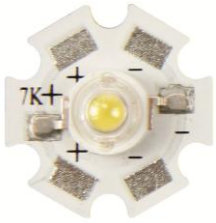


L-H3CW / L-H3WW – DATASHEET

CW: HIGH POWER LED – 3 W – COLD WHITE – 230 LM

WW: HIGH POWER LED – 3 W – WARM WHITE – 210 LM



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

Technical Datasheet

Features

- high-power LED driver: LET13, LET04, LET07D, K8071 or VM143/3W
- super high-flux output and high luminance
- very long operating life (up to 50 000 h)
- low thermal resistance
- SMT solderability.

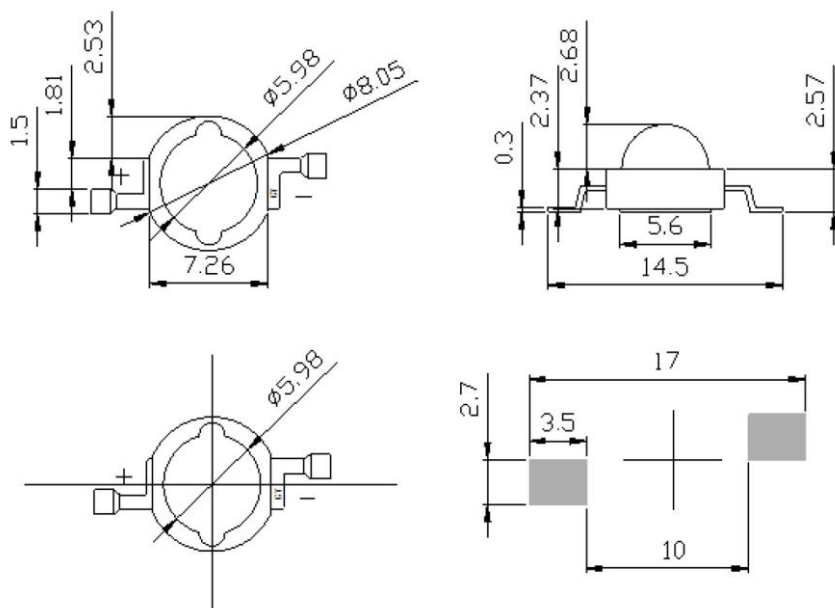
Applications

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

Specification Summary

	L-H3CW	L-H3WW
colour	cold white	warm white
colour temperature	5500–6000 K	2900–3200 K
luminous flux	230 lm	210 lm
colour rendering index	> 80	
viewing angle	120°	
thermal resistance	12 °C/W	
forward current	750 mA	
forward voltage	3.5 – 4.5 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 $I_F = 750$ mA, $T_a = 25$ °C

Parameter	Symbol		Min.	Typ.	Max.	Unit
Luminous flux	Φ_v	CW	220	-	240	lm
		WW	200	-	220	
Correlated colour temperature	CCT	CW	5500	-	6000	K
		WW	2900	-	3200	
CRI	R_a		-	80	-	-
Forward voltage	V_F		3.5	-	4.5	V
Power dissipation	P_D		2.63	-	3.38	W
View angle	$2\theta_{1/2}$		-	120	-	deg.
Thermal resistance	$R_{\theta J-B}$		-	12	-	°C/W

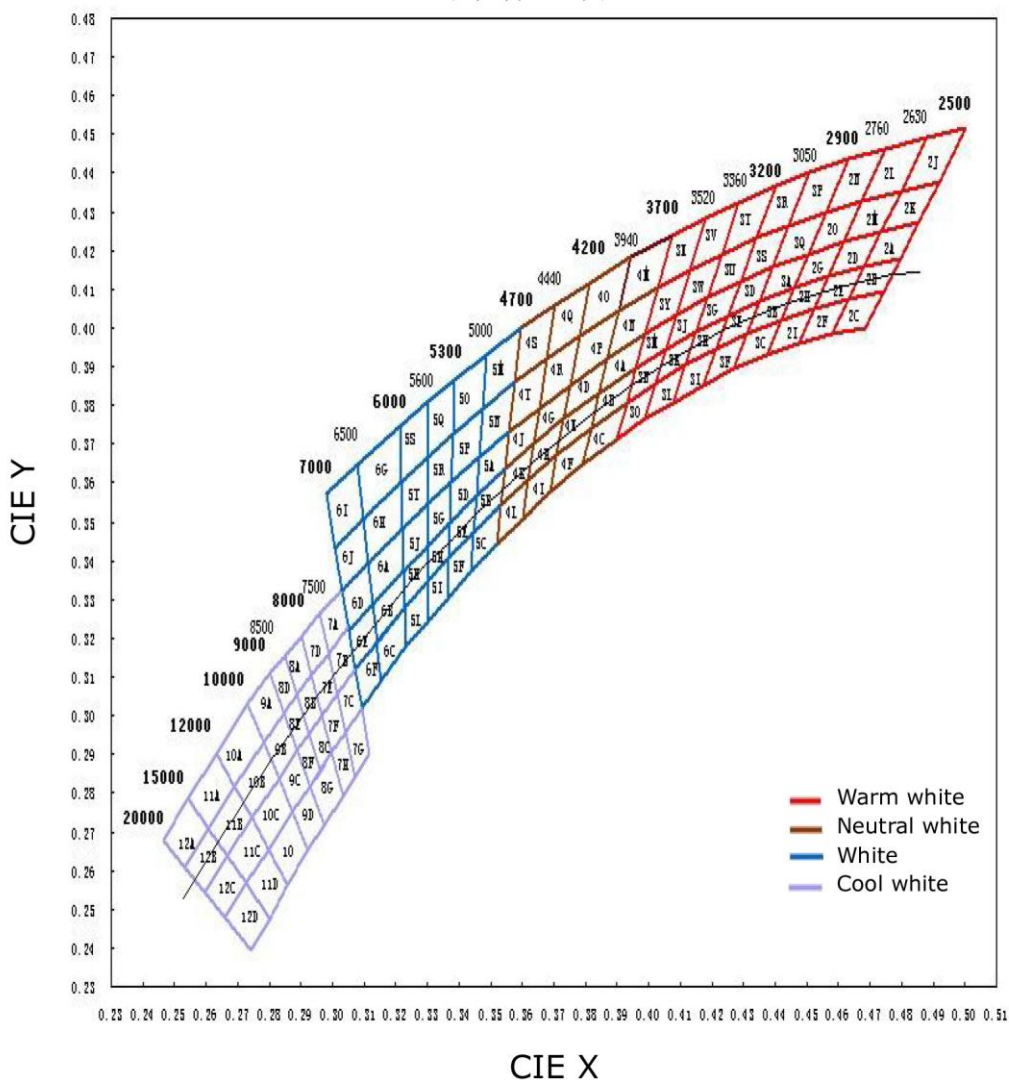
Notes

- 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	750	mA
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	

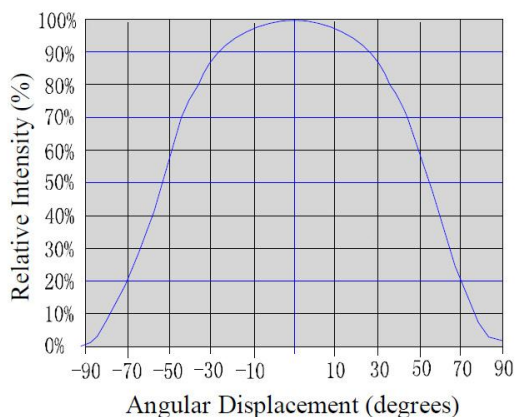
White Binning



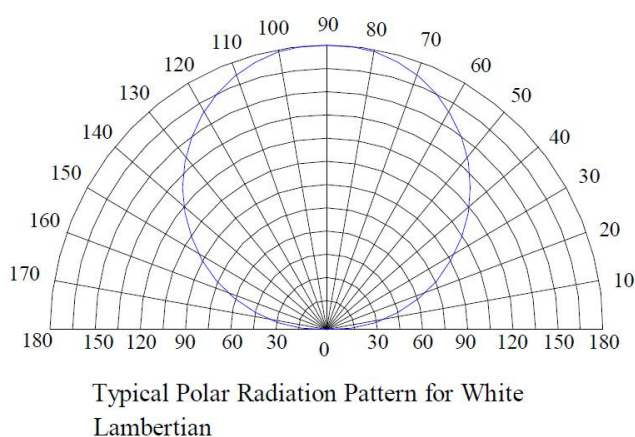
Note: The black line represents the black body locus in the CIE 1931 graph.

Typical Characteristic Curves

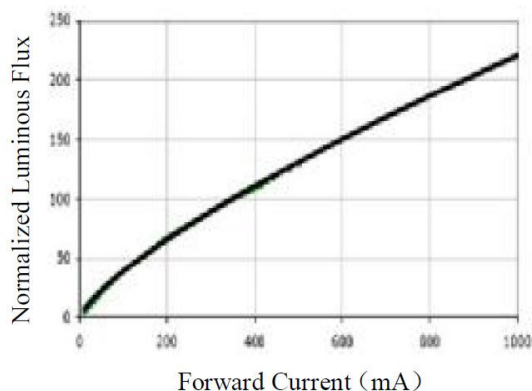
1. Typical Light Distribution Curve



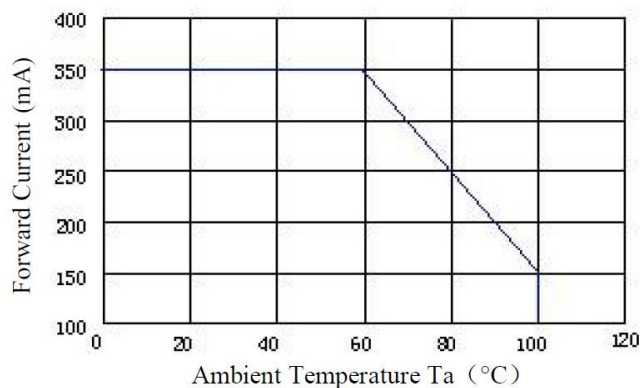
2. Typical Light-Emitting Angle Radiation Pattern



3. Forward Current vs. Relative Luminous Flux Curve

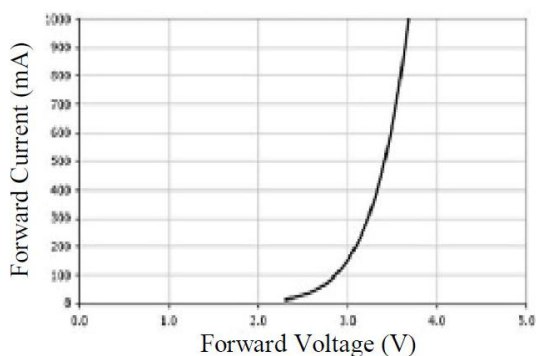


4. Forward Current Derating Curve Derating based on $T_{imax} = 125\text{ }^{\circ}\text{C}$

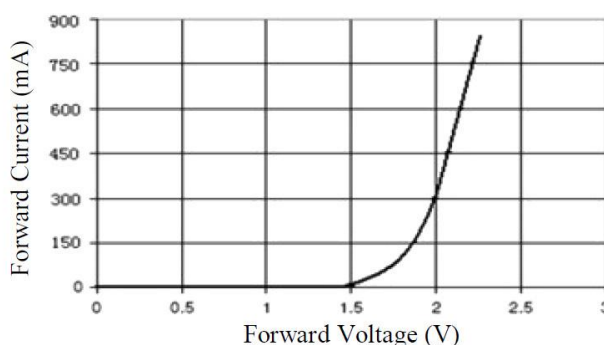


5. Electrical Characteristics Curve ($T_j = 25\text{ }^{\circ}\text{C}$)

5.1 White, Royal Blue, Blue, Green

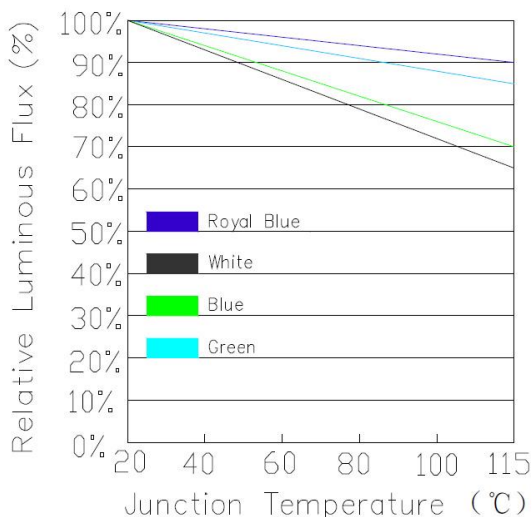


5.2 Amber, Red

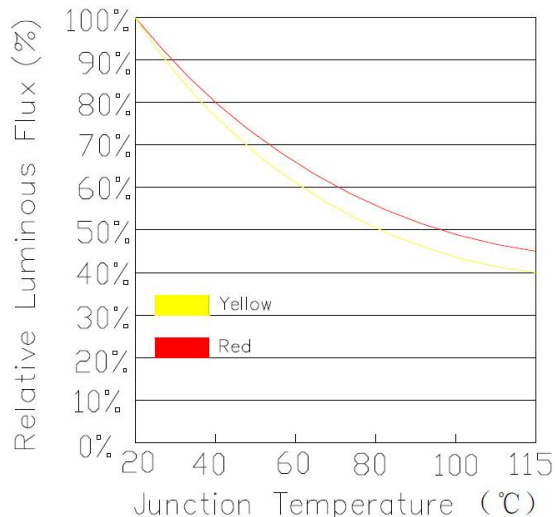


6. Relative Flux vs. Junction Temperature

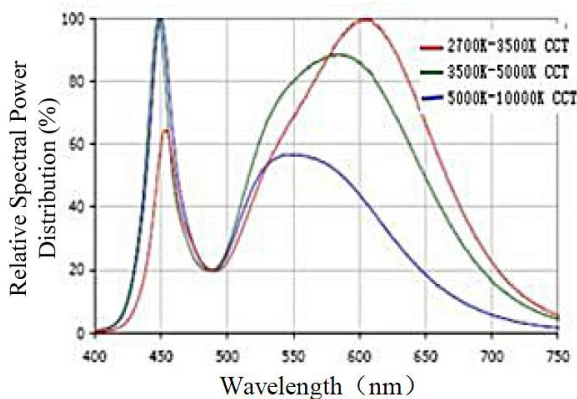
6.1 White, Royal Blue, Blue, Green ($I_f = 350 \text{ mA}$)



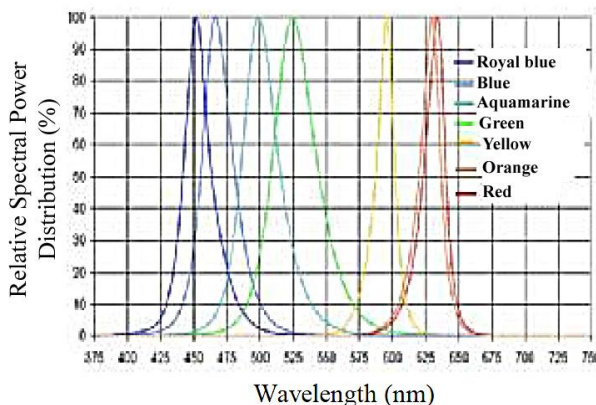
6.2 Amber, Red ($I_f = 400 \text{ mA}$)



7. Typical White Spectral Distribution

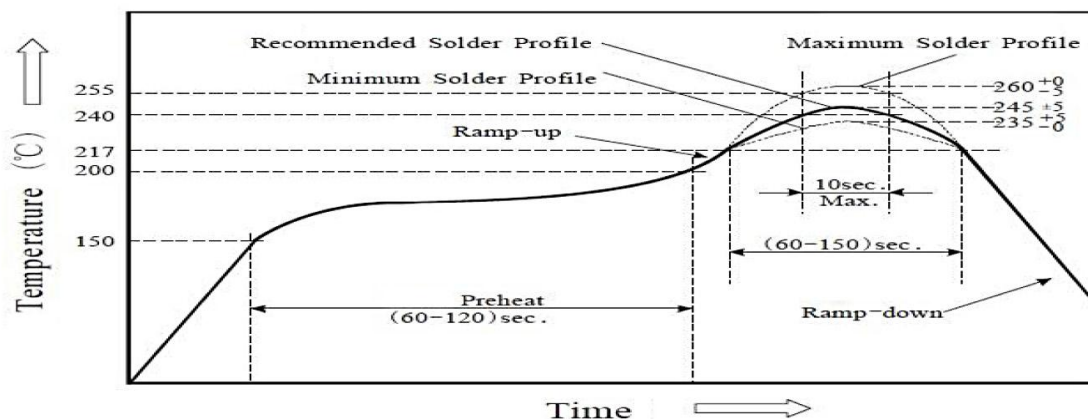


8. Relative Spectral Power Distribution



9. Reflow Temperature Time Curve

Reflow Soldering Profile — Lead-Free Solder



Reliability Test Items and Conditions

Test items	Test condition	Test hours / cycles	Sample size	Ac/Re
DC ageing	$T_a = 25\text{ °C}$ $I_F = 750\text{ mA}$	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	$T_a = 100\text{ °C}$	1000 h	22	0/1
High temperature high humidity	85 °C, 85 % RH	1000 h	22	0/1
Low temperature storage	$T_a = -40\text{ °C}$	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	$I_F = 750\text{ mA}$	Initial data $\pm 10\%$
Reverse current	I_R	$V_R = 5\text{ V}$	$I_R \leq 10\text{ }\mu\text{A}$
Luminous flux	Φ_V	$I_F = 750\text{ mA}$	Average Φ_V degradation $\leq 20\%$ Single LED Φ_V degradation $\leq 30\%$

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.