

## FEATURES

- Uniform light output
- Low power consumption.
- I.C. Compatible
- Long life-solid state reliability
- The product itself will remain within RoHS compliant Version.

## RS PRO LED component

RS Stock No.: 2545725



RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

Stock No.	Brand	Product Name	Function
2545726 2545727	RS PRO	5mm Round Red & Pure Green &, Blue Full Color LED	Indicator

### Product Description Attribute

5mm Round, Red & Pure Green &, Blue Full Color LED · Four Leads with One Common Cathode Type. Uniform light output, Low power consumption, I.C. compatible, long-life solid-state reliability., Compliance with EU REACH, the product itself will remain within RoHS compliant Version  
Lens color: White diffused

- *TV set, Monitor.*
- *Telephone, Computer, Circuit board, etc.*

### Package Contain

1. 1000pcs/Anti-electrostatic bag (for 254-5726)

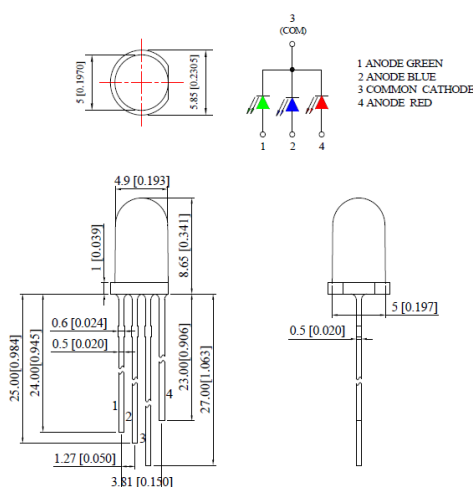
### General Specifications

<b>509RGBM2E-009</b>	5mm Round Red & Pure Green &, Blue Full Color LED
<b>Function</b>	Indicator

### Mechanical Specifications

#### Mechanical Life

Recommended Soldering Pad Dimensions  
Soldering Temperature : 260°C for 5Seconds



## Technical DataSheet

AbsoluteMaximumRatingsatTa=25°C

Parameters		Symbol	Max	Unit
Power Dissipation	Red	Pd	60	mW
	Pure green		90	mW
	Blue		90	mW
Peak Forward Current(a)		IFP	100	mA
DC Forward Current (b)	Red	IF	25	mA
	Pure green		25	mA
	Blue		25	mA
Reverse Voltage		VR	5	V
Operating Temperature Range			-40°C to+80°C	
Storage Temperature Range		Tstg	-40°C to+85°C	
Soldering Temperature		Tstg	260°Cfor 5 Seconds	

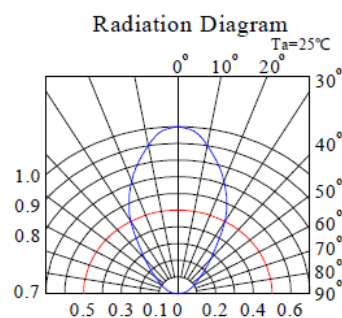
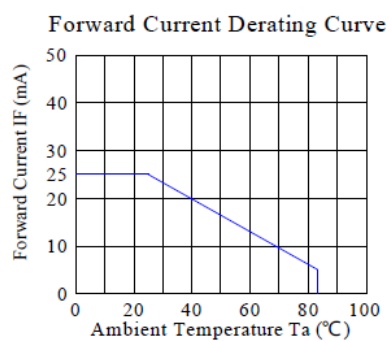
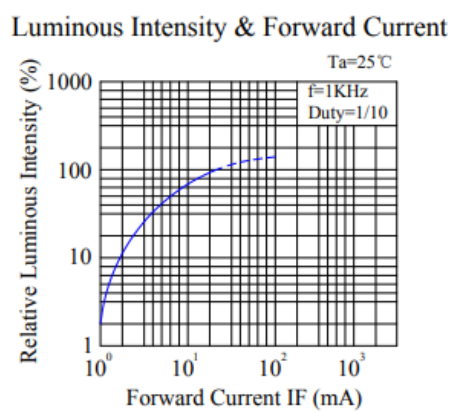
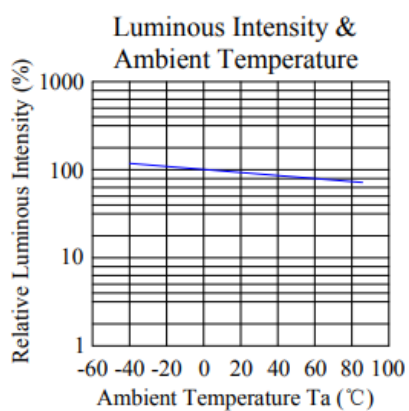
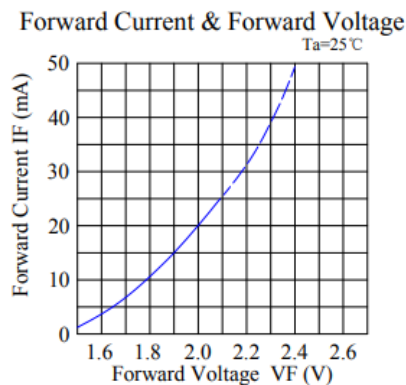
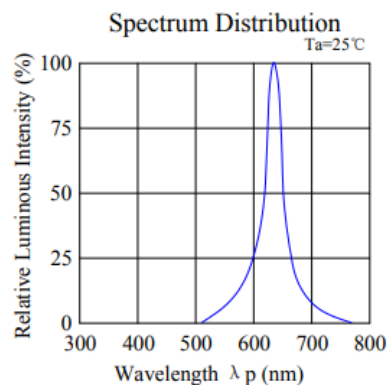
**Electrical Optical Characteristics at Ta=25  
°C**

Parameters	Symbol	Emitting Color	Min.	Typ.	Max.	Unit	TestCondition
Luminous Intensity (a)	IV	Red	350	500	---	mcd	IF=20mA
		Pure green	1000	1500	---	mcd	IF=20mA
		Blue	150	200	---	mcd	IF=20mA
Viewing Angle(b)	2θ1/2	Red	---	60	---	Deg	IF=20mA
		Pure green	---	60	---	Deg	IF=20mA
		Blue	---	60	---	Deg	IF=20mA
Peak Emission Wavelength	λp	Red		632	---	nm	IF=20mA
		Pure green		520	---	nm	IF=20mA
		Blue		468	---	nm	IF=20mA
Dominant Wavelength ©	λd	Red		624	---	nm	IF=20mA
		Pure green		525	---	nm	IF=20mA
		Blue		470	---	nm	IF=20mA
Spectral Line Half-Width	Δλ	Red		20	---	nm	IF=20mA
		Pure green		35	---	nm	IF=20mA
		Blue		25	---	nm	IF=20mA
Forward Voltage	VF	Red	1.6	2	2.4	V	IF=20mA
		Pure green	2.8	2	3.6	V	IF=20mA
		Blue	2.8	2	3.6	V	IF=20mA
Reverse Current	IR	Red	---	---	10	μA	VR=5V
		Pure green	---	---	10	μA	VR=5V
		Blue	---	---	10	μA	VR=5V

## Typical Electrical / Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

Red:

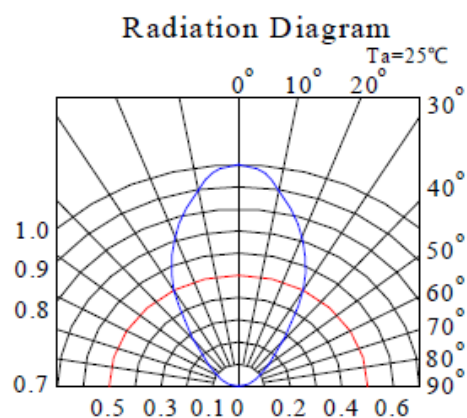
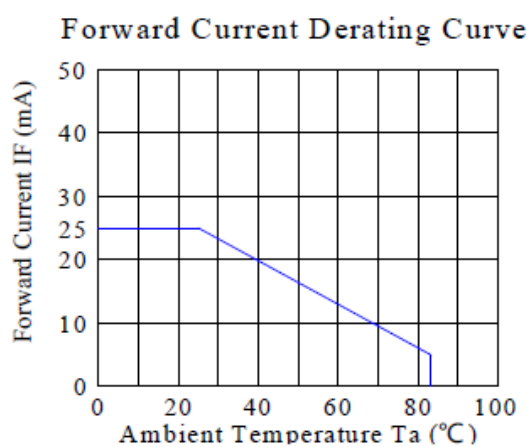
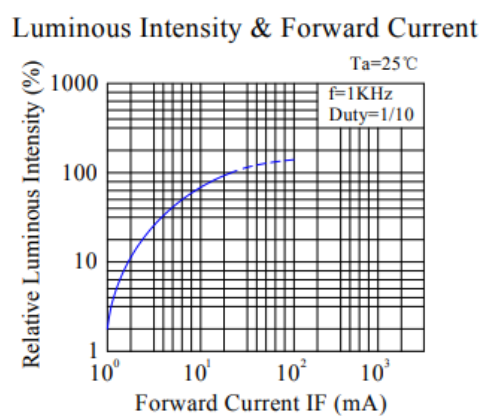
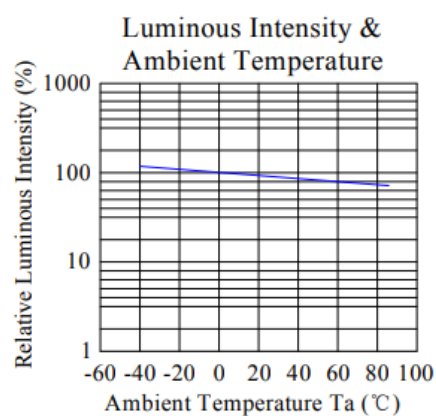
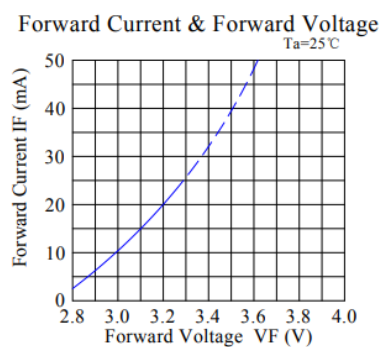
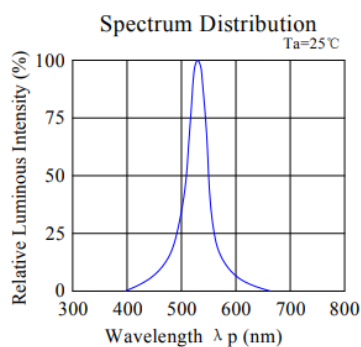


# LED Component

## Typical Electrical / Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

Green:

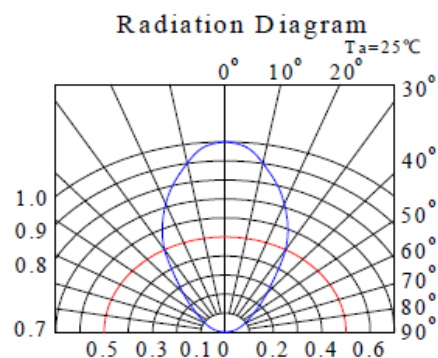
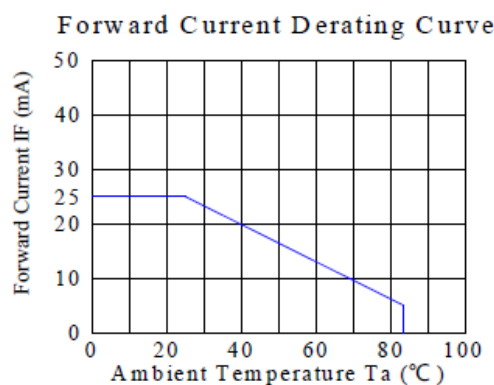
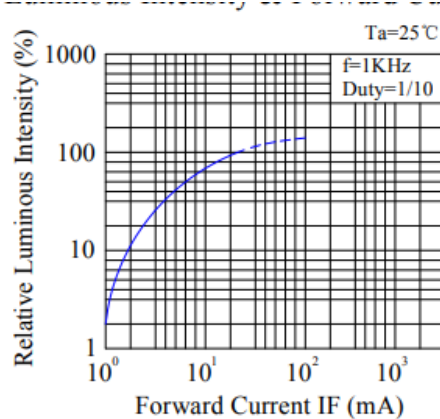
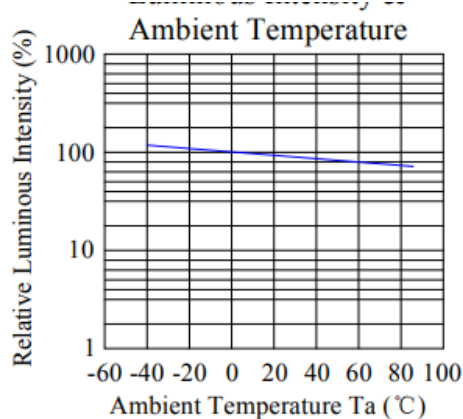
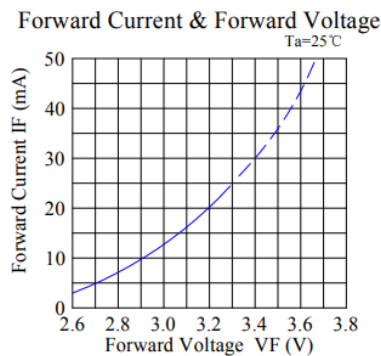
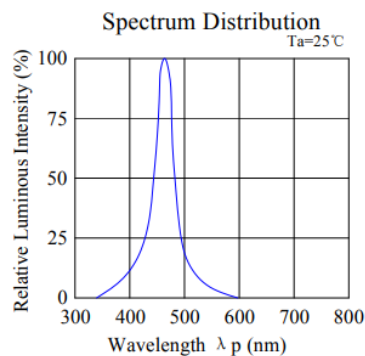


# LED Component

## Typical Electrical / Optical Characteristics Curves

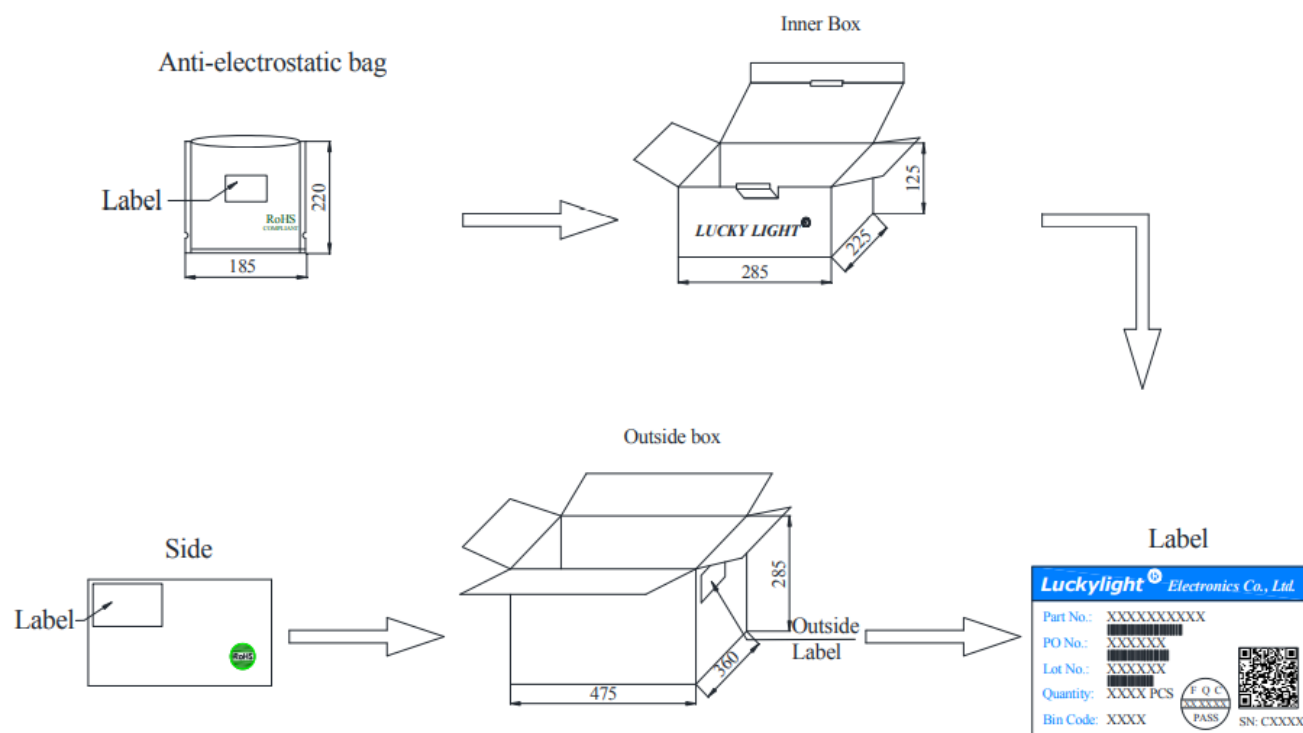
(25°C Ambient Temperature Unless Otherwise Noted)

Blue:



## Reel Dimensions / Packing & Label Specifications:

### Packing & Label Specifications:



### Packing Quantity:

- 1000 PCS/bag.
- 10000 PCS/Inner Box.

## CAUTIONS

## CAUTIONS

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 The LEDs should be stored at 30°C or less and 70%RH or less after being shipped from Luckylight and the storage life limits are 3 months. If the LEDs are stored for 3 months or more, they can be stored for a year in a sealed container with a nitrogen atmosphere and moisture absorbent material.
- 2.2 Please avoid rapid transitions in ambient temperature, especially, in high humidity environments where condensation can occur.

3. **Cleaning**

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LEDs if necessary.

4. **Lead Forming & Assembly**

During lead forming, the leads should be bent at a point at least 1.6mm from the base of LED lens. Do not use the base of the lead frame as a fulcrum during forming. Lead forming must be done before soldering, at normal temperature. During assembly on PCB, use minimum clinch force possible to avoid excessive mechanical stress.

5. **Soldering**

When soldering, for Lamp without stopper type and must be leave a minimum of 3mm clearance from the base of the lens to the soldering point. Do not apply any external stress to the lead frame during soldering while the LED is at high temperature.

Recommended soldering conditions:

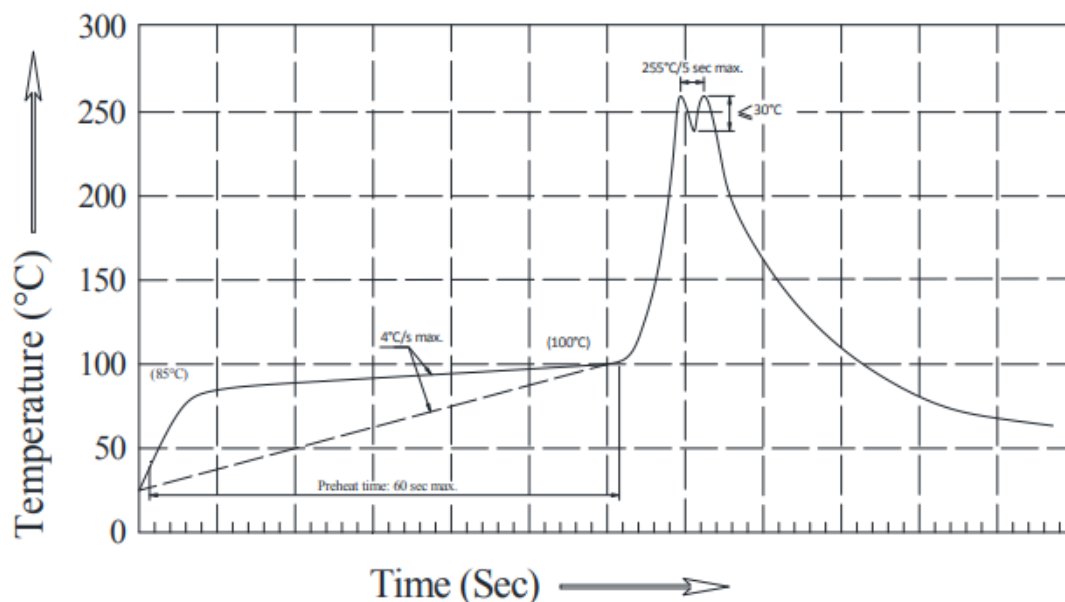
Soldering Iron		Wave Soldering	
Temperature	300°C Max.	Pre-heat	100°C Max.
	3 sec. Max.	Pre-heat Time	60 sec. Max.
Soldering Time	(one time only)	Solder Wave	260°C Max.
		Soldering Time	5 sec. Max.

Note:

*a.Excessive soldering temperature and / or time might result in deformation of the LED lens or catastrophic failure of the LED.*

## CAUTIONS

## Recommended Wave Soldering Profiles



## Notes:

- Recommend pre-heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C.
- Peak wave soldering temperature between 245°C ~ 255°C for 3 sec (5 sec max).
- Do not apply stress to the epoxy resin while the temperature is above 85°C.
- Fixtures should not incur stress on the component when mounting and during soldering process.
- SAC 305 solder alloy is recommended.
- No more than one wave soldering pass.

## 6. Drive Method

An LED is a current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit, in series with each LED as shown in Circuit A below.



(A) Recommended circuit

(B) The brightness of each LED might appear different due to the differences in the I-V characteristics of those LEDs.

## CAUTIONS

**7. Repairing**

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.

**8. ESD (Electrostatic Discharge)**

Static Electricity or power surge will damage the LED. Suggestions to prevent ESD damage:

- 8.1. Use a conductive wrist band or anti- electrostatic glove when handling these LEDs.
- 8.2. All devices, equipment, and machinery must be properly grounded.
- 8.3. Work tables, storage racks, etc. should be properly grounded.
- 8.4. Use ion blower to neutralize the static charge which might have built up on surface of the LEDs plastic lens as a result of friction between LEDs during storage and handing.

ESD-damaged LEDs will exhibit abnormal characteristics such as high reverse leakage current, low forward voltage, or "no light up" at low currents.

To verify for ESD damage, check for "light up" and VF of the suspect LEDs at low currents.

The VF of "good" LEDs should be  $>2.0V@0.1mA$  for InGaN product and  $>1.4V@0.1mA$  for AlInGaP product.

**9. Others**

- 9.1 The information included in this document reflects representative usage scenarios and is intended for technical reference only.
- 9.2 The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
- 9.3 When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Luckylight will not be responsible for any subsequent issues.
- 9.4 The LEDs described here are intended to be used for ordinary electronic equipment (such as office equipment, communication equipment and household applications). Consult Luckylight's Sales in advance for information on applications in which exceptional reliability is required, particularly when the failure or malfunction of the LEDs may directly jeopardize life or health, such as in aviation, transportation, traffic control equipment, medical and life support systems and safety devices.