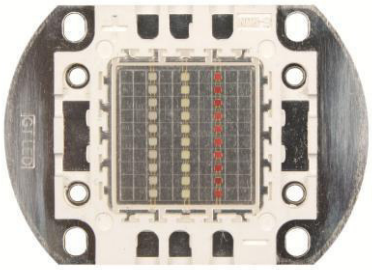
L-H30RGB — DATASHEET

HIGH POWER LED – 30 W – RGB



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

Technical Datasheet

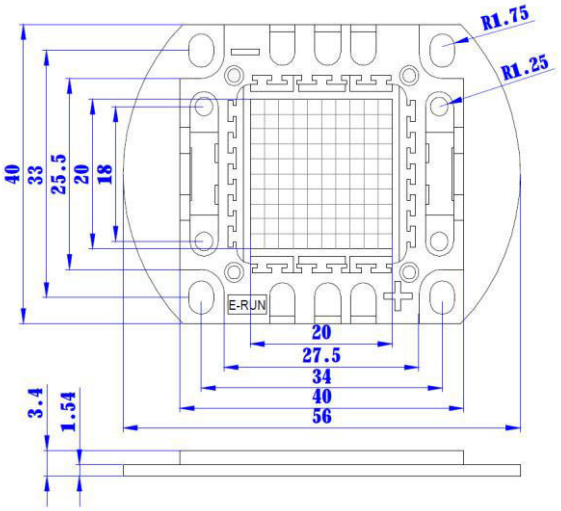
Applications

- general lighting
- architectural lighting
- decorative lighting
- landscape lighting
- traffic signalling.

Specification Summary

	L-H30RGB
colour	red (620–630 nm), green (520–530 nm), blue (460–470 nm)
colour temperature	–
luminous flux	red (450 lm), green (650 lm), blue (150 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 (20–25 V), green (30–36 V), blue (30–36 V)
maximum junction temperature	120 °C
maximum operating temperature	60 °C

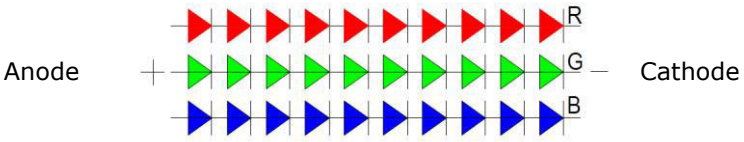
Dimensions



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 T_a = 25 °C

Parameter	Symbol		Min.	Typ.	Max.	Unit
Luminous flux	Φ_V	R	400	–	500	lm
		G	600	–	700	
		B	100	–	200	
Wavelength	λ_D	R	620	–	630	nm
		G	520	–	530	
		B	460	–	470	
Forward voltage	V_F	R	20	–	25	V
		G	30	–	36	
		B	30	–	36	
Power dissipation	P_D		–	30	–	W
View angle	2θ½		–	120	–	deg.
Thermal resistance	$R_{\theta J-B}$		–	12	–	°C/W

Notes

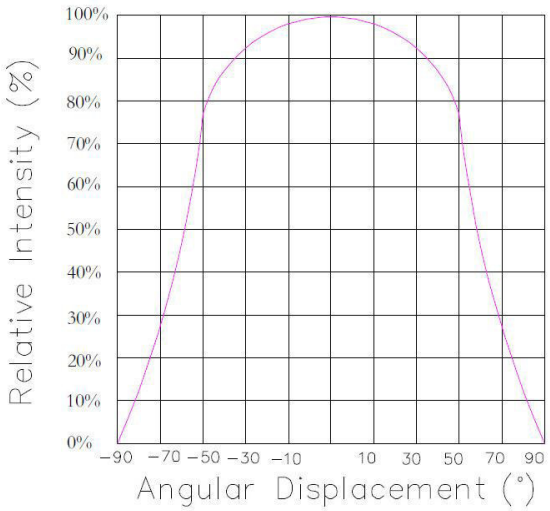
- Tolerance of luminous flux is ± 3 %.
- Tolerance of forward voltage is ± 0.1 V.

Absolute maximum ratings

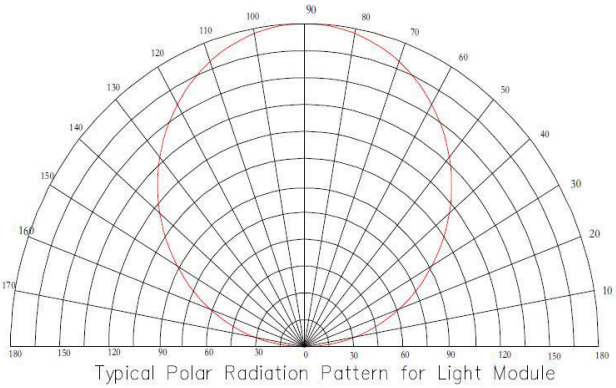
Parameter	Symbol		Value	Unit
Forward current	I_F	R	400	mA
		G	350	
		B	350	
Junction temperature	T_j		115	°C
Operating temperature	T_{opr}		-40 to +60	°C
Storage temperature	T_{stg}		0–60	°C
ESD sensitivity	–		± 2000 V HBM	–
Reverse voltage	V_R		Not designed for reverse operation	

Typical Characteristic Curves

1. Typical Light Distribution Curve

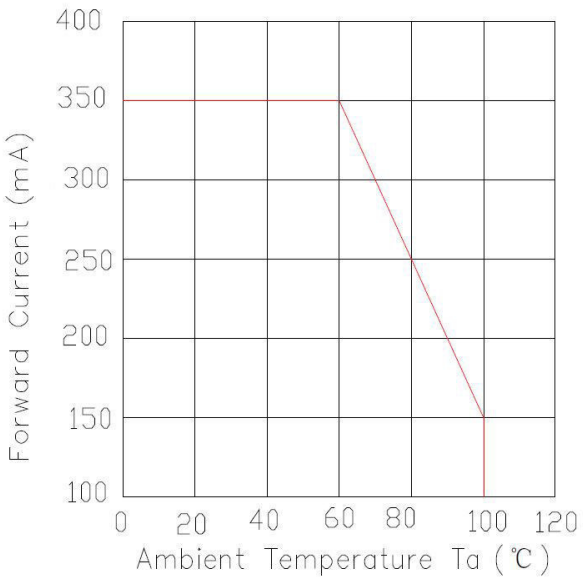


2. Typical Light-Emitting Angle Radiation Pattern

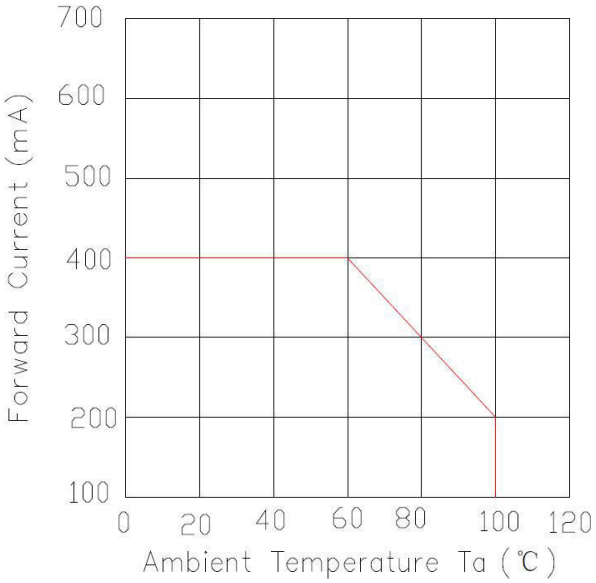


3. Forward Current Derating Curve Derating based on T_{imax} = 115 °C

3.1 White, Royal Blue, Blue, Green

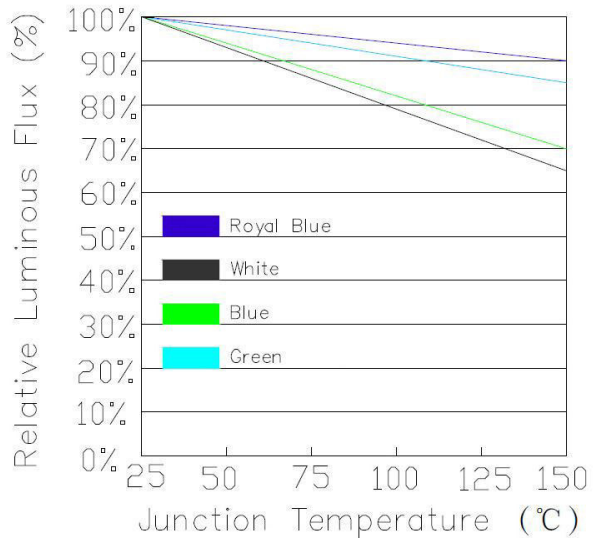


3.2 Amber, Red

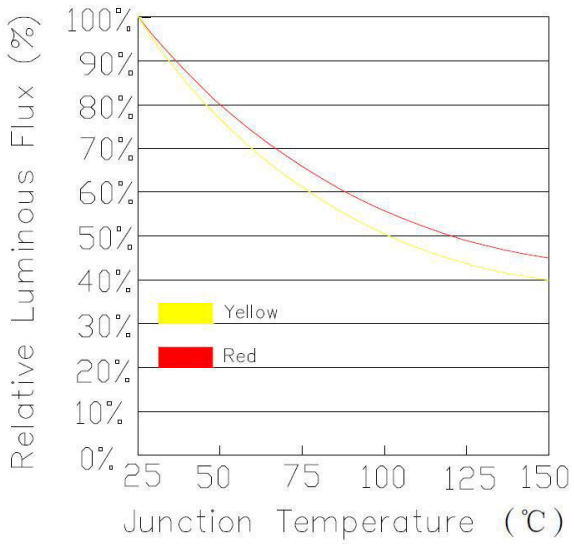


4. Relative Flux vs. Junction Temperature

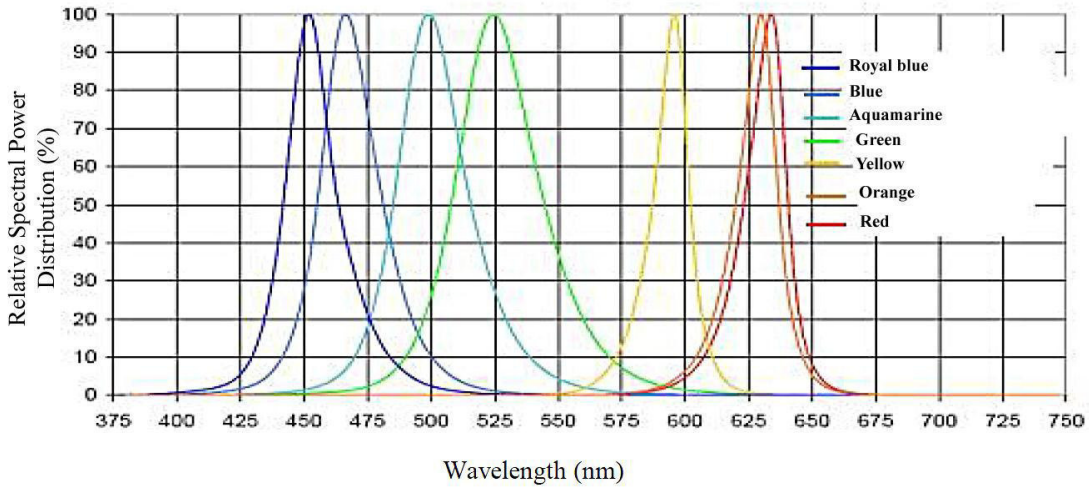
4.1 White, Royal Blue, Blue, Green



4.2 Amber, Red



5. Relative Spectral Power Distribution



Reliability Test Items and Conditions

Test items	Test condition	Test hours / cycles	Sample size	Ac/Re
DC ageing	T_a = 25 °C I_F = normal	1000 h	22	0/1
Hot and cold shock	-40 °C, 30 min +100 °C, 30 min	100 cycles	22	0/1
High temperature storage	T_a = 100 °C	1000 h	22	0/1
High temperature high humidity	85 °C, 85 % RH	1000 h	22	0/1
Low temperature storage	T_a = -40 °C	1000 h	22	0/1
ESD (HBM)	2000 V HBM	1 time	10	0/1

Criteria for Judging Damage

Items	Symbol	Test condition	Criteria for judging damage
Forward voltage	V_F	I_F = normal	Initial data ± 10 %
Reverse current	I_R	V_R = 50 V	I_R ≤ 30 µA
Luminous flux	Φ_V	I_F = normal	Average Φ_V degradation ≤ 30 % Single LED Φ_V degradation ≤ 50 %

Soldering Condition

Only by manual welding.

Temperature	Soldering time
Highest 350 °C	3 s once

Note: Module holder products do not use reflow soldering.