EVERLIGHT AMERICAS

DATASHEET

LAMP
EALP05RDMRGBA0

Features

- Choice of various viewing angles
- Available on tape and reel.
- Reliable and robust
- Pb free
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH
- Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm)

Description

•The series is specially designed for applications requiring higher brightness
•The led lamps are available with different colors, intensities..

Applications

- TV set
- Monitor
- Telephone
- Computer

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Red	Water Clear
AlGaInP	Brilliant Green	
GaN	Blue	

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Red	Green/ Blue	Unit
Continuous Forward Current	I_F	30	50	mA
Peak Forward Current (Duty 1/10 @ 1KHZ)	I_{FP}	100	160	mA
Reverse Voltage	V_R	5		V
Power Dissipation	P_d	110	120	mW
Electrostatic Discharge	ESD	1000	2000	V
Operating Temperature	T_{opr}	-40 ~ +85		℃
Storage Temperature	Tstg	-40 ~ +100		℃
Soldering Temperature	T_{sol}	260		℃

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Color	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	SUG	2850	6000	9000	mcd	I_F=20mA
		SUR	715	1800	3600		
		SUB	360	750	2850		
Viewing Angle	$2\theta_{1/2}$	-----	-----	35	-----	deg	I_F=20mA
Peak Wavelength	λ_p	SUG	-----	522	-----	nm	I_F=20mA
		SUR	-----	632	-----		
		SUB	-----	468	-----		
Dominant Wavelength	λ_d	SUG	525	530	535	nm	I_F=20mA
		SUR	620	624	628		
		SUB	465	470	475		
Spectrum Radiation Bandwidth	Δλ	SUG	-----	35	-----	nm	I_F=20mA
		SUR	-----	20	-----		
		SUB	-----	25	-----		
Forward Voltage	V_F	SUG	2.8	3.2	3.6	V	I_F=20mA
		SUR	1.8	2.2	2.6		
		SUB	2.8	3.2	3.6		
Reverse Current	I_R	SUG	-----	-----	50	μA	V_R=5V
		SUR	-----	-----	10		
		SUB	-----	-----	50		

*Measurement Uncertainty of Luminous Intensity: ±10%
*Measurement Uncertainty of Dominant Wavelength ±1.0nm
*Measurement Uncertainty of Forward Voltage: ±0.1V

Bin Range of Luminous Intensity

SUG

Bin Code	Min.	Max.	Unit	Condition
P	2850	3600	mcd	IF =20mA
Q	3600	4500		
R	4500	6750		
S	6750	9000		

Note:
Tolerance of Luminous Intensity: ±10%

SUR

Bin Code	Min.	Max.	Unit	Condition
H	715	1425	mcd	IF =20mA
L	1425	2850		
P	2850	3600		

Note:
Tolerance of Luminous Intensity: ±10%

SUB

Bin Code	Min.	Max.	Unit	Condition
F	360	565	mcd	IF =20mA
G	565	900		
J	900	1425		
K	1425	1800		
L	1800	2850		

Note:
Tolerance of Luminous Intensity: ±10%

Bin Range of Dominant Wavelength

SUG

Bin Code	Min.	Max.	Unit	Condition
1	525	530	nm	IF =20mA
2	530	535		

Note:
Tolerance of Dominant Wavelength ±1.0nm

SUR

Bin Code	Min.	Max.	Unit	Condition
2	620	624	nm	IF =20mA
3	624	628		

Note:
Tolerance of Dominant Wavelength ±1.0nm

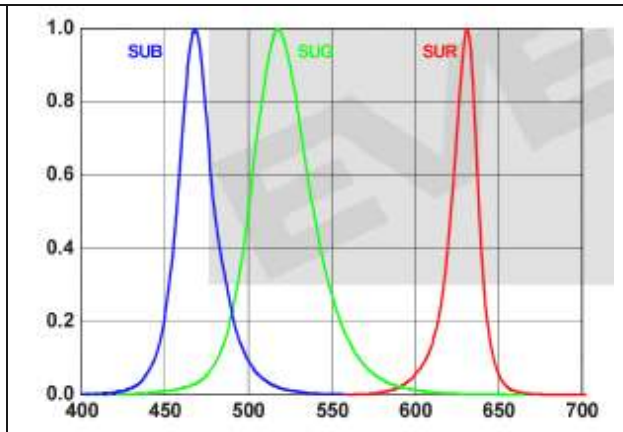
SUB

Bin Code	Min.	Max.	Unit	Condition
1	465	470	nm	IF =20mA
2	470	475		

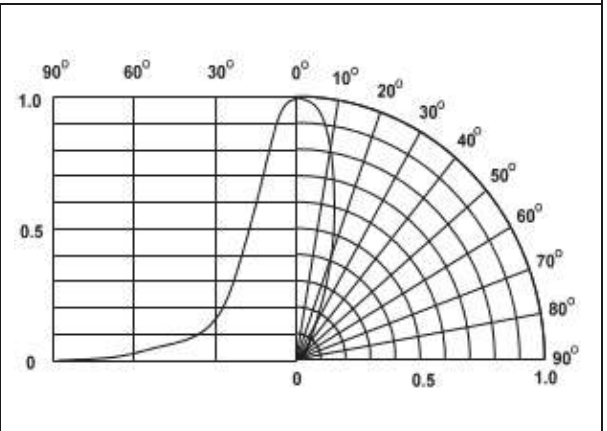
Note:
Tolerance of Dominant Wavelength ±1.0nm

Typical Electro-Optical Characteristics Curves

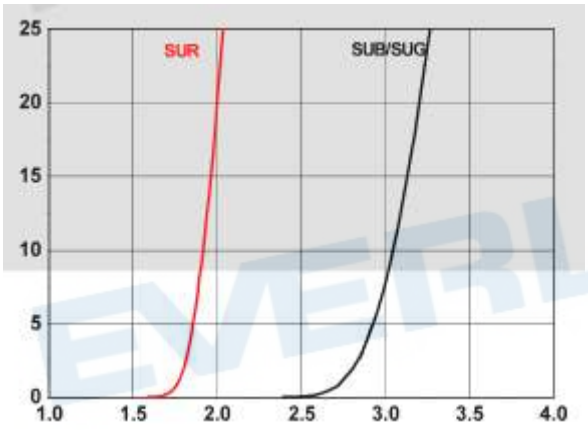
Relative Intensity vs. Wavelength (Ta=25℃)



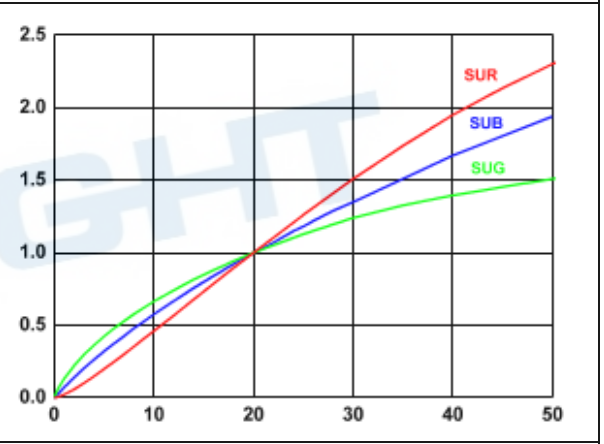
Directivity (Ta=25℃)



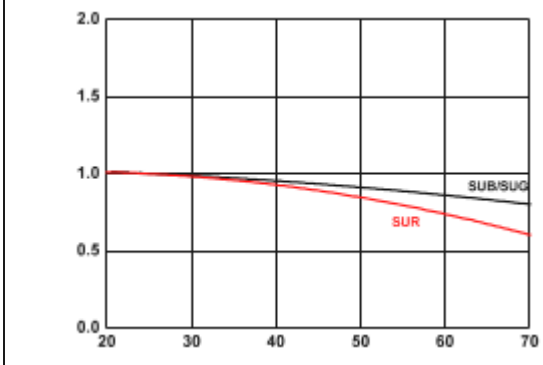
Forward Current vs. Forward Voltage (Ta=25℃)



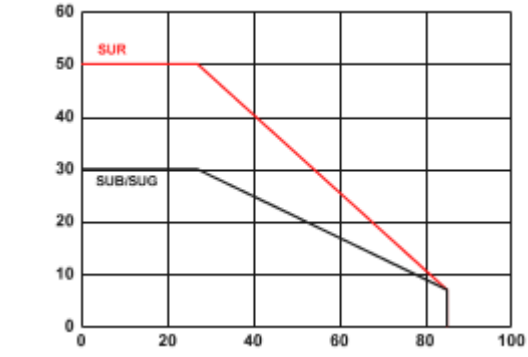
Relative Intensity vs. Forward Current (Ta=25℃)



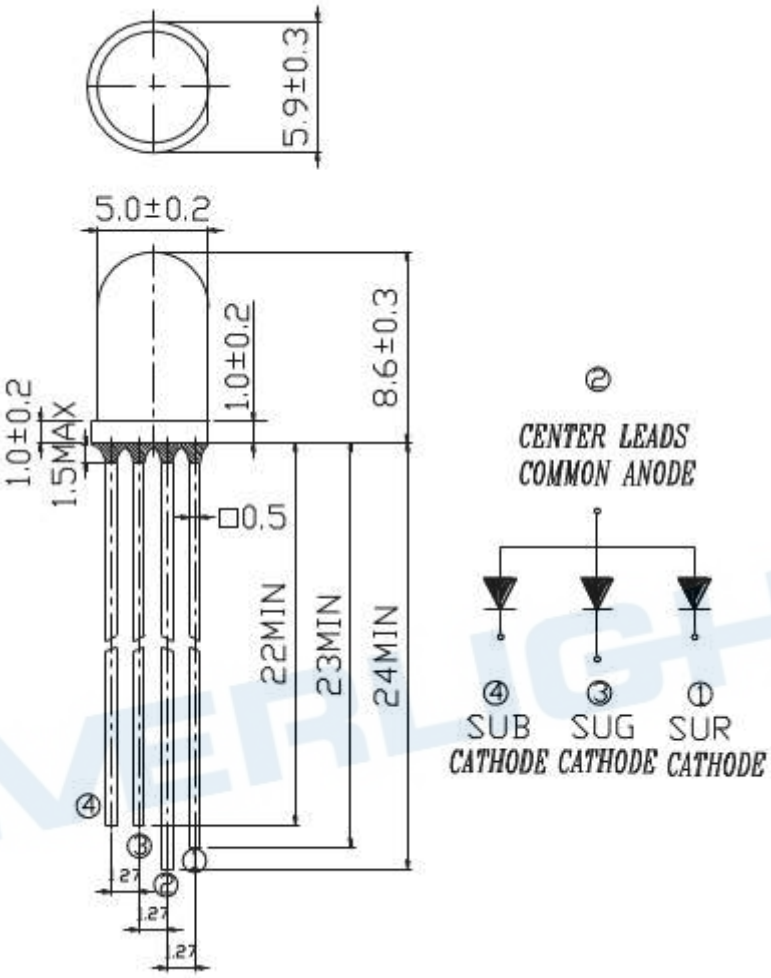
Relative Intensity vs. Ambient Temp.



Forward Current vs. Ambient Temp.



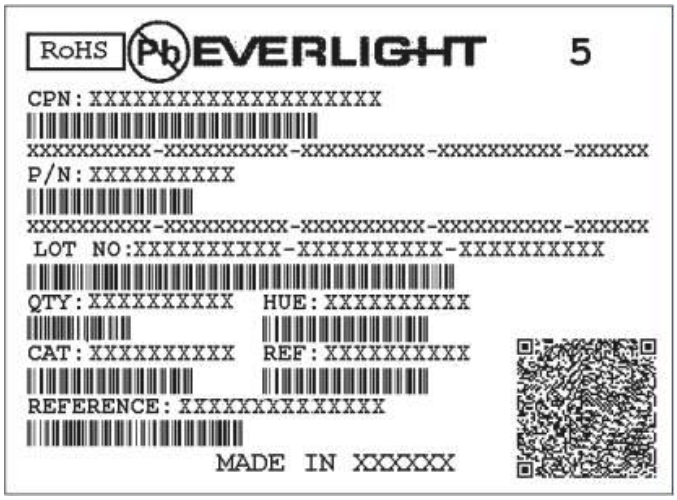
Package Dimension



Note: Note:
1.All dimensions are in millimeters, and tolerance is 0.25mm except being specified.
2.Protruded resin under flange is 1.5mm Max. LED.

Moisture Resistant Packing Materials

Label Explanation



CPN: Customer's Production Number

P/N : Production Number

QTY: Packing Quantity

CAT: Ranks of Luminous Intensity

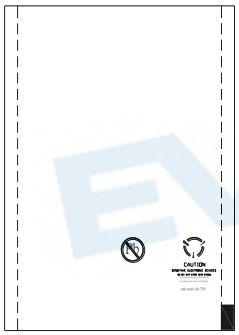
HUE: Ranks of Dominant Wavelength

REF: Ranks of Forward Voltage

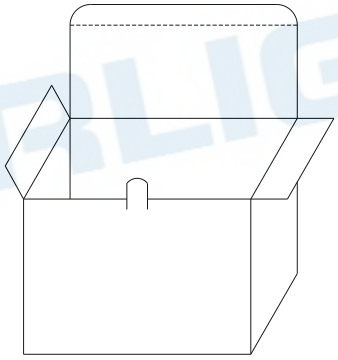
LOT No: Lot Number

Packing Specification

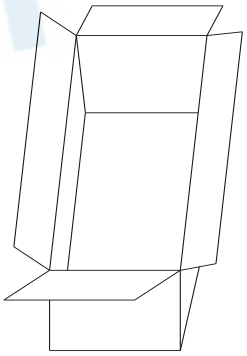
■ Anti-electrostatic bag



■ Inner Carton



■ Outside Carton



■ Packing Quantity

1. 500 PCS/1 Bag, 5 Bags/1 Inner Carton
2. 10 Inner Cartons/1 Outside Carton

Notes

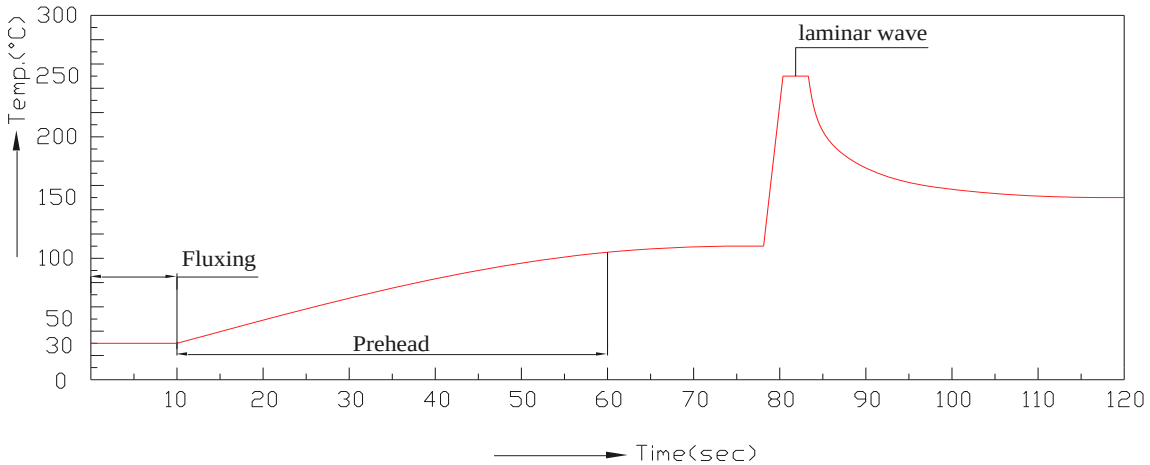
1. Lead Forming
   - During lead formation, the leads should be bent at a point at least 3mm from the base of the epoxy bulb.
   - Lead forming should be done before soldering.
   - Avoid stressing the LED package during leads forming. The stress to the base may damage the LED's characteristics or it may break the LEDs.
   - Cut the LED leadframes at room temperature. Cutting the leadframes at high temperatures may cause failure of the LEDs.
   - When mounting the LEDs onto a PCB, the PCB holes must be aligned exactly with the lead position of the LED. If the LEDs are mounted with stress at the leads, it causes deterioration of the epoxy resin and this will degrade the LEDs.

2. Storage
   - The LEDs should be stored at 30°C or less and 70%RH or less after being shipped from Everlight Americas 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.
   - Please avoid rapid transitions in ambient temperature, especially, in high humidity environments where condensation can occur.

3. Soldering
   - Careful attention should be paid during soldering. When soldering, leave more then 3mm from solder joint to epoxy bulb, and soldering beyond the base of the tie bar is recommended.
   - Recommended soldering conditions:

Hand Soldering		DIP Soldering	
Temp. at tip of iron	300℃ Max. (30W Max.)	Preheat temp.	100℃ Max. (60 sec Max.)
Soldering time	3 sec Max.	Bath temp. & time	260 Max., 5 sec Max
Distance	3mm Min.(From solder joint to epoxy bulb)	Distance	3mm Min. (From solder joint to epoxy bulb)

Recommended soldering profile



   - Avoiding applying any stress to the lead frame while the LEDs are at high temperature particularly when soldering.

- Dip and hand soldering should not be done more than one time
- After soldering the LEDs, the epoxy bulb should be protected from mechanical shock or vibration until the LEDs return to room temperature.
- A rapid-rate process is not recommended for cooling the LEDs down from the peak temperature.
- Although the recommended soldering conditions are specified in the above table, dip or handsoldering at the lowest possible temperature is desirable for the LEDs.
- Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.

4. Cleaning
   - When necessary, cleaning should occur only with isopropyl alcohol at room temperature for a duration of no more than one minute. Dry at room temperature before use.
   - Do not clean the LEDs by the ultrasonic. When it is absolutely necessary, the influence of ultrasonic cleaning on the LEDs depends on factors such as ultrasonic power and the assembled condition. Ultrasonic cleaning shall be pre-qualified to ensure this will not cause damage to the LED

5. Heat Management
   - Heat management of LEDs must be taken into consideration during the design stage of LED application. The current should be de-rated appropriately by referring to the de-rating curve found in each product specification.
   - The temperature surrounding the LED in the application should be controlled. Please refer to the data sheet de-rating curve.

6. ESD (Electrostatic Discharge)
   - The products are sensitive to static electricity or surge voltage. ESD can damage a die and its reliability. When handling the products, the following measures against electrostatic discharge are strongly recommended:
     Eliminating the charge
     Grounded wrist strap, ESD footwear, clothes, and floors
     Grounded workstation equipment and tools
     ESD table/shelf mat made of conductive materials
   - Proper grounding is required for all devices, equipment, and machinery used in product assembly. Surge protection should be considered when designing of commercial products.
   - If tools or equipment contain insulating materials such as glass or plastic, the following measures against electrostatic discharge are strongly recommended:
     Dissipating static charge with conductive materials
     Preventing charge generation with moisture
     Neutralizing the charge with ionizers

DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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