

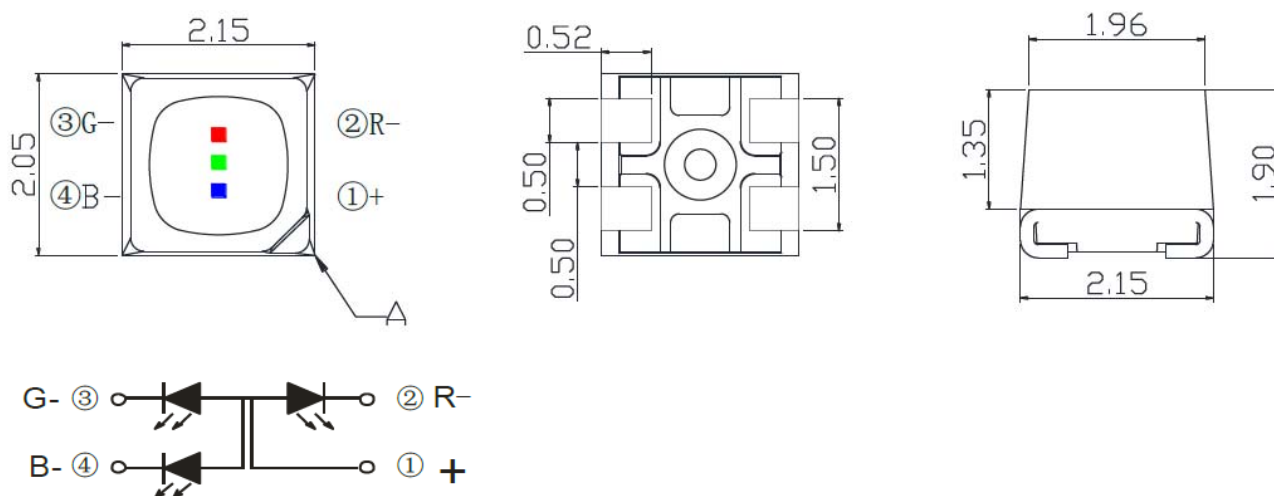
■ Typical Applications

- Automotive: Dashboards, stop lamps, turn signals.
- Backlighting: LCDs, Key pads advertising.
- Status indicators: Consumer & industrial electronics.
- General use.

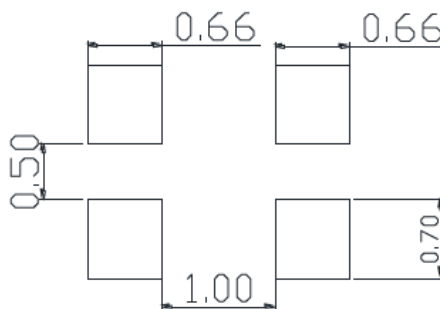
■ Features :

- Chip Material: AlInGaP/InGaN/InGaN
- Lens Color: Black Clear
- Emitted Color: Red/True Green/Blue
- 2.0×2.1×1.9mm (1921) standard package.
- Suitable for all SMT assembly methods.
- Compatible with infrared and vapor phase reflow solder process.
- Compatible with automatic placement equipment.

■ Package Dimensions:



Recommended soldering pad (Unit: mm)



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.10\text{mm}$ (0.004') unless otherwise specified.

■ Absolute Maximum Ratings at Ta=25°C: (R)

Parameter	Symbol	Maximum	Unit
Power Dissipation	Pd	60	mW
Peak Forward Current (Duty 1/10 @1KHz)	I _{FP}	50	mA
Forward Current	I _F	25	mA
Reverse Voltage	V _R	5	V
Operating Temperature Range	Topr	-25°C to + 80°C	
Storage Temperature Range	Tstg	-30°C to + 85°C	
Lead Soldering Temperature [2.0mm from body]	Tsol	Preheating: 140°C~160°C±5°C, within 2 minutes. Operation heating:260°C(Max) within 10 seconds.(Max) Gradual Cooling (Avoid quenching).	

■ Electrical/Optical Characteristics at Ta=25°C: (R)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Luminous Intensity	I _v	I _F =15mA	300	450	—	mcd
Dominant Wavelength	λ _d	I _F =15mA	615	—	630	nm
Forward Voltage	V _F	I _F =15mA	1.8	—	2.4	V
Viewing Angle	2θ _{1/2}	I _F =15mA	—	120	—	deg
Reverse Current	I _R	V _R =5V	—	—	10	uA

Notes:

1. Tolerance of Luminous Intensity ±15%
2. Tolerance of Forward Voltage ±0.1V

■ Absolute Maximum Ratings at Ta=25°C: (G)

Parameter	Symbol	Maximum	Unit
Power Dissipation	Pd	85	mW
Peak Forward Current (Duty 1/10 @1KHz)	I _{FP}	60	mA
Forward Current	I _F	25	mA
Reverse Voltage	V _R	5	V
Operating Temperature Range	Topr	-25°C to + 80°C	
Storage Temperature Range	Tstg	-30°C to + 85°C	
Lead Soldering Temperature [2.0mm from body]	Tsol	Preheating: 140°C~160°C±5°C, within 2 minutes. Operation heating:260°C(Max) within 10 seconds.(Max) Gradual Cooling (Avoid quenching).	

■ Electrical/Optical Characteristics at Ta=25°C: (G)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Luminous Intensity	I _v	I _F =8mA	480	730	—	mcd
Dominant Wavelength	λ _d	I _F =8mA	515	—	535	nm
Forward Voltage	V _F	I _F =8mA	2.4	—	3.4	V
Viewing Angle	2θ _{1/2}	I _F =8mA	—	120	—	deg
Reverse Current	I _R	V _R =5V	—	—	10	uA

Notes:

1. Tolerance of Luminous Intensity ±15%
2. Tolerance of Forward Voltage ±0.1V

■ Absolute Maximum Ratings at Ta=25°C: (B)

Parameter	Symbol	Maximum	Unit
Power Dissipation	Pd	85	mW
Peak Forward Current (Duty 1/10 @1KHz)	I _{FP}	60	mA
Forward Current	I _F	20	mA
Reverse Voltage	V _R	5	V
Operating Temperature Range	Topr	-25°C to + 80°C	
Storage Temperature Range	Tstg	-30°C to + 85°C	
Lead Soldering Temperature [2.0mm from body]	Tsol	Preheating: 140°C~160°C±5°C, within 2 minutes. Operation heating:260°C(Max) within 10 seconds.(Max) Gradual Cooling (Avoid quenching).	

■ Electrical/Optical Characteristics at Ta=25°C: (B)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Luminous Intensity	I _v	I _F =5mA	70	105	—	mcd
Dominant Wavelength	λ _d	I _F =5mA	465	—	480	nm
Forward Voltage	V _F	I _F =5mA	2.4	—	3.4	V
Viewing Angle	2θ _{1/2}	I _F =5mA	—	120	—	deg
Reverse Current	I _R	V _R =5V	—	—	10	uA

Notes:

1. Tolerance of Luminous Intensity ±15%
2. Tolerance of Forward Voltage ±0.1V

■Reliability Test Items

The reliability of products shall be satisfied with items listed below.

Confidence level: 90%

LTPD: 10%

No	Item	Test Conditions	Test Hours/Cycle	Sample Size	Ac/Re
1	Reflow Soldering	Temp. : 260°C±5°C Min. 5 sec.	6 Min.	22PCS	0/1
2	Temperature Cycle	H : +100°C 15min └ 5 min L : -40°C 15min	300 Cycles	22PCS	0/1
3	Thermal Shock	H : +100°C 5min └ 10 sec L : -10°C 5min	300 Cycles	22PCS	0/1
4	High Temperature Storage	Temp. : 100°C	1000 Hrs.	22PCS	0/1
5	Low Temperature Storage	Temp. : -40°C	1000 Hrs.	22PCS	0/1
6	DC Operating Life	IF _R = 15mA / 25°C IF _G = 8 mA / 25°C IF _B = 5 mA / 25°C	1000 Hrs.	22PCS	0/1
7	High Temperature / High Humidity	85°C/85%RH	1000 Hrs.	22PCS	0/1

Note:

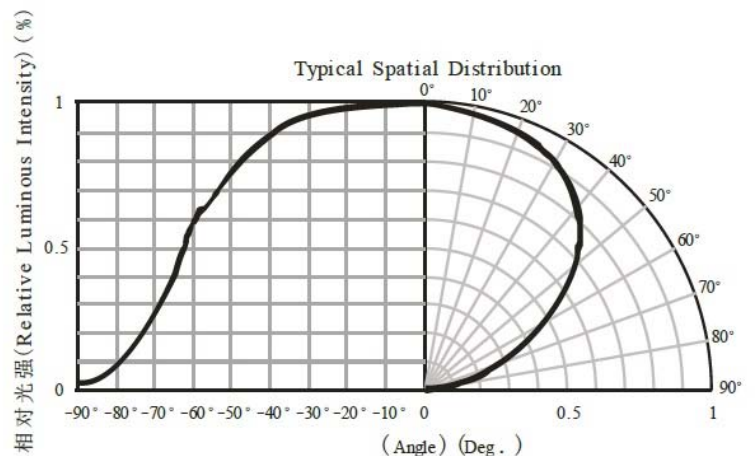
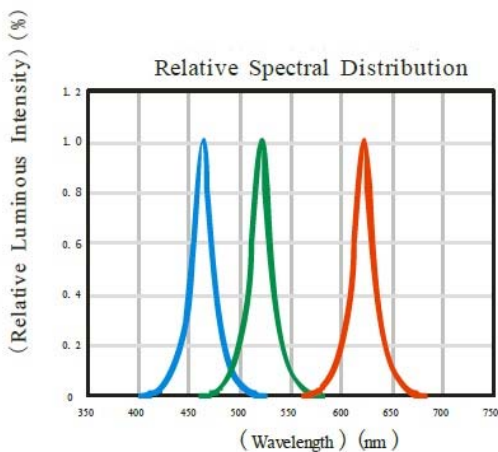
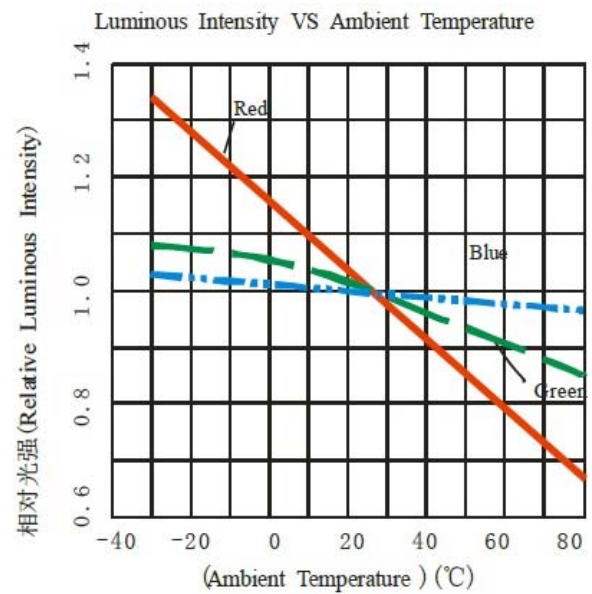
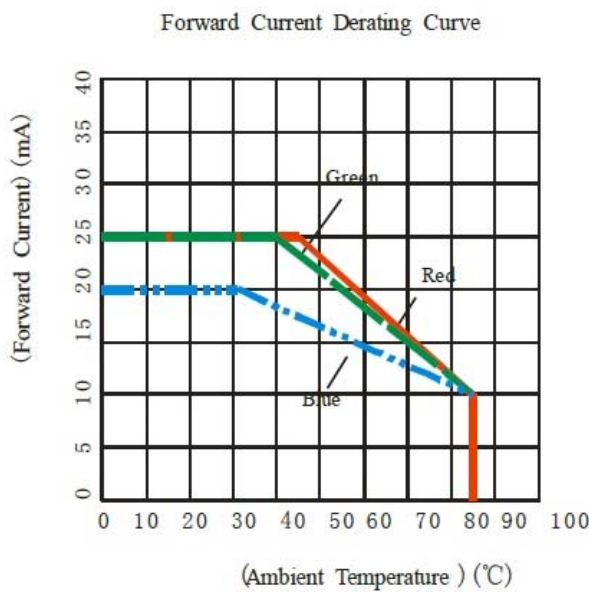
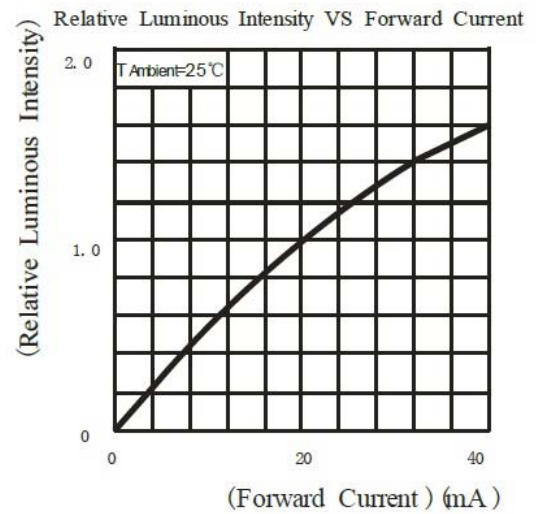
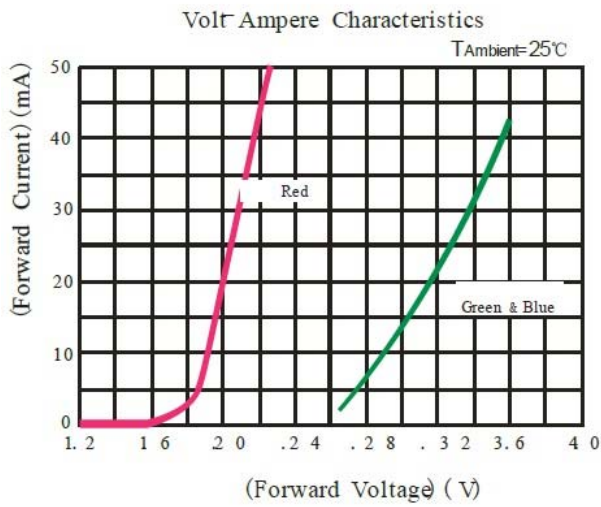
Ivt: To test Iv value of the chip before the reliability test

Iv: The test value of the chip that has completed the reliability test

U: Upper Specification Limit

L: Lower Specification Limit

■ Typical Electro-Optical Characteristics Curves:



■Precautions in Use:**Storage**

Recommend storage environment

Temperature: 5°C~30°C (41°F~86°F)

Humidity: 60% RH Max.

Use within 7 days after opening of sealed vapor/ESD barrier bags.

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: 60±5°C for 24 hours.

Fold the opened bag firmly and keep in dry environment.

Soldering**Reflow Soldering**

Recommend use of upper and lower heater type reflow furnace.

260°C Max for up to 10 seconds, one time only.

Pre-heat is 150°C Max for up to 2 minutes Max.

In case of screen-printing, keep metal mask thickness between 0.2mm and 0.3mm.

Cleaning

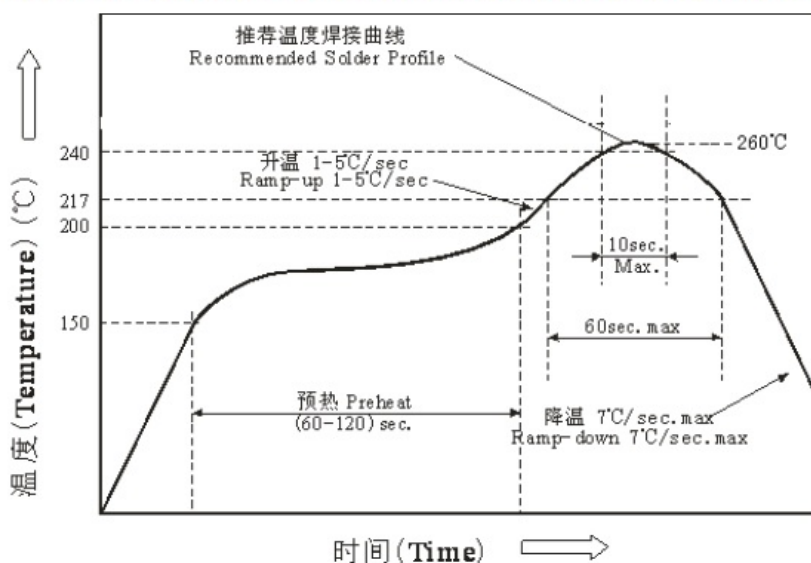
Surface condition of this device may change when organic solvents such as trichloroethylene or acetone were applied.

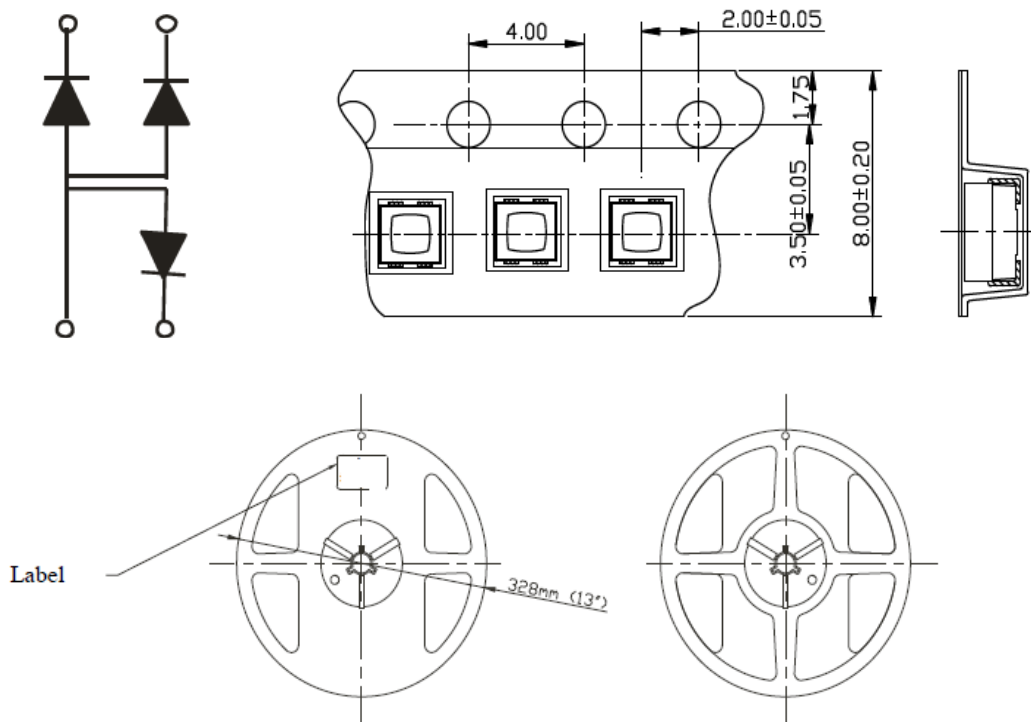
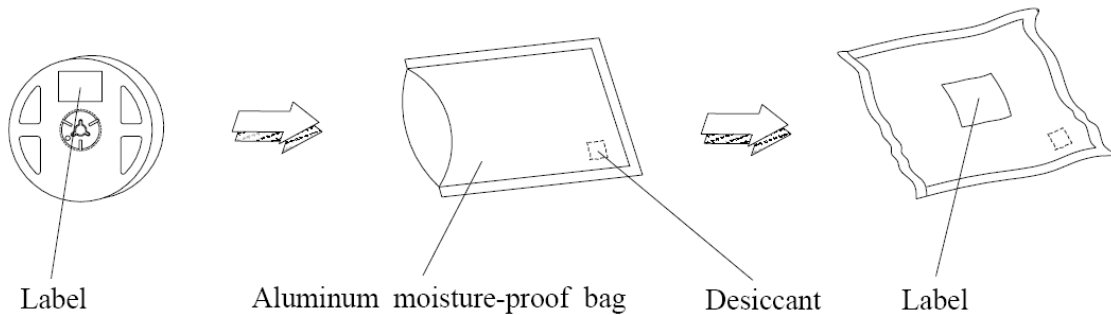
Avoid using organic solvent.

Recommend ultrasonic method 300W Max.

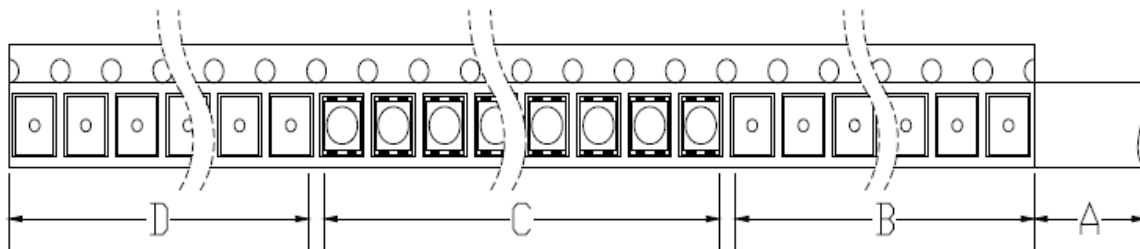
Reflow Soldering Temp/Time:

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



■ Carrier Tape Dimensions: Loaded quantity 10500 PCS per reel**■ Moisture Resistant Packaging****■ Reel Dimensions**

10500 Lamps Loaded

**Notes:**

1. All dimensions are in mm, tolerance is $\pm 2.0\text{mm}$ unless otherwise noted.
2. Specifications are subject to change without notice.