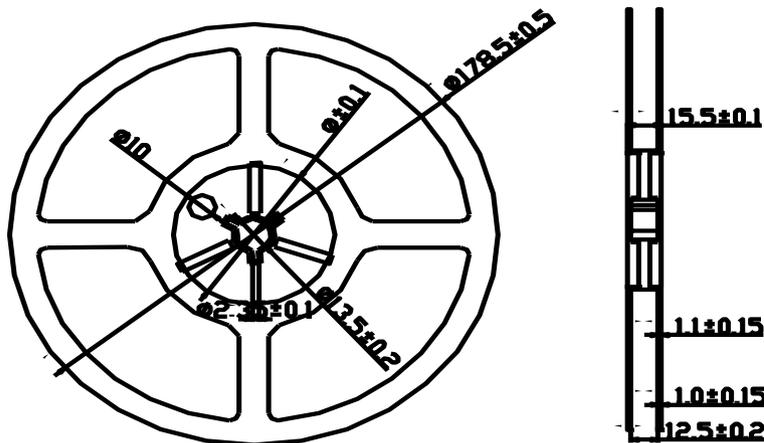
### PACKAGING

(1) The LEDs are packed in cardboard boxes after taping.

(2) Taping Specifications ( Units:mm)



(3) Reel Dimension



PACKAGE: 1000Pcs/Reel

(4) The label on the minimum packing unit shows ; Part Number, Lot Number, Ranking, Quantity.

(5) Keep away from water, moisture in order to protect the LEDs.

(6) The LEDs may be damaged if the boxes are dropped or receive a strong impact against them. so precautions must be taken to prevent any damage.