

Data Sheet

Customer: _____

Part No: CL-SF2121RGB-02

Sample No: _____

Description: 2121 Red/Green/Blue SMD

Item No: _____

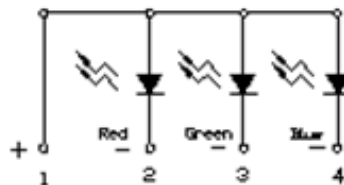
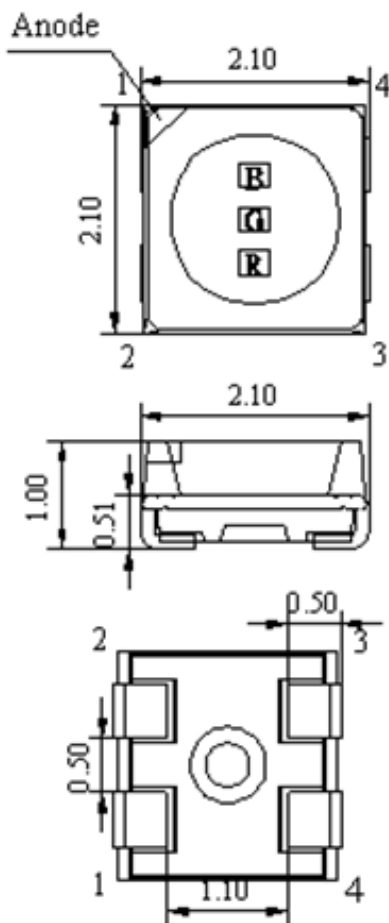
Customer			
Check	Inspection	Approval	Date

Features

- .The gule surface is completely atomized.
- .Full-color type.
- .Compatible with infrared and vapor phase reflow solder process.
- .Pb-free.

Applications

- .Indoor signage display applications.
- .Indoor decorating and entertainment design.
- .General use.



For reflow soldering

Note: All dimensions is $\pm 0.1\text{mm}$ unless otherwise noted, Unit = mm

Electro-Optical Characteristics (Ta=25°C)

Symbol		Parameter	Min.)	Typ.	Max.	Unit	Condition
I _v	R	Luminous Intensity	43.8	----	74.1	mcd	I _F =8mA
	G		146.2	----	247.0		I _F =5mA
	B		18.0	----	30.4		I _F =3mA
V _F	R	Forward Voltage	1.7	----	2.5	V	I _F =8mA
	G		2.5	----	3.1		I _F =5mA
	B		2.5	----	3.1		I _F =3mA
Wd	R	Dominant Wavelength	619.0	----	624.0	nm	I _F =8mA
	G		525.0	----	529.0		I _F =5mA
	B		467.0	----	471.0		I _F =3mA
2θ1/2		Viewing angle	----	110	----	deg	I _F =10mA
I _R		Reverse Current	----	----	0.5	uA	V _R =10V (DC)

Note:

1. Tolerance of Luminous Intensity: ±10%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

Absolute Maximum Ratings (Ta=25°C)

Symbol	Parameter	Value	Unit
P _d	Power Dissipation	R:40 G:45 B:45	mW
V _R	Reverse Voltage	10	V
I _F	Forward Current	R:20 G:15 B:15	mA
I _{FP}	Peak Forward Current (Duty 1/10 @100Hz)	R:25 G:20 B:20	mA
T _j	Junction Temperature	115	°C
ESD	Electrostatic Discharge(HBM)	R:2000 G:1000 B:1000	V
T _{opr}	Operating Temperature	-40~ +85	°C
T _{stg}	Storage Temperature	-40~ +110	°C
T _{sol}	Soldering Temperature	240	°C

R:**Bin Range Of Luminous Intensity**

Bin	Min	Max	Unit	Condition
NA	43.8	57.0	mcd	I _F =8mA
NB	57.0	74.1		

@8mA/Ta=25°C, Tolerance:±10%

Bin Range Of Dominant Wavelength

Bin	Min	Max	Unit	Condition
RB	619.0	624.0	nm	I _F =8mA

@8mA/Ta=25°C, Tolerance:±1nm

Bin Range Of Luminous Voltage

Bin	Min	Max	Unit	Condition
RF	1.7	2.5	V	I _F =8mA

@8mA/Ta=25°C, Tolerance:±0.1V

G:

Bin Range Of Luminous Intensity

Bin	Min	Max	Unit	Condition
SA	146.2	190.0	mcd	I _F =5mA
SB	190.0	247.0		

@5mA/Ta=25°C, Tolerance:±10%

Bin Range Of Dominant Wavelength

Bin	Min	Max	Unit	Condition
GB	525.0	529.0	nm	I _F =5mA

@5mA/Ta=25°C, Tolerance:±1nm

Bin Range Of Luminous Voltage

Bin	Min	Max	Unit	Condition
GF	2.5	3.1	V	I _F =5mA

@5mA/Ta=25°C, Tolerance:±0.1V

B:

Bin Range Of Luminous Intensity

Bin	Min	Max	Unit	Condition
KA	18.0	23.4	mcd	I _F =3mA
KB	23.4	30.4		

@3mA/Ta=25°C, Tolerance:±10%

Bin Range Of Dominant Wavelength

Bin	Min	Max	Unit	Condition
BB	467.0	471.0	nm	I _F =3mA

@3mA/Ta=25°C, Tolerance:±1nm

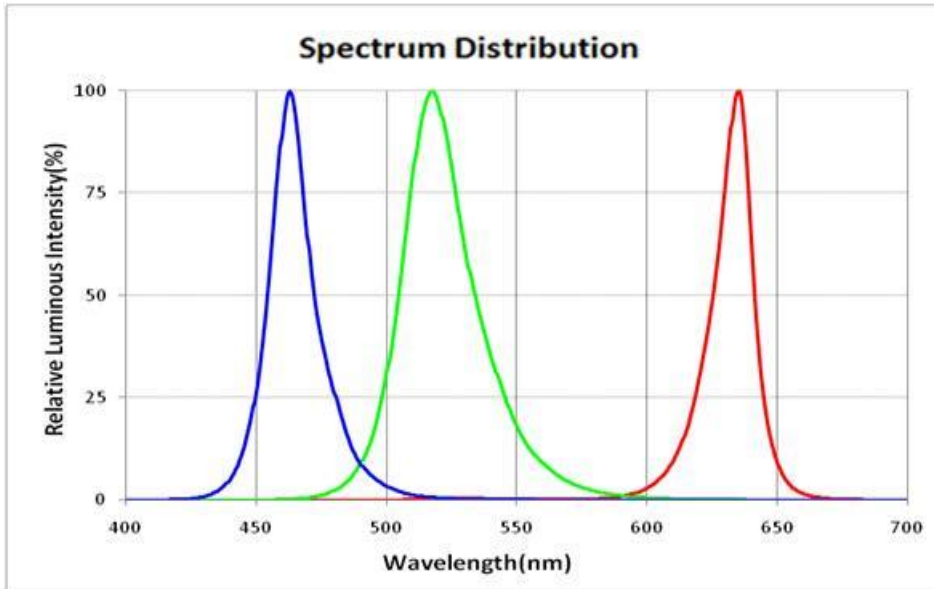
Bin Range Of Luminous Voltage

Bin	Min	Max	Unit	Condition
BF	2.5	3.1	V	I _F =3mA

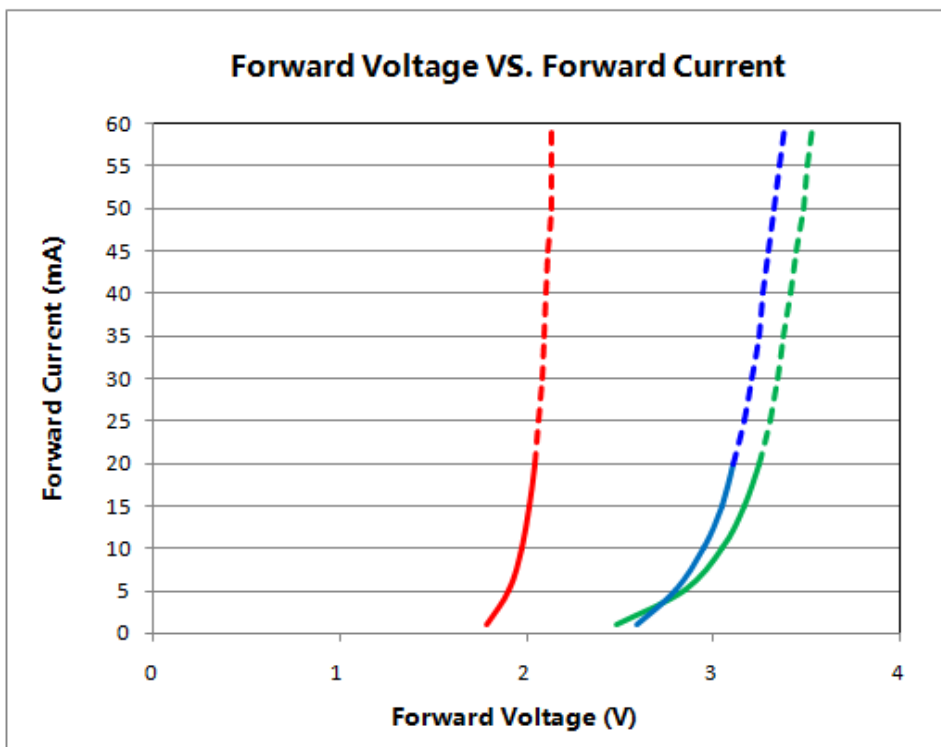
@3mA/Ta=25°C, Tolerance:±0.1V

Electro-Optical Characteristics Curves

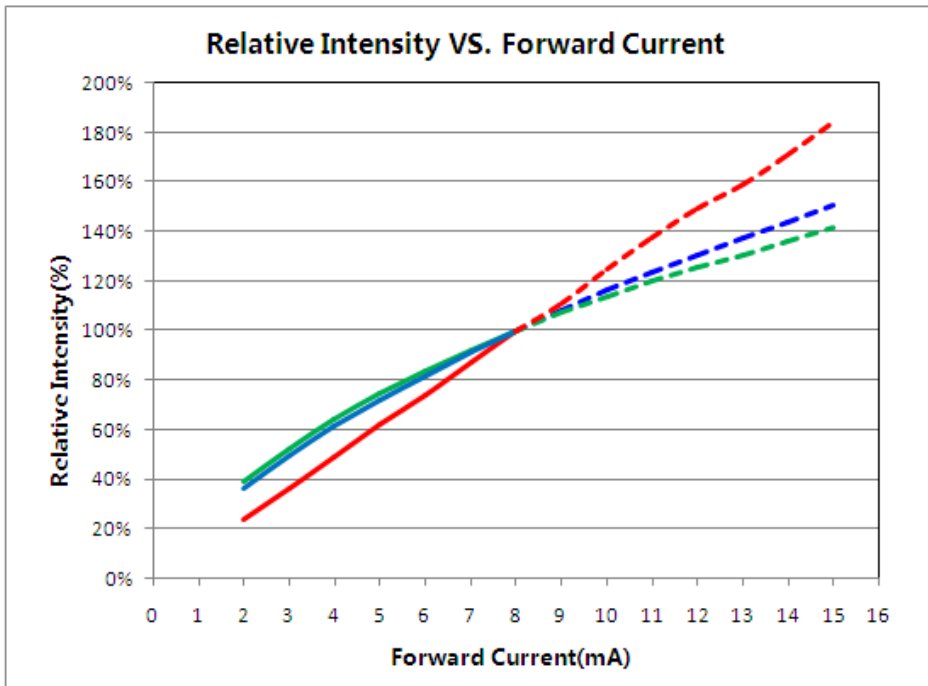
Spectrum Distribution



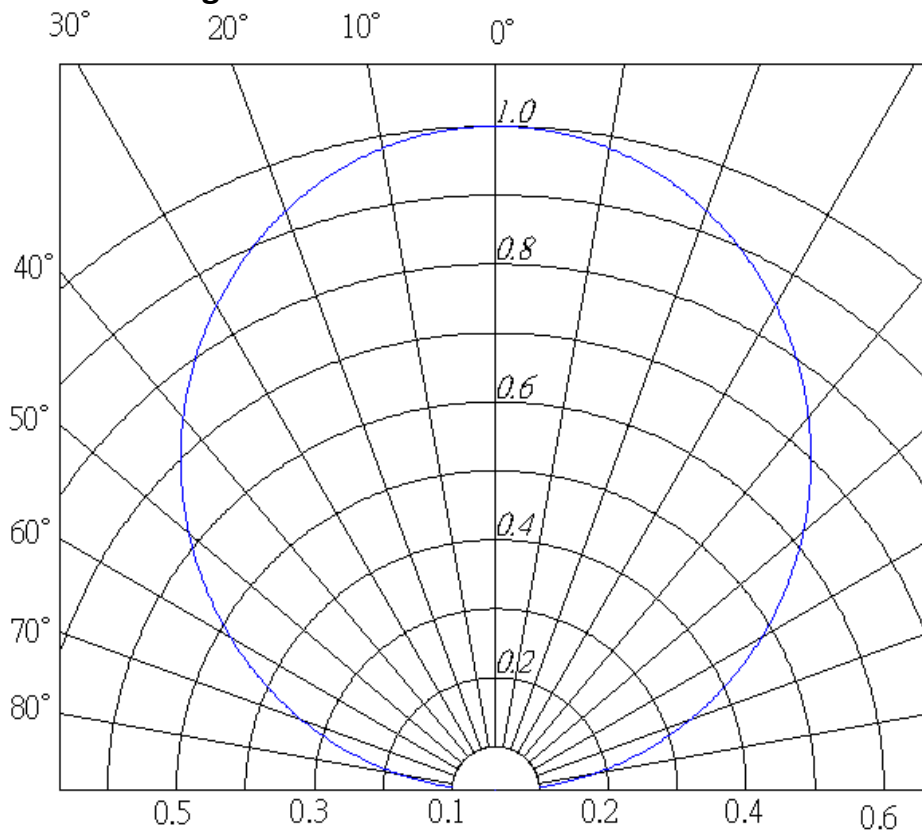
Forward Current vs. Forward Voltage



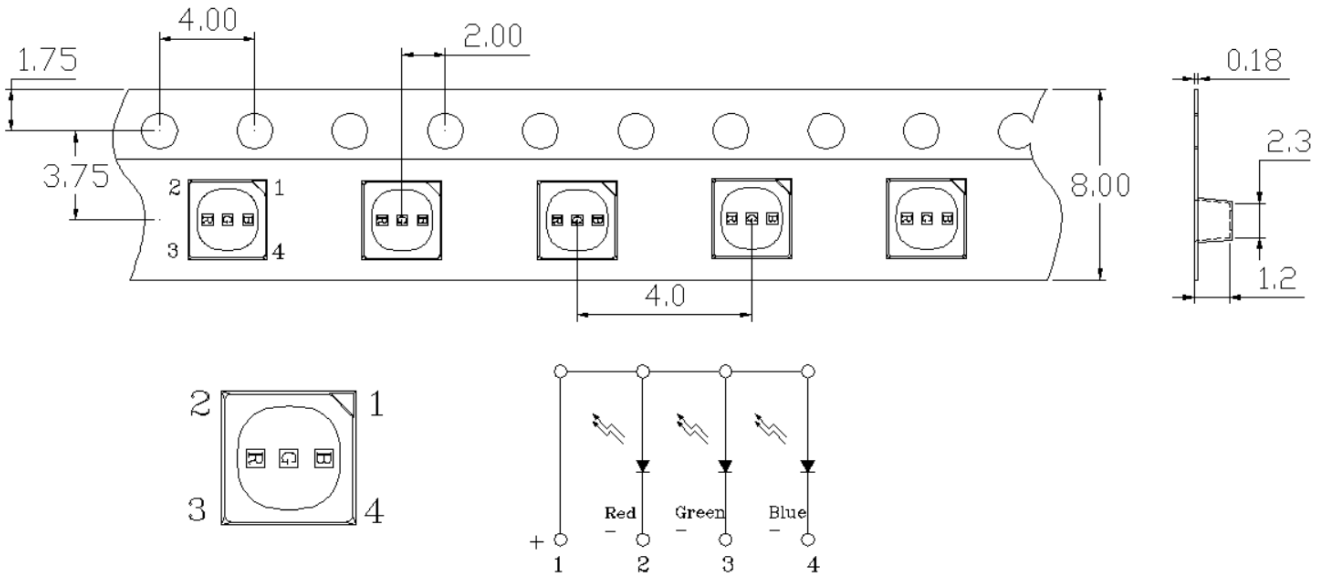
Relative Luminous Intensity vs. Forward Current



Radiation Diagram



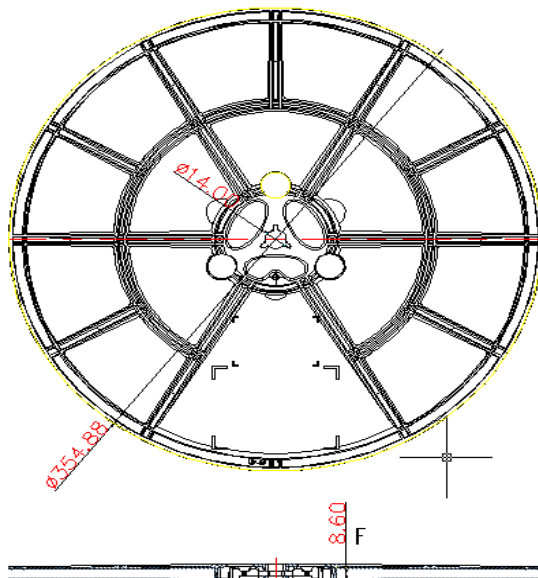
Carrier Tape Dimensions: Loaded Quantity 42000pcs Per Reel, two reel in one package



Note:

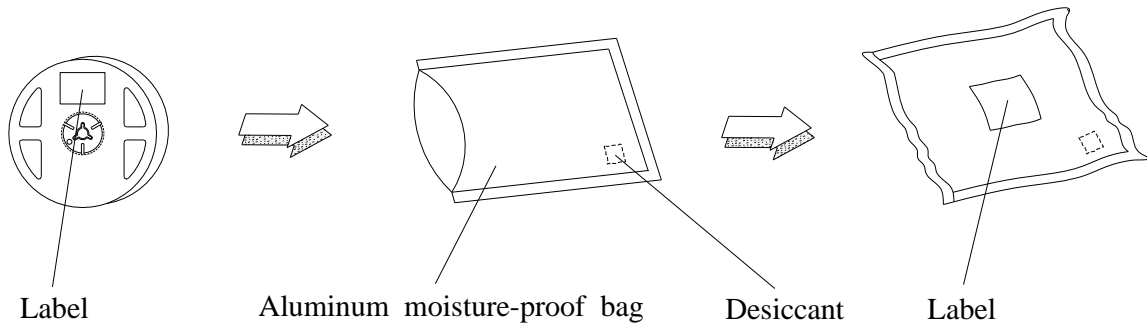
1. Dimensions are in millimeters.
2. Tolerances unless mentioned are $\pm 0.1\text{mm}$

Reel Dimensions (Units: mm)



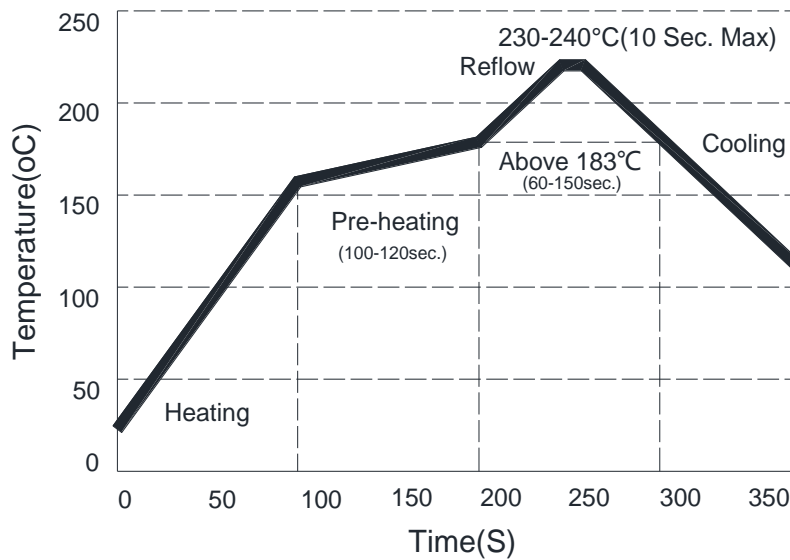
Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit = mm

Moisture Resistant Packaging



Soldering Condition:

1. Pb-free solder temperature profile



2. Reflow soldering should not be done more than two times.
3. When soldering, do not put stress on the LEDs during heating.
4. After soldering, do not warp the circuit board.

Cleaning:

1. It is recommended to use clean cloth dipped in alcohol (anhydrous ethanol) for wiping, after soldering, and not excessive force, should be controlled at 50 degrees below.
2. Ultrasonic cleaning can be used, but the average power is not more than 300W.

Storage:

1. The product is packaged in anti-static aluminium foil bag with desiccant and humidity card.
2. Storage conditions: All products need to be stored at 10 DEG ~30 DEG, and humidity is less than 60% RH at 12 months. All products need to be baked before being used, and the condition of baking are as follows :

Category	Baking temperature	Baking time
≤2 Months	50±5	8H
2-6 Months	50±5	12H
More than 6 months	50±5	24H

3. After unpacking, please at 20 DEG ~30 DEG&30%~ 60% RH, and completed in the 8H patch, If it is not finished more than 8h, Please baked for 4 hours at 50°C ±5°C
4. Before using, please check whether there is any air leakage or not, If the bag has leaked air, Please bake the product for 8 hours at 50°C±24°C.

Circuit design

1. The LEDs should be operated with forward bias. The driving circuit must be designed so that the LEDs are not subjected to forward or reverse voltage while it is off. If reverse voltage is continuously applied to the LEDs, it may cause migration resulting in LED damage
2. The reverse voltage is recommended to be below 1.5v

Others:

1. Production environment: it is recommended to operate at 10 DEG ~30 DEG & 30%~60%RH
2. The service temperature shall be controlled below 260 degrees, and the continuous heating time shall not exceed 30S.
3. When repairing, the sharp object should be directly punched into the colloid, and when picking the material, it is recommended to clamp both ends of the PCB.

Reliability Test

The particles meet the following reliability test

NO	Item	Condition	Reference standard	Quantity	Determine	
1	LED	TS 100°C storage 5min ; shift : 10s ; -40°C storage 5min 300cycle	JESD22-A113F	22	NG or not	
2		TC 100°C storage 15min ; shift : 5min ; -40°C storage 15min 300cycle	JESD22-A104C	22	NG or not	
3		HT Temp. : 100°C	JEITA ED-4701 200 201	22	1 .lv attenuation Avg≤30% (1000H)) Single ≤50%; 2.VF initial value ± 10(1000H); 3.IR≤10uA.	
4		LT Temp. : -40°C	JEITA ED-4701 200 202	22		
5		Life Temp. : 25°C	Internal standard	22		
6		HTHH Temp. : 85°C ; Humidity 85%RH	JEITA ED-4701 100 103	22		
7		HT Temp. : 70°C IF : R@8mA/G@5mA/B@3mA	Internal standard	22		
8		HTHH Temp. : 85°C ; Humidity 85%RH IF : R@8mA/G@5mA/B@3mA	Internal standard	22		
9		Red ink (25°C)	Red ink : alcohol=1:1 soak 24H	Internal standard		50