Luckylight

1W High Power Full Color LED

Technical Data Sheet

Part No.: HP60MRGB-007

Features:

- ◇ Silicon Encapsulation.
- ◇ Very long operating life (up to 100k hours).
- ◇ Three chips (color) in one package.
- ◇ Independent control of each color.
- ◇ Designed for high current operation.
- ◇ Low voltage operated.
- ◇ Super high Flux output and high Luminance.
- ◇ Low thermal resistance (junction to case): 10°C/W.
- ◇ Compatible Lead-Free Reflow Solder.
- ◇ The product itself will remain within RoHS compliant Version.

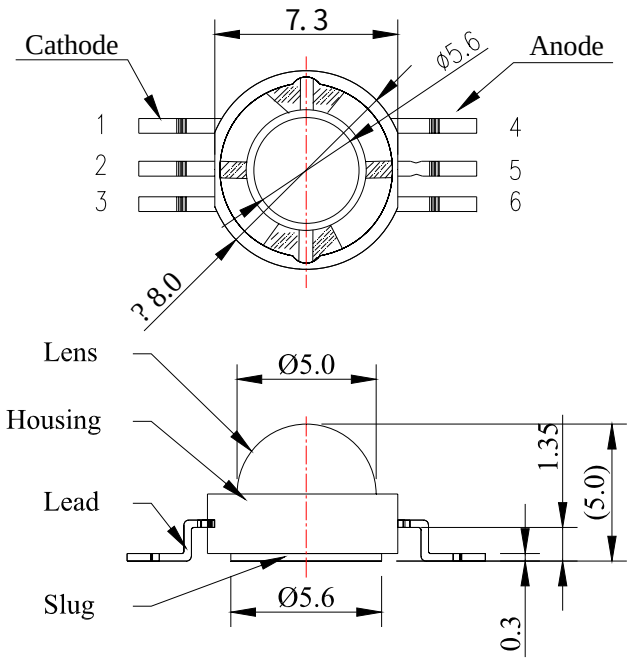
Descriptions:

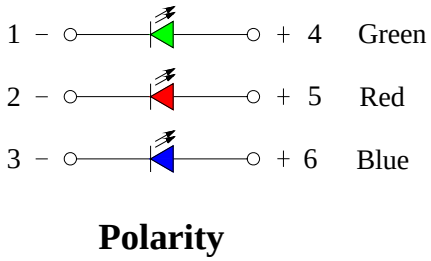
- ◇ The HP60MRGB is one of the highest flux LEDs in the world. It is designed to satisfy applications of Solid-State lighting. It is designed to have three chips in one package. It has various colors for choice and can be independently controlled. More important, it can be pass reflow process.

Applications:

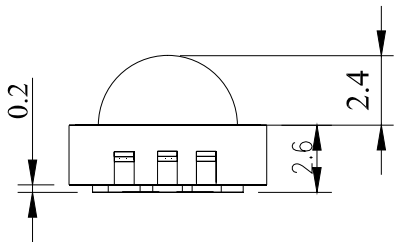
- ◇ LCD backlights.
- ◇ General lighting.
- ◇ Garden lighting.
- ◇ Decoration lights.
- ◇ Contour lights.
- ◇ Ceiling lights.
- ◇ Architectural lighting.
- ◇ Beacon lights.
- ◇ Household appliances.
- ◇ Portable flashlight.

Mechanical Dimensions:





Polarity



Part No.	Chip Material		Lens Color	Source Color
HP60MRGB-007	R	AlGaInP	Water Clear	Hyper Red
	G	InGaN		Pure Green
	B	InGaN		Blue

Notes:

1. All dimensions are in millimeters.
2. Tolerance is ± 0.25mm (.010”) unless otherwise noted.
3. Specifications are subject to change without notice.

Absolute Maximum Ratings at Ta=25°C

Parameters	Symbol		MAX	Unit
Power Dissipation	PD	Hyper Red	1050	mW
		Pure Green	1400	
		Blue	1400	
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	IFP	Hyper Red	500	mA
		Pure Green	500	
		Blue	500	
Continuous Forward Current	IF	Hyper Red	350	mA
		Pure Green	350	
		Blue	350	
Reverse Voltage	VR		5	V
Electrostatic Discharge (HBM)	ESD	Hyper Red	2000	V
		Pure Green	800	
		Blue	800	
Operating Temperature Range	Topr		-40°C to +85°C	
Storage Temperature Range	Tstg		-40°C to +100°C	
Soldering Temperature	Tsld		260°C for 5 Seconds	

Electrical Optical Characteristics at Ta=25℃

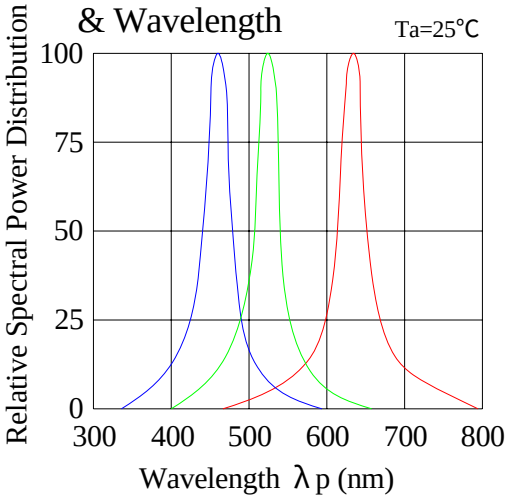
Parameters	Symbol	Emitting Color	Min.	Typ.	Max.	Unit	Test Condition
Luminous Flux	Φv	Hyper Red	30	45	---	lm	IF=350mA (Note 1)
		Pure Green	60	80	---		
		Blue	15	25	---		
Viewing Angle	$2\theta_{1/2}$	Hyper Red	---	135	---	Deg	IF=350mA (Note 2)
		Pure Green	---	135	---		
		Blue	---	135	---		
Peak Emission Wavelength	λp	Hyper Red	---	632	---	nm	IF=350mA (Measurement @Peak)
		Pure Green	---	520	---		
		Blue	---	468	---		
Dominant Wavelength	λd	Hyper Red	---	624	---	nm	IF=350mA (Note 3)
		pure Green	---	525	---		
		Blue	---	470	---		
Spectral Line Half-Width	△λ	Hyper Red	---	20	---	nm	IF=350mA
		Pure Green	---	35	---		
		Blue	---	25	---		
Forward Voltage	VF	Hyper Red	1.80	2.20	3.00	V	IF=350mA
		Pure Green	2.80	3.40	4.00		
		Blue	2.80	3.40	4.00		
Reverse Current	IR	Hyper Red	---	---	50	μA	V_R=5V
		Pure Green			50		
		Blue			50		

Notes:

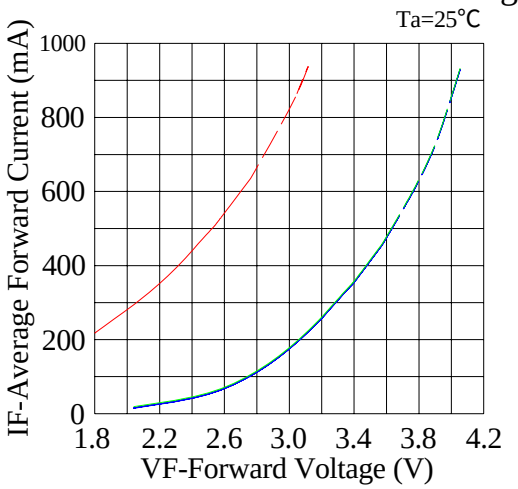
1. Luminous intensity (Flux) Measurement allowance is ± 10%.
2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3. The dominant wavelength (λd) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

Typical Electrical-Optical Characteristics Curves
(25℃ Ambient Temperature Unless Otherwise Noted)

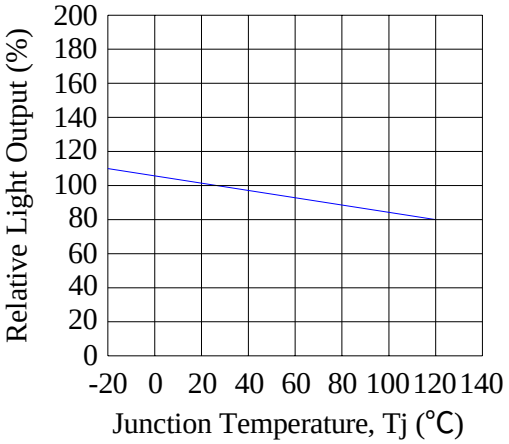
Relative Luminous Intensity & Wavelength



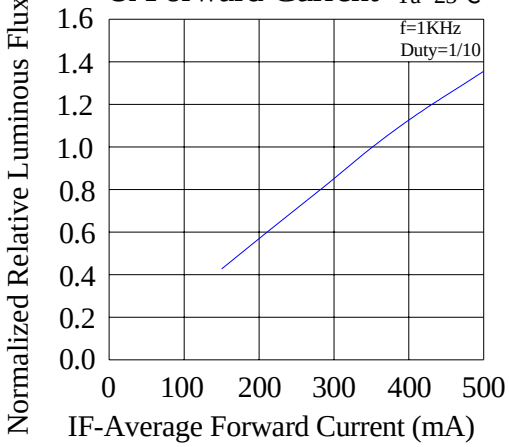
Forward Current & Forward Voltage



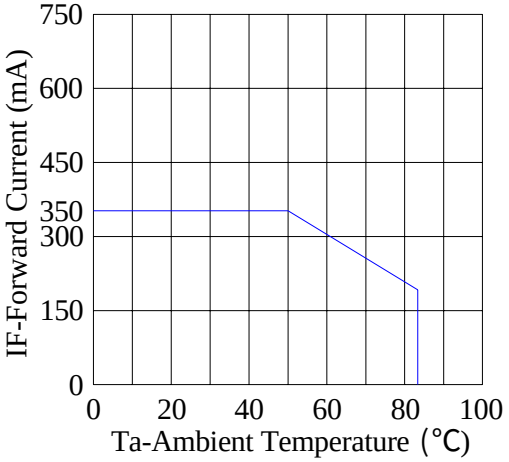
Light Output Characteristics



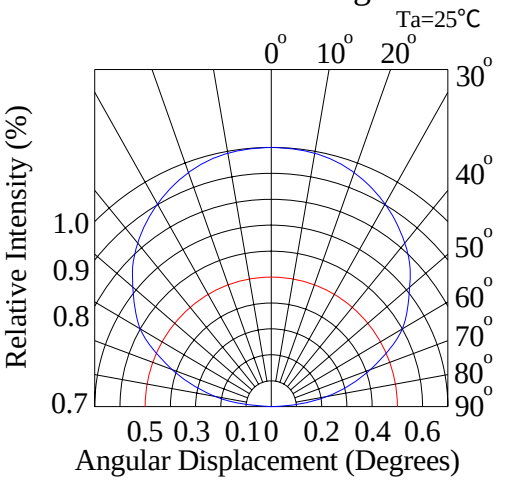
Relative Luminous Flux & Forward Current



Current Derating Curves



Radiation Diagram



Please read the following notes before using the product:

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package, the LEDs should be kept at 30℃ or less and 80%RH or less.

2.3 The LEDs should be used within a year.

2.4 After opening the package, the LEDs should be kept at 30℃ or less and 60%RH or less.

2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

2.6 If the moisture adsorbent material has fabled away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment: 60±5℃ for 24 hours.

3. Soldering Condition

When soldering, for Lamp without stopper type and must be leave a minimum of 3mm clearance from the base of the lens to the soldering point.

To avoided the Epoxy climb up on lead frame and was impact to non-soldering problem, dipping the lens into the solder must be avoided.

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

Recommended soldering conditions:

Soldering Iron		Wave Soldering	
Temperature Soldering Time	300℃ Max. 3 sec. Max. (one time only)	Pre-heat Pre-heat Time Solder Wave Soldering Time	100℃ Max. 60 sec. Max. 260℃ Max. 5 sec. Max.

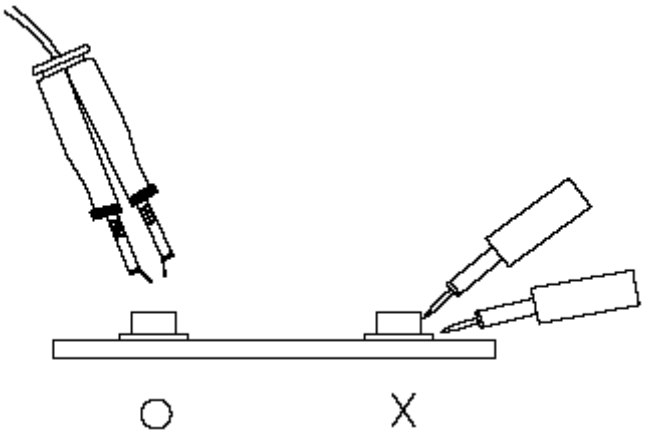
Note: Excessive soldering temperature and / or time might result in deformation of the LED lens or catastrophic failure of the LED.

4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 260℃ for 5 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. 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 beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



6. Caution in ESD

Static Electricity and surge damages the LED. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.