

DATA SHEET

PART NO. : **EW-5050-RGB**

DATE :

DEPARTMENT : **C/3**

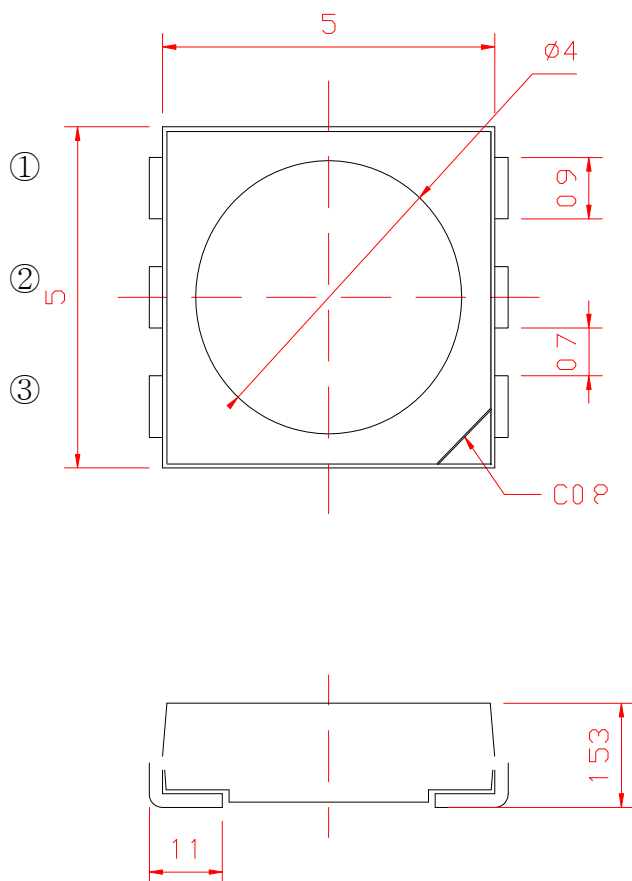
REVISION :

RECEIVED			
<input checked="" type="checkbox"/> MASS PRODUCTION			
<input type="checkbox"/> PRELIMINARY			
<input type="checkbox"/> CUSTOMER DESIGN			
DEVICE NUMBER :			
PAGE :			
EW	APPROVER	CHECKER	DESIGNER
CUSTOMER	R&D	QA	MP

CUSTOMER OPINION

Description :TOP LED

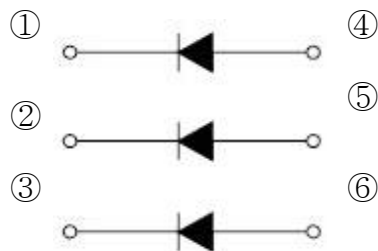
Package Dimensions



④ Green

⑤ Red

⑥ Blue



Lens	Material	Emitting Color
Water Clear	AlGaInP/Si	Red
	InGaN/Sapphire	Green
	InGaN/Sapphire	Blue

NOTES

- 1.All dimensions are in millimeters .
- 2.Tolerance is $\pm 0.20\text{mm}$ unless otherwise noted.
- 3.Protruded resin under flange is 1.0mm max.
- 4.Lead spacing is measured where the leads emerge from the package.
- 5.Specifications are subject to change without notice.

Absolute Maximum Ratings at TA=25℃

Parameter	Maximum Rating			Unit
	Red	Green	Blue	
Power Dissipation	44	66	66	mW
Peak Forward Current (1/10 Duty Cycle,0.1ms Pulse Width)	100	100	100	mA
DC Forward Current	20	20	20	mA
Reverse Voltage	6			V
Operating Temperature Range	— 20℃ to+80℃			
Storage Temperature Range	— 40℃ to+100℃			
Lead Soldering Temperature [1.6mm(.063") From Body]	260℃ for 10 seconds			

Electrical Optical Characteristics at TA=25℃

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	I _v	Red	100		300	mcd IF=20mA
		Green	380		1100	
		Blue	100		300	
Viewing Angle	$\Theta_{1/2}$	Red		120		deg IF=20mA
		Green		120		
		Blue		120		
Peak Emission Wavelength	λ_p	Red		630		nm IF=20mA
		Green		520		
		Blue		466		
Dominant Wavelength	λ_d	Red		621		nm IF=20mA
		Green		521		
		Blue		461		
Spectral Line Half-Width	$\Delta \lambda$	Red		20		nm IF=20mA
		Green		30		
		Blue		20		
Forward Voltage	V _F	Red	2		2.4	V IF=20mA
		Green	2.9		3.8	
		Blue	2.9		3.8	
Reverse Current	I _R	Red			10	μA V _R =6V
		Green			10	
		Blue			10	

Note: 1. Luminous intensity is measured with a light sensor and filter combination that approximates CIE (Commission International Dd L Eclairage) eye-response curve.

2. $\Theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3. The dominant wavelength, λ_d is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.
4. The I_v guarantee should be added $\pm 15\%$.

Typical Electrical / Optical Characteristics Curves (25°C Ambient Temperature Unless Otherwise Noted)

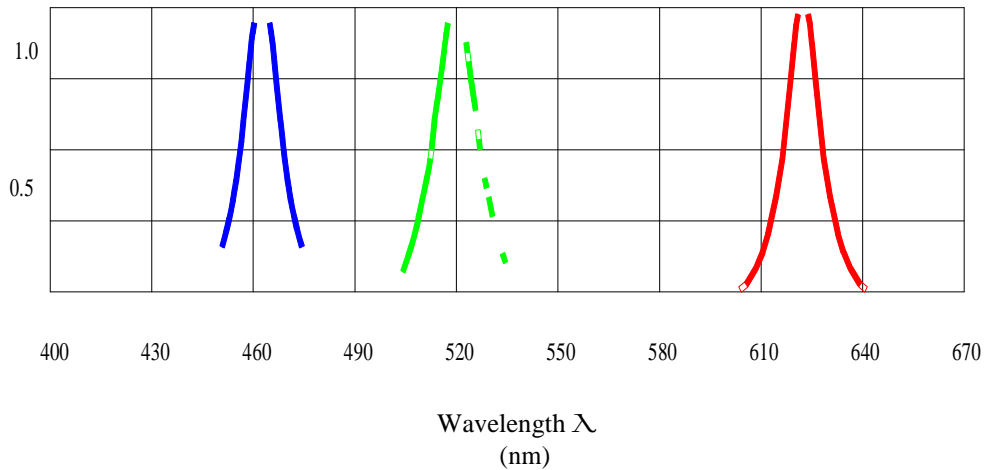


Fig. 1 Relative Intensity vs. Wavelength

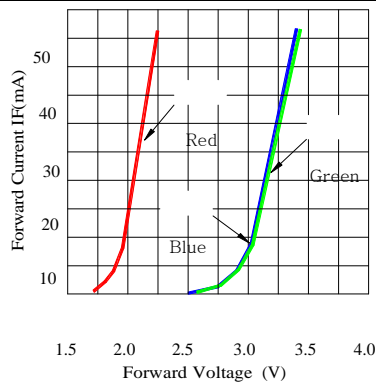


Fig.2 Forward Current vs. Forward Voltage

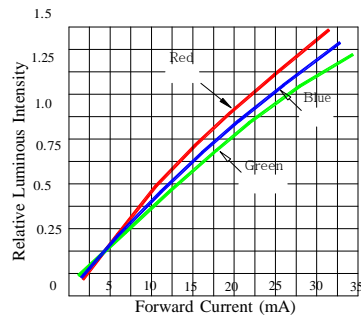


Fig.3 Relative Luminous Intensity vs. Forward Current

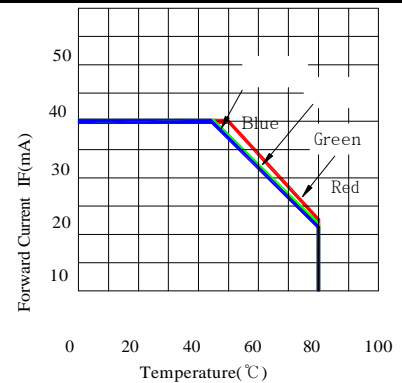


Fig.4 Forward Current Derating Curve

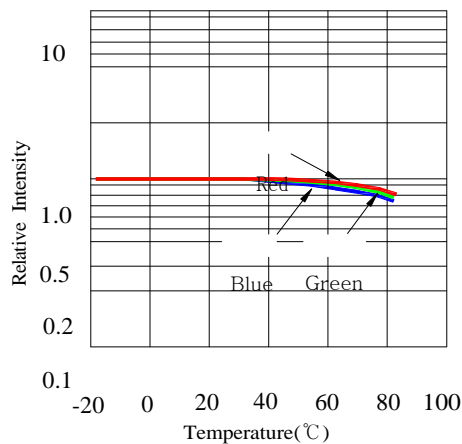
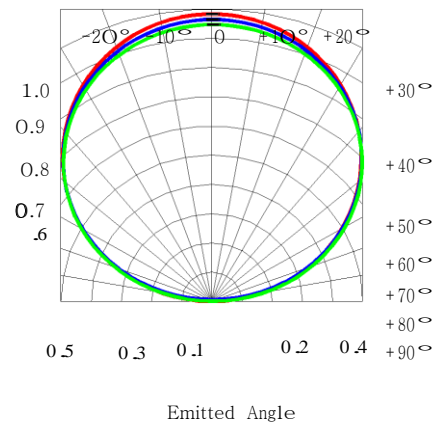


Fig.5 Luminous Intensity vs Ambient Temperature



CAUTIONS**1.Application**

The LEDs described here are intended to be used for ordinary electronic equipment (such as office equipment, communication equipment and household applications). Consult MLS's Sales in advance for information on applications in which exceptional reliability is required, particularly when the failure or malfunction of the LEDs may directly jeopardize life or health (such as in aviation, transportation, traffic control equipment, medical and life support systems and safety devices).

2.Storage

The storage ambient for the LEDs should not exceed 30°C temperature or 60% relative humidity. It is recommended that LEDs out of their original packaging are used within three months. For extended storage out of their original packaging, it is recommended that the LEDs be stored in a sealed container with appropriate desiccant or in desiccators with nitrogen ambient.

3. Cleaning

Use alcohol-based cleaning solvent such as isopropyl alcohol to clean the LEDs if necessary.

4.Lead Forming & Assembly

Do not use the base of the lead frame as a fulcrum during forming.

Lead forming must be done before soldering, at normal temperature.

During assembly on PCB, use minimum clinch force possible to avoid excessive mechanical stress.

5.Soldering

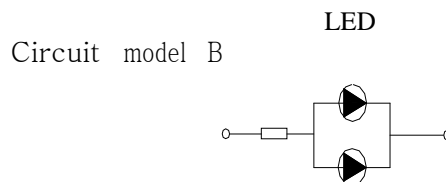
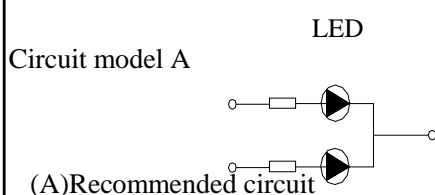
Do not apply any external stress to the lead frame during soldering while the LED is at high temperature. Recommend soldering conditions:

Soldering iron		Wave soldering	
Temperature	300°C Max	Pre-heat	180°C Max
Soldering time	3 sec. Max (one time only)	Pre-heat time	120 sec. Max
		Solder wave	260°C Max
		Soldering time	10 sec. Max

Note: Excessive soldering temperature and/or time might result in deformation of the LED lens or catastrophic failure of the LED.

6.Drive Method

An LED is a current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit, in series with each LED as shown in Circuit A below.



(B) The brightness of each LED might appear different due to the differences in the I-V characteristics of those LEDs.

7.Protect Of ESD

Since the device is static sensitive, it is requested that anti-static measures should be taken on human body, all devices (including soldering iron) and equipment, machinery, desk and ground.

MLS Co.,Ltd

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8.Reliability Test

Classification	Test Item	Ta=Under Room Temperature As	Sample Size	Ac/Re
Endurance Test	Operation Life	Per Data Sheet Maximum Rating *Test Time=1000HRS(-24HRS,+72HRS)	22PCS	0/1
	High Temperature Storage	Ta=100±5℃ *Test Time=1000HRS(-24HRS,+72HRS)	22PCS	0/1
	Low Temperature Storage	Ta=-40±5℃ *Test Time=1000HRS(-24HRS,+72HRS)	22PCS	0/1
Environmental Test	Temperature Cycling	85℃ ~ 25℃ ~ -40℃ ~ 25℃ 30mins 5mins 30mins 5mins 10Cycles	22PCS	0/1
	Thermal Shock	85℃ ±5℃ ~ -40℃ ±5℃ 10mins 10mins 10Cycles	22PCS	0/1
	Solder	T.sol=260±10℃ Dwell Time=10±1secs	22PCS	0/1

9.Others

The appearance and specifications of the product may be modified for improvement,without prior notice.