

L-H3RGB — DATASHEET

HIGH POWER LED — 3 W — RGB



Note: This power LED is delivered without heat sink. Take care of proper heat dissipation when using this LED.

Technical Datasheet

Features

- super high-flux output and high luminance
- very long operating life (up to 50 000 h)
- low thermal resistance
- SMT solderability.

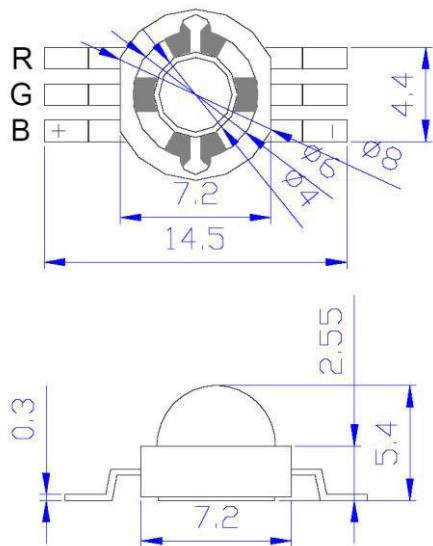
Applications

- general lighting
- indoor and outdoor architectural lighting
- decorative lighting
- portable and reading lighting
- traffic signalling.

Specification Summary

	L-H3RGB
colour	red (620–630 nm), green (520–530 nm), blue (460–470 nm)
colour temperature	—
luminous flux	red (50 lm), green (70 lm), blue (15 lm)
colour rendering index	—
viewing angle	120
thermal resistance	12 °C/W
forward current	red (400 mA), green (350 mA), blue (350 mA)
forward voltage	red (2 – 2.6 V), green (3.2 – 3.8 V), blue (3.2 – 3.8 V)
maximum junction temperature	115 °C
maximum operating temperature	60 °C

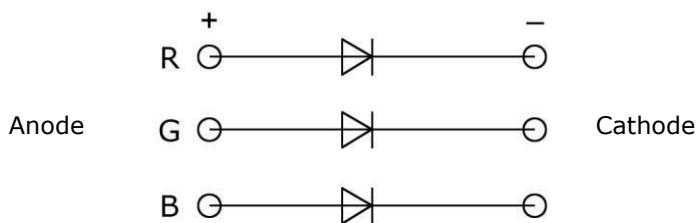
Dimensions



Notes:

- All dimensions are in millimetres (tolerance ± 0.20 mm).
- Drawings are not to scale.
- The appearance and specifications of the product may be changed for improvement without notice.

Circuit Layout



Characteristics

Electro-optical characteristics at $I_F = 350$ mA, $T_a = 25$ °C

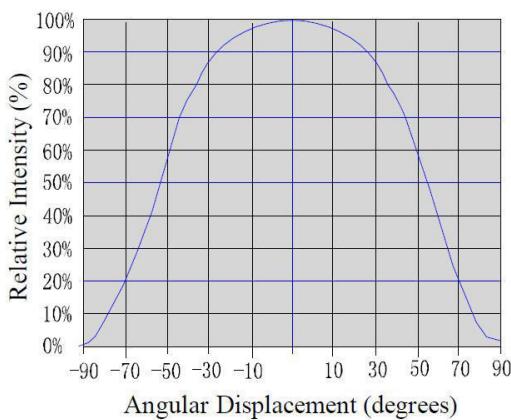
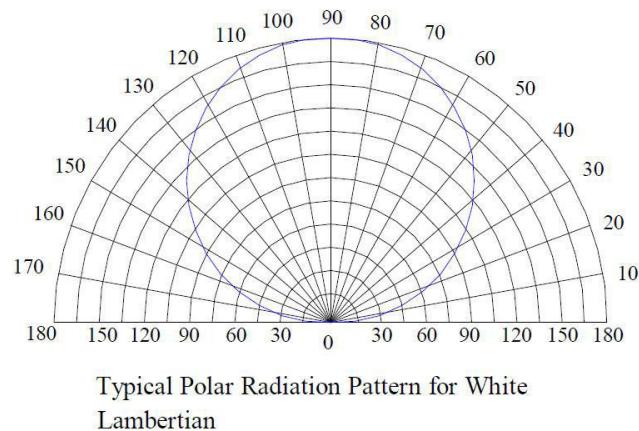
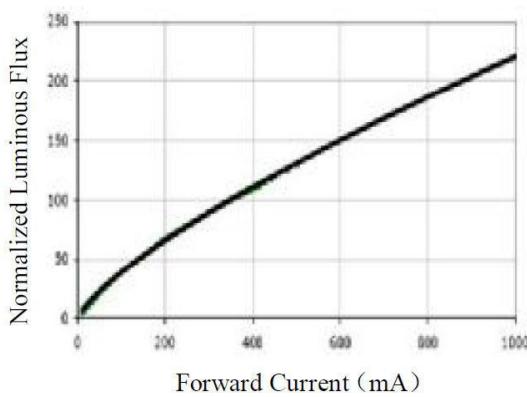
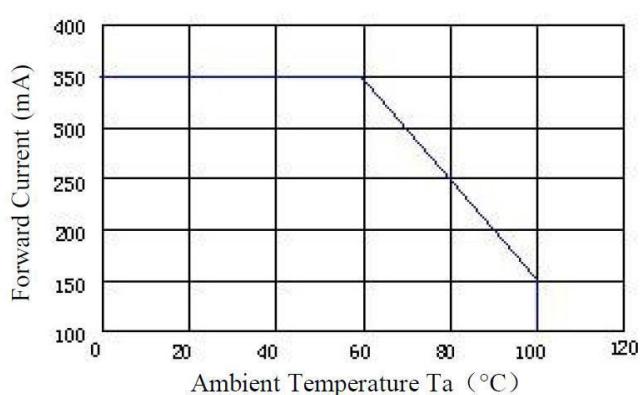
Parameter	Symbol		Min.	Typ.	Max.	Unit
Luminous flux	Φ_V	R	40	-	60	lm
		G	60	-	80	
		B	10	-	20	
Wavelength	λ_D	R	620	-	630	nm
		G	520	-	530	
		B	460	-	470	
Forward voltage	V_F	R	2.0	-	2.6	V
		G	3.2	-	3.8	
		B	3.2	-	3.8	
Power dissipation	P_D		-	3	-	W
View angle	$2\theta_{1/2}$		-	120	-	deg.
Thermal resistance	$R_{\Theta J-B}$		-	12	-	°C/W

Notes

- Tolerance of luminous flux is ± 3 %.
- Tolerance of forward voltage is ± 0.1 V.

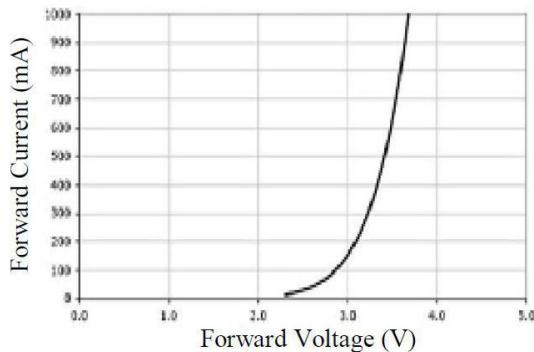
Absolute maximum ratings

Parameter	Symbol	Value	Unit
Forward current	I _F	R	400
		G	350
		B	350
Junction temperature	T _j	115	°C
Operating temperature	T _{opr}	-40 to +60	°C
Storage temperature	T _{stg}	0–60	°C
ESD sensitivity	–	± 2000 V HBM	–
Temperature coefficient of voltage	–	-5	mV/°C
DC pulse current @ 1 kHz, 10 % duty cycle	I _{FP}	1000	mA
Reverse voltage	V _R	Not designed for reverse operation	

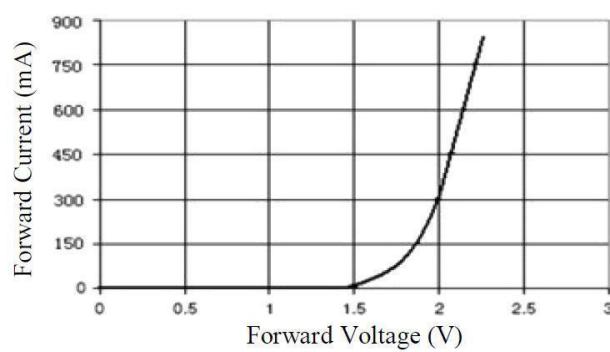
Typical Characteristic Curves**1.** Typical Light Distribution Curve**2.** Typical Light-Emitting Angle Radiation Pattern**3.** Forward Current vs. Relative Luminous Flux Curve**4.** Forward Current Derating Curve
Derating based on T_{imax} = 125 °C

5. Electrical Characteristics Curve ($T_j = 25^\circ\text{C}$)

5.1 White, Royal Blue, Blue, Green

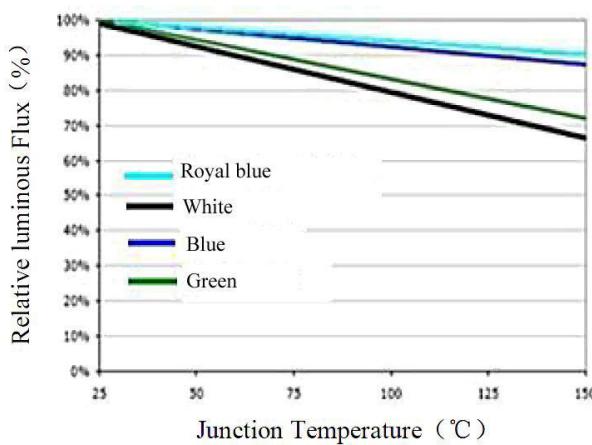


5.2 Amber, Red

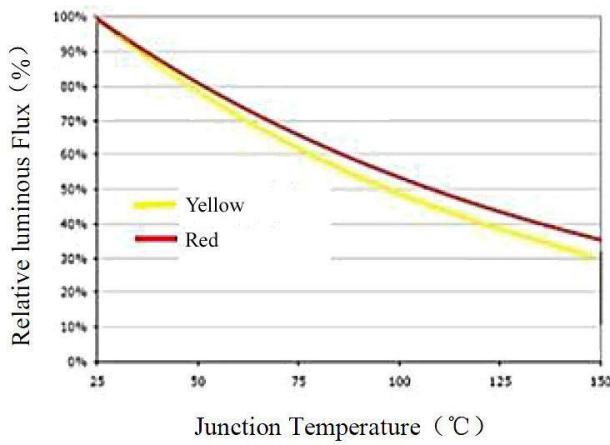


6. Relative Flux vs. Junction Temperature

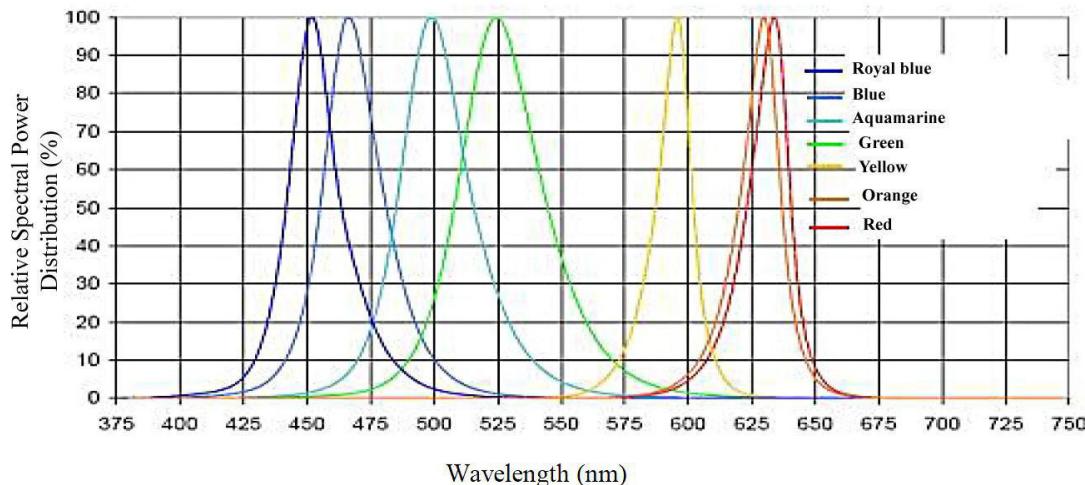
6.1 White, Royal Blue, Blue, Green ($I_f = 350 \text{ mA}$)



6.2 Amber, Red ($I_f = 400 \text{ mA}$)



7. Relative Spectral Power Distribution



Soldering Condition

Reflow soldering			Manual welding	
	High temperature PC lens	Moulding products	Temperature	Soldering time
Preheat	100–140 °C	180–200 °C	Highest 350 °C	3 s once
Heat-up time	120 s max.	120 s max.		
Peak temperature	180 °C max.	260 °C max.		
Soldering time	50 s max.	10 s max.		

Note: Conventional PC lens products do not use reflow soldering.