



## Data Sheet

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Customer:

Part No:

CL-SF687RIRB-850-02(R)

Sample No:

Description:

Item No:

Customer			
Check	Inspection	Approval	Date

### Features

- Package Size: 3.5(L) × 2.8(W) × 1.9(T)mm
- Silicone Packed
- Suitable for different working environment
- Super long lifetime: 50000HRs
- Anti UV
- White colors are available in(2300K- 25000K)
- Wide viewing angle ( $2\theta 1/2 = 120^\circ$ )

### ◆Applications :

- Mobile phone flash
- Automotive interior lighting
- Automotive forward lighting
- Architectural lighting
- LCD TV / Monitor backlight
- Traffic signals
- Task lighting
- Decorative/ Pathway lighting
- Remote/Solarpowered lighting
- Household appliances

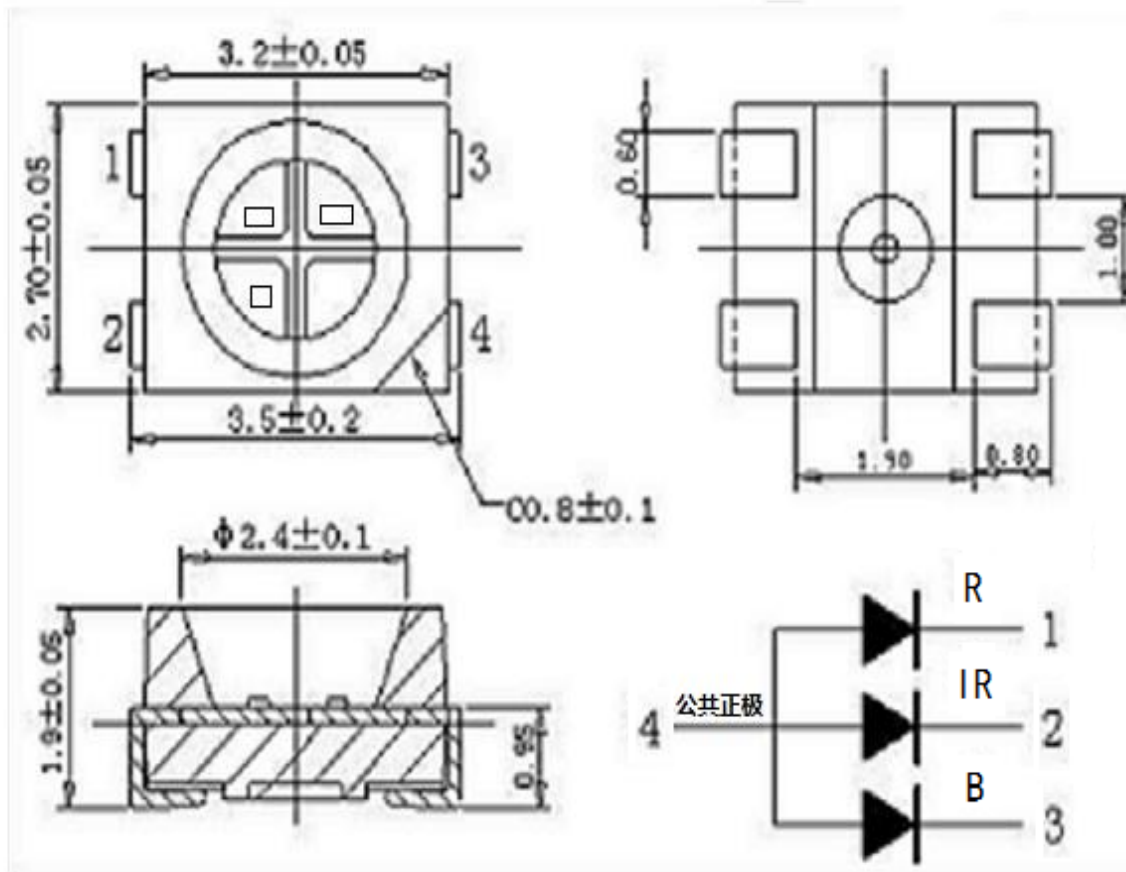
### Device Selection Guide

ITEM	MATERIALS
Resin	Silicon
Bonding wire	25 Em Au
Lens color	Water Clear
Dice	InGaN

## 1: Dimensions (Units):(mm)

Description:

- 3.5×2.8mm Top SMD
- Colloid Color: Transparent
- Emission Color: RGB
- Viewing Angle :120°



NOTES:

- 1、 All dimensions are in millimeters (inches);
- 2、 Tolerances are 0.2mm (0.008inch) unless otherwise noted

## Electrical / Optical characteristics

(1) Absolute Maximum Ratings ( $T_A = 25 \pm 5^\circ \text{C}$ )

Item	Symbol	Absolute Maximum Rating	Unit
Forward Current	IF	20	mA
Reverse Voltage	VR	5	V
Power Dissipation	PD	75	mW
Operating Temperature	Topr	-40°C To +85°C	°C
Storage Temperature	Tstg	-40°C To +85°C	°C
Soldering Temperature	Tsld	Reflow Soldering: 260°C Hand Soldering : 300°C	for 10sec. for 3sec.

IFP Conditions : 1/10 Duty Cycle, 0.1 msec Pulse Width.

(2) Initial Electrical/Optical Characteristics ( $T_A = 25 \pm 5^\circ \text{C}$ )

Symbol	Item	Units	Min.	Max.	Color	Test Conditions
VF	Forward Voltage	V	2.0	2.4	R	IF=20mA
		V	1.4	1.8	IR	
		V	3.0	3.4	B	
$2\theta_{1/2}$	Viewing Angle	°	-	120°	-	
Ø	Luminous flux	mcd	400	600	R	
		mW	2	6	IR	
		mcd	200	400	B	
WLD	Dominant wavelength	nm	625	635	R	
		nm	--	850	IR	
		nm	460	470	B	
IR	Reverse Current	uA	-	1		VR=5V

Remark:

(IF=20mA,  $T_A = 25^\circ \text{C}$ )

Tolerance of measurement of Vf is  $\pm 0.05 \text{ V}$ .

Luminous Intensity Measurement allowance is  $\pm 0.2 \text{ lm}$

Colour Temperature Measurement allowance is  $\pm 100 \text{ K}$

Color Rendering Index Measurement allowance is  $\pm 1$ .

## RELIABILITY

### (1) Test Items and Results

NO.	Test Item	Reference Standard	Test Conditions	(Hours/ Cycles)	Sample	Number of Damaged
1	Temperature Cycle	JEITA ED-4701	-40 °C - 25 °C - 100 °C - 25 °C 30min 5min 30min 5min	100 Cycles	20	0/20
2	Thermal shock	MIL-STD-202G	-40°C ~ 100°C 15min 15min	500 Cycles	20	0/20
3	High Temperature Storage	JEITA ED-4701 200 201	Ta=100°C	1000 Hours	20	0/20
4	Low Temperature Storage	JEITA ED-4701 200 201	Ta=-40°C	1000 Hours	20	0/20
5	Room Temperature Life Test		Ta=25±5°C IF=20mA	1000 Hours	20	0/20
6	High Temperature High Humidity Life Test		Ta=60°C RH=85% IF=20mA	1000 Hours	20	0/20
7	Solderability (Reflow Soldering)	JEITA ED-4701 300 303	Tsol=235°C±5°C, 5sec (Using Flux, Lead Solder)	1 time, 5sec	10	0/10
8	Resistance to Soldering Heat (Reflow Soldering)	JEITA ED-4701 300 301	Tsol=250°C, 10 sec Pre Treatment: 35 °C 95% RH96 Hrs	2 time, 10sec	10	0/10

The above test items such as differences or special customer specific requirements according to the actual situation in accordance with the requirements of customers to try the requirements with the customer, the customer is not required by our test standard test. Different products using different current test

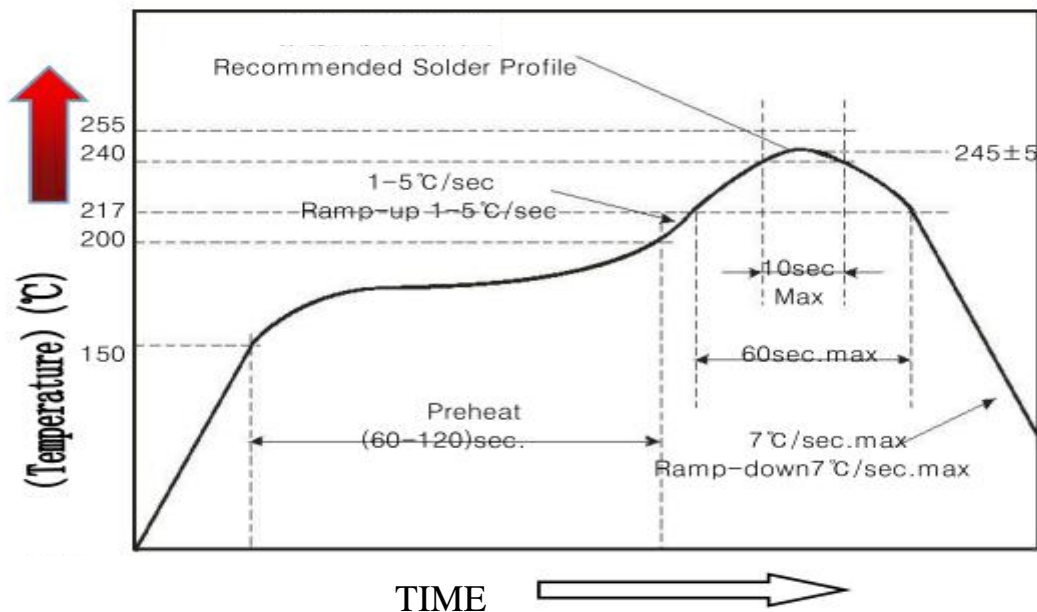
(Useful hint) :

### 1、 Hand Soldering

A soldering iron of less than 20W is recommended to be used in Hand Soldering. Please keep the temperature of the soldering iron under 360 °C while soldering. Each terminal of the LED is to go for less than 3 second and for one time only.

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

2 Reflow Soldering: Use the conditions shown in the under Figure of Pb-Free Reflow Soldering



● Reflow soldering only allowed to do once

● Stress on the LEDs should be avoided during heating in soldering process

● After soldering, do not deal with the product before its temperature drops down to room Temperature.

## **Precautions(1)**

### **1. Storage**

- **Moisture proof and anti-electrostatic package with moisture absorbent material is used, to keep moisture to a minimum.**
- **Before opening the package, the product should be kept at 30°C or less and humidity less than 60% RH, and be used within a year.**
- **After opening the package, the product should be stored at 30°C or less and humidity less than 10%RH, and be soldered within 24 hours (1day). It is recommended that the product be operated at the workshop condition of 30°C or less and humidity less than 60%RH.**
- **If the moisture absorbent material has faded away or the LEDs have exceeded the storage time, baking treatment should be performed based on the following condition: (70±5)°C for 24 hours.**

### **2. Static Electricity**

**Static electricity or surge voltage damages the LEDs. Damaged LEDs will show some unusual characteristic 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 grounded. At the same time, it is recommended that wrist bands or anti-electrostatic gloves, anti-electrostatic containers be used when dealing with the LEDs.**

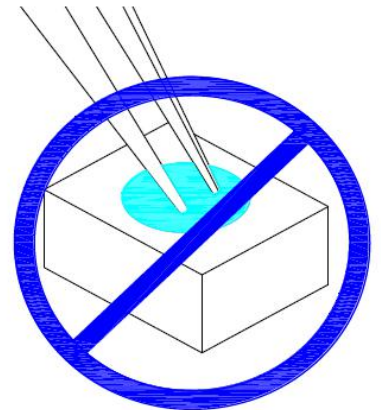
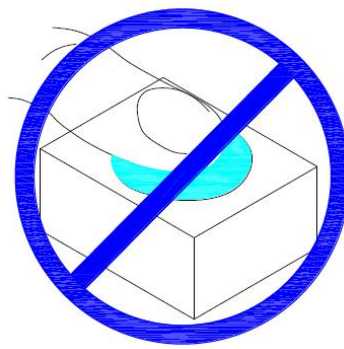
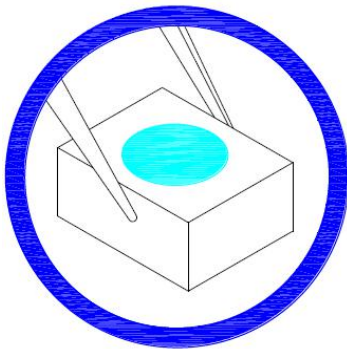
## Precautions (2)

### 3.Vulcanization

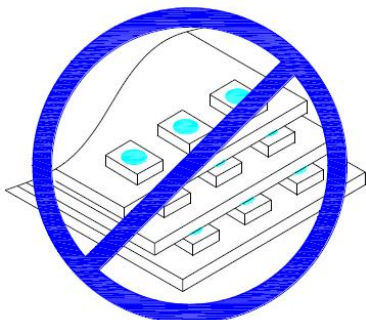
LED curing is due to sulfur being in bracket and the +1 price of silver in the chemical reaction generated  $\text{Ag}_2\text{S}$  in the process. It will lead to the capacity of reflecting of silver layer reducing, light color temperature drift and serious decline ,seriously affecting the performance of the product. So we should take corresponding measures to avioding vulcanization, such as to avoid using sulphur volatile substances and keeping away from high sulphur content of the material.

## Handling Precautions

- 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.



- 2、 Do not stack together assembled PCBs containing LEDs.  
PH<7  
Impact may scratch the silicone lens or damage the internal circuitry
- 3、 Not suitable to operate in acidic envi-ronment,





### Luminous Intensity Bin Limits

BIN Code	Test Condition @20mA	
UHR	<u>V<sub>fmin</sub>(v)</u>	<u>V<sub>fmax</sub> (v)</u>
1	2.0	2.4
IR	<u>V<sub>fmin</sub>(v)</u>	<u>V<sub>fmax</sub> (v)</u>
1	1.4	1.8
DNB	<u>V<sub>fmin</sub>(v)</u>	<u>V<sub>fmax</sub> (v)</u>
1	3.0	3.4

### Dominant Wavelength BIN Limits

BIN Code	Test condition: @20mA	
UHR	<u>λ<sub>dmin</sub> (nm)</u>	<u>λ<sub>dmax</sub> (nm)</u>
1	625	630
2	630	635
IR	<u>λ<sub>dmin</sub> (nm)</u>	<u>λ<sub>dmax</sub> (nm)</u>
1	850	855
DNB	<u>λ<sub>dmin</sub> (nm)</u>	<u>λ<sub>dmax</sub> (nm)</u>
1	460	465
2	465	470

### Forward Voltage Bin Limits

BIN Code	Test condition: @20mA	
UHR	<u>IV<sub>min</sub>(mcd)</u>	<u>IV<sub>max</sub> (mcd)</u>
1	400	600
IR	<u>IV<sub>min</sub>(mW)</u>	<u>IV<sub>max</sub> (mW)</u>
1	2	6
DNB	<u>IV<sub>min</sub>(mcd)</u>	<u>IV<sub>max</sub> (mcd)</u>
1	200	400