



3528 RGB BLACK DATA SHEET

CL-SFC687RGB-02(BLACK)

Company Name: _____

Client confirmation: _____

Date: _____

◆Features:

- Extremely wide viewing angle.
- Suitable for all SMT assembly and solder process
- Available on tape and reel.
- Moisture sensitivity level: Level 4.)

Package:10000pcs/reel.

- RoHS compliant.

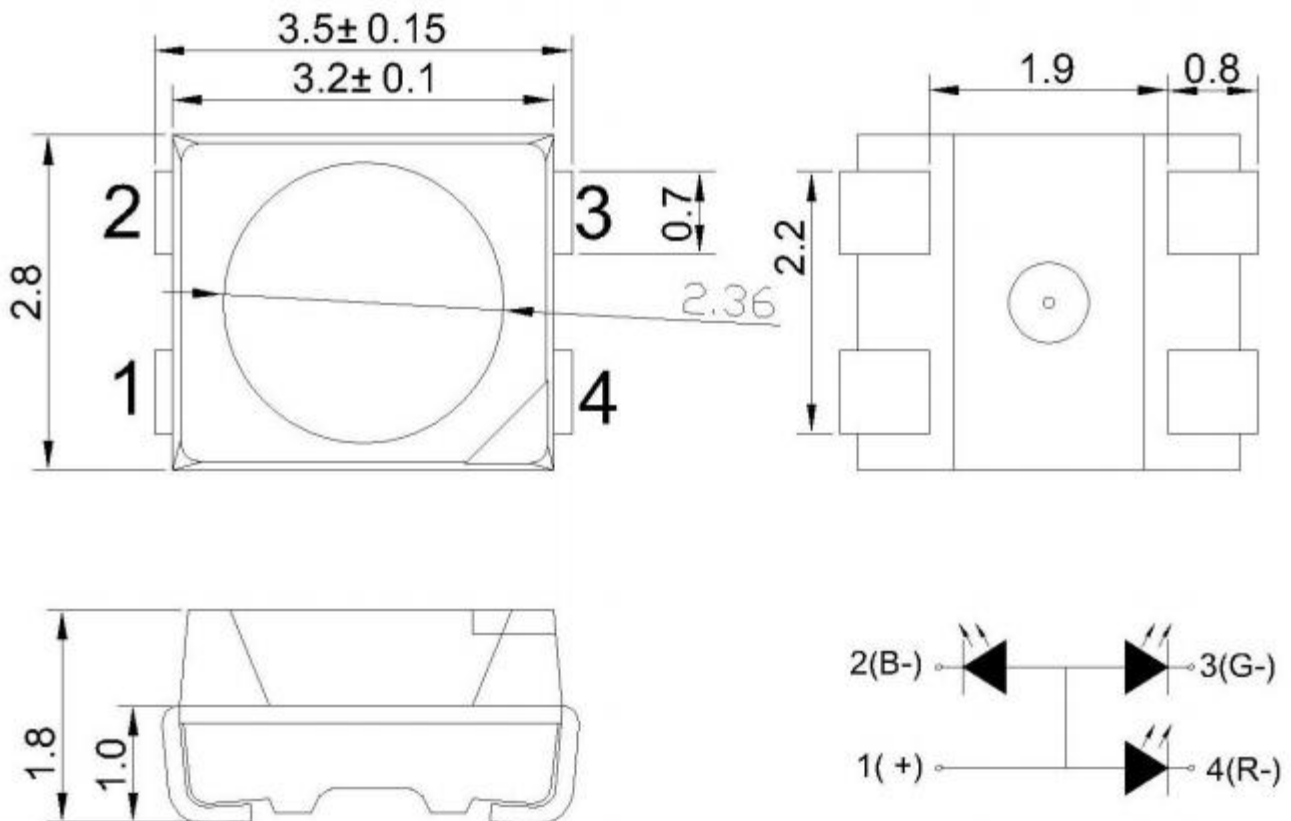
◆Application

- Optical indicator
- Indoor display
- Automotive lighting
- Backlight for LCD, switch and Symbol, display
- Tubular light application
- General use



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
SENSITIVE DEVICES

◆Product size and circuit schematic



Remark

1. All dimension units are millimeters.
2. All dimension tolerance is ± 0.10 mm unless otherwise noted.

◆ Main photoelectric characteristic parameter table ($T_a=25^{\circ}\text{C}$)

Project	Symbol	Maximum Rating			UNIT
		R	G	B	
Forward Current	I_F	20	20	20	mA
Peak Forward Current [1]	I_{FP}	100	100	100	mA
Power Dissipation	P_D	45	50	50	MW
Reverse Voltage	V_R	5			V
Operating Temperature	T_{opr}	-25~+80			$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-40~+80			$^{\circ}\text{C}$
Soldering Temperature	T_{sol}	Max. 260 $^{\circ}\text{C}$ for 5sec Max.			

◆ Type optoelectronic parameter table ($T_a=25^{\circ}\text{C}$)

Project		UNIT	Test Conditions	Min	Typ	Max	Unit
Forward Voltage	R	VF	IF=20mA	1.8	-	2.3	V
	G		IF=12mA	2.6	-	3.4	V
	B		IF=12mA	2.6	-	3.4	V
Luminous Intensity	R	IV	IF=20mA	226	280	443	mcd
	G		IF=12mA	620	900	1430	mcd
	B		IF=12mA	92	110	230	mcd
Wavelength	R	λ_d	IF=20mA	618	-	628	nm
	G		IF=12mA	515	-	530	nm
	B		IF=12mA	465	-	475	nm
Reverse Current		I_R	$V_R=5\text{V}$	10			uA
Viewing Angle		2 θ 1/2	IF=20mA	120			Deg.

REMARK:

[1] Forward voltage (VF) measurement tolerance is $\pm 0.1\text{V}$

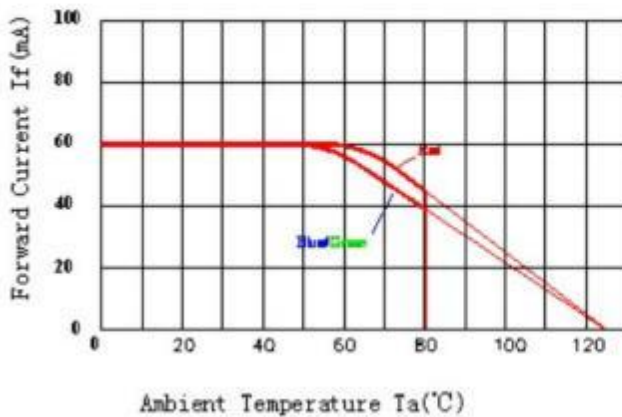
[2] Luminous intensity (IV) measurement tolerance is $\pm 10\%$;

[3] The wavelength (λ_d) measurement tolerance is $\pm 10\%$;

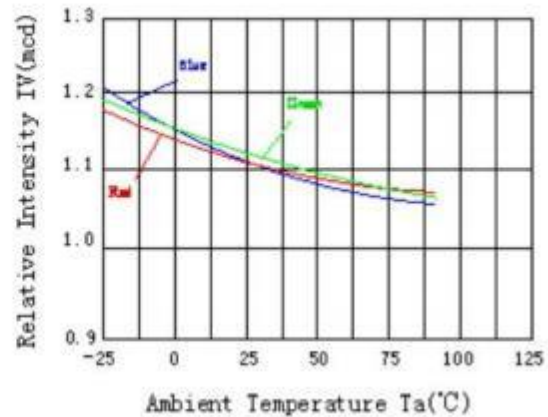
[4] We are always working to optimize the performance of our LED products, and specifications are subject to change without notice;

◆ Typical photoelectric curve ($T_a=25^{\circ}\text{C}$)

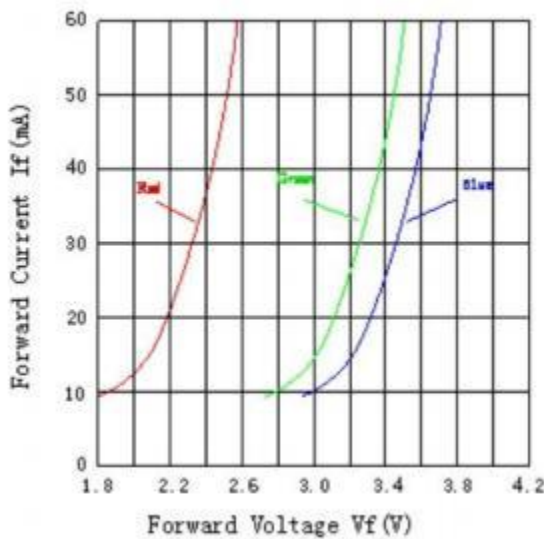
Forward Current vs. Ambient Temperature



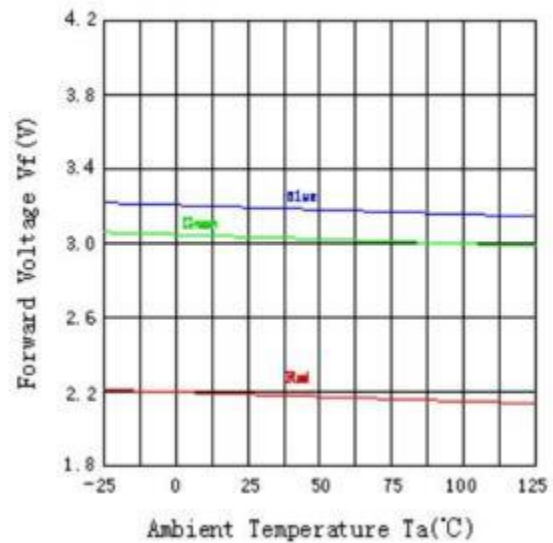
Relative Intensity vs. Ambient Temperature



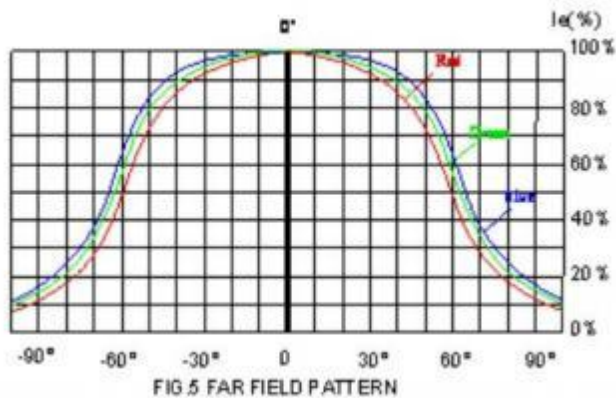
Forward Current vs. Forward Voltage



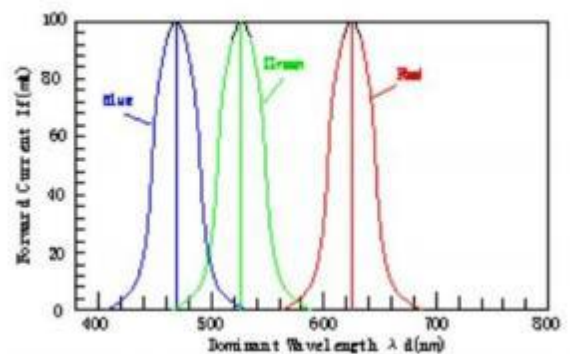
Forward Voltage vs. Ambient Temperature



50% Power Angle: 115°



Luminous Spertum ($T_a=25^{\circ}\text{C}$) SPECTRAL RADIANCE



Reliability Test Items And Conditions

Test Items	Ref. Standard	Test Condition	Time	Quantity	Ac/Re
Reflow	JESD22-B106	Temp:260°C max T=10 sec	3 times.	22Pcs.	0/1
Temperature Cycle	JESD22-A104	120°C±5°C 30 min. ↑↓5 min -40°C±5°C 30 min.	100 Cycles	22Pcs.	0/1
High Temperature Storage	JESD22-A103	Temp:100°C±5°C	1000Hrs.	11Pcs.	0/1
Low Temperature Storage	JESD22-A119	Temp:-40°C±5°C	1000Hrs.	11Pcs.	0/1
Life Test	JESD22-A108	Ta=25°C±5°C IF=20*3mA	1000Hrs.	11Pcs.	0/1
High Temperature High Humidity Life Test	JESD22-A101	85°C±5°C/ 85%RH IF=20*3mA	1000Hrs.	11Pcs.	0/1

Failure Criteria

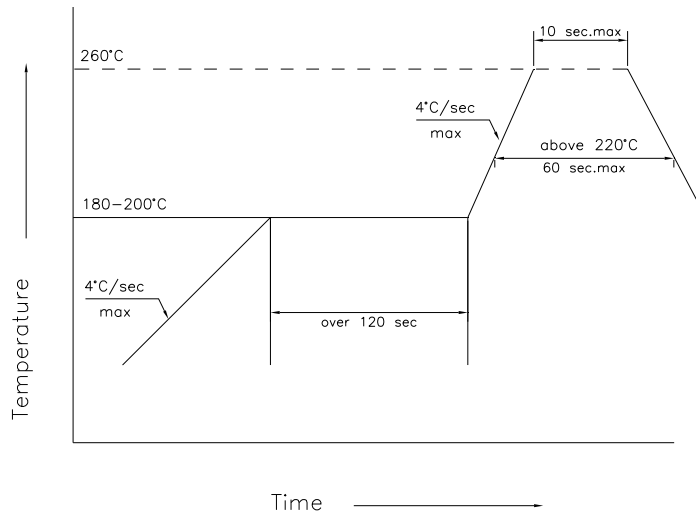
Test Items	Symbol	Test Condition	Failure Criteria	
			Min.	Max.
Forward Voltage	VF	IF=20mA*3	--	U.S.L*)x1.1
Reverse Current	IR	VR = 5V	--	U.S.L*)x2.0
Luminous Flux	Lm	IF=20mA*3	L.S.L*)x0.7	--

U.S.L: Upper Specification Limit

L.S.L: Lower Specification Limit

*The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.

SMT Reflow Soldering Instructions SMT



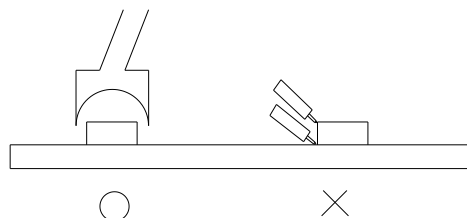
- 1.Reflow soldering should not be done more than two times.
- 2.When soldering , do not put stress on the LEDs during heating

Soldering iron

- 1.When hand soldering, keep the temperature of iron below less 300°C less than 3 seconds
- 2.The hand solder should be done only one times

Repairing

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



Cautions

The encapsulated material of the LEDs is silicone. Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when use the picking up nozzle, the pressure on the silicone resin should be proper.

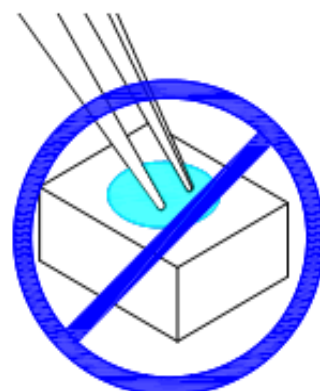
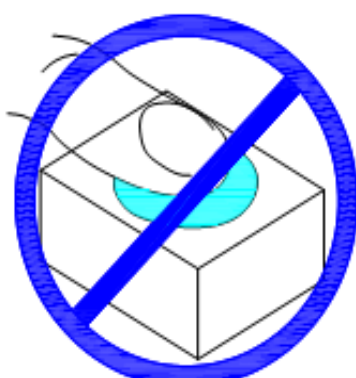
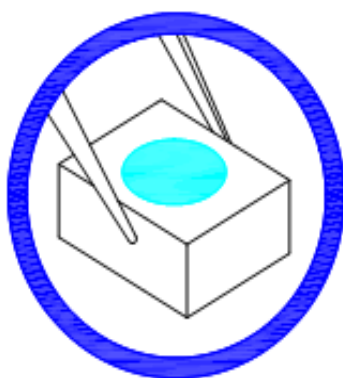
Handling Precautions 处理防备措施

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more prone to damage by external mechanical force. As a result, Special handling precautions must be observed during assembling using silicone encapsulated LED products, Failure to comply might leads to damage and premature failure of the LED.

相对环氧树脂较脆较硬而言，硅胶封装较柔软且有弹性，虽然它的特性大大减少了热应力，但易受机械外力损坏，因此在手工处理方面须要对硅胶封装材料做预防措施，若未按要求操作，可能会导致LED损坏和光衰

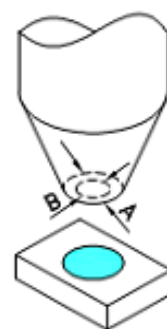
1.Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry.

通过使用适当的工具从材料侧面夹取，不可直接用手或尖锐金属压胶体表面，它可能会损坏内部电路



2.The outer diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.

为防止气压泄漏，SMD吸咀外径不可以超过LED尺寸，吸咀内径尺寸应尽可能大，吸咀顶端材质建议采用柔软材料以防在吸取期间刮伤或损坏LED胶体表面，元件的尺寸必须在取放机里准确的编程好，以确保精确的吸取和避免生产过程中的损害

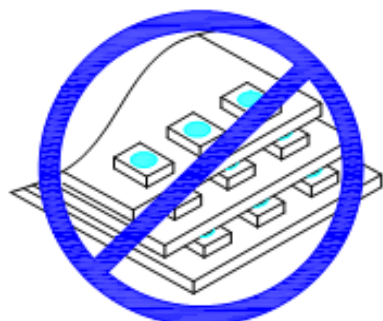


3.Do not stack together assembled PCBs containing LEDs. Impact may scratch the silicone lens or damage the internal circuitry

不可将模组材料堆积在一起，它可能会损坏内部电路

4.Not suitable to operate in acidic environment, $\text{PH} < 7$

不可用在 $\text{PH} < 7$ 的酸性场所



6、Package (10000PCS/reel)

